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Review

APPENDICES ONLY

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The determinants of screening uptake and interventions for increasing uptake: a systematic review

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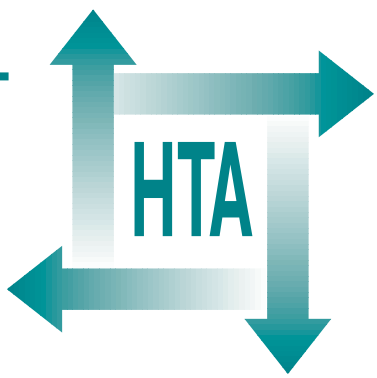

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Appendix 1

Literature search strategy

The databases used were:

- MEDLINE
- Science Citation Index
- Social Science Citation Index
- EMBASE
- CINAHL
- Conference Papers Index
- Dissertation Abstracts
- ERIC (Educational Resources Information Center)
- HealthSTAR
- Pascal
- PsycINFO
- CANCERLIT
- DHSS-Data
- ASSIA (Applied Social Science Index and Abstracts)
- CAB-Health
- Sociofile
- The Cochrane Library (including DARE)

The search strategies (including MeSH terms) used for identification of studies from the electronic databases are given below.

MEDLINE: 1966–October 1998 (OVID)

1. exp mass screening/
2. exp prenatal diagnosis/
3. vaginal smears/
4. mammography/
5. sigmoidoscopy/
6. colonoscopy/
7. occult blood/
8. prostate-specific antigen/
9. precancerous conditions/
10. hereditary diseases/
11. population surveillance/
12. primary prevention/
13. exp metabolism, inborn errors/di [diagnosis]
14. or/1–13
15. screening.tw.
16. primary prevention.tw.
17. testing program$.tw.
18. (preventative health$ or preventive health$).tw.
19. preneoplas$.tw.
20. amniocentesis.tw.
21. (prostate-specific antigen$ or PSA).tw.
22. mammogra$.tw.
23. breast self examination$.tw.
24. vagina$ smear$.tw.
25. pap test$.tw.
26. (papanicolaou adj2 (smear or test$)).tw.
27. (cervical adj2 (smear or screen$)).tw.
28. cytology.tw.
29. hereditary disease$.tw.
30. sigmoidoscopy.tw.
31. colonoscopy.tw.
32. occult blood.tw.
33. secondary prevention.tw.
34. (dental adj (test$ or checkup$)).tw.
35. (eye$ adj (test$ or care)).tw.
36. (retinopathy adj2 (screen$ or test$)).tw.
37. pre-symptomatic.tw.
38. diagnostic test$.tw.
39. (rubella adj (test$ or screen$)).tw.
40. mantoux.tw.
41. guthrie.tw.
42. phenylketonuria.tw.
43. (amino acid and (screen$ or test$)).tw.
44. (hiv and (screen$ or test$)).tw.
45. exp metabolism, inborn errors/di [diagnosis]
46. inborn errors of metabolism.tw.
47. (cystic fibrosis and screen$ or test$)).tw.
48. congenital hypothyroidism.tw.
49. pap smear.tw.
50. or/15–49
51. 14 or 50
52. exp patient acceptance of health care/
53. patient dropouts/
54. physician-patient relations/
55. knowledge, attitudes, practice/
56. persuasive communication/
57. patient education/
58. health promotion/
59. or/52–58
60. ((uptake or attend$ or accept$ or adher$ or particip$) adj5 (screen$ or test$)).tw.
61. ((compliance or complie$ or comply$) adj5 (screen$ or test$)).tw.
62. ((encourag$ or discourag$ or reluctan$) adj5 (screen$ or test$)).tw.
63. ((respon$ or non-respon$ or intervention or educat$) adj5 (screen$ or test$)).tw.

64. ((refus$ or satisf$ or increas$) adj5 (screen$ or test$)).tw.
65. ((takeup$ or welcom$ or promot$ or utilisation or utilization) adj5 (screen$ or test$)).tw.
66. ((attitude$ or consent$ or self select$) adj5 (screen$ or test$)).tw.
67. ((poor attend$ or non-attend$ or lack of concern) adj5 (screen$ or test$)).tw.
68. ((self-referr$ or dropout$ or drop$ out$) adj5 (screen$ or test$)).tw.
69. ((barrier$ or motivat$ or apathy or improv$) adj5 (uptake or nonattend$ or undergo$ or undertak$)).tw.
70. ((barrier$ or motivat$ or apathy) adj5 (attend$ or screen$ or test$)).tw.
71. recall system$.tw.
72. patient reminder$.tw.
73. or/60–72
74. 59 or 73
75. 51 and 74
76. drug screening/
77. work capacity evaluation/
78. postoperative complication/
79. blood donor/
80. tissue donor/
81. exp DNA/
82. amino acid sequence/
83. (drug adj2 screening).tw.
84. (work adj2 capacity).tw.
85. postoperative complication$.tw.
86. blood donor$.tw.
87. tissue donor$.tw.
88. DNA$.tw.
89. amino acid sequence.tw.
90. or/76–89
91. 75 not 90
92. ((breast self examination) and frequen$).tw.
93. 91 or 92
94. animal/
95. human/
96. 94 not (94 and 95)
97. 93 not 96

BIDS Science/Social Science Citation Index: 1981–1998 (BIDS)

1. (neonatal screening)@TKA
2. (genetic screening)@TKA
3. ((mental health) and screening)@TKA
4. (cholesterol screening)@TKA
5. (mass screening)@TKA
6. (screening service*)@TKA
7. (screening program*)@TKA
8. (screening test*)@TKA
9. (antenatal screening)@TKA
10. (cancer and screening)@TKA
11. (cystic fibrosis screening)@TKA
12. (carrier screening)@TKA
13. (breast screening)@TKA
14. (rubella and (test* or screen*))@TKA
15. (amniocentesis)@TKA
16. (colonoscopy)@TKA
17. (sigmoidoscopy)@TKA
18. (fecal occult blood)@TKA
19. (ultrasound and (pregnan* or fetus))@TKA
20. (prenatal and (testing or diagnosis))@TKA
21. (mantoux or guthrie or phenylketonuria)@TKA
22. ((hearing or hear or deaf*) and screen*)@TKA
23. (dental and screen*)@TKA
24. (oral screen* or oral test* or oral check*)@TKA
25. (diabetic retinopathy and (screen* or test*))@TKA
26. (glaucoma* and (screen* or test*))@TKA
27. (vision screen* or visual screen*)@TKA
28. (screening and school*)@TKA
29. (dental care or dental check*)@TKA
30. (eye test or eye care)@TKA
31. (retinopathy and (screen* or test*))@TKA
32. (amino acid and (screen* or test*))@TKA
33. (breast exam*)@TKA
34. (smear test*)@TKA
35. (cervical smear)@TKA
36. (pap and (smear* or test* or screen*))@TKA
37. (cytology)@TKA
38. (mammogra*)@TKA
39. (papanicolaou and (smear or test*))@TKA
40. (breast self examination)@TKA
41. ((inborn errors) and metabolism) @TKA
42. ((cystic fibrosis) and (screen* or test*))@TKA
43. (hiv and (screen* or test*))@TKA
44. (congenital hypothyroidism) @TKA
45. or/1–44
46. (satisf* or dropout* or drop out)@TKA
47. (compliance or complie* or comply*)@TKA
48. (encourage* or improve* or improving or increas* or promot*)@TKA
49. (uptake or particip* or nonattend*)@TKA
50. (accept* or attend* or attitude* or utilisation or utilization)@TKA
51. (refus* or respon* or reluctan* or nonrespon*)@TKA
52. (screen* or test*)@TKA
53. or/46–52
54. 52 and 53
55. (barrier* or motivat* or apathy)@TKA
56. (uptake or nonattend* or undergo* or undertake* or attend*)@TKA
57. (educational intervention*)@TKA
58. (emotional response)@TKA

59. 55 and 56
60. or/57–59
61. (screening promotion)@TKA
62. (cost effectiveness)@TKA
63. (recall systems)@TKA
64. or/61–63
65. (seeds or seedlings or wheat or oats or barley or crops)@TKA
66. (canine or feline or bovine or animal*)@TKA
67. (dog or dogs or cow or cows or sheep or insect*)@TKA
68. (poultry or chicken* or rat or rats or cat or cats)@TKA
69. or/65–68
70. 45 and (54 or 60 or 64)
71. 70 not 69

EMBASE: 1985–1998 (Dialog)

1. dc=e1.800.525?
2. dc=g3.850.520.308.250.580?
3. dc=e4.50.70.70?
4. dc=e1.249.746?
5. vaginal smears/de
6. vagina smear/de
7. mammography/de
8. sigmoidoscopy/de
9. colonoscopy/de
10. occult blood/de
11. prostate-specific antigen/de
12. prostate specific antigen/de
13. precancerous conditions/de
14. precancer/de
15. hereditary diseases/de
16. genetic disorder/de
17. population surveillance/de
18. primary prevention/de
19. screening
20. primary(w)prevention
21. testing(w)program?
22. preventative(w)health? or preventive(w)health?
23. preneoplas?
24. amniocentesis
25. prostate(w)specific(w)antigen? or psa
26. mammogra?
27. breast(w)self(w)examination
28. vagina?(w)smear?
29. pap(w)test?
30. papanicolaou(w)(smear or test?)
31. cervical(w)(smear or screen?)
32. cervical(w)cytology
33. hereditary(w)disease?
34. sigmoidoscopy
35. colonoscopy
36. occult(w)blood
37. secondary(w)prevention
38. dental(2n)(test? or checkup?)
39. eye(2n)(test? or care)
40. retinopathy(2n)(screen? or test?)
41. diagnostic(w)test?
42. rubella(w)(screen? or test?)
43. mantoux
44. guthrie
45. phenylketonuria
46. amino(w)acid and (screen? or test?)
47. inborn(w)errors(2w)metabolism
48. metabolism, inborn errors!(l)di
49. inborn error of metabolism(l)di/de
50. cystic(w)fibrosis and (screen? or test?)
51. hiv and (screen? or test?)
52. congenital(w)hypothyroidism
53. hypothyroidism!(l)cn
54. congenital hypothyroidism/de
55. pap(w)smear?
56. or/1–55
57. n5.300.150.600?
58. patient attitude/de
59. patient dropouts/de
60. physician–patient relations/de
61. doctor patient relation/de
62. knowledge, attitudes, practice/de
63. persuasive communication/de
64. patient education/de
65. patient information/de
66. health promotion/de
67. (uptake or attend? or accept? or adher? or particip?)(5n)(screen? or test?)
68. (compliance or complie? or comply?)(5n)(screen? or test?)
69. (encourag? or discourag? or reluctan?)(5n)(screen?or test?)
70. (respon? or non-respon?)(5n)(screen? or test?)
71. (refus? or satisf? or increas?)(5n)(screen? or test?)
72. (takeup or welcom? or promot?)(5n)(screen? or test?)
73. (attitude? or consent? or educat? or intervention?)(5n)(screen? or test?)
74. (self(w)select? or utilisation or utilization)(5n)(screen? or test?)
75. (poor attend? or non-attend? or lack(w)of(w)concern)(5n)(screen? or test?)
76. (self-referr? or dropout? or drop?(w)out?)(5n)(screen? or test?)
77. (barrier? or motivat? or apathy or improv?)(5n)(uptake or nonattend? or undergo? or undertak?)
78. (barrier? or motivat? or apathy)(5n)(attend? or screen? or test?)
79. recall(w)system?
80. patient(w)reminder?

81. or/57–80
82. 56 and 81
83. drug screening/de
84. work capacity/de
85. work capacity evaluation/de
86. postoperative complication/de
87. postoperative complications/de
88. blood donor/de
89. blood donors/de
90. tissue donor/de
91. tissue donors/de
92. dc=d4.635.630.25?
93. dc=d13.444.308?
94. amino acid sequence/de
95. drug(2n)screening
96. work(2n)capacity
97. postoperative(w)complication?
98. blood(w)donor?
99. tissue(w)donor?
100. dna?
101. amino(w)acid(w)sequence
102. or/83–101
103. s82 not s102
104. breast(w)self(w)examination and frequen?
105. 103 or 104
106. 105/human

CINAHL: 1982–May 1998 (OVID)

1. exp health screening/
2. exp prenatal diagnosis/
3. cervical smears/
4. mammography/
5. sigmoidoscopy/
6. colonoscopy/
7. occult blood/
8. prostate-specific antigen/
9. precancerous conditions/
10. hereditary diseases/
11. preventive health care/
12. screening.tw.
13. primary prevention.tw.
14. testing program$.tw.
15. (preventative health$ or preventive health$).tw.
16. preneoplas$.tw.
17. amniocentesis.tw.
18. (prostate-specific antigen$ or psa).tw.
19. mammogra$.tw.
20. breast self examination$.tw.
21. vagina$ smear$.tw.
22. pap test$.tw.
23. (papanicolaou adj2 (smear or test$)).tw.
24. (cervical adj2 (smear or screen$)).tw.
25. cytology.tw.
26. hereditary disease$.tw.
27. sigmoidoscopy.tw.
28. colonoscopy.tw.
29. occult blood.tw.
30. secondary prevention.tw.
31. (dental adj (test$ or checkup$)).tw.
32. (eye$ adj (test$ or care)).tw.
33. (retinopathy adj2 (screen$ or test$)).tw.
34. pre-symptomatic.tw.
35. diagnostic test$.tw.
36. (rubella adj (test$ or screen$)).tw.
37. mantoux.tw.
38. guthrie.tw.
39. phenylketonuria.tw.
40. (amino acid and (screen$ or test$)).tw.
41. (hiv and (screen$ or test$)).tw.
42. exp metabolism, inborn errors/di [diagnosis]
43. inborn errors of metabolism.tw.
44. (cystic fibrosis and screen$ or test$)).tw.
45. congenital hypothyroidism.tw.
46. pap smear.tw.
47. or/1–46
48. exp professional-patient relations/
49. patient education/
50. health promotion/
51. or/48–50
52. (screen$ or test$).tw.
53. 51 and 52
54. ((uptake or attend$ or accept$ or adher$ or particip$) adj5 (screen$ or test$)).tw.
55. ((compliance or complie$ or comply$) adj5 (screen$ or test$)).tw.
56. ((encourag$ or discourag$ or reluctan$) adj5 (screen$ or test$)).tw.
57. ((respon$ or non-respon$ or intervention or educat$) adj5 (screen$ or test$)).tw.
58. ((refus$ or satisf$ or increas$) adj5 (screen$ or test$)).tw.
59. ((takeup$ or welcom$ or promot$) adj5 (screen$ or test$)).tw.
60 ((utilisation or utilization) adj5 (screen$ or test$)).tw.
61. ((attitude$ or consent$ or self select$) adj5 (screen$ or test$)).tw.
62. ((poor attend$ or non-attend$ or lack of concern) adj5 (screen$ or test$)).tw.
63. ((self-referr$ or dropout$ or drop$ out$) adj5 (screen$ or test$)).tw.
64. ((barrier$ or motivat$ or apathy or improv$) adj5 (uptake or nonattend$ or undergo$ or undertak$)).tw.
65. ((barrier$ or motivat$ or apathy) adj5 (attend$ or screen$ or test$)).tw.
66. recall system$.tw.
67. patient reminder$.tw.
68. or/53–67
69. 47 and 68

70. substance abuse detection/
71. work capacity evaluation/
72. exp postoperative complications/
73. exp tissue donors/
74. exp dna/
75. exp amino acids/
76. (drug adj2 screen$).tw.
77. (work adj2 capacity).tw.
78. postoperative complication$.tw.
79. blood donor$.tw.
80. tissue donor$.tw.
81. dna.tw.
82. amino acid.tw.
83. or/70–82
84. 69 not 83
85. ((breast self examination) and frequen$).tw.
86. 84 or 85

Conference Papers Index, Dissertation Abstracts, ERIC, HealthSTAR, Pascal, PsycINFO: 1985–1998 (Dialog)

1. neonatal(w)screening
2. genetic(w)screening
3. mental(w)health(3n)screening
4. cholesterol(w)screening
5. mass(w)screening
6. screening(w)service?
7. screening(w)program?
8. screening(w)test?
9. antenatal(w)screening
10. cancer and screening
11. cystic(w)fibrosis and screening
12. carrier(w)screening
13. breast(2w)screening
14. mammogra?
15. breast(w)exam?
16. physical(w)examination
17. (pap or cervical or vaginal)(w)(test? or smear?)
18. papanicolaou and (smear? or test?)
19. cervical(w)cytology
20. sigmoidoscopy
21. colonoscopy
22. amniocentesis
23. eye(w)(care or test?)
24. (dental or oral)(3w)(care or test?)
25. glaucoma? or diabetic(w)retinopathy
26. school?(3n)screening
27. hereditary(w)disease?(3w)screen?
28. prostate(w)specific(w)antigen
29. psa
30. rubella(w)(screen? or test?)
31. mantoux
32. guthrie
33. phenylketonuria
34. amino(w)acid and (screen? or test?)
35. inborn(w)errors(2w)metabolism
36. cystic(w)fibrosis and (screen? or test?)
37. hiv and (screen? or test?)
38. congenital(w)hyperthyroidism
39. pap(w)smear?
40. or/1–39
41. attend? or accept? or adher? or particip?
42. compliance or complie? or comply
43. encourag? or discourag? or uptake
44. respon? or non(w)respon?
45. refus? or satisf? or increas?
46. welcom? or reluctan? or attitude? or consent?
47. undergo? or undertak?
48. poor(w)attend? or non(w)attend?
49. motivat? or apath? or education or intervention or utilisation or utilization
50. drop(w)out or dropout
51. or/41–50
52. 51(5n)(screening or test?)
53. (improv? or barrier? or motivat? or apathy?)(5n)(uptake or nonattend? or undergo? or undertak?)
54. 52 or 53
55. 51 and 54
56. drug(w)screen?
57. 55 not 56
58. breast(w)self(w)examination and frequen?
59. 57 or 58
60. 59/human

CANCERLIT, DHSS-Data, ASSIA, CAB-Health: 1985–1998 (DataStar)

1. neonatal adj screening
2. genetic adj screening
3. mental adj health with screening
4. cholesterol adj screening
5. mass adj screening
6. screening adj service$
7. screening adj program$
8. screening adj (test or tests)
9. antenatal adj screening
10. cancer and screening
11. cystic adj fibrosis and screening
12. carrier adj screening
13. breast with screening
14. mammogra$
15. breast adj exam$
16. physical adj examination
17. (pap or cervical or vaginal) adj (test or tests or smear$)
18. papanicolaou and (smear$ or test or tests)

19. cervical adj cytology
20. sigmoidoscopy
21. colonoscopy
22. amniocentesis
23. eye adj (care or test or tests)
24. (dental or oral) with (care or test or tests)
25. glaucoma$ or diabetic adj retinopathy
26. school$ with screening
27. hereditary adj (disease or diseases) with screen$
28. prostate adj specific adj antigen
29. psa
30. rubella adj (screen$ or test or tests)
31. mantoux
32. guthrie
33. phenylketonuria
34. amino adj acid and (screen$ or test or tests)
35. inborn adj errors adj metabolism
36. cystic adj fibrosis and (screen$ or test or tests)
37. hiv and (screen$ or test or tests)
38. congenital adj hyperthyroidism
39. pap adj smear$
40. or/1–39
41. attend$ or accept$ or adher$ or particip$
42. compliance or complie$ or comply
43. encourag$ or discourag$ or uptake
44. respon$ or non adj respon$
45. refus$ or satisf$ or increas$
46. welcom$ or reluctan$ or attitude$ or consent$
47. undergo$ or undertak$ or utilisation or utilization
48. poor adj attend$ or non adj attend$
49. motivat$ or apath$ or education or intervention
50. drop adj out or dropout
51. or/41–50
52. 51 with (screening or test or tests)
53. (improv$ or barrier$ or motivat$ or apathy$) with (uptake or nonattend$ or undergo$ or undertak$)
54. 52 or 53
55. 40 and 54
56. drug adj screen$
57. 55 not 56
58. (breast adj self adj examination) and frequen$
59. 57 or 58

SIGLE: 1980–1998 (STN)

1. screen? or test? or exam?
2. neonatal or antenatal or genetic or cystic or carrier
3. hereditary(w)disease?
4. cancer? or breast or diabetic(w)retinopathy or glaucoma
5. or/2–4
6. 1(3a)5
7. mass(w)screening or mammogra? or sigmoidoscopy or colonoscopy
8. amniocentesis or prostate(w)specific(w)antigen or psa
9. (pap? or cervical or vaginal)(w)(test? or smear or cytology)
10. (eye or dental or vision or oral or hearing)(3a)(care or test? or screen?)
11. screening(w)(program? or service?)
12. school(3a)screening
13. rubella(w)(screen? or test)
14. mantoux
15. guthrie
16. phenylketonuria
17. amino(w)acid and (screen? or test?)
18. inborn(w)errors(2w)metabolism
19. cystic(w)fibrosis and (screen? or test?)
20. hiv and (screen? or test?)
21. congenital(w)hyperthyroidism
22. pap(w)smear?
23. or/6–22
24. attend? or accept? or adher? or particip? or compliance
25. encourag? or discourag? or uptake or respon? or non(w)respon?
26. refus? or satisf? or increas?
27. welcom? or reluctan? or attitude? or consent? or undergo?
28. motivat? or apath? or education or intervention
29. (utilisation or utilization)(5n)(screening or test?)
30. drop(w)out? or dropout?
31. or/24–30
32. 23 and 31
33. breast(w)self(w)examination and frequen?
34. 32 or 33

Sociofile: 1974–April 1998 (Silver Platter)

1. screen*
2. cancer
3. vision or sight
4. dental
5. hereditary disease*
6. precancer*
7. preneoplas*
8. 2 or 3 or 4 or 5 or 6 or 7
9. 1 and 8
10. primary prevention
11. amniocentesis
12. mammogra*
13. (vaginal or pap) and smear*
14. colonoscopy

15. sigmoidoscopy
16. occult blood
17. pap test*
18. rubella test* or rubella screen*
19. mantoux
20. guthrie
21. phenylketonuria
22. amino acid and (screen* or test*)
23. inborn errors of metabolism
24. cystic fibrosis and (screen* or test*)
25. hiv and (screen* or test*)
26. congenital hypothyroidism
27. pap smear*
28. or/9–27
29. "Health-Behavior" in DE
30. "Health-Care-Utilization" in DE
31. attend* or accept* or adher* or particip*
32. compliance or complie* or comply
33. (encourag* or discourag*) near (screen* or test*)
34. (respon* or non respon*) near (screen* or test*)
35. refus* near (screen* or test*)
36. satisf* near (screen* or test*)
37. increas* near (screen* or test*)
38. improv* near (screen* or test*)
39. welcome near (screen* or test*)
40. reluctan* near (screen* or test*)
41. attitude near (screen* or test*)
42. consent* near (screen* or test*)
43. undergo* near (screen* or test*)
44. undertak* near (screen* or test*)
45. utilisation near (screen* or test*)
46. utilization near (screen* or test*)
47. self select*
48. barrier*
49. (poor attend*) or (non attend*)
50. motivation or apathy
51. lack of concern
52. outreach or self-referr*
53. dropout* or drop out*
54. health promotion
55. patient education
56. health education
57. or/29–56
58. 28 and 57
59. (breast self examination) and frequen*
60. 58 or 59

The Cochrane Library (including the DARE database): 1985–1998

1. (neonatal next screening)
2. (genetic next screening)
3. ((mental next health) near screening)
4. (cholesterol next screening)
5. (mass next screening)
6. (screening next service*)
7. (screening next program*)
8. (screening next test*)
9. (antenatal next screening)
10. (cancer and screening)
11. ((cystic next fibrosis) and screening)
12. (carrier next screening)
13. (breast near screening)
14. mammogra*
15. (breast next exam*)
16. (physical next examination)
17. pap test*" or "pap smear*" or "cervical smear* or "vaginal smear*
18. (((pap or cervical) or vaginal) near (test* or smear*))
19. (papanicolaou and (smear* or test*))
20. (cervical next cytology)
21. ((sigmoidoscopy or colonoscopy) or amniocentesis)
22. ((eye next care) or (eye next test*))
23. ((dental) near (care or test*))
24. ((oral) near (care or test*))
25. (glaucoma* or (diabetic next retinopathy))
26. (school* near screening)
27. ((hereditary next disease*) near screen*)
28. psa
29. (rubella next (screen* or test*))
30. (mantoux or guthrie)
31. phenylketonuria
32. ((amino next acid) and (screen* or test*))
33. ((inborn next errors) near metabolism)
34. ((cystic next fibrosis) and (screen* or test*))
35. (hiv and (screen* or test*))
35. (congenital next hypothyroidism)
36. (pap next smear*)
37. or/1–37
38. (((attend* or accept*) or adher*) or particip*)
39. ((compliance or complie*) or comply)
40. ((encourag* or discourag*) or uptake)
41. (respon* or (non next respon*))
42. ((refus* or satisf*) or increas*)
43. (((welcom* or reluctan*) or attitude*) or consent*)
44. (undergo* or undertak*)
45. ((poor next attend*) or (non next attend*))
46. (((motivat* or apath*) or education) or intervention)
47. ((drop next out) or dropout)
48. (utilisation or utilization)
49. or/38–48
50. (screening or test*)
51. (49 and 50)
52. ((((improv* or barrier*) or motivat*) or apathy*) near (((uptake or nonattend*) or undergo*) or undertak*))

53. (51 or 52)
54. 37 and 53
55. (breast next (self next examination))
56. (54 or 55)
57. (drug next screen*)
58. (56 not 57).

Appendix 2

Data extraction forms

The following tables were used to extract data from studies of determinants and interventions to increase the uptake of screening programmes.

TABLE 19 *Extraction sheet for determinant studies*

Study details	Characteristics of study	Determinants	Outcome and methodology	Results	Comments and implications
Author (year) and country: ***Objective:*** Authors' objective ***Design:*** e.g. cohort, case–control, randomised controlled trial ***Screening test(s):***	***Sample characteristics:*** Sample size, defining variables (e.g. low income, black adults) inclusion and exclusion criteria, sample size and power calculations ***Setting:*** Characteristics of screening provider and target population (e.g. HMO, GP practice); screening guidelines used in study/setting ***Follow-up:*** ***Drop-out:*** Number of participants lost to follow-up and why	***Description and nature of determinants:*** Description of all determinants	***Outcome reported:*** e.g. uptake, attendance. Criteria for defining attenders/non-attenders (e.g. ever vs never; in past year vs more than one year ago). Whether criteria are based on guidelines used in study ***Method of evaluation of outcome:*** e.g. self-report or administrative data ***Method of analysis:*** e.g. logistic regression, factor analysis ***Biases reported:*** ***Drop-out/ exclusion:***	***Causative effect*** (rate, relative risk, odds ratio, mean difference, correlation coefficient, regression coefficient, probabilities) and confidence intervals ***Multivariate analysis:*** Variables controlled for in the analysis, significant independent predictors	***Authors' conclusions:*** Authors' own conclusions ***Comments:*** Limitations of the study, biases not reported by the author, generalisability other comments

TABLE 20 *Extraction sheet for intervention studies*

Study details	Characteristics of study	Methodology	Results	Comments and implications
Author (year) and country: ***Objectives:*** Authors' objective(s) ***Design:*** e.g. randomised controlled trial, quasi-randomised controlled trial, controlled trial ***Screening test:***	***Sample:*** Sample size, defining variables inclusion and exclusion criteria ***Method and unit of allocation:*** ***Intervention(s) – number randomised (number analysed in parentheses):*** Brief description of the intervention method and the number of participants assigned to the intervention. Similar description of any control groups ***Theoretical basis of intervention:*** The model used to help with the design of the interventions ***Setting:*** Characteristics of screening provider and target population ***Target:*** Details of the specific population ***Baseline comparability:*** Details of participants' characteristics at the start of the study and whether these characteristics varied between the intervention groups ***Follow-up:*** The number of original participants included in the final analysis ***Drop-out:*** The number of participants lost before and after randomisation	***Outcome:*** e.g. uptake, attendance ***Method of evaluation of outcome:*** How uptake values were obtained, e.g. by self-report or administrative data; whether clustering was taken into account in the analysis ***Method of analysis:*** ***Baseline of assessment:*** The level of screening attendance prior to the start of the study ***Unit of analysis:*** i.e. patients, screening tests ***Blinding:*** Whether assessors were blinded to the intervention allocation ***Biases reported:*** Biases reported by the author	***Intervention effect(s) (uptake of screening):*** Percentage or mean uptake, and differences between the two groups When the authors of the original trial reported ORs and RRs, these are also reprted here ***Intermediate outcomes:*** Details of outcomes such as knowledge, anxiety and satisfaction ***Costs:*** Details of cost of screening	***Author's conclusions:*** Conclusions of the authors, as written in the original trial report ***Comments:*** Limitations of the study, biases not reported by the author, generalisability and other comments

Appendix 3

Summary of determinant studies

TABLE 21 *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Bastani, 1994,[78] USA ***Objective:*** To evaluate the effectiveness of a mail-out intervention for increasing screening mammography rates ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** A random sample of 802 women, aged ≥ 40 years residing in Los Angeles County. However, the study only looked at 626 of these women, for whom follow-up data could be obtained. Sample size and power calculations not performed ***Setting:*** Community (urban) ***Description and nature of determinants:*** The baseline interview consisted of 23 items, based on the Health Belief Model, measuring demographic characteristics and mammography knowledge, attitudes, intentions and behaviours • Socio-demographic (age, ethnicity, education, income, marital status, health insurance) • Knowledge, behaviour, attitudes and beliefs (knowledge of guidelines, perceived efficacy of mammography, perceived susceptibility, perceived efficacy of early detection, had a screening mammogram according to the guidelines at baseline) • Barriers and facilitating conditions (concern over radiation, cost as barrier, fear of finding cancer, likelihood of obtaining a mammogram if the physician recommended) • Health (family history of cancer) ***Follow-up:*** 12 months (approx.) ***Drop-out:*** Completed follow-up interviews were obtained from 78% ($n = 626$) of the original sample. Of those women ($n = 176$) not interviewed at follow-up 89% could not be reached, 7% declined to be interviewed and 4% were ill or deceased. No intention-to-intervene approach used	***Bivariate analysis:*** Women who were older (≥ 50 years), white, with higher levels of education (high school or more), and had health insurance were significantly ($p < 0.05$) more likely to have obtained a screening mammogram during the follow-up period ***Multivariate analysis:*** A stepwise logistic regression analysis was performed, using the 15 predictor variables. Four of the predictor variables were identified as statistically significant in predicting attendance for screening (Hosmer–Lemeshow goodness of fit $\chi^2 = 5.28$, df = 7, $p < 0.63$) *More likely to attend:* • Women who had a screening mammogram according to the guidelines at baseline (vs those who did not): OR = 5.3; 95% CI, 3.38 to 8.30. • Women who had health insurance (vs those who did not): OR = 4.20; 95% CI, 1.70 to 10.35. • Women ≥ 50 years (vs 40–49 years) OR = 1.92; 95% CI, 1.20 to 3.07 *Less likely to attend*: • If concerned over radiation (vs not): OR = 0.42; 95% CI, 0.27 to 0.66	***Authors' conclusions:*** All of these findings parallel other reports in the literature and suggest that educating women regarding the importance of obtaining screening in the absence of symptoms and making mammography less costly and more convenient remain urgent issues Bivariate analysis indicated that barriers such as concern over cost, radiation exposure, fear of finding cancer, and lack of knowledge were associated with future behaviour ***Comments:*** Interviews were only conducted in English, which probably accounted for the low representation of Hispanics. Compared with the general population, the sample was more highly educated and had higher income levels. Drop-outs were more likely to be Hispanic ($p < 0.002$), less likely to report ever having a mammogram ($p < 0.02$) and more likely to report that fear of finding breast cancer would prevent them from obtaining a mammogram ($p < 0.01$) Determinants were based on the Health Belief Model. The Theory of Reasoned Action was also considered

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Bergmann, 1996,[79] Iceland ***Objective:*** To understand participation failures in national Pap smear screening programme by studying characteristics of non-attenders and results of further reminder efforts ***Design:*** Controlled trial ***Screening test(s):*** Pap smear	***Sample:*** 2510 women aged 35–69 years, who were invited regularly for cervical cancer screening during the preceding 10 years in the town of Hafnarfjordur, Iceland. 2241 had attended screening during the preceding 5 years. Non-attenders (n = 269) were assigned to the intervention group and were divided into two groups: those who had never attended (group A, n = 102); and those who had previously attended, but not during the preceding 5 years (group B, n = 167). Attenders were assigned to the usual-care (control) group ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age, nationality, marital status) • Health (diagnosis of long-term illness (number of diagnoses), number and type of contacts with health centre within the preceding 12 months (number of visits to the GP), history of hysterectomy, health problems (classified according to ICD-9) such as mental illness or intellectual impairments, neurotic disorders, psychosomatic disorders, or other disorders) • Social influence (GP's knowledge of the participating woman, and if she was on their list) ***Follow-up:*** Not stated ***Drop-out:*** Health-centre records were available for only 501/538 (93.1%) of the women taking part in the study	***Multivariate analysis:*** *More likely to attend:* • Women aged 55–69 years (vs < 45 years): OR=1.88; 95% CI, 1.09 to 3.25. • Women who had another chronic disorder (vs no other disorder): OR = 0.28; 95% CI, 0.10 to 0.79. • Women with ≥ 3 visits to the GP (vs no visits); OR = 0.41; 95% CI, 0.23 to 0.72 *Less likely to attend:* • Women who had a single diagnosis (vs no diagnosis): OR = 5.42; 95% CI, 1.82 to 16.2. • Widowed women (vs married): OR = 2.13; 95% CI, 1.11 to 4.09 • Divorced women (vs married): OR = 1.87; 95% CI, 1.03 to 3.40 See appendix 5 for further details	***Authors' conclusions:*** Total participation rate in cervical cancer screening programmes in Iceland is high. When efforts are taken to lower the non-attendance rate it has to be kept in mind that many women are unwilling or unable to participate in such preventive measures ***Comments:*** The study only included women who had been invited regularly for screening for at least 10 years. This may limit the generalisability of the study findings Information was missing about the determinant status of 37 (6.8%) of the women

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Bowman, 1995,[115] Australia ***Objective:*** To assess the comparative efficacy, by RCT, of three interventions designed to encourage 'at risk' women to have a Pap smear: an educational pamphlet; letters inviting attendance at a women's health clinic; and letters from physicians ***Design:*** RCT ***Screening test(s):*** Pap smear	***Sample:*** Over 7000 women aged 18–70 years in an Australian community were identified by a random household survey (developed by the Australian Bureau of Statistics). Those women who were not sexually active, could not speak English, were infirm, were not at home during visits, or had had a hysterectomy were excluded. Women were considered eligible if they had not had a smear test in the previous 3 years. Of the remaining 6431 women, 88.7% (5706) consented to take part in the study ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (educational level, occupational status, marital status) • Knowledge, behaviour, attitudes and beliefs (age at first sex, number of sexual partners, perception of need for regular screening, last smear performed). • Health (symptoms experienced in last 12 months, history of wart virus, pill usage, GP attendance in last 12 months, menopausal status) ***Follow-up:*** 6 months ***Drop-out:*** 35/255 women who had been randomised to the GP letter group were excluded because their GP refused to take part in the trial. This left 220 women in the GP letter group. 746/878 (85.0%) of patients were contacted at follow-up, and of these 659/746 (88.3%) agreed to take part in the survey. There was no difference in the response rate between the study groups. (162/219 pamphlet group, 164/220 women's health clinic invitation, 178/220 GP prompt reminder letter, 155/219 of the control provided data for the follow-up survey)	For all four groups combined, women who were reported as having attended for a smear were compared by χ^2 analyses with women who did not attend, for socio-demographic characteristics, variables related to the risk of developing cervical cancer, and responses to the knowledge and attitude items from the pre-intervention questionnaire. Significant differences were found for 18 variables. The relative importance of these 18 variables and the intervention group for predicting attendance/non-attendance for a Pap smear was explored using logistic regression analysis ***Multivariate analysis:*** Given the lack of difference between the screening rates in certain groups the analysis was conducted using the GP letter group as one category and combining the rest in another category. Seven variables were used in the model. With the addition of each variable, the parameter estimates are reasonably stable, indicating no collinearity between the variables. The odds ratios were significant for the first four variables that entered the model *More likely to attend:* • Women aged 18–34 years (vs 55–70 years): OR = 3.62; 95% CI, 1.59 to 2.26 • Women who had previously used the pill (vs women who had never used the pill): OR = 2.46; 95% CI, 1.25 to 4.83 *Less likely to attend:* • Women who did not perceive screening to be necessary at least once every 3 years (vs women who did perceive this to be the case): OR = 0.35; 95% CI, 0.19 to 0.64 See appendix 5 for further details	***Authors' conclusions:*** Logistic regression analysis identified four variables as being the strongest predictors of screening attendance or non-attendance. Older women were most resistant to screening, and women who did not perceive screening to be necessary at least every 3 years were significantly less likely to have been screened at follow-up. Women who had previously been on the pill were more likely to be screened than women who had never used an oral contraceptive pill ***Comments:*** Women who did not provide data for the follow-up survey were statistically less likely to have seen a GP at least once within the previous 12 months than those who were interviewed ($\chi^2 = 11.1$, df = 3, $p = 0.011$). Slightly lower rates of screening were observed in administrative records for women not interviewed in the follow-up survey, as compared with women who were

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Burack, 1996,[61] USA ***Objective:*** To determine the joint and individual effectiveness of a patient and physician reminder system on site visitation and mammography use ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** 2368 eligible women aged 40 years visiting two sites of an HMO in metropolitan Detroit, USA, were randomly assigned to one of four groups. 1372 women were randomised from site 1, and 996 women were randomised from site 2. Women with diagnosed breast cancer and those whose last mammography result was serious were excluded before randomisation (n = 23). The majority of the women were African-American (96% of those for whom the information was available) ***Setting:*** HMO (urban) ***Description and nature of determinants:*** • Socio-demographic (age, insurance status). • Health (having diagnosis of breast cancer). • Knowledge, behaviour, attitudes and beliefs (number of visits in previous year, gynaecology visits during study year, past mammography, mammography due) ***Follow-up:*** 8 months for the letter, no follow-up for the physician reminder (evaluated at the end of the study year) ***Drop-out:*** Approximately 8% of site 1 letters and 7% of site 2 letters were returned undeliverable. Around 86% of physician reminders at site 1 and 98% at site 2 were documented as available to the physician at the time of the patient visit	***Multivariate analysis:*** Factors that were independently associated with mammography uptake included the following *More likely to attend:* • Had ≥ 2 previous diagnoses (vs none): OR = 1.84; 95% CI, 1.21 to 2.81 (site 1 only) • Had ≥ 7 previous visits (vs 0–3 visits): OR = 1.79; 95% CI, 1.15 to 2.79 (site 2 only) • Had history of previous mammogram (vs none): OR = 1.66; 95% CI, 1.16 to 2.38 (site 1); OR = 1.77; 95% CI, 1.02 to 3.08 (site 2) • Had gynaecology visit during study year (vs none): OR = 2.32; 95% CI, 1.76 to 3.07 (site 1 only); OR = 2.54; 95% CI, 1.72 to 3.74 (site 2) *Less likely to attend:* • Aged 39–49 years (vs 50–64 years): OR = 0.61; 95% CI, 0.43 to 0.87 (site 1 only) • Aged ≥ 65 years (vs 50–64 years): OR = 0.70; 95% CI, 0.49 to 0.99 (site 1 only) See appendix 5 for further details	***Authors' conclusions:*** Patient reminder letters had limited impact on visitation in this setting. Physician reminders are more effective, but sites vary in their responsiveness. Further improvement in mammography utilisation will require a better understanding of the determinants of patient and physician behaviour ***Comments:*** Limited information was available concerning physician and patient characteristics, including mammography-related beliefs and attitudes, perceived barriers to mammography use and attitudes concerning the reminders. The observation of the effect of time to visitation among women with entitlement insurance was *post hoc* and can only lead to further hypothesis testing. The site that appeared not to have responded was the one that had previously participated in a trial (site 1). Results for the two sites may not be directly comparable given this difference in previous exposure to intervention
Burack, 1997,[60] USA ***Objective:*** To evaluate the sustained effectiveness of a computerised physician reminder system in promoting mammography during a second year of continued implementation	***Sample:*** Women aged ≥ 40 years who had visited one of the primary care study sites in Detroit, Michigan, USA (five sites were enrolled in year 1; only three of these sites were enrolled in year 2), at the beginning of study year 1 or 2	***Multivariate analysis:*** *Results from year 1 – more likely to attend:* • Attended HMO (vs health department): OR = 2.15; 95% CI, 1.67 to 2.78 • Had 4–6 previous visits in the past year (vs 1–3 visits): OR = 1.57; 95% CI, 1.29 to 1.91 • Had ≥ 7 visits (vs 1–3 visits): OR = 2.03; 95% CI, 1.66 to 2.50	***Authors' conclusions:*** The effect of computerised mammography reminders can be sustained in a second year of continued intervention, but individual practice sites and organisations vary in their responsiveness to the intervention. Strategies to promote the use of periodic and repetitive procedure must identify and address time-varying barriers to effectiveness

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
To determine if the effect of this intervention diminished during the second year compared with the first year To determine if the participants' organisations (HMO and health department) differed in their pattern of sustained response to the intervention ***Design:*** RCT ***Screening test(s):*** Mammogram	There were 2890 eligible women enrolled in the year 1 trial. Women were then excluded from the year 2 trial if they had been enrolled in the year 1 trial and not had a mammogram (n = 1019). At the end of the year 1 study, a further 955 new recruits were assigned to establish the year 2 study cohort. There was a total of 2826 eligible women included in year 2 (1871 from year 1 and the 955 new recruits) ***Setting:*** Primary care practice (health department) and HMO ***Description and nature of determinants:*** • Socio-demographics (age, insurance). • Knowledge, behaviour, attitudes and beliefs (attended in previous year for mammography). • Health (number of previous-year visits, chronic conditions, breast cancer risk) ***Follow-up:*** 1 and 2 years ***Drop-out:*** Intention-to-intervene. The data analysis only included patients who visited a site during the study period (after randomisation). Year 1, 1782/2890; year 2, 1225/2826	*Results from year 1 – less likely to attend:* • Aged 40–49 years (vs 50–64 years): OR = 0.76; 95% CI, 0.63 to 0.93 • Aged ≥ 65 years (vs 50–64 years): OR = 0.72; 95% CI, 0.59 to 0.88) *Results from year 2:* No significant determinants. However, the intervention group assignment was significant See appendix 5 for further details	***Comments:*** Five sites participated in year 1 and only three of these were included in year 2. It is not stated whether the patients of the two sites no longer participating were excluded during the year 2 study. In addition, it is presumed that the extra women recruits for year 2 were from three primary care practices only, and therefore the samples for years 1 and 2 were derived from different populations
Burack, 1998,[80] USA ***Objective:*** To evaluate the joint and individual impact of reminders given to patients and physicians on site visitation and Pap smear use ***Design:*** RCT (partial cluster) ***Screening test(s):*** Pap smear	***Sample:*** The initial population included women aged 18–40 years who had visited the HMO site during the preceding year (n = 10,509). Women were excluded if their last smear results were abnormal or insufficient for cytology (n = 4708). This left 5801 women who were randomised to receive either physician or no intervention During a later second randomisation stage a further 1235 women were excluded as they were no longer enrolled with the HMO and 393 because they had had a Pap smear since the first randomisation phase. Of the remaining 4173 patients 3848 were randomised to receive either patient reminders or no intervention	***Multivariate analysis:*** *More likely to attend:* • Women with a chronic illness (vs no chronic illness): OR = 3.38; 95% CI, 1.32 to 8.63; p = 0.015 (site 2 only) • Had previously normal Pap smear (vs at least one abnormal): OR = 1.36; 95% CI, 1.05 to 1.76 (site 2); OR = 1.43, 95% CI, 1.08 to 1.88 (site 3) • Aged 35–39 (vs 50–64 years): OR = 1.49; 95% CI, 1.05 to 2.10 (site 2 only) • Had commercial insurance (vs Medicaid): OR = 1.53; 95% CI, 1.03 to 2.26 (site 3 only) • Had a gynaecologic visit during the baseline period (vs none): OR = 1.57; 95% CI, 1.17 to 2.10 (site 3 only)	***Authors' conclusions:*** Reminders given to patients and physicians had a limited impact on visitation by patients on Pap smear completion. The results emphasise the importance of identifying more effective interventions, targeting them to women most likely to benefit, and not overlooking the possibility that preventive intervention will have an unanticipated adverse effect. The latter is based on the observation of an apparent delay in the time to the next visit among women with a chronic illness who received a reminder in the post

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Setting: HMO. ***Description and nature of determinants:*** • Socio-demographics (age, insurance). • Knowledge, behaviour, attitudes and beliefs (previous Pap smear). • Health (chronic illness, number of primary care visits, attended for gynaecological visit, chronic illness, STD) ***Follow-up:*** 1 year ***Drop-out:*** Of the 5801 women initially randomised to receive either the physician reminders or no intervention, 1623 were excluded, as they had discontinued HMO enrolment (*n* = 1235), or had had a Pap smear (*n* = 393) before the sample was further randomised to the patient reminders intervention phase. In addition, only 3848 women out of the eligible 4173 (phase II) were actually randomised for either patient reminders or no reminders, although these were then analysed on an intention-to-intervene basis	*Less likely to attend:* • Did not have a chronic illness (vs had chronic illness): OR = 0.54; 95% CI, 0.33 to 0.90 (site 3 only) • Did not have a history of STD (vs had history of STD): OR = 0.67; 95% CI, 0.50 to 0.89 (site 3 only) The increased likelihood of a study-year Pap smear among women not eligible for randomisation to a patient reminder intervention was an artefact, because before randomisation Pap smear completion was the reason for their exclusion (Reference was no reminder. At site 1: OR = 3.02; 95% CI, 2.10 to 4.34. At site 2: OR = 3.29; 95% CI, 2.49 to 4.34; OR = 2.64, 95% CI, 1.84 to 3.79) See appendix 5 for further details	***Comments:*** The women in the intervention groups seemed to have been selected from different populations (i.e. stages 1 and 2). Eligibility requirements differed for the patient and physician reminder groups. Women who had received a smear after the physician intervention phase were excluded from the analysis The randomisation procedure for stage 2 was unclear. The requirement of the HMO that primary care physicians should refer their patients to a gynaecologist for a Pap smear may have decreased the reminder effect Physicians who believed that Pap smears were not required every year may have interpreted the reminders as an indication that the patient was 'up to date'
Cardonick, 1998,[104] USA ***Objective:*** To determine voluntary HIV testing rates and factors influencing testing in a private obstetric practice ***Design:*** Cohort ***Screening test(s):*** HIV antibody test	***Sample:*** Between January 1996 and January 1997 all *ante-partum* patients (*n* = 603) from three private obstetric practices were asked to complete a yes/no questionnaire outlining their social and demographic characteristics in the context of HIV-infection risks. Three women refused to complete the questionnaire and the remaining 600 were entered into the study: 90% were privately insured; 70% were Caucasian, 19% African-American, 4% Asian, 2% Hispanic or Indian; mean age 30.5 years (SD = 5.5 years); 77% were married ***Setting:*** Private practice ***Description and nature of determinants:*** • Socio-demographic (age, marital status, occupational risk)	***Multivariate analysis:*** Univariate results were reported and multivariate analyses including risk factors, age and marital status were investigated *More likely to attend:* • Factors included partner risk, occupational exposure, STD history and marital status (no further details or data provided)	***Authors' conclusions:*** In our private obstetric practice, 26% of women perceived themselves at risk for HIV infection, and testing rates depended on the various risks identified. A history of STDs or an at-risk sexual partner were stronger predictors of voluntary testing than was marital status. Focused HIV counselling among pregnant women at relatively low risk for infection may be possible ***Comments:*** No absolute values were reported for the significance of determinants in the multivariate analysis The generalisability of the results may be limited as the study examined mainly Caucasian obstetric patients attending a private US practice

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (previous HIV test, perceived risk of HIV infection, at-risk sexual partner) • Health (previous STD, previous blood transfusion, intravenous drug use) ***Follow-up:*** 12 months ***Drop-out:*** Not stated		
Cecchini, 1989,[62] Italy ***Objective:*** To investigate the impact of different types of intervention aimed at increasing screening attendance by promoting the active cooperation of GPs ***Design:*** Controlled trial (cluster) ***Screening test(s):*** Pap smear	***Sample:*** 288 GPs in three areas of Florence, Italy (75,853 eligible women aged 25–59 years) were contacted and asked if they would like a list of patients who had not had the test in the last 9 years. 50 GPs accepted ***Setting:*** Primary care practice (urban/rural) ***Description and nature of determinants:*** • Socio-demographic (age, residence) ***Follow-up:*** Ranged from 6 months to 2 years. ***Drop-out:*** Not stated	***Multivariate analysis:*** *More likely to attend:* • Lived in an urban area (vs a rural area): $\beta = 0.334$; $\chi^2 = 5.7$; $p < 0.017$ • Lived in a suburban (vs a rural area): $\beta = 0.341$; $\chi^2 = 13.2$; $p < 0.0003$ *Less likely to attend:* • Aged 30–39 years (vs 25–29 years): $\beta = -0.272$; $\chi^2 = 18.6$; $p = 0.000$ • Aged 40–49 years (vs 25–29 years): $\beta = -0.575$, $\chi^2 = 77.6$, $p = 0.000$ • Aged 50–59 years (vs 25–29 years): $\beta = -1.020$, $\chi^2 = 222.4$, $p = 0.000$ See appendix 5 for further details	***Authors' conclusions:*** Any type of active intervention seems to achieve better results than a minimal effort ***Comments:*** No information on data sources or collection methods used. No information provided as to when the determinant data were collected. The allocation method may have introduced bias into the sample. GPs were urged to make every effort to increase attendance; this would have varied between GPs. GPs requesting lists of non-attenders were self-selecting and this again may bias the effectiveness of the interventions
Cockburn, 1997,[64] Australia ***Objective:*** To identify factors that predicted attendance at a relocatable screening mammography service in a rural centre in Victoria ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** 1239 women aged 50–69 years in five contiguous postcode areas in rural communities in Victoria, Australia. Women were surveyed randomly by telephone using a computer-derived randomisation schedule. 219 women consented to the phone survey. 39/219 women reported having had a mammogram in the previous 6 months, and so were excluded. All the remaining women ($n = 180$) were invited to attend for screening. ***Setting:*** Community (rural) ***Description and nature of determinants:*** • Socio-demographic (age, postcode area, employment status, speaking a second language other than English)	***Univariate analysis:*** Women living in postcode areas to the north of the screening service were significantly more likely to attend the service than women in postcode areas to the south, who were closer to Melbourne ($\chi^2 = 7.20$; df = 1; $p = 0.007$). This variable, however, was not significant in the multivariate analysis ***Multivariate analysis:*** Variables with associations of $p < 0.1$ were entered into a logistic regression analysis. The following variables were significantly ($p < 0.05$) associated with attendance:	***Authors' conclusions:*** One of the strongest predictors for women not attending the relocatable service was having had at least one previous screening mammogram. A woman's perception of whether she was at any risk of breast cancer was significantly associated with attendance. The level of education and attendance were negatively associated with attendance. As expected, overall positive intention to attend was significantly associated with actual attendance

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (knowledge of location of screening service, knowledge of screening mammography, perception of risk for breast cancer, stated intention of attending, perception of pain, had previous experience of mammography) • Barriers and facilitating conditions (fear of result, accuracy of mammogram, embarrassment, fear of radiation) • Social influence (club membership, social influence, contact with people with breast cancer) • Health (previous history of breast lumps, family history of breast cancer) ***Follow-up:*** 10 weeks ***Drop-out:*** Not stated	*More likely to attend:* • Perception of risk for breast cancer (none at all vs at least slight): OR = 2.73; 95% CI, 1.07 to 6.99 ($p = 0.04$) • Had incorrect knowledge of location of service or did not know (vs correct knowledge): OR = 3.08; 95% CI, 1.37 to 6.89 ($p = 0.006$). • Had a higher stated intention of attending (for each single unit increase on the five-level scale) (vs a lower stated intention): OR = 2.01; 95% CI, 1.49 to 2.71 ($p < 0.0001$) *Less likely to attend:* • Had no previous history of attending for mammograms (vs history of screening mammography): OR = 0.38; 95% CI, 0.17 to 0.83 ($p = 0.01$) • With each increasing level of education (vs less education): OR = 0.65; 95% CI, 0.44 to 0.96 ($p = 0.03$)	While the study has provided information on the factors that predict attendance at relocatable mammography services for rural women, it has also raised issues that need to be explored further ***Comments:*** Sample sizes were small. The method of sampling meant that people who were at home and answered their telephones on weekday nights and weekends were more likely to be included in the sample Study discussed results with reference to the Theory of Reasoned Action
Cockburn, 1997,[63] Australia ***Objective:*** To examine factors associated with returning for a second round of mammography screening ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** Electoral lists used to draw two separate and random samples of women aged 50–69 years living in the Melbourne area: women living within a 2 km radius of the programme (proximal); and women living in an area 10–20 km away (distal). 668 women from this target population were used in the study. Following the first round of screening, 315/668 women attended for screening (167 from the proximal group, 148 from the distal group). These women were included in this follow-up study to examine subsequent attendance for a second round of screening ***Setting:*** Community screening programme ***Description and nature of determinants:*** • Socio-demographic (age, language spoken, education, employment)	***Multivariate analysis:*** Of the determinants assessed the following variables were associated with significant attendance ($p < 0.05$), shown by logistic regression analysis: *More likely to attend:* • Recruited via public campaign and invitation and reminder (vs public campaign only): OR = 0.34; 95% CI, 0.19 to 0.61 • Had diagnostic mammogram prior to initial screen (vs no mammogram): OR = 2.97; 95% CI, 1.01 to 8.9 Score on preventive orientation scale was greater (as per unit increase using the quantities scale) (vs less): OR = 1.24; 95% CI, 1.02 to 1.50	***Authors' conclusions:*** The findings from this study corroborate other findings of reduced long-term attendance for screening from people who are 'reluctant participants' initially. Attendance at the second round was predicated by the following: the method of recruitment for the first-round screening, with women who required a letter of invitation and a reminder being less likely to reattend than those who initially attended in response to a community campaign; mammogram history before the initial screen, with women who reported previous diagnostic mammography being more likely to re-attend than those who did not; stated intention of attending for the initial screen, with those with weakest intention of attending for their first round being less likely to attend for their second round; and increasing scores on a scale that measured preventive orientation to health

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (perceived susceptibility to and concern about breast cancer, knowledge, intention to attend for first-round screening, participated in other preventive health behaviours, attended for Pap smear previously) • Social influence (social influence) • Barriers and facilitating conditions (access issues, perceived benefits and barriers associated with mammography) • Health (health-related character traits, experience with breast disease and mammography, outcome of first visit) ***Follow-up:*** Not stated ***Drop-out:*** Missing data values for the regression analysis categories (mammography prior to initial screen, score on preventive orientation scale, stated intention of attending for initial screening, method of recruitment for initial screening)	*Less likely to attend:* • Stated intention was 'unlikely to attend' (vs likely to attend): OR = 0.44; 95% CI, 0.23 to 0.85	***Comments:*** The generalisability is limited as the study only looked at women who previously attended a first round of screening[310]
Collier, 1998,[123] USA ***Objective:*** To examine the rate and correlates of HIV seropositivity and to assess whether self-selection in HIV testing influenced the rate and correlates of HIV seropositivity in a group of out-of-treatment drug users ***Design:*** Cohort ***Screening test(s):*** HIV antibody test	***Sample:*** A sample of 856 out-of-treatment drug users (aged ≥ 18 years) from specific areas of prevalent drug use in south Philadelphia, USA, were selected over a 1.5-year period (January 1993–August 1994) using a targeted sampling technique. A large number of the participants (86%) were African-American ***Setting:*** Community based out-reach project ***Description and nature of determinants:*** • Socio-demographic (gender, race, age, education, homelessness, receiving public assistance, sexual orientation) • Knowledge, behaviour, attitudes and beliefs (number of sexual partners in last 30 days; condom use in last 30 days; used crack with sex in last 30 days; given or received sex for money or drugs in last 30 days; prior HIV testing and	***Multivariate analysis:*** All variables were included in bivariate analyses, but only four were found to be significant in the multivariate analysis *More likely to attend:* • Those who had injected drugs and used crack in preceding 30 days (vs those who did not): OR = 1.76; 95% CI, 1.16 to 2.69 • Those who had received sex for money or drugs (vs those who had not): OR = 1.63; 95% CI, 1.05 to 2.53 *Less likely to attend:* • Those who had used cocaine, heroin, or speedball for a greater number of years (vs those who used for fewer years): OR = 0.96; 95% CI, 0.95 to 0.98 • Those who reported being HIV positive in a previous test (vs those who did not): OR = 0.18; 95% CI, 0.07 to 0.46	***Authors' conclusions:*** The results of this study indicate the importance of interventions that target sexual risk behaviour among out-of-treatment drug users and of assessing the impact of self-selection bias whenever the rate and correlates of HIV seropositivity are examined ***Comments:*** Participants received $10 upon completion of the baseline interview and pre-test counselling session, and $15 upon completion of the post-test counselling session. The results of the study were limited by a number of design and sampling issues, including the use of a targeted sampling technique instead of a random technique. This was used as drug users are a difficult population to study, but this technique may have missed more socially isolated individuals. The generalisability of the findings will be limited as the

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	result; had sex with partner who had used intravenous drugs in last 30 days; used cocaine, heroin, or speedball with sex in last 30 days; ever had drug treatment; injected and used crack in last 30 days; mean times injected any drug in last 30 days; mean years used cocaine, heroin or speedball; mean years used crack; shared needles in last 30 days; ever had STD) ***Follow-up:*** Not stated ***Drop-out:*** Not stated		study only included drug users encountered by the out-reach project in Philadelphia, USA. More than two-thirds of the drug users (68%) had been tested previously, and 4% were HIV positive
Crane, 1998,[81] USA ***Objective:*** To evaluate the impact of a telephone outcall intervention (based on the Transtheoretical Model) on screening mammography behaviour among lower income, older women ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** Census-tract block groups within low-income and minority neighbourhoods throughout Colorado were identified from a geodemographic database (INFORUM). 19,389 households within the neighbourhoods were identified though marketing lists purchased from a local regional telephone company. From these households 3080 eligible women (aged ≥ 50 years, English-speaking, Colorado residents, no history of breast cancer) were enrolled in the study. Sample size and power calculations were not performed ***Setting:*** Community (low-income, minority) ***Description and nature of determinants:*** • Socio-demographic (age, race, education) • Knowledge, behaviour, attitudes and beliefs (previous mammogram, previous CBE, attendance for physical examination during follow-up period, intention to attend, decisional balance) ***Follow-up:*** 6 months and 2 years	***Multivariate analysis:*** Data from the 6-month follow-up were used in the multivariate analyses. *More likely to attend:* • With each 1-point increase in the mean decisional balance score (vs decrease): OR = 1.07; parameter estimate 0.07; $p < 0.001$ • Stated intention was to get a mammogram (vs those who stated they did not intend to): OR = 2.5; parameter estimate 0.91; $p < 0.001$ • Had a physical examination during the follow-up period (vs not): OR = 4.7; parameter estimate 1.54; $p < 0.001$ • Had a CBE in the previous year (vs not): OR = 3.2; parameter estimate 1.15; $p < 0.001$ • Had a mammogram prior to baseline (vs not): OR = 2.1; parameter estimate 0.74; $p < 0.001$ See appendix 5 for further details	***Authors' conclusions:*** An important finding of this study is that among this sample of low-income Colorado women, mammography rates did not appear to increase during the study period (1994–1997). The outcall interventions were not effective in stimulating mammography behaviour in the 6 months following the intervention. However, the advance card + outcall intervention had a small impact on mammography uptake in the 2 years following the intervention, but this effect was isolated to those who were adherent to mammography screening at baseline. Mammography behaviour during the 6-month follow-up period was predicated strongly by decisional balance, intentions, receipt of a physical and breast examination, and previous mammography behaviour ***Comments:*** Authors reported that the baseline rates for screening were relatively high. Sampling aimed to recruit minority Hispanic women, but in fact the majority of participants were non-Hispanic whites. Consequently, the study population was not representative of the target population. The study population also had a higher proportion of African-American women than the general population of Colorado

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Drop-out: The response rate for the 6 month follow-up was 75% and varied little across the three study groups. Only those who responded after 6 months were approached for the 2-year follow-up and of those the response rate was 81% (or 61% of the original study population). Again this did not differ significantly across the three study groups. 2114 women of the original total of 3080 were included in the final multivariate analyses		Determinants were based on the Transtheoretical Model
Dolan, 1995,[116] USA ***Objective:*** To determine factors predicting adherence to a healthcare provider's screening mammography recommendation in a general internal medicine practice ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** Participants were recruited from an urban academic general internal medicine practice: 349 asymptomatic women, aged ≥ 50 years, without prior history of breast cancer, who received a healthcare provider's recommendation for s creening mammography. Women were excluded if they had had an abnormal CBE or had received mammography within the preceding 12 months. The study only looked at women who had agreed to the recommendation by the physician for a mammogram (*n* = 298) ***Setting:*** Academic primary care practice. ***Description and nature of determinants:*** • Socio-demographic (age, race, insurance type, education level) • Social influences (physician gender and level of training) • Health (duration of affiliation with practice (> 6 or < 6 months), visit type (acute, return or new) ***Follow-up:*** 3 months ***Drop-out:*** Not stated	***Multivariate analysis:*** In a logistic regression analysis, insurance type and healthcare provider training remained independently predictive of attendance *Less likely to attend:* • Patients visiting a resident physician (vs an attending physician): OR = 0.49; 95% CI, 0.27 to 0.92 • Patients visiting a nurse practitioner (vs an attending physician): OR = 0.30; 95% CI, 0.10 to 0.92 • Women insured via Medicare alone (vs HMO insurance): OR = 0.39; 95% CI, 0.15 to 0.99 • Women who had no insurance (vs HMO insurance): OR = 0.01; 95% CI, 0.00 to ∞ No differences were found between those patients with non-HMO private insurance and those insured through Medicaid or an HMO	***Authors' conclusions:*** Acceptance of screening mammography recommendations decreased with age. Among the women who agreed to the recommendations for screening mammography, insurance type and healthcare provider level of training best predicted adherence ***Comments:*** The study only presented the results of those who attended after having agreed with the recommendation to seek a mammogram (*n* = 298/349). The study only looked at a single practice. Inconsistencies were found between the information in the text and in the tables

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
German, 1995,[82] USA ***Objective:*** To test the acceptability of preventive services under Medicare waivers to a community-dwelling population aged ≥ 65 years and to examine the effect of such services on health ***Design:*** RCT ***Screening test(s):*** Medicare screening (mammogram, Pap smear, FOBT, cholesterol test, DRE)	***Sample:*** Participants (aged ≥ 65 years) were selected from lists of Medicare beneficiaries from participating hospital-based and primary care physicians (Baltimore, USA). 12,111 individuals were identified from the lists of participating physicians; 5281 were found to be eligible and 4459 completed baseline interviews. Five physicians withdrew (*n* = 169 patients) and 95 patients were not known to the participating physicians and so were excluded prior to randomisation. 4195 individuals were randomised to either a control or intervention group. The majority of participants were white (87.6% intervention, 84.4% control) ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age, race, gender, marital status, education, living arrangement, income, insurance status, body mass) • Knowledge, behaviour, attitudes and beliefs (previous mammography, Pap smear and DRE screening behaviour, seatbelt usage, self-rated health, quality of well-being, alcohol problem) • Health (attempted to reduce cholesterol intake, attempted to reduce salt intake, participated in physical exercise, number of hospital days in previous year, number of disability days, general health score) • Social influence (type of healthcare provider, having a confidant, having a female healthcare provider) ***Follow-up:*** 2 years ***Drop-out:*** Participants lost to 2-year follow-up: intervention group (532/2,105) – 175 died, 41 moved, 29 in nursing home, 210 refused, 77 other; control group (566/2,090) – 231 died, 31 moved, 41 in nursing home, 193 refused, 70 other. No intention-to-intervene analysis was performed	***Multivariate analysis:*** Of those factors entered in the multivariate analysis the following were found to be significantly predictive of attendance: *Male participants – more likely to attend:* • Married (vs not married): OR = 1.52; 95% CI, 1.09 to 2.08 • Had a solo healthcare provider (vs group practice provider): OR = 1.95; 95% CI, 1.38 to 2.75 *Female participants – more likely to attend:* • Had a confidant (vs not): OR = 1.53; 95% CI, 1.13 to 2.07 • Had a female healthcare provider (vs male): OR = 1.93; 95% CI, 1.21 to 3.08 • Had a high-school education (vs 0–8 years education): OR = 1.34; 95% CI, 1.04 to 1.71 • Had a mammography within 2 years of baseline (vs not): OR = 1.75; 95% CI, 1.38 to 2.23 *Male and female participants combined – more likely to attend:* A multivariate analysis of the entire population, which omitted past services that were gender specific, showed that being male and non-white, married, having a confidant and having a female provider were all significant in predicting a preventive healthcare visit (no data presented) See appendix 5 for further details	***Authors' conclusions:*** Older individuals will respond to preventive programmes, and such services will result in modest health gains ***Comments:*** Uptake rates were not provided for the control group or for the individual tests performed

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Gimotty, 1996,[65] USA ***Objective:*** To determine if computer-generated reminders increase both Pap smear and mammography use ***Design:*** RCT ***Screening test(s):*** Mammogram, Pap smear	***Sample:*** 1961 women, aged ≥ 40 years, from three different clinics in a Detroit HMO, USA ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographic (insurance type). • Knowledge, behaviour, attitudes and beliefs (number of mammograms in the 2 years prior to the study) ***Follow-up:*** 1 year ***Drop-out:*** Not stated	***Multivariate analysis:*** A logistic regression analysis found significant differences in the effectiveness of the intervention among subgroups. The following were found to be significant: *More likely to attend:* • Women with at least one mammogram in the 2 years prior to the study (vs none): OR = 1.9; 95% CI, 1.2 to 3.1 (site 1) *Intervention more effective:* • Women with Medicare or Medicaid (vs commercial insurance): OR = 2.8; 95% CI, 1.6 to 5.0 (site 2); OR = 4.1; 95% CI, 1.8 to 9.2 (site 3) • Women who had no mammogram in the 2 years prior to the study (vs those with): OR = 4.1; 95% CI, 1.8 to 9.2 (site 3) See appendix 5 for further details	***Authors' conclusions:*** This study shows that physicians and patients in different clinics can respond to the same intervention in different ways. In the future, such coordinated interventions can be tailored to specifically promote ongoing use of both Pap smears and mammography, as well as to encourage the use of both procedures among underserved women. Interventions need to be developed with clinics' cancer screening objectives in mind ***Comments:*** Abstract only. No control group was used and no baseline data reported. It was therefore difficult to comment on the effectiveness of the intervention Women eligible for Pap smear and mammography would have differed in their age ranges. The results report the Pap smear and mammography rates separately when they were not considered as separate entireties for the intervention
Goodman, 1994,[105] USA ***Objective:*** To determine what proportion of high-risk adolescent girls would use confidential HIV testing services linked to primary care and to explore the characteristics, beliefs and experiences that distinguish those who obtain HIV testing and those who do not ***Design:*** Cohort ***Screening test(s):*** HIV antibody test	***Sample:*** 143 participants were chosen by convenience from adolescent girls (age 12–19 years) attending paediatric clinics based at a large urban HMO in Oakland, CA. Eligible participants were identified by chart review and included those engaged in risky behaviours (history of STD, unprotected sexual intercourse, drug use, prior pregnancy). Only those participants not planning to leave the San Francisco Bay area in the next 3 months were invited to participate. Of the 147 girls eligible, 143 agreed to take part in the study ***Setting:*** HMO (urban) ***Description and nature of determinants:*** • Socio-demographic (age, race, school status, family environment)	***Multivariate analysis:*** Three variables (previous discussion with a healthcare provider about HIV/AIDS, age of first sexual intercourse, sexually active peers) found to be significant in univariate analyses were entered into a multiple logistic regression analysis. Age, race and previous testing experience were also included in the multiple logistic regression in order to control for confounding factors. The only variable found to be significant in the multivariate analysis was: *More likely to attend:* • Had a prior discussion with a healthcare provider about HIV/AIDS (vs no discussion): OR = 3.47; 95% CI, 1.26 to 9.52	***Authors' conclusions:*** A significant proportion of adolescent girls engaging in risky behaviours will use confidential HIV counselling and testing services that are linked to primary care. Healthcare providers play an important role in helping teenagers address their risk for and concern about HIV infection by engaging adolescents in repeated discussions about HIV testing ***Comments:*** The small sample size precluded subgroup analysis, making racial, ethnic and other comparisons unfeasible and limiting the statistical power of the study. The authors stated that social desirability may have influenced the participants' responses. However, a chart audit of STD revealed a < 1% discordance rate between the medical-chart data and the participants' self-reported data. Only confidential and not

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (having a class on HIV/AIDS, viewing an educational video, age of first sexual intercourse, seat-belt use, worry about HIV infection, attitudes to condoms, trust among sex partners, self-efficacy regarding condom use and AIDS prevention, perceived risk of HIV infection, previous HIV-test behaviour, sexual risk behaviours, smoking, alcohol use, drug use) • Social influence (knowing a person with AIDS, peers' sexual activity, peers' belief in condom use, past discussions with healthcare provider about HIV testing, peers' use of condoms) ***Follow-up:*** 3 months ***Drop-out:*** 124/143 were included in the final analysis: 10 participants were excluded from the analysis for not having a discussion with their provider about testing, and 9 were excluded because forms tracking their testing decisions were missing. No intention-to-intervene analysis performed		anonymous testing was considered, and only adolescent females were included. The tests were performed free of charge
Grady, 1997,[66] USA ***Objective:*** To test the efficacy of behavioural techniques for increasing mammography referral rates by primary care physicians in small, community practices ***Design:*** RCT (cluster) ***Screening test(s):*** Mammogram	***Sample:*** *Physicians and practices:* Community based, non-academic, primary care practices in urban areas of Massachusetts, USA, which have ≤ 6 physicians, and provide primary care for 50 women aged 50 years per month, per physician. Presentations were given to 127/227 (66 refused to participate, 34 were not approached) physicians. 109 physicians, in 65 practices, then agreed to participate. 95 physicians in 61 practices completed the first year of the study *Women:* 11,716 women aged 50 years were identified consecutively from appointment books. All but 290 (2.5%) completed the final year, resulting in a final study sample of 11,426 ***Setting:*** Primary care practice (urban)	***Multivariate analysis:*** The only two variables that remained significant in the multiple regression were the non-white–experimental group interaction and the solo–experimental group interaction, indicating that the experimental intervention was significantly more effective with: • Physicians who were non-white or in a solo practice The resulting equation was highly significant ($F = 13.2$, $p < 0.001$), accounting for more than 20% of the variance (multiple $R = 47$; adjacent $R^2 = 0.21$) See appendix 3 for further details	***Authors' conclusions:*** Chart stickers can significantly increase mammography utilisation in small, community practices ***Comments:*** The 95 physicians who completed the first-year study were overwhelmingly white, male and middle aged. The findings of the study may be limited. The study used cross-sectional surveys (three time points) to collect data, and therefore causality cannot be attributable. Physicians who were older, non-white, had a second speciality, were in a solo practice and were not in the American Medical Association had a pattern of smaller increases in the control group and greater increases in the experimental groups

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Description and nature of determinants: • Determinants relating to healthcare provider (age, race, gender, medical school, residency, speciality, board certified, second speciality, board certified, years in practice, practise size, currently county medical society member, American Medical Association member) **F*ollow-up:*** Data were collected for 24 months after the study started ***Drop-out:*** Five physicians and one practice dropped out due to refusal to cooperate with procedures, 5 physicians and 3 practices dropped out due to insufficient volume of patients, and 4 physicians moved or retired 290 (2.5%) women in the patient sample did not complete the first year		
Janz, 1997,[67] USA ***Objective:*** To evaluate a two-step intervention for mammography screening among older women ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** 635 eligible women (aged 65–85 years, no history of breast cancer, no mammogram in the previous 24 months, not institutionalised, Genesee County residents) from 17 primary care practices in Genesee County, Michigan (caters for low socio-economic/minority women) were entered in the study ***Setting:*** Primary care practice (low socio-economic/minority) ***Description and nature of determinants:*** • Socio-demographic (race, age). • Knowledge, behaviour, attitudes and beliefs (past mammogram) ***Follow-up:*** One year ***Drop-out:*** Of the 635 eligible study participants who were randomised 175 were deemed ineligible because they had obtained a confirmed mammogram within 24 months, died, moved or	***Multivariate analysis:*** *12-month period – more likely to attend:* • Attended a previous mammogram (vs not attended): OR = 5.526; 95% CI, 2.73 to 11.20; $p = 0.0009$ • Aged 70–79 years and had received the intervention (vs aged 65–69 years): OR = 2.826; 95% CI, 1.01 to 7.91; $p = 0.0487$ • Aged 80–85 years and had received the intervention (vs aged 65–69 years): OR = 11.836; 95% CI, 1.25 to 112.09; $p = 0.0314$ *Within 2 months – more likely to attend:* • Attended a previous mammogram (vs not attended): OR = 4.048; 95% CI, 1.37 to 11.95; $p = 0.0119$ • White (vs non-white): OR = 4.234; 95% CI, 1.58 to 11.39; $p = 0.0021$ See appendix 5 for further details	***Authors' conclusions:*** The intervention significantly increased screening mammography. Future efforts must be multifaceted and incorporate the unique concerns of older women ***Comments:*** The study focused on women aged 65–85 years from low socio-economic and high minority areas The decision to add biennial mammography as a benefit covered by Medicare did not come into force until 1991. This study started in 1993 and so the introduction of Medicare screening may have had some effect on the women excluded from the study (under the criterion of having a mammogram within the previous 24 months)

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	resided in a nursing home (93 in the intervention group, 82 in the control group). No intention-to-intervene analysis		
Johnson, 1994,[83] USA ***Objective:*** To examine how cancer beliefs and cues to action related to the adoption of mammography screening ***Design:*** Cohort (wave 2), following on from a cross-sectional study (wave 1) ***Screening test(s):*** Mammogram	***Sample:*** 395 women aged 40 years who were randomly chosen from the telephone directory of a medium-sized, mid-western US city. Participants were asked to take part in a cross-sectional study (wave 1) followed by a longitudinal study (wave 2) ***Setting:*** Community (urban) ***Description and nature of determinants:*** • Socio-demographic (age, level of education) • Knowledge, behaviour, attitudes and beliefs (perceived seriousness, perceived vulnerability, confidence in recognising breast changes) • Health (health motivation, previous experience with cancer) • Barriers and facilitating conditions (doctor's recommendation) ***Follow-up:*** 1 year ***Drop-out:*** 16/395 (4%) women refused to respond to the post-wave-1 interview. 19% refusal rate for participation in wave 2 (7% of respondents were out of town, moved or died; 6% refused to provide answers). No intention-to-intervene analysis performed	***Multivariate analysis:*** Demographic variables were excluded from the discriminate analyses if they were not significantly related to screening behaviour in wave 1, and were not expected to fluctuate over the 1-year period. Additionally, for reasons unrelated to the findings of wave 1, the confidence question was excluded from wave 2. The following predictors (assessed at wave 1) were used in the stepwise discriminant analysis of attendance at wave 2 (shows standardised discriminant functions) *More likely to attend:* Standardised discriminant functions: • Received a doctor's recommendation (vs not): 0.94 • Had a personal experience with cancer (vs not): 0.19 • Perceived breast cancer to be serious (vs not): 0.18 *Less likely to attend:* Standardised discriminant functions: • Had confidence in recognising changes in one's breasts (vs not): 0.23 $n = 309$; df = 4; $\chi^2 = 177.29$ ($p < 0.05$); Wilks' $\lambda = 0.56$; canonical correlation 0.66; box M 3.93 The best predictor was a doctor's recommendation, followed by confidence in one's ability to recognise changes in one's breasts, personal experience with cancer, and perceived seriousness	***Authors' conclusions:*** Stepwise discriminant analyses conducted on a sample of women aged 40 years ($n = 395$) revealed that a doctor's recommendation to have a mammogram was the most important predictor of ever having had a mammogram as well as of adopting initial screening. Personal experience with cancer in one's social environment and perceived seriousness of breast cancer also were consistently related to ever having had a mammogram as well as with adopting initial screening ***Comments:*** The study only included women who had previously enrolled in the first wave of the trial. The sample sizes in wave 2 were small, and the results should be considered to be exploratory because of this Determinants were based on the Health Belief Model

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Kang, 1993,[84] USA ***Objective:*** To examine the relationship between social support and use of cancer screening tests among older black Americans ***Design:*** Controlled (cluster) ***Screening test(s):*** Mammogram, Pap smear, DRE, sigmoidoscopy, FOBT	***Sample:*** Black Americans (361 women, 256 men) aged 55 years from randomly selected households (in Oakland, CA, intervention; San Francisco, control) from 200 blocks where at least 25% of residents were black Americans. The overall response rate to the baseline survey was 68% (67% for Oakland, 69% for San Francisco). The total number of participants in the study was 617 out of a total sample of 2004. ***Setting:*** Community ***Description and nature of determinants:*** • Socio-demographic (age, education, family income, insurance) • Social influence (Social Network Index). • Health (health status, regular source of care) ***Follow-up:*** 5 years ***Drop-out:*** Data missing from the determinant analyses. 14 observations were missing from the mammography analysis and 24 from the FOBT. There is no information on missing data for the four remaining screening tests	***Multivariate analysis:*** The results of the multiple logistic regression for the six screening tests were mixed. The significant predictors for each test are as follows: *Mammogram – more likely to attend:* • High Social Network Index score (vs low): OR = 1.27; 95% CI, 1.01 to 1.6; coefficient 0.24; SE = 0.12 • Had other insurance (vs HMO insurance): OR = 3.19; 95% CI, 2.03 to 5.00; coefficient 1.16; SE = 0.23 *Mammogram – less likely to attend:* • Had Medi-Cal insurance (vs HMO insurance): OR = 0.39; 95% CI, 0.20 to 0.76; coefficient –0.94; SE = 0.34 *FOBT – less likely to attend:* • Had Medi-Cal insurance (vs HMO insurance): OR = 0.52; 95% CI, 0.31 to 0.86; coefficient –0.66; SE = 0.26 • Had other insurance (vs HMO insurance): OR = 0.54; 95% CI, 0.36 to 0.81; coefficient –0.62; SE = 0.21 *Pap smear – more likely to attend:* • Age (no further details): $p < 0.05$ • Time of the survey (no further details): $p < 0.05$ *Pap smear – less likely to attend:* • Older women were less likely to have had a cervical smear (vs younger women) (no further details): OR = 0.54; 95% CI, 0.31 to 0.94; coefficient –0.61; SE = 0.28 *DRE – more likely to attend:* • Had a regular source of care (vs none): $p< 0.1$ *Sigmoidoscopy – more likely to attend:* • Had 1–3 years of college education (vs high-school graduate or equivalent): $p < 0.01$ See appendix 5 for further details	***Authors' conclusions:*** Statistically significant positive associations were identified between social support and the use of mammography and FOBT. The other cancer screening tests showed no significant associations. There were statistically significant associations between having HMO insurance and increased use of mammography and FOBT, compared with having Medi-Cal or other insurance. The interval between the surveys had a statistically significant positive association with use of mammography. These significant associations were not explained by differences in the other variables, which included health status, age gender, education, type of health insurance, interval between the surveys and regular source of care ***Comments:*** The study used data and study participants from an intervention trial.[311,312] Data were missing from the determinant analyses. The study participants were mainly low income, black Americans

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Kendall, 1993,[106] USA ***Objective:*** To establish the relative effectiveness of three reminder letters on making and keeping repeat mammogram appointments ***Design:*** Controlled ***Screening test(s):*** Mammogram	***Sample:*** 150 women from a medium sized medical centre in the south-eastern USA, aged 36–80 years (mean age 54.3 years) and due for repeat screening mammography. Eligible women fulfilled the following criteria: they had had at least one mammogram at the facility; their recommended follow-up frequency for repeat mammography was no more often than annually; and they had never been diagnosed as having cancer in either breast ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age) • Knowledge, behaviour, attitudes and beliefs (number of previous mammograms, performance of BSE) • Health (family history of breast cancer) ***Follow-up:*** 30 days ***Drop-out:*** Not stated	***Multivariate analysis:*** Two stepwise discriminant analyses performed. One compared women who scheduled mammograms with those who did not, and the other compared those who actually had mammography with those who did not, either because they did not schedule an appointment or because they scheduled but failed to keep the appointment. The results of the two analyses were similar and demonstrated a significant degree of separation between the groups: scheduled vs not scheduled, $\chi^2 = 8.6$, $p = 0.03$ ($n = 150$); mammography vs no mammography, $\chi^2 = 12.5$, $p = 0.006$ ($n = 150$). In both analyses the same three variables significantly discriminated among the groups *More likely to attend:* • Had a family history of breast cancer (no further details) • Aged 50 years old (no further details) See appendix 5 for further details	***Authors' conclusions:*** Our hypothesis that the reassuring letter intervention would be the most effective in motivating women to attend for mammography was partially supported. Significantly more women who received the reassuring letter intervention actually kept their appointment to attend for mammogram, as compared to those who received the standard letter (control). Subsequent analyses suggested that having a family history of breast cancer, receiving a reassuring letter, and being older than 50 years were important factors in scheduling an appointment, and subsequently attending for mammography ***Comments:*** The sample size was very small and no sample size or power calculations were reported
Kiefe, 1994,[117] USA ***Objective:*** To evaluate the effectiveness of Medicare in removing financial barriers to screening mammography among low-income older women ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** 530 women aged 60–89 years were selected from a general medical clinic in an inner-city hospital in the USA. 291/530 women were excluded because they met the following exclusion criteria: severely ill ($n = 37$); a personal history of breast cancer ($n = 17$) or first-degree relative with breast cancer ($n = 31$); a mammogram within the previous 2 years ($n = 197$); and signs or symptoms of breast disease ($n = 9$). The remaining 239 women were asked to take part in the study. 34/239 refused to take part, 119 participants were subsequently randomised to two intervention groups ***Setting:*** Hospital (inner city) ***Description and nature of determinants:*** • Socio-demographic (age, race, marital status, living alone, car in household, years of schooling, employment, income range)	Cost was a major barrier to screening uptake. A significant difference was found between the rate of mammograms in the voucher group, and those who did not receive a voucher (44% and 10%, respectively; $p < 0.001$) ***Multivariate analysis:*** Multiple logistic regression was performed with obtaining a screening mammogram as the dependent variable. Initially the model included all the variables (see determinants) as independent variables. After backward stepping and elimination at the $p < 0.20$ level, only one variable remained significant *More likely to attend:* • If received a voucher (vs not): OR = 7.4; 95% CI, 2.5 to 21.4; $p < 0.001$ See appendix 5 for further details	***Authors' conclusions:*** In a low-income, inner-city population of older women, financial barriers to screening mammography persist despite Medicare coverage. The data show that in the population studied, increasing knowledge of the need for mammogram does not overcome cost as a barrier to access. For women without the voucher intervention, the main reason for not obtaining a mammogram was financial. For those who did receive a voucher the main reason was transportation ***Comments:*** The participants were mainly from a low-income inner-city population. The study did not take into account the different forms of cost sharing implicit in the present Medicare reimbursement policy. A large number of women (86/205) were excluded as they were not enrolled in Medicare

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (previous mammogram, BSE last month, knowledge, tobacco use, alcohol use). • Barriers and facilitating conditions (fears – painful, embarrassing, X-rays, fear of finding cancer; physician recommended mammogram). • Health (visit to general medicine clinic in the last year) ***Follow-up:*** 2 months. ***Drop-out:*** Outcomes were assessed in 108/119 study participants. No intention-to-intervene analysis was performed		
King, 1998,[85] USA ***Objective:*** To evaluate the impact of mammography-enhancing interventions in 40 senior citizens' housing facilities ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** 40 senior citizens' housing facilities in Pennsylvania and North Carolina (93 contacted, 22 declined, 31 did not meet inclusion criteria). Facilities were eligible if: they had at least 40 female residents aged 65–84 years; could provide a list of eligible residents' names and telephone numbers; had not had breast cancer education or been visited by a mobile mammography van during the preceding 2 years. Data were collected from a sample of women from each facility. Inclusion criteria for women were: age 65–84 years; not had a mammogram within the preceding 2 years; most recent mammogram for screening purposes only; no history of breast cancer; and completed 6-month follow-up survey. 1505 women completed the baseline survey; 919 were excluded as they reported having had a mammogram within the preceding 2 years. Of the remaining 586, 436 met the inclusion criteria ***Setting:*** Senior citizens' housing ***Description and nature of determinants:*** • Socio-demographic (age)	***Multivariate analysis:*** Logistic regression analysis identified the following significant predictors of mammography use at 6 months: *More likely to attend:* • Showed intention to attend screening (vs no intention): OR = 3.83; 95% CI, 2.15 to 6.85; $p < 0.001$ • Increasing age (associated with a 1-year increase in age) (vs decreasing age): OR = 0.94; 95% CI, 0.90 to 0.99; $p = 0.02$ • Had mammography and were in the combined intervention group (vs not): OR = 11.82; 95% CI, 1.11 to 126.22; $p = 0.04$ See appendix 5 for further details	***Authors' conclusions:*** Individually targeted and tailored interventions may be needed to encourage mammography use among women who have never had a mammogram and/or express no intention of having one ***Comments:*** Determinants based on the PRECEDE model

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (intention, prior mammography) ***Follow-up:*** 6 months ***Drop-out:*** Not stated		
Kreuter, 1995,[86] USA ***Objective:*** To determine the effects of physician gender on rates of Pap testing, mammography and cholesterol testing when identifying and adjusting for demographic, psychosocial and other patient variables known to influence screening rates ***Design:*** RCT ***Screening test(s):*** Mammogram, Pap test, cholesterol test	***Sample:*** 3772 eligible patients (aged 18–75 years) were approached from 12 community-based group family practice medicine offices, while waiting to see a physician. Patients were asked to complete a baseline questionnaire survey in order to identify those due for screening. 801 patients refused to participate and a further 153 were excluded due to missing data. The final baseline sample comprised 2818 patients. 2352 then completed a follow-up survey, of which only 1850, who could identify one of 37 physicians as being his or her regular care provider, were included in the analysis ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age) • Barriers and facilitating conditions (gender of provider) ***Follow-up:*** 6 months ***Drop-out:*** 2352 (83%) completed the follow-up questionnaire. Of these, 502 patients did not identify one of 37 physicians as their regular physician, and were therefore excluded	***Bivariate analysis:*** Showed no significant difference in baseline screening rates between the patients of the female and male physicians ***Multivariate analysis:*** There was no significant difference in the screening rates of patients of the male and female physicians for mammography screening (OR = 1.13; 95% CI, 0.66 to 1.96). The following were found to be significant in the multivariate analysis: *Pap smear – more likely to attend:* • Had a female physician (vs male): OR = 1.47; 95% CI, 1.08 to 2.24 *Cholesterol test – more likely to attend:* • Had a female physician (vs male): OR = 1.56; 95% CI, 1.08 to 2.24 See appendix 5 for further details	***Authors' conclusions:*** In general, patients of female physicians were screened at a higher rate than were the patients of male physicians, even after adjusting for important patient variables. These findings were not limited to gender-specific screening activities (e.g. Pap testing), as in some previous studies. However, the patients of female physicians were aggressively screened for breast cancer at the youngest ages, where there is little evidence of benefit from mammography. Larger studies are needed to determine whether the pattern of effects reflects a broader phenomenon in primary care ***Comments:*** Data on mammography screening included women aged 35–39 years. Some physicians may perceive this age category as being too young for a mammogram Of the original 3772 eligible patients approached, only 1850 were included in the data analysis. Determinants were based on the Transtheoretical Model
Lubitz, 1995,[87] USA ***Objective:*** To determine if obese and morbidly obese women are as likely to receive Pap smears as non-obese women ***Design:*** RCT ***Screening test(s):*** Pap smear	***Sample:*** 15 faculty and 77 resident physicians who delivered care to 1321 women in a large, academic general medicine practice providing primary care to an urban (low-income) population at a university-affiliated municipal teaching hospital. All were eligible for Pap smears. Only 970 women were included in the data analysis. Obese women, body weight 130–200% of ideal; morbidly obese, body weight > 200% of ideal	***Multivariate analysis:*** Only the following was found to be significant: • Physicians of women that were morbidly obese were more likely to respond that the Pap smear was delayed due to 'acute illness, vaginitis, and menstruation': OR = 4.59; 95% CI, 1.67 to 12.5 See appendix 5 for further details	***Authors' conclusions:*** In our general medical practice, obesity does not appear to be associated with lower Pap smear performance. Physicians are more likely to report delaying obese patients' Pap smears due to acute illness, vaginitis, or menstruation

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Setting: Hospital (academic teaching/urban/low income) ***Description and nature of determinants:*** • Determinants relating to healthcare provider (reasons given by healthcare provider for not performing smear including patient discomfort/ fear/believed unnecessary, lack of patient time, lack of physician time, acute illness/vaginitis/ menstruation, terminal illness/old age) ***Follow-up:*** Not stated ***Drop-out:*** 332 (25%) were excluded because the physicians did not complete the intervention questionnaire. A further 19 were excluded because of a weight < 60% of ideal. There was no significant difference between the 970 women studied and 332 women excluded due to missing data. For 297 of the 970 women included in the analysis, physicians failed to complete the section stating why the patient had not received a Pap smear		***Comments:*** The overall screening rates were very low. There was no response category for the 'patient being obese' as a reason for not doing a Pap smear in the physician questionnaire
Macrae, 1984,[107] Australia ***Objective:*** To assess the influence of a variety of determinants on the uptake of FOBT ***Design:*** Cohort ***Screening test(s):*** FOBT	***Sample:*** 778 patients (aged 40–75 years) from 14 practices in a rural city. Patients were enrolled consecutively when attending for normal consultations. 197/778 were excluded for medical reasons (symptoms of colorectal cancer, previous history of cancer, gastrointestinal disease, treatment with anti-inflammatory drugs, infirmity, or severe stress), leaving 581 patients to participate in the study (33% men, 67% women) ***Setting:*** Primary care practice (rural) ***Description and nature of determinants:*** • Knowledge, behaviour, attitudes and beliefs (perceived susceptibility, perceived severity, perceived efficacy of test, motivation, interest and concern)	***Multivariate analysis:*** Components of the Health Belief Model were regressed on the Haemoccult behavioural index (the interest and concern items for health motivation combined in a composite score). Barriers and susceptibility were the only factors found to be significant (efficacy, health motivation and severity were not significant) *More likely to attend:* • Barriers (no further details provided): $\beta = -0.33$; $p < 0.01$ • Susceptibility (no further details provided): $\beta = 0.12$, $p < 0.01$	***Authors' conclusions:*** Determinants were more closely related to the participants' immediate behaviour than to behaviour taking place later and away from the doctor's offer. Real and perceived susceptibility were positively related to acceptance of the test, and high-risk target groups for whom the rewards of screening are greatest clearly responded positively to the test kit offer. Subjective stress concerning the risk of bowel cancer, though higher in participants with colonic symptoms and relatives with colorectal cancer, had neither a direct nor interactive influence on test-taking behaviour. Finally the Health Belief Model was partially supported by this study, and its 'barrier' component was particularly important in explaining acceptance/refusal behaviour

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• • Barriers and facilitating conditions (embarrassment, distaste, worry, discomfort, inconvenience, put off by the diet) ***Follow-up:*** Not stated ***Drop-out:*** 83/581 (14%) of the participants who were offered FOBT by their doctor refused it		***Comments:*** Participants were recruited by the GP when they attended the surgery and completed the questionnaire Determinants were based on the Health Belief Model
Malotte, 1998,[68] USA ***Objective:*** To assess the independent and combined effects of different levels of monetary incentives and theory-based educational intervention on return for tuberculosis skin test reading in a sample of active injection drug and crack cocaine users. Prevalence of tuberculosis infection within this sample was also determined ***Design:*** RCT ***Screening test(s):*** Tuberculosis skin test (Mantoux test)	***Sample:*** Active or recent drug users (who were not in a drug programme) (n = 1004) were recruited from an AIDS Community-Based Outreach/ Intervention Research Programme, Long Beach, California (April and August 1995). Recruitment was either direct through street out-reach, or after completion of participation in a street out-reach project aimed at HIV prevention for out-of-treatment drug and crack users. Participants were interviewed about their tuberculosis and drug use history. Individuals providing a clear history of a positive skin test were considered infected and were not eligible for the study ***Setting:*** Community-based out-reach project ***Description and nature of determinants:*** • Socio-demographic (age, race, gender, education, living arrangements, work status) • Health (prior tuberculosis exposure, urine drug results) • Knowledge, behaviour, attitudes and beliefs (prior study participation, reported return intention, binge drinking, ever injected drugs, ever used crack, ever been in drug treatment) ***Follow-up:*** An outside limit of 4 days (96 hours) for reading skin tests was used ***Drop-out:*** Intention-to-intervene analysis performed	***Multivariate analysis:*** The following were found to be significant in the multivariate analysis: *More likely to attend:* • Not working (vs involved in some form of work): OR = 2.31; 95% CI, 1.50 to 3.46 • Aged 41–50 years (vs 18–30 years): OR = 2.05; 95% CI, 1.17 to 3.61 • Expressed an intention to return for screening (vs expressed intention other than very likely to return): OR = 1.65; 95% CI, 1.01 to 2.68 • Reported a prior condition requiring treatment (vs not): OR = 1.57; 95% CI, 1.03 to 2.31 See appendix 5 for further details	***Authors' conclusions:*** Monetary incentives dramatically increase the return rate for tuberculosis skin test reading among drug users who are at a high risk of tuberculosis infection ***Comments:*** The research design was explained to all participants whilst obtaining informed consent. Participants' knowledge that some individuals were receiving a monetary incentive to return may have resulted in a negative impact on the motivation of those receiving no incentive Determinants were based on the Theory of Reasoned action Model

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Marcus, 1993,[88] USA ***Objective:*** To determine the effect of proactive counselling on the uptake of mammography ***Design:*** Quasi-RCT ***Screening test(s):*** Mammogram	***Sample:*** Women calling two Cancer Information Service regional offices (states not identified). Women were eligible if aged 40 years, not calling about breast cancer or breast cancer screening or reporting breast cancer symptoms, not a cancer patient, and had not made a previous call to a cancer information service during the recruitment period ***Setting:*** Cancer Information Service offices ***Description and nature of determinants:*** • Socio-demographic (age, education, caller type, i.e. friend or relative of a cancer patient, general public or other) Other determinants were assessed but were not included in the regression analysis ***Follow-up:*** 12 months ***Drop-out:*** Of the subset analysed (participants from site A, who had a total family income of >$30,000), 170/783 participants had missing data on income, and 103/783 participants had data missing on their education	***Multivariate analysis:*** A logistic regression analysis was carried out on data from one of the two sites (site A), looking at callers with > $30,000 total family income. An inverse relationship was identified between screening attendance and the age of the caller *Less likely to attend:* • With increasing age (vs decreasing age) (considered as a continuous variable): OR = 0.98; 95% CI, 0.96 to 0.99; parameter estimate –0.023; $p = 0.003$ See appendix 5 for further details	***Authors' conclusions:*** The proactive counselling protocol tested in the study was found to be effective among a subgroup of Cancer Information Service callers (with a total family income of > $30,000), which constitutes nearly 60% of all age-eligible female callers to the service. With respect to this population subgroup, there would appear to be sufficient evidence to merit dissemination research to examine the diffusion and exportability of the counselling intervention ***Comments:*** The logistic regression analysis only included a subgroup of the total study population. Missing data were replaced by mean values. Overall, the vast majority of women were white/ Anglo Saxon (90%), with at least a high-school education (95%) education
Margolis, 1998,[89] USA ***Objective:*** To determine if women would have higher breast and cervical cancer screening rates if lay health advisers recommended screening and offered a convenient screening opportunity ***Design:*** Quasi-RCT ***Screening test(s):*** Mammogram and Pap smear	***Sample:*** 4247 women aged ≥ 40 years, who were due to attend appointments in several non-primary care outpatient clinics between July 1992 and August 1994 at Hennepin County Medical Centre (Minnesota, USA). 1544/4247 failed to attend their appointments, 459/4247 were lost to recruiting, and 336/4247 were ineligible. 1908/4247 of these women were approached, and 1693 agreed to take part in the study. Most of the participants were recruited from the surgery and orthopaedics clinics (85%), and the reminder came from the ophthalmology, dental and psychiatry clinics. The authors planned to include enough Native American participants to test the study hypothesis in this subgroup; thus, Native American women aged 40 years were eligible. Women were	***Multivariate analysis:*** Logistic regression analyses were carried out on a subgroup of the total study population, who were due for screening at baseline (as opposed to up-to-date at baseline) Two models were used: model 1 including intervention status, age, insurance payer and race; and model 2 including race-specific intervention effects, age and insurance payer *Mammography (model 1) – more likely to attend:* • African-American (vs white): OR = 1.16; 95% CI, 1.06 to 2.44 *Mammography (model 1) – less likely to attend:* • Aged 40–59 years (vs 60 years): OR = 0.68; 95% CI, 0.48 to 0.97	***Authors' conclusions:*** Breast and cervical cancer screening rates were improved in women attending non-primary care outpatient clinics by using lay health advisers and a nurse practitioner to perform screening. The effect was strongest in women in greatest need of screening ***Comments:*** The number of women in the final multivariate analysis was small compared to the initial sample Women were considered due for smear screening if their last test was > 12 months before entry into the study. However, the guidelines recommend screening every 1–2 years, so some women may not have been considered as due for screening

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	excluded if they were too disoriented to give their address, were acutely ill or refused to participate (*n* = 215). Women who had a history of cervical cancer or hysterectomy were eligible only for the breast cancer screening component of the intervention, and vice versa. 35/1693 had a history of breast cancer, leaving a final sample of 1658 for the breast cancer study. 591/1693 women had a hysterectomy, or history of cervical cancer, leaving 1102 eligible for the cervical cancer study ***Setting:*** Primary care practice. ***Description and nature of determinants:*** • Socio-demographic (age, race, insurance status) ***Follow-up:*** 12 months after the women were due for screening ***Drop-out:*** 2339/4247 women in the original sample population were not approached to take part in the study as they missed their clinic appointment (*n* = 1544), were lost to recruiting (*n* = 459) or were ineligible (*n* = 336). 1908 women were approached to take part in the study 215/1908 eligible women refused to take part in the trial. The multivariate analysis included only a subgroup of women who were due for screening at baseline. This included 759/1483 for the mammography study, and 536/967 for the Pap smear study	• Native American (vs white): OR = 0.64; 95% CI, 0.42 to 0.97 *Mammography (model 2)* – more likely to attend: • Covered by Medicare insurance (vs no insurance): OR = 1.80; 95% CI, 1.01 to 3.19 *Mammography (model 2) – less likely to attend:* • Aged 40–59 years (vs 60 years): OR = 0.67; 95% CI, 0.47 to 0.97 *Mammography (model 2):* The effect of the intervention group was only significant in: • Native American: OR = 2.59; 95% CI, 1.25 to 5.37. • Women of another nationality: OR = 8.76; 95% CI, 2.42 to 31.67 *Pap smear (model 1):* • See intervention tables *Pap smear (model 2):* The effect of the intervention group was only significant in: • White women: OR = 1.72; 95% CI, 1.09 to 2.71 See appendix 5 for further details	
Maxwell, 1996,[90] USA ***Objective:*** To examine the prospective predictors of interval mammography screening ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** Participants were recruited through random digit dialling of exchanges in the Los Angeles, USA, district. Baseline interviews were conducted with 802 English-speaking women, aged ≥ 40 years or over. The women were randomly assigned to either the control or mail intervention groups. Follow-up interviews were conducted after years 1 and 2. 552/802 women completed all the	***Bivariate analysis:*** *Significant predictors of attendance for one mammogram versus none:* health insurance (χ^2 = 0.043); knowledge of guidelines (χ^2 = 0.024); concern over radiation (χ^2 = 0.008); fear of finding cancer (χ^2 = 0.037); likelihood of obtaining a mammogram if recommended by physician (χ^2 = 0.004); had a screening mammogram (χ^2 = 0.001)	***Authors' conclusions:*** Bivariate and multivariate analyses indicated that having had a recent screening mammogram was the strongest predictor of interval screening. Additional predictors tended to be access factors, such as income, health insurance, and concern regarding cost. Attitudinal or belief factors that have often been related to repeat screening in cross-sectional

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	interviews and were included in the analyses. 28/513 of these women reported having breast cancer and were excluded, leaving 485 women ***Setting:*** Community (urban) ***Description and nature of determinants:*** • Socio-demographic (age, ethnicity, marital status, education, income, health insurance). • Knowledge, behaviour, attitudes and beliefs (knowledge of screening guidelines, had recent screening mammogram, likelihood of obtaining a mammogram if physician recommended, perceived efficacy of mammography, perceived susceptibility, perceived efficacy of early detection). • Health (family history of breast cancer). • Barriers and facilitating conditions (concern over radiation, cost as a barrier, fear of finding cancer) ***Follow-up:*** 24 months ***Drop-out:*** 626/802 (78%) of the original participants in the study completed the follow-up interview 1 year later. 552/802 (69%) completed the interview 2 years after the start of the trial. Of the women who were not interviewed at the 2-year follow-up ($n = 250$), 86% could not be reached, 9% declined to be interviewed, and 5% were ill or deceased. 513/802 women completed all three interviews; however 28, of these reported having breast cancer and were excluded. Mean values were substituted for missing values in the analyses	*Significant predictors of attendance for two mammograms versus one:* education ($\chi^2 = 0.003$); income ($\chi^2 = 0.042$); health insurance ($\chi^2 = 0.39$); cost as a barrier ($\chi^2 = 0.011$); fear of finding cancer ($\chi^2 = 0.51$); had a recent mammogram ($\chi^2 = 0.001$) ***Multivariate analysis:*** Two predictor values were found to be significant in the logistic regression analyses: *More likely to attend:* • Had a recent screening mammogram (vs not): OR = 2.96; 95% CI, 1.55 to 5.65; $\beta = 1.09$ *Less likely to attend:* • Cost was a barrier (vs not): OR = 0.80; 95% CI, 0.67 to 0.95; $\beta = -0.22$ See appendix 5 for further details	studies were not prospectively predictive of interval screening. The findings suggest that motivating women to get an initial screening mammogram may be the most important strategy for promoting interval screening ***Comments:*** The logistic regression analysis only looked at data from 232/485 women, who had complete data on all predictor values. Missing data in the bivariate and multivariate analyses was replaced by mean values, which may introduce bias into the analysis Women were included in the analyses if they had participated in all three interviews; they may, however, have differed in their screening behaviour as compared to women who did not complete all the interviews Interval mammography screening was assessed only during the 2-year period of the study. Therefore, generalisations about long-term interval screening are limited
Mayer, 1993,[69] USA ***Objective:*** To promote mammography among employees by means of printed media, on-site workshops and incentive drawings. To educate insured employees regarding their insurance coverage and to address other potential barriers to mammography	***Sample:*** 600 women randomly selected from the intervention campus, California State University (out of 926 eligible women), and 513 women were randomly selected from a control campus (out of 782 eligible women). Sample-size calculations were based on achieving differential uptake rates of 23% between intervention and control groups. Participants were ≥ 35 years, and received health insurance through the university's benefits plan	***Multivariate analysis:*** The number of women included in the logistic regression was 626. Only one variable was found to have a significant association with attendance: *More likely to attend:* • Showed an intention to attend: $p < 0.0001$ See appendix 5 for further details	***Authors' conclusions:*** The results indicated that, although the rates of mammography and awareness of insurance coverage increased significantly at a worksite receiving the intervention, they also increased at a control worksite. The absence of a statistically significant difference the changes between the sites weakened any effects that can be attributed to the intervention

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Design: Controlled trial (cluster) ***Screening test(s):*** Mammogram	***Setting:*** University (worksite) ***Description and nature of determinants:*** • Socio-demographic (age, title, ethnicity). • Knowledge, behaviour, attitudes and beliefs (mammogram in last year, baseline intentions, insurance awareness) ***Follow-up:*** 1 year ***Drop-out:*** Response rates for the initial survey were 80% in the intervention group and 77% in the control group. For the final survey the response rates (of the responders from the initial survey) were 89% (intervention) and 92% (control). Also, women aged 35–39 years were excluded from the analysis, as not enough participants were recruited		***Comments:*** The high mammography attendance rates could have been a function of the high level of employment and insurance, and the relatively high education level of the participants. Not all these factors were considered in the determinant analysis. In addition mammography was actively promoted by the American Cancer Society units, which may have increased attendance levels
Miller, 1996,[124] USA *Objective:* To identify sexual behavioural risk factors for HIV infection among adolescent females associated with the decision to accept the HIV test and subsequently to return for the results ***Design:*** Cohort ***Screening test(s):*** HIV-antibody test	***Sample:*** 470 women attending a family-planning clinic in the South Bronx, New York, USA who enrolled between 21 August 1990 and 31 December 1991 took part in the study. All participants were interviewed and took part in pre-test counselling and a condom-use demonstration, and were then offered an HIV test ***Setting:*** Family planning clinic (urban) ***Description and nature of determinants:*** • Socio-demographic (age, marital status, have children or not) • Knowledge, behaviour, attitudes and beliefs (anal sex in past year, number of sexual partners in previous year, condom usage, same-day sex in past year) ***Follow-up:*** 2 weeks ***Drop-out:*** Not stated	***Multivariate analysis:*** All variables were entered into the multivariate analysis, but only the following were found to be significant: *More likely to attend:* • Had two sexual partners (vs one): slope = 0.33 • Had three or more partners (vs one): slope = 0.58 • Never used a condom in the last year (vs had): slope = 0.31	***Authors' conclusions:*** Voluntary HIV testing in this group can identify women with behavioural risks of HIV infection. Thus, voluntary HIV testing may be effective in targeting persons at high risk because behavioural risks are associated with the decision to take an HIV test ***Comments:*** The study is limited by the lack of client participation rates. It is possible that women with low-risk histories would have avoided participation in the study assuming that it was not relevant to them, however the authors state that it is unlikely that there was a bias given the number of women who participated who had lower risk profiles. The pre-testing interview and educational sessions, which examined risk factors, may have heightened the participants' awareness and hence affected their decision to be tested. Women were given $10 to participate in the study

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Montano, 1991,[108] USA ***Objective:*** To test an expanded Theory of Reasoned Action to predicted mammography participation ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** 946 women aged ≥ 40 years who were invited to obtain a mammogram at the Group Health Co-operative of Puget Sound Breast Cancer Screening Programme. The sample was stratified by risk category as determined by the screening programme. 683 (72%) women completed and returned the study questionnaire ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographic (income, education, marital status, age) • Knowledge, behaviour, attitudes and beliefs (how likely women were to get a mammogram done that year; affect associated with having a mammogram (e.g. good, beneficial, unpleasant, frightening); expectations or beliefs and value associated with outcome; previous mammography in last 5 years; number of Pap smear tests in previous 4 years; perceptions of susceptibility, severity and efficacy (Health Belief Model), exercise; seat-belt use) • Social influences (potential source of influence by regular physician, husband, women friend(s), daughter(s), sister(s), regular nurse, prominent women and group health cooperative) • Barriers or facilitating conditions (effect of mediating influences such as 'usual daily schedule', 'easy' or 'difficult' to obtain mammogram, transportation). ***Follow-up:*** 6 months ***Drop-out:*** 17 women were excluded from the analysis as they had obtained a mammogram prior to completing the study questionnaire. Three were excluded due to missing data on participation (1 completed the study questionnaire, 2 did not)	***Multivariate analysis:*** Regression analysis found the following to be significantly predictive of screening attendance: *More likely to attend:* • Attitude, affect, subjective norm, and facilitating (no further details): R^2 change 0.06; $p < 0.01$ • Had a greater number of years education (vs fewer): R^2 change 0.04; $p = 0.01$ • Aged 60–75 years (vs all other ages): R^2 change 0.01; $p = 0.01$ • Never married (vs ever married): R^2 change 0.01; $p = 0.01$ *Less likely to attend:* • Had more previous mammograms (vs fewer): $r = -0.10$ Women aged < 60, 60–75 and > 75 years had significantly different participation rates ($\chi^2 = 10.8$; $p < 0.01$) with a significant multiple correlation ($r = 0.13$; $p < 0.01$)	***Authors' conclusions:*** Attitude, subjective norm and affect were all found to be significant direct predictors of intention and participation. A stepwise hierarchical regression found that no other psychosocial measures were able to improve the model predictions of behaviour. An interaction between habit and intention was found such that women with larger numbers of previous mammograms were less likely to carry out their intentions than women with previous mammograms. Contrary to expectations, some demographic characteristics did significantly improve prediction. The expanded Theory of Reasoned Action Model explained 39% of the variance in women's intentions and 20% of the variance in participation behaviour. The need for further work investigating the roles of fear and experience is discussed ***Comments:*** The study did not identify individual determinants of screening behaviour. Women who did not respond to the questionnaire were much less likely to obtain mammograms. The authors did not investigate whether they differed with respect to their determinants from those included in the multivariate analysis (i.e. those who responded to the questionnaire) Determinants were based on the Theory of Reasoned Action

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Murata, 1992,[91] USA ***Objective:*** To determine whether visits by women for Pap smears serve as opportunities for physicians to order a screening mammogram ***Design:*** Case-controlled trial (matched). ***Screening test(s):*** Mammogram	***Sample:*** Eligible women included those aged > 50 years who had no history of breast cancer or mastectomy and who had made at least one visit to a family practice residency programme during the 2-year study period (n = 807). From the 807 eligible women, 229 were noted to have had a mammogram during the study period. Of these, 136 records were randomly selected for auditing and a total of 121 women were included in the study (6 were excluded because of previous breast cancer or mastectomy). Women were also excluded if their notes were missing (n = 7) or if computerised data did not match that in the notes (n = 2) For each included case, one control subject who did not have a mammogram was matched by age (stratified by 5-year intervals) and number of visits during the study period (1–3, 4–6 or ≥ 7) From the 578 identified potential control participants, 180 charts were selected to obtain the 121 needed. The medical records of 18 women could not be located, and 8 other women had a history of breast cancer or mastectomy ***Setting:*** Family practice residency training programme ***Description and nature of determinants:*** • Socio-demographic (race, ethnicity, marital status, type of insurance coverage) • Knowledge, behaviour, attitudes and beliefs (previous Pap smear completion) • Health (other breast problems, family history of breast cancer in mother or sister, previous hysterectomy, number of major medical problems)	***Multivariate analysis:*** The following were used in the multivariate analysis :Pap smear completed; age; number of visits; non-white race; married; Medicaid or no insurance; previous hysterectomy; family history of breast cancer. The following were found to be significant in the multivariate analysis: *More likely to attend:* • Had a Pap smear during the study period (vs not): OR = 8.79; 95% CI, 6.24 to 12.3 • Aged ≥ 70 years (vs < 70 years): OR = 1.93; 95% CI, 1.15 to 3.26 • Had a family history of breast cancer (vs not): OR = 2.41; 95% CI, 1.04 to 5.57. • Had a hysterectomy (vs not): OR = 2.32; 95% CI, 1.62 to 3.32 *Less likely to attend:* • Had Medicare or no insurance (vs all other insurance): OR = 0.319; 95% CI, 0.208 to 0.481	***Authors' conclusions:*** Performing a Pap smear appears to serve as a prompt for the physician to order a screening mammogram. That physicians appear to provide screening tests, particularly Pap smears and mammograms, as a package of services should be considered when future efforts to improve implementation are made ***Comments:*** As noted by the authors the study was conducted in a single family practice, which may limit its generalisability. No information was presented on the methodology of the FOBT test, but it was included in the results (without the raw data) There was a problem with misclassification among the control participants; 33 potential control participants were excluded after the chart audit found mammograms ordered or completed that had not been noted in the computerised data system. There were additional confounding variables that were not controlled for, such as patients' education level and the patients' or physicians' attitudes towards health screening. Another important unmeasured variable was the reason for the visit to the physician

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Follow-up: 2 years ***Drop-out:*** Nine cases and 18 controls were excluded at the start of the study because medical records could not be located. Two cases and 33 controls were excluded because they were in the wrong category, i.e. the women had not had a mammogram and the controls had had a mammogram		
Myers, 1991,[110] USA ***Objective:*** To assess the impact of health education interventions, including a self-help screening booklet, telephone reminders and health education messages (gain or loss) on the return of FOBT in a colorectal cancer screening programme ***Design:*** RCT (factorial) ***Screening test(s):*** FOBT	***Sample:*** 2201 men and women aged 50–74 years (control, *n* = 601, intervention 1, *n* = 450; intervention 2, *n* = 450; intervention 3, *n* = 700) were randomly selected from a sample frame of 12,800 men and women. Sample size was based on pairwise differences in uptake expected to result from exposure to interventions ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographic (age, gender) ***Follow-up:*** 30 and 90 days ***Drop-out:*** Not stated	***Multivariate analysis:*** The logistic regression analysis revealed an interaction between gender and treatment ($\chi^2 = 49.0$; $p = 0.021$). Logistic regression models were then used separately for men and women to account for the identified gender–treatment interaction effect. In the final model for men and women, age and treatment group were the only significant independent variables *Men – more likely to attend:* • Aged 65–74 years (vs 50–54 years): OR = 1.6; 95% CI, 1.2 to 2.3 *Women – more likely to attend:* • Aged 60–64 years (vs 50–54 years): OR = 1.5; 95% CI, 1.1 to 2.2 • Aged 65–74 years (vs 50–54 years): OR = 1.7; 95% CI, 1.2 to 2.5 See appendix 5 for further details	***Authors' conclusions:*** Reminder calls and an intensive intervention package (instruction call and reminder call) was associated with significant increases in uptake of FOBT. [In addition,] through this intervention study, an age–attendance relationship and gender–treatment association were identified ***Comments:*** As noted by the authors, the patients were from an HMO, prepaid health plan, and may therefore have more favourable attitudes towards screening See Myers, 1994[92]
Myers, 1993,[109] USA ***Objective:*** To assess factors associated with adherence to serial and repeat colorectal cancer screening among older adults in two consecutive rounds of screening ***Design:*** RCT	***Sample:*** 2201 adult (aged 50–74 years) new members of an independent practice association type HMO were randomly selected from a sample of 12,800. One year later, US Healthcare Check records were used to identify 1565 participants who had been mailed an FOBT and were still HMO members and therefore still eligible to receive further FOBT	***Multivariate analysis:*** The following were found to be significant in the multivariate analysis: *Attendance for second-round screening (< 65 years; n = 1190) – more likely to attend:* • Attended first-round testing (vs not): OR = 10.91; 95% CI, 7.93 to 15.00	***Authors' conclusions:*** The results of this study indicate that previous screening is a strong predictor of serial participation, and special efforts may be required to achieve high levels of serial and repeat participation among younger adults. Additional research is needed to understand why persons with abnormal screening test results are unlikely to engage in repeat screening

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Screening test(s): FOBT	***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographics (age, gender). • Knowledge, behaviour, attitudes and beliefs (response to initial FOBT mailing) ***Follow-up:*** Not stated ***Drop-out:*** Not stated	*Attendance for second-round screening (≥ 65 years; n = 375) – more likely to attend:* • Attended first-round testing (vs not): OR = 10.78; 95% CI, 6.56 to 17.70 *Attendance for repeat screening – more likely to attend:* • With increasing age (no further details): OR = 1.6; 95% CI, 1.13 to 2.36 *Attendance for repeat screening – less likely to attend:* • A first-round tester with an abnormal FOBT (vs no abnormal first-round FOBT): OR = 0.35; 95% CI, 0.22 to 0.56 See appendix 5 for further details	***Comments:*** As noted by the authors, the patients were from an HMO, prepaid health plan, and may therefore have more favourable attitudes towards screening
Myers, 1994,[92] USA ***Objective:*** To develop an explanatory framework, referred to as the Preventive Health Model (PHM) for use in predicting factors associated with prospective uptake of colorectal cancer screening. It was hypothesised that uptake would be related to being female, white, married and of higher socio-economic status. It was also hypothesised that perceived salience and coherence of screening would be associated with uptake ***Design:*** RCT ***Screening test(s):*** FOBT	***Sample:*** 12,800 older adult (aged 50–74 years) men and women who were members of an independent practice association type HMO. Each of the participants included in the sample had a working telephone number. A random sample of 646 individuals was selected from the sampling frame and 501 (251 males and 250 females) adults were interviewed by telephone. The reasons for not being able to interview the remaining 145 participants include refusal (n = 96), unavailable when contacted (n = 30), language barrier (n = 18) and illness (n = 1). Survey participants were randomly allocated to the control group (n = 251) or experimental group (n = 250). See appendix 5 for further details ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographic (age, race, gender, education) • Knowledge, behaviour, attitudes and beliefs (patients' psychosocial view of their susceptibility to the disease, worry about the consequences, curability of occurrence, preventive behaviour)	***Multivariate analysis:*** FOBTs were completed and returned by 198/501 (40%) of the participants surveyed (only 332 participants were included in the final analysis). Each of the four domains of the PHM was found to be significantly associated with attendance. Initially, a logistic regression model of attendance was estimated using all participants (n = 501). Statistically significant interactions were found between: • GENDER and STUDYGP: $\chi^2 = 9.7$; $p < 0.002$ • Men in the control group (21%) and those in the experimental group (54%): $\chi^2 = 29.3$; $p < 0.0001$ • Women in the treatment group (47%) and those in the control group (36%): this difference was not statistically significant; $\chi^2 = 2.8$; $p = 0.092$ • Logistic models of FOBT intention and uptake for men and women were therefore estimated separately *Men (with no exclusions, n = 163) – more likely to attend:* • SELFEFF – perceived screening to be effective (vs not): OR = 1.4; 95% CI, 1.0 to 2.1; $p = 0.035$	***Authors' conclusions:*** These findings indicate that, for both men and women, uptake is strongly influenced by the salience and coherence of the screening procedure. For male participants the intervention group assignment and the perceived efficacy of the test also affected uptake. The only additional significant factor affecting the attendance of females was their age ***Comments:*** 145/646 participants could not be interviewed, 18 because of language barriers, but the study then went on to look at race as a determinant. Out of the sample of 646 adults only 332 were included in the final analysis. Two of these were women who were dropped from the final analysis for reasons not stated (see drop-outs) As noted by the authors, the patients were from an HMO, prepaid health plan, and may therefore have more favourable attitudes towards screening Participants who had not previously undergone FOBT were less likely to be included in the multivariate analysis than persons who had previously been tested

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Health (presence of risk factors, medical history, past) • Social influence (individuals' relationship with healthcare professionals and social norms concerning prevention) ***Actual variables included in the PHM:*** *Background:* Age, gender, race, education, marital status, past FOBT *Representation:* Patients' perception of: • Susceptibility to colorectal cancer (SUSCEPT) • Severity of colorectal cancer (SEVERE) • Curability of colorectal cancer (CURABLE) • Anxiety about colorectal cancer and screening (WORRY) • Salience and coherence of screening (SALCOH) • Self-efficacy related to screening (SELFEFF) *Social influence:* • Social support of family and health professionals (SOCNORMS) • Rapport between physician and patients (PPR) • Powerful others' health locus of control (PLOC) *Programme:* • Exposure to health education interventions (STUDYGP) *Preventive intention:* • Expressed intention to attend screening *Preventive behaviour:* • Uptake of FOBT within 90 days ***Follow-up:*** 90 days.	• SALCOH – believed the salience and coherence of screening (vs not): OR = 1.8; 95% CI, 1.0 to 3.1; $p = 0.043$ • STUDYGP – exposed to healthcare interventions (vs not): OR = 6.0; 95% CI, 2.9 to 12.7; $p = 0.0001$ *Women (with no exclusions,* n = *195) – more likely to attend:* • AGE – > 65 years of age (vs younger): OR = 2.2; 95% CI, 1.0 to 4.8; $p = 0.043$ • SALCOH – believed the salience and coherence of screening (vs not): OR = 2.0; 95% CI, 1.4 to 2.8; $p = 0.0002$ See appendix 5 for further details	Study determinants were based on the PHM, which integrates components from the Health Belief Model, the Theory of Reasoned Action and Social Learning Theory See Myers, 1991[110]

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Drop-out: Cases with missing data on any of the variables included in the model were excluded. Overall, 106 men and 63 women were excluded from the analysis because of missing data. Survey data were collected on 251 men and 250 women. Only 185/250 women were included in the analysis		
Myers, 1997,[93] USA ***Objective:*** The purpose of this study was to identify population socio-demographic characteristics and employment-related factors that were associated with employee response and adherence to colorectal and prostate cancer screening ***Design:*** Cohort ***Screening test(s):*** FOBT, sigmoidoscopy, DRE	***Sample:*** 5591 current and previous 'at-risk' employees of a chemical company in Philadelphia, USA. Employees were sent a notification letter informing them of the increased risk of cancer in individuals working at the plant, and offering them free cancer screening ***Setting:*** Work (chemical company) ***Description and nature of determinants:*** • Socio-demographic (age, race, education, employment status, length of service with the company, length of 'at-risk' service in the chemical plant) ***Follow-up:*** Not stated. ***Drop-out:*** 44/5591 (1%) were removed from the analyses of response to the screening programme announcement and uptake because: the participants had died (n = 25); the notification letter was returned as undeliverable (n = 9); the participant was > 90 years old (n = 6); or the participant's length of service was < 1 year (n = 3) or > 50 years (n = 1). The latter two reasons were attributed to coding errors in the database. The remaining 5547 employees were included in the analysis. Eight respondents with unknown levels of education were excluded from the analyses of attendance	***Univariate analysis:*** Attenders tended to be older, white and more highly educated. In addition, attenders were likely to have been employed with the company for ≥ 21 years and to have > 10 years of 'at-risk' employment. Employment status was also significantly associated with attendance, with pensioned workers being more likely to complete screening than active or separated workers. Attendance was not significantly associated with gender ***Multivariate analysis:*** The following were found to be significantly associated with screening attendance in the multivariate analysis: *More likely to attend:* • Aged ≥ 60 years (vs < 60 years): OR = 1.7; 95% CI, 1.0 to 2.9; p = 0.061 • Had >12 years of education (vs ≤ 12 years education): OR = 1.2; 95% CI, 0.8 to 2.0; p = 0.405 The interaction between employee age and education was significantly associated with attendance for screening (OR = 2.0; 95% CI, 1.0 to 4.0; p = 0.044)	***Authors' conclusions:*** Findings indicate that employee participation in workplace-sponsored colorectal and prostate cancer screening can vary according to worker socio-demographic factors and length of employment in areas of potential exposure ***Comments:*** The attendance rate may have been dampened due to the process that the employees had to go through in order to obtain screening. They had to return a postage-paid, pre-addressed postcard, sent with the initial letter, in order to obtain more information about screening, and then organise a screening appointment

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Nattinger, 1988,[111] USA ***Objective:*** To investigate the effects of two strategies aimed at increasing the uptake of mammography screening. ***Design:*** Controlled trial ***Screening test(s):*** Mammogram	***Sample:*** Seven medical house staff teams working at the Strong Memorial Hospital. Eligible female patients who had attended the clinic since July 1986 (aged 50–74 years) were identified through a computerised database. Sample-size and power calculations were not performed ***Setting:*** Hospital ***Description and nature of determinants:*** • Socio-demographic (age, race) • Social influence (physician characteristics including residency characteristics, year of residency, gender) ***Follow-up:*** 3 months ***Drop-out:*** Not stated	***Multivariate analysis:*** When controlling for provider gender and provider's level of training, attendance in the study arm was significantly related to the following (no further details provided): *More likely to attend:* • Mammography status: $\chi^2 = 27.8$; $p < 0.001$. • Provider gender: $\chi^2 = 10.6$; $p = 0.001$ See appendix 5 for further details	***Authors' conclusions:*** The policy intervention was successful in improving utilisation. Feedback may also be successful. Further research is required on the relative effectiveness of policy versus feedback, and the study needs to be extended to include physicians in practice ***Comments:*** Sample sizes were small
Norman, 1995,[94] UK ***Objective:*** To assess the role of the Health Belief Model in predicting attendance at health checks in general practice ***Design:*** Controlled trial ***Screening test(s):*** Health checks	***Sample:*** 299 patients, aged 40–50 years, from a single general practice in the East Midlands, UK, were invited to attend a health check. The patients were sent an invitation letter that contained either an appointment ($n = 152$) or an open invitation ($n = 147$) ***Setting:***. Primary care practice ***Description and nature of determinants:*** • Knowledge, behaviour, attitudes and beliefs (likelihood to attend for a health check, perceived benefit of attending a health check, efficiency of the health checks in reducing the chances of getting a serious illness, perceived likelihood of developing a number of health problems (e.g. cancer, heart disease) in the future, perceived severity of each health problem if they were to develop, perceived value of their health) • Barriers (perceived barriers to attending a health check) ***Follow-up:*** Not stated ***Drop-out:*** 135 patients did not complete a Health Belief Questionnaire	Of the 299 patients who were invited to attend a health check, 164 (54.8%) returned a completed questionnaire. Of these, 95 attended a health check and 69 failed to attend. Considering the patient sample as a whole, attendance behaviour was found to be correlated with health value ($\beta = 0.25$; $p < 0.01$). For patients who were sent open invitation letters, attendance behaviour was found to correlated with health value ($\beta = 0.45$, $p < 0.01$) ***Multivariate analysis:*** The following were found to be significant: *More likely to attend:* • Perceived value of individual's health to be high (vs low): $\beta = 0.62$, $p < 0.05$ (whole sample); $\beta = 0.62$, $p < 0.01$ (only patients were sent an open letter) • Expressed intention to attend for screening (vs not): $\beta = 0.93$; $p < 0.05$ (only patients were sent an appointment letter) See appendix 5 for further details	***Authors' conclusions:*** Attendance at screening should be viewed as a heterogeneous behaviour, such that the health beliefs which distinguish attenders from non-attenders should be seen to vary according to the way in which patients are invited ***Comments:*** The generalisability may be limited, as the setting was a single GP practice The determinants were based on the Health Belief Model Only just over half of the study sample completed the Health Belief Questionnaire, which was used to collect information on determinants.

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Phillips, 1997,[70] USA ***Objective:*** To ascertain the predictors of testing among untested individuals as well as those who reported that they 'planned to be tested' or 'would get tested if no one could find out' ***Design:*** Cohort ***Screening test(s):*** HIV-antibody test	***Sample:*** The study used data from the National AIDS Behavioural Survey conducted in 1991 (wave 1) and 1992 (wave 2). The surveys included two samples: a national sample (aged 18–75 years) and a sample of 23 cities with large numbers of AIDS cases (aged 18–49 years). For the national sample 76% (n = 1820) of wave 1 respondents were re-interviewed during wave 2, and for the cities sample 66% (n = 3723) were re-interviewed. Not stated how many participants were untested at wave 1 ***Setting:*** Not stated ***Description and nature of determinants:*** • Socio-demographic (gender, sexual orientation, age, race/ethnicity, relationship status, education, income) • Knowledge, behaviour, attitudes and beliefs (perceived risk, 'planned to be tested', difficulty in disclosing sexual information, 'would get tested if no one could find out', AIDS knowledge) • Health (risk factors) ***Follow-up:*** 1 year ***Drop-out:*** The total number of participants included in the study was 1359 from the national sample and 2244 from the cities sample. However, 2275 participants were included in the regression analysis (only individuals that were untested at wave 1 from the cities sample). There were also missing data for some of the variables	***Multivariate analysis:*** In the regression analysis among untested individuals the following were significant: *Sample as a whole – more likely to attend:* • Planned to be tested (vs did not): OR = 1.90; 95% CI, 1.26 to 2.87; χ^2 test, $p < 0.01$ • African-American (vs Caucasian): OR = 1.36; 95% CI, 1.05 to 1.76; χ^2 test, $p < 0.05$ • Separated, divorced or widowed (vs married): OR = 1.48; 95% CI, 1.03 to 2.12; χ^2 test, $p < 0.05$ • Found it easy to disclose sexual information in the study surveys (vs did not): OR = 1.39; 95% CI, 1.02 to 1.91, χ^2 test, $p < 0.05$ • Had risk factors (vs did not): OR = 1.85; 95% CI, 1.33 to 2.57; χ^2 test, $p < 0.001$ • Were homosexual or bisexual (vs heterosexual): OR = 2.16; 95% CI, 1.09 to 4.27, χ^2 test, $p < 0.05$ *Sample as a whole – less likely to attend:* • Aged < 30 years (vs > 30 years) OR = 0.97; 95% CI, 0.95 to 0.98; χ^2 test, $p < 0.001$ *Persons who 'planned to be tested' (n = 213) – more likely to attend:* • High-school graduate (vs less than a high-school graduate): OR = 6.36; 95% CI, 1.83 to 22.16 • Had some college education or greater (vs less than a high-school graduate): OR = 4.12; 95% CI, 1.10 to 15.53 • Had other risk factors than just multiple partners (vs had risk factors including donor blood transfusions between 1978 and 1985, haemophilia, had used intravenous drugs in previous 5 years, had primary partner with risk factors): OR = 4.37; 95% CI, 1.49 to 12.79; $p < 0.01$ • Homosexual or bisexual (vs heterosexual): OR = 16.90; 95% CI, 1.75 to 163.42; $p < 0.05$	***Authors' conclusions:*** It is encouraging that 30% of individuals who planned to be tested did get tested within 1 year. Further research, however, needs to examine testing barriers for the 70% of individuals who do not follow through on testing plans. The results provide important information for targeting testing programmes, developing effective public policies, and addressing the debate over issues such as name reporting and availability of home HIV tests ***Comments:*** Only the sample from the cities, which was noted to have a larger AIDS population, was included in the regression analysis Failed to state how many were initially approached, how many agreed to participate and how many had been previously tested, and therefore presumably excluded at wave 1 Determinants based on the Behavioural Model of Utilization

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
		Among persons who 'would get tested if no one could find out' (n = 966) – more likely to attend: • Had multiple partners (vs single partner): OR = 2.36; 95% CI, 1.49 to 3.73; $p < 0.001$ *Among persons who 'would get tested if no one could find out' (n = 966) – less likely to attend:* • English-speaking Latino (vs Caucasian): OR = 0.45; 95% CI, 0.21 to 0.97; $p < 0.05$ • Had income between $20,000 and $40,000 (vs < $20,000): OR = 0.62; 95% CI, 0.41 to 0.93; $p < 0.05$	
Pritchard, 1995,[103] Australia **Objective:** To examine the effectiveness of three interventions encouraging the uptake of Pap smears. A secondary aim was to evaluate acceptability of a special screening clinic ***Design:*** RCT ***Screening test(s):*** Pap smear	***Sample:*** 757 female GP patients aged 36–69 years, out of 2139 age-eligible women. Women were excluded if they had had a Pap smear in the previous 2 years, had had a hysterectomy, had not attended the practice for ≥ 3 years, were known to have attended another practice, or were terminally ill. Women were randomly allocated to one of four study groups (control, tagged notes, letter only, appointment letter) ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age, country of birth, years resident in Australia, marital status, postcode of residence, education) • Knowledge, behaviour, attitudes and beliefs (previous attendance) ***Follow-up:*** 1 year ***Drop-out:*** 22 women randomised to the intervention groups were found to have hysterectomies, but were retained in the analyses. 60% of the women in the tagged-notes intervention group did not attend the practice during the intervention period and 53% of the control group did not attend	**Multivariate analysis:** The only significant variable identified in the logistic regression (besides the intervention assignment) was: *More likely to attend:* • Had a previous smear at the practice (vs never had a previous smear at the practice): OR = 2.32; 95% CI, 1.63 to 3.29 See appendix 5 for further details	***Authors' conclusions:*** This study has shown that individual invitation letters issued from a general practice to its patients are more effective in encouraging women to attend for Pap smear than unsystematic opportunistic screening, especially when the letter includes a specific appointment time. However, the differences in outcome between letters with and without appointments were not significant. Letters are also considerably more expensive ***Comments:*** 60% of the women in the tagged-notes intervention group did not attend the practice during the intervention period and 53% of the control group did not attend The recommended screening interval was 2 years; however, the women were only followed up over 1 year and so some may not have been ready for re-screening within that period The study involved predominantly English-speaking, low-income women with 55% coming from the lowest quantile of the socio-economic groups in the area

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Rimer, 1999,[122] USA ***Objective:*** To assess whether increasing the intensity of information-based tailored interventions was related to compliance with cancer screening tests ***Design:*** RCT ***Screening test(s):*** Mammogram and Pap smear	***Sample:*** Adult (aged > 18 years) users of the Lincoln Community Health Centre, North Carolina, USA, (serves 30% of the black population) who had visited in the preceding 18 months (n = 3490), after correcting for disconnected or wrong numbers (n = 2419), individuals who could not be contacted, had serious hearing problems, or refused to be interviewed ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age (18–49, 50–69 or ≥ 70), race (black or white/other), post-highschool (yes or no), marital status (yes or no), working status (work for pay, other), household income (< 20,000 per year, > 20,000 per year)) • Health (hysterectomy) • Knowledge, behaviour, attitudes and beliefs (decisional balance based on Transtheoretical Model (scores: ≤ 0, 1–4, 5–7, 8)) ***Follow-up:*** 16 months ***Drop-out:*** Out of the initial sample of 2419 persons, 22% could not be contacted, 4% had serious hearing problems and 3% refused to be interviewed at baseline. Out of the 889 eligible women 37 died before the follow-up interview, and a further 24% could not be reached due to disconnected phones, 2% were not eligible for follow-up interview due to health reasons and 2% refused to participate. The final sample included 627 women	***Bivariate analysis:*** Decisional balance was based on the Transtheoretical Model. The following were found to be significant: *Pap smear – more likely to attend:* • Aged 18–49 years (vs > 50 years): p = 0.001 • Working (vs not working): p = 0.001 • Household income ≥ $20,000 per year (vs < $20,000 per year): p = 0.008 • Higher overall decisional balance scores (vs lower): p = 0.001 *Mammography – more likely to attend:* • Black (vs white): p = 0.04 • Higher overall and individual decisional balance scores (vs lower): p = 0.001 See appendix 5 for further details	***Authors' conclusions:*** The tailored interventions were helpful in promoting Pap test compliance and overall cancer test compliance. These results confirm others and suggest, as clinicians have long known, that giving patients messages that are relevant, personalised and address their individual concerns are more effective than generic admonitions. This is a message that should have world-wide relevance. Rapid advances in digital technology should provide more tools to augment the clinician's limited time ***Comments:*** The study seemed to be part of a larger study looking at attendance for cancer screening in general, although only data on female participants attending for mammography, Pap smear and CBE were presented. The study used a 16-month follow-up period when mammograms were recommended every 1–2 years The use of a telephone to collect information about participants may have prevented some women who did not have a phone from taking part in the trial. The study looked at screening behaviour among low-income participants, many of whom had to be excluded because their telephone line had been disconnected. The study only included participants who had visited the centre within the preceding 18 months The authors' substituted various values for missing data and concluded loss to follow-up had only a modest effect on their findings The determinants were based on the Transtheoretical/Stages of Change Model

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Rothman, 1993,[95] USA ***Objective:*** To examine how altering attributions of responsibility for maintaining one's health affected women's attitudes and behaviour regarding screening mammography ***Design:*** Controlled trial ***Screening test(s):*** Mammogram	250 women from a large utlity company in Connecticut, USA, who responded to an invitation to attend an information session on breast cancer. To be eligible, women had to be aged ≥ 40 years and not have had > 50% of the recommended number of screening mammograms for their age (women were not told of this basis for selection) ***Setting:*** Work (utility company) ***Description and nature of determinants:*** • Socio-demographic (race, religion, education, income, marital status, age) • Health (subjective health status, self had cancer, self had had breast-cancer problem previously) • Knowledge, behaviour, attitudes and beliefs (received cancer information previously, a relative had cancer, number of prior mammograms since age 35 years, annual doctor visits, intention to get a mammogram, experimental condition, reactions to the presentation, knowledge about mammography, self versus other responsibility at both time points, all attitudes to mammography at both time points) ***Follow-up:*** Women contacted by phone at 6 months and, if not reached or had not obtained a mammogram, again at 12 months ***Drop-out:*** 197 of the 250 women completed and returned the two questionnaire packs. Mammogram data were available for 185 of the 197 women	***Multivariate analysis:*** Discriminant analysis indicated that the following were significant in predicting attendance for mammograms: *More likely to attend:* • Had previous mammogram (vs not): $F = 23.19$; canonical R^2 0.13; $p < 0.001$ • Expressed an intention to get a mammogram (vs did not): $F = 15.82$; canonical R^2 0.22; $p < 0.001$ See appendix 5 for further details	***Authors' conclusions:*** The study findings strongly suggest that a persuasive presentation emphasising one's own responsibility for maintaining health is most effective in promoting mammogram use ***Comments:*** The study population included mainly women who were educated, relatively affluent and white
Segnan, 1998,[71] Italy ***Objective:*** To assess the impact on compliance of different organisational options in the context of a population screening programme for cervical and breast cancer ***Design:*** RCT (cluster)	***Sample:*** All resident women in the city of Turin whose names were on a computerised call–recall system (population-based screening programme for cervical and breast cancer, *Prevenzione Serena*, funded by the Regional Health Authority). 284,000 women (aged 25–64 years) were potentially eligible for cervical cancer screening, and 144,000 women (aged 50–69 years) were potentially eligible for breast cancer screening	***Multivariate analysis:*** The following were found to be significant in the multivariate analysis: *Cervical cancer screening – more likely to attend:* • Aged 45–54 years (vs 25–44 years): RR = 1.31; 95% CI, 1.19 to 1.44 • Aged 55–64 years (vs 25–44 years): RR = 1.24; 95% CI, 1.12 to 1.38	***Authors' conclusions:*** Women were more likely to attend screening tests if they were sent an invitation letter with a specific arranged appointment, signed by their GP. After adjusting for the intervention group and the sociodemographic characteristics considered in the study, women who were less educated, and those who were born in southern Italy (for breast cancer screening only), were significantly less likely

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Screening test(s): Mammogram and Pap smear	Women were excluded if they had previously been diagnosed with cervical or breast cancer; if they had attended for mammography during the preceding year; or if they suffered from a terminal illness or had psychiatric symptoms. 8385 women were selected to take part in cervical cancer screening, from the rosters of the first available 35 consecutive GPs who agreed to collaborate. 8069 women were selected to take part in breast cancer screening, from the 105 GPs who agreed to take part in the study ***Setting:*** Community screening programme. ***Description and nature of determinants:*** • Socio-demographic (age, marital status, place of birth, education) ***Follow-up:*** 12 months ***Drop-out:*** Not stated	*Cervical cancer screening – less likely to attend:* • Single (vs married): RR = 0.74; 95% CI, 0.67 to 0.83 • Widowed or divorced (vs married): RR = 0.82; 95% CI, 0.73 to 0.92 • Model fit was significantly improved when terms were added for the interaction between education and type of invitation (likelihood ratio test statistic 22.6; 12 df; $0.025 < p < 0.05$) • The impact of the extended letter was significantly higher among women with the highest educational level (university degree: RR for interaction = 1.73; 95% CI, 1.01 to 2.95) *Breast cancer screening:* The effect of age was homogeneous within the decade targeted for the breast cancer screening. However attendance was significantly affected by the following *Breast cancer screening – less likely to attend:* • Single (vs married): RR = 0.74; 95% CI, 0.66 to 0.83 • Widowed or divorced (vs married): RR = 0.92; 95% CI, 0.86 to 0.99 • Born in southern Italy (vs northern Italy): RR = 0.92; 95% CI, 0.80 to 0.91 • Attended school for > 5 years (vs primary school only): RR = 0.64; 95% CI, 0.55 to 0.75 • There was no indication of a possible role for socio-demographic determinants in modifying the effect of any invitation intervention See appendix 3 for further details	to attend for screening. An increased response rate was observed among women with the highest educational level receiving an appointment letter signed by their GP ***Comments:*** Patients in the intervention group who were sent an appointment signed by the programme coordinator, included women from non-participating GP practices. These women may not have been subjected to the same study inclusion criteria (the GPs were responsible for screening out those who did not meet the inclusion criteria)
Selby-Harrington, 1995,[112] USA ***Objective:*** To test the effectiveness and cost-effectiveness of three out-reach interventions to promote well-child screening for children on Medicaid	***Sample:*** 2053 families out of 2541 randomly selected families (488 did not meet the eligibility criteria) with 3377 children due or overdue for a Medicaid health screening, in six medically underserved counties in North Carolina, USA. Families were targeted if there was at least one	***Multivariate analysis:*** Logistic regression showed that several co-variables were associated with a significantly greater likelihood of obtaining Medicaid health screenings in the 4-month post-intervention period	***Authors' conclusions:*** No conclusions were drawn about the link between determinant status and screening attendance by the authors. However, attendance for screening was significantly associated with belonging to a minority group, having more children aged < 6 years, being eligible for Medicaid

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Design: RCT ***Screening test(s):*** Well-child screening (early and periodic screening diagnostics and treatment programme)	child aged < 21 years who was due or overdue for well-child screening. Children with disabilities were excluded. ***Setting:*** Community (medically underserved) ***Description and nature of determinants:*** • Socio-demographic (parental age, number of children aged < 6 years, location of residence, ethnicity, age of youngest child, presence of a male child, calendar quarter in which family was targeted, receiving aid for dependent children, lost Medicaid eligibility) • Health (outpatient use other than screening, family member hospitalised) • Knowledge, behaviour, attitudes and beliefs (used Medicaid screening services in past 2 years, 'accepted' Medicaid screening services at intake interview) ***Follow-up:*** 4-months ***Drop-out:*** Pamphlets appeared to reach 99% of with-phone families, and 97% of no-phone families. Phone calls reached 57% of with-phone families. Home visits reached 70% of with-phone families and 56% of no-phone families. There were no refusals of phone or home visit interventions	*Families with phones – more likely to attend:* • Belonged to an ethnic minority (vs not): OR = 1.72; 95% CI, 1.10 to 2.69 • Had children aged < 6 years (vs not): OR = 1.68; 95% CI, 1.37 to 2.06 • Had uninterrupted Medicaid eligibility (vs not): OR = 3.02; 95% CI, 1.43 to 6.39 *Families with phones – less likely to attend:* • Resided in county A (vs elsewhere): OR = 0.31; 95% CI, 0.19 to 0.50. (County A is one of the poorest and most underserved counties in North Carolina and the one with the lowest county-wide Medicaid health-screening rate in the state) *Families without phones – more likely to attend:* • Had children aged < 6 years (vs not): OR = 1.62; 95% CI, 1.27 to 2.08 • Had uninterrupted Medicaid eligibiity (vs not): OR = 6.38; 95% CI, 1.93 to 21.06. • Resided in county A (vs elsewhere): OR = 0.17; 95% CI, 0.08 to 0.37 • Family receiving benefits through the Aid to Families with Dependant Children Program (vs not): OR = 0.48; 95% CI, 0.28 to 0.84 Additional stepwise logistic regression analyses (data not shown) were conducted separately for minority families and for white families with and without phones. The analyses confirmed that the relative effectiveness of the interventions was the same for minority families, white families and the samples overall. In addition, among families with or without phones, minority or white, two co-variables were consistently significantly associated with post-intervention health screening: • More children aged < 6 years resulted in greater odds of obtaining screening	for the whole period of the study, and not residing in county A (for participants with a phone). For participants without a phone attendance for screening was associated with having more children aged < 6 years, being eligible for Medicaid for the whole period of the study, not residing in county A and not receiving aid from the Aid to Families with Dependant Children Program ***Comments:*** The study featured predominantly low-income, minority families. The unit of analysis was the household and not the individual child Determinants were based on the PRECEDE model

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
		• Residency in county A resulted in reduced odds of obtaining screening. See appendix 5 for further details.	
Senore, 1996,[96] Italy ***Objective:*** To assess the impact on compliance of three invitation methods, as well as the acceptability and efficacy of two bowel preparation regimens, for endoscopic screening in the general population ***Design:*** RCT ***Screening test(s):*** Sigmoidoscopy	***Sample:*** 1274 male and female patients (aged 55–59 years) from 14 randomly selected GP lists (Turin, Italy) were screened to see if they fulfilled the entry criteria for the study. Patients with terminal illnesses or severe psychiatric symptoms, those who had been diagnosed with colorectal cancer, adenomas or chronic inflammatory bowel disease, who had undergone a sigmoidoscopy or total colonoscopy within the previous 2 years, or who were no longer resident in Turin were excluded from the study. 1186 patients were randomly allocated within each GP practice to one of three groups according to the invitation procedure. Within each invitation group the participants were randomly allocated to one of two subgroups receiving different bowel preparations. 1170 participants were included in the final analysis ***Setting:*** Primary care practice (urban). ***Description and nature of determinants:*** • Socio-demographic (gender, birthplace, education, marital status) • Health (history of previous diagnostic tests such as endoscopy, enema or FOBT, family history of colon cancer, presence of gastrointestinal symptoms) ***Follow-up:*** Not stated ***Drop-out:*** 16 participants were found to be ineligible after randomisation and were excluded from the analysis	**Multivariate analysis:** Determinants found to be significant in the multivariate analysis were as follows: *More likely to attend:* • Male (vs female): OR = 2.36; 95% CI, 1.51 to 3.67 • Experienced gastrointestinal symptoms within past 6 months (vs no symptoms): OR = 23.56; 95% CI, 3.15 to 175.93 • Had a positive family history for colorectal cancer among parents or siblings (vs not): OR = 3.25; 95% CI, 1.28 to 8.24 • Had positive family history for colorectal cancer among other relatives (vs not): OR = 4.38; 95% CI, 1.58 to 12.14 • Received intermediate education (vs elementary): OR = 1.79; 95% CI, 1.08 to 2.98 See appendix 5 for further details	***Authors' conclusions:*** Compliance with this screening procedure tends to be low. One enema, self-administered 2 hours before sigmoidoscopy, can ensure a satisfactory bowel preparation ***Comments:*** All test procedures were performed free of charge. No baseline comparability or baseline attendance data were reported

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Sharp, 1996,[72] UK ***Objective:*** To determine the relative effectiveness of three interventions designed to increase the uptake of breast cancer screening ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** 2481 women from 27 GP practices (part of a community-based screening programme in south-east London, UK) were sent invitations for breast screening. 799 women aged 50–64 years who did not attend for screening after being sent two invitations were included in the trial. Only 'true' non-attenders were randomised Women who had declined screening, had already been screened or had moved from the area were excluded prior to randomisation. 17 women were excluded from all analyses after randomisation, leaving 782 women ***Setting:*** Community screening programme. ***Description and nature of determinants:*** • Socio-demographic (age) • Knowledge, behaviour, attitudes and beliefs (reasons for non-attendance, feeling of self-esteem, control of one's life, knowledge of local screening unit) • Social influencess (support and influence from significant others) ***Follow-up:*** 12 weeks ***Drop-out:*** 14% of women in intervention groups A and B seemed to have moved. 20% could not be contacted, and 30% of women in groups A and B declined a visit. Thus uptake rates for interventions A and B were only 30–35%. 17 women were excluded after randomisation (9 from group A, 6 from group B, 2 from group C)	***Multivariate analysis:*** Those variables from the trial questionnaire that were found to be independently related to attendance in the first phase of the study using data from the questionnaires were analysed using multiple logistic regression analysis. The following were found to be significant: *More likely to attend:* • Aged 55–59 years (vs < 50 years or ≥ 60 years) (showed a significant interaction with the intervention group, at the 5% level). • The differences between the three intervention groups was greatest in the middle age group (55–59 years), where the intervention involving education (i.e. group A) was the most effective See appendix 5 for further details	***Authors' conclusions:*** Sending non-attenders a personal letter from the GP seems to be as least as effective as a nurse making a home visit (± education). If a nurse's visit takes place, the addition of the health education element may be of considerable benefit (up to about 8%) ***Comments:*** None

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Siegler, 1995,[97] USA ***Objective:*** To find out if: (a) the same factors that explain mammography behaviour in 50–60 year olds also influence those in their 40s; (b) what personality characteristics predict mammography use within 2 years; and (c) whether personality is an independent factor of screening behaviour ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** Women were eligible (778/936) if they had returned the women's health questionnaire (WHQ) sent to them, and were aged < 50 years. Women were excluded if they reported having had breast cancer (n = 14) or did not answer ≥ 4 of the questions (n = 8) on the WHQ. Of the 936 women who were sent the questionnaire 756 were included in the study ***Setting:*** University of North Carolina Alumni Heart Study (UNCAHS) ***Description and nature of determinants:*** • Knowledge, behaviour, attitudes and beliefs (personality traits, pre-contemplation, contemplation, action, maintenance) • Health (age at first pregnancy and family history, women reporting no breast problems women reporting fibrocystic disease, benign tumour or lump, or calcification) ***Follow-up:*** 2 years ***Drop-out:*** When the 14 women with four or more missing items were excluded from the analysis, the association between missing data and adoption was no longer statistically significant	*Personal knowledge of breast cancer:* Individual risk ranged from 0.07 to 0.35 (mean 0.12; SD 0.03). Actual risk was correlated with the woman's perceived subjective risk (r = 0.46; p = 0.001) and was not correlated with her knowledge of the prevalence of breast cancer (r = 0.05; p = 0.148). Of the 18 facets of personality measured, only assertiveness was a significant predictor of adoption and depression a significant predictor of non-attendance. Unadjusted: assertiveness, OR = 1.44, 95% CI, 1.05 to 1.96; depression, OR = 0.73, 95% CI, 0.53 to 0.99 ***Multivariate analysis:*** The final models were calculated separately for those with and without breast problems and the following were found to be significant: *Women without breast problems – more likely to attend:* • Were more conscientious, as measured by the NEO Personality Inventory Scale (vs less conscientious): OR = 1.57; 95% CI, 1.07 to 2.46 When personality factors were tested in a model for the following covariates no personality factors remained significant: • Knowledge of recommendation for women aged 40–49 years • Knowledge of prevalence of breast cancer • Subjective estimate of own risk. • Number of friends with breast cancer • Family history of breast cancer • Frequency of regular obstetric or gynaecological care • Insurance coverage • The role of the cost of a mammogram	***Authors' conclusions:*** The variables that have been found to predict mammography in older women also predict mammography in this sample of women aged < 50 years. The data suggest the same barriers (e.g. knowledge of guidelines) and facilitators (e.g. regular medical care) are important. When tested directly with the adoption outcome univariately, adult personality indicators do predict the behaviour. Conscientiousness, extroversion and assertiveness, as well as low depression predict use of mammography. The importance of depression as a predictor suggests a potential subgroup of women who may require special attention, not only for screening but for other health-promotion activities as well ***Comments:*** Only female members of UNCAHS who returned their WHQ were included in the study The determinants associated with mammography attendance were not studied for women aged > 50 years Few raw data were presented in the results. The study reports to be based on information from the 756 included women, but only 754 were included in the analysis

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Silvestre, 1993,[73] USA ***Objective:*** To explore factors relating to the decision to obtain an HIV test in 110 gay and bisexual men in three small cities in Pennsylvania ***Design:*** Cohort ***Screening test(s):*** HIV-antibody test	***Sample:*** 110 homosexual and bisexual male volunteers from three small Pennsylvanian cities. The volunteers were recruited through contact with know gay leaders in the local community ***Setting:*** Community (urban) ***Description and nature of determinants:*** • Socio-demographic (age, race, sexuality, education, employment) • Knowledge, behaviour, attitudes and beliefs (age at first gay experience, age at regular gay experience, number of partners and anonymity of partners, sexual activities, knowledge about AIDS and HIV, attitude scores favouring safer sex, frequency of reading gay newspapers, frequency of reading gay magazines) • Social influence (know person with AIDS, participation in gay organisations) ***Follow-up:*** Not stated ***Drop-out:*** Not stated	***Multivariate analysis:*** Logistic regression analyses were carried out on the relationship between the level of education and integration into the institutionalised gay community and whether participants chose to be tested. The following were found to be associated with a participant's decision not to be tested: *Less likely to attend:* • Had a bachelor's degree (vs did not) – almost three times as likely to refuse testing: 95% CI, 1.16 to 6.29; $p = 0.02$ • Readers of gay magazines (vs not) – more than 3 times less likely to refuse testing: 95% CI, 1.2 to 9.2; $p = 0.02$	***Authors' conclusions:*** Contrary to other health prevention data, education was significantly and inversely related to being tested and to returning for the test results. Men who most often participated in the institutionalised gay community were least likely to be tested. The findings suggest that gay men who are most aware of the potential psychosocial problems associated with HIV-antibody testing are more likely to avoid testing ***Comments:*** Only those individuals who were identified and recruited through know gay leaders in three small cities in Pennsylvania were included in the study
Simon, 1998,[118] USA ***Objective:*** To determine characteristics regarding attitudes and practices towards breast cancer control and to examine the relationship of these factors to mammography use in the study year ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** 470 women who were part of another study (RCT) and randomised to receive a reminder letter. Women were eligible if they had visited a primary care physician within the preceding 2 years, had HMO coverage (in Detroit, Michigan) during at least 1 month of the intervention year and were ≤ 39.5 years old at the start of the RCT. 214 women were excluded, as they could not be contacted. Of the remaining 256, 202 (79%) surveys were completed (7 were excluded because of incomplete responses) ***Setting:*** HMO (black community) ***Description and nature of determinants:*** • Socio-demographic (age, race, marital status, education, employment, insurance)	***Multivariate analysis:*** The following were found to be significant predictors of attendance in the multivariate analysis: *More likely to attend:* • Previously attended for a mammogram (vs not): OR = 2.49; 95% CI, 1.05 to 5.93 • Had received a prior recommendation from their physician (vs no recommendation): OR = 1.99; 95% CI, 1.00 to 3.95	***Authors' conclusions:*** Letter reminders prompting primary care visits were relatively ineffective since few women reported being prompted by the letter recommendation. Strategies that target physician mammography referral behaviour may have an important impact on mammography utilisation among inner-city women ***Comments:*** Women were interviewed, to collect the data on determinants, 8–16 days after the mammography invitations had been mailed. It was not known how many women went for a mammogram prior to the interview, which could have affected their determinant status. The telephone interview could have prompted women to go for mammography

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Knowledge, behaviour, attitudes and beliefs (intention to complete mammogram, visits in previous year, personal perceived susceptibility, worries about breast cancer, past mammogram, perform BSE) • Health (chronic illnesses) • Barriers and facilitating conditions (barriers, recommended frequency for mammography, knowledge of primary care doctor's name, physician talked to them about a mammogram) ***Follow-up:*** 1 year ***Drop-out:*** Not stated		Participants were HMO members who were predominantly < 65 years old, black, unemployed and had entitlement insurance Almost half (214/470) the initial sample could not be contacted by phone in order to collect information on their determinant status
Skaer, 1996,[113] USA ***Objective:*** To test the effect of fully subsidised mammograms on utilisation ***Design:*** Quasi-RCT ***Screening test(s):*** Mammogram	***Sample:*** 80 migrant Hispanic women aged 40–76 years (average 52.4 years), with no history of breast cancer, and no mammogram within the past year were selected from two migrant health clinics in two rural communities. 96.3% had a family income of $15,000 or less, with half less than $5000. Average length of residence in the USA was 16.7 years and the average length of formal education 3.6 years. 72.5% were married; 20% had health insurance ***Setting:*** Primary care practice (rural) ***Description and nature of determinants:*** • Socio-demographic (age, number of years lived in the USA, marital status, distance from clinic, income, health insurance status) ***Follow-up:*** 30 days ***Drop-out:*** Four participants were removed from the final multivariate analyses because of missing data	***Multivariate analysis:*** Significant factors in influencing whether the women obtained a mammogram were as follows: *More likely to attend:* • Given a voucher for a free mammogram (vs not): OR = 47.03; 95% CI, 9.28 to 238.37 • Had any form of health insurance (vs no health insurance): OR = 6.29; 95% CI, 1.06 to 37.34 See appendix 5 for further details	***Authors' conclusions:*** Cost is a major barrier to accessing screening mammograms in this low-income migrant population and women are more likely to use this service when financial barriers are removed. ***Comments:*** The study participants were mainly low-income, migrant Hispanic women. Women were excluded if they were not currently seeking healthcare (sample recruited from clinics). The confidence intervals were very wide, the sample size small, and it was not clear whether the study was adequately powered

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Skinner, 1994,[98] USA ***Objective:*** To evaluate the effectiveness of printed tailored recommendations compared with standardised printed recommendations on women's beliefs or understanding and uptake of mammography ***Design:*** RCT ***Screening test(s):*** Mammogram	***Sample:*** A random sample of 497 women (from 899 eligible women), aged 40–65 years, who had visited one of two family practice groups in North Carolina, USA, in the previous 2 years, had a telephone and had not had breast cancer. 435 women were included in the final analyses ***Setting:*** Primary care practice ***Description and nature of determinants:*** • Socio-demographic (age, race, income, education) • Knowledge, behaviour, attitudes and beliefs (positive attitude to screening (i.e. intending to attend), perceived efficacy of screening, perceived curability, screening behaviour at baseline, knowledge about breast cancer, knowledge about screening) • Barriers and facilitating conditions (cost, discomfort, fear of finding cancer, concern about radiation) • Health (presence of risk factors) ***Follow-up:*** 3 and 8 months ***Drop-out:*** Eight women who had moved and could not be traced were excluded between baseline and follow-up. 24 refused a second interview, 26 could not be reached and 4 interviews were terminated	The rate of women who had had recent mammograms increased from 64% at baseline to 68% at follow-up. For black and low-income women, receipt of tailored letters, compared with standardised letters, influenced mammography screening rates. After controlling for stage at baseline, significant race × intervention ($p < 0.05$) and income × intervention ($p < 0.01$) interactions were found ***Multivariate analysis:*** Four separate models for lower income, higher income, black and white women were tested. For both black and low-income women the following found to be significant in the multivariate analysis: *More likely to attend:* • Women who were pre-contemplators and contemplators at baseline were more likely to have had mammograms at follow-up if they had received tailored rather than standardised letters (no further data) See appendix 5 for further details	***Authors' conclusions:*** Tailored messages are a more effective medium for physician's mammography recommendations; tailoring may be especially important for women of low socio-economic status ***Comments:*** Authors note that higher than expected baseline mammography rates resulted in limited statistical power to detect post-intervention differences between groups The study excluded women without phones. Women who were never reached may have differed from those who were contacted Determinants were based on the Health Belief Model
Sutton, 1994,[119] UK ***Objective:*** To investigate the predictors of first-round attendance for breast screening in an inner city ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** 3291 women aged 50–64 years due for first time breast cancer from 11 general practices in inner south-east London. A sample of 977/1691 women were interviewed and 1600 were sent a postal questionnaire. Women who were registered with GPs who did not wish to participate were excluded from the study. The analysis of predictors was based on a subsample of 1301, reflecting a response rate of 75% to the interview ($n = 731$) and 36% to the postal questionnaire ($n = 570$) ***Setting:***. Primary care practice (urban)	***Multivariate analysis:*** The following were found to be significantly predictive of attendance in the multivariate analysis: *Postal questionnaire sample (n = 469) – more likely to attend:* • Expressed a definite intention to attend (vs not sure/probably not/definitely not): OR = 6.19; 95% CI, 3.07 to 12.50 • Had previously had a breast scan (vs not): OR = 9.71; 95% CI, 5.28 to 17.87	***Authors' conclusions:*** Attenders and non-attenders differ in two broad areas: the health-related behaviours they engage in and the attitudes, beliefs, and intentions they have towards breast cancer and breast screening. The latter are potentially amenable to change, and though different factors may operate among women who do not respond to questionnaires, the findings offer hope that attendance rates can be improved by targeting the relevant attitudes and beliefs

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Description and nature of determinants: • Socio-demographic (age, marital status, whether there are any children, age at which first and last child was born, qualifications, education, occupation and social class, partner's occupation and social class, housing tenure, religion, ethnic group, height, weight, body mass index) • Knowledge, behaviour, attitudes and beliefs (perceived health over previous 12 months, BSE, mammography, has known anyone with breast cancer or other kind of cancer, how worried she is about getting breast cancer, perceived risk of breast cancer, perceived consequences of breast screening, perceived effectiveness of breast screening, intention to go for breast screening, perceived importance of screening regularly, smoking, drinking, exercise, attended dental check-ups, attended cervical smear tests) • Health (current breast symptoms, period in the last 12 months, history of breast disease) • Social influence (knows someone who has been for breast cancer screening, has read, heard or seen anything recently on breast screening in the media) ***Follow-up:*** Not stated ***Drop-out:*** No intention-to-intervene analysis. In addition, the results tend to show that not all women answered every question asked	• Considered that a breast screen and smear test were equally important (vs neither more important/don't know): OR = 3.02; 95% CI, 1.14 to 7.96 • Considered a regular breast screen was more important than a smear test (vs more important/don't know): OR = 8.54; 95% CI, 2.58 to 28.23 • Ever drank alcohol (vs never): OR = 1.83; 95% CI, 1.04 to 3.23 • A bit worried about the mammogram (vs very/quite worried): OR = 2.99; 95% CI, 1.32 to 6.77 • Knew anyone with breast cancer (vs did not know anyone): OR = 1.70; 95% CI, 1.04 to 2.78 • Had previously had a cervical smear (vs never): OR = 2.55; 95% CI, 1.06 to 6.13 *Interview sample (n = 481) – more likely to attend:* • Expressed a definite intention to attend (vs not sure/probably not): OR = 9.06; 95% CI, 3.93 to 20.89 • Stated would probably attend for a mammogram (vs would probably not/definitely not): OR = 8.04; 95% CI, 4.22 to 15.35 • Had previously had a breast scan (vs not): OR = 4.25; 95% CI, 2.52 to 7.17 • Married/single (vs widowed/separated/divorced): OR = 2.30; 95% CI, 1.36 to 3.89 • Had previously had a cervical smear (vs never): OR = 3.14; 95% CI 1.52 to 6.49 • Black (vs Asian/other/do not wish to answer): OR = 4.44; 95% CI, 1.28 to 15.41	***Comments:*** As the authors noted, the results were based on women who had either been interviewed or returned their questionnaires. They may not therefore be representative of the study population as a whole Two methods were used to collect data and they showed different results. The reason why two methods were used and why the results differed was not discussed
Tambor, 1994,[120] USA ***Objective:*** To determine factors associated with cystic fibrosis carrier test utilisation in primarily non-pregnant population ***Design:*** Controlled trial ***Screening test(s):*** Cystic fibrosis carrier test	***Sample:*** Enrolees in two HMOs (Baltimore Metropolitan area) who were of child-bearing age (individuals aged 18–44 years, and couples where the woman was aged 18–44 years). Most were either not pregnant or did not have a pregnant partner. Only one randomly selected person per household was included in the analysis. Two separate sampling methods were used	Utilisation was higher among respondents who were planning children, were Caucasian, and those with higher educational attainments. Among respondents planning to have children, individuals with higher tolerance for test uncertainty, lower fear of stigma and higher perceived risk of being a carrier were considered more likely to have the test	***Authors' conclusions:*** Factors associated with the decision to be tested had more to do with implications of being a carrier *per se* than with concerns of having a child with cystic fibrosis. In view of both the low level of interest and, more importantly, the difficulty of assuring adequate understanding of cystic fibrosis testing, we do not believe that cystic fibrosis carrier screening of men and non-pregnant women of reproductive age

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Approach 1: 3029 enrolees were mailed a questionnaire for which participants were offered $5 for its return (316 were undelivered; *n* = 2713). 1130 participants completed their questionnaire and those who expressed an interest in the test (*n* = 471) were then invited to attend an education session (attended *n* = 109), where they were asked to give a saliva sample at the end (*n* = 101) *Approach 2:* Enrolees were approached when they were in the waiting room for scheduled visits (*n* = 608). Participants were asked to complete an initial questionnaire (response rate *n* = 477). Participants were offered $5 for the return of a second questionnaire, given to those who expressed an interest in the test (*n* = 235). All these enrolees were then asked to give a saliva sample (response rate *n* = 198) ***Setting:*** HMO (urban) ***Description and nature of determinants:*** • Socio-demographic (age, race, education) • Knowledge, behaviour, attitudes and beliefs (fear of stigma, tolerance for ambiguity, tolerance for test uncertainty) • Health (how likely that you are a cystic fibrosis carrier) ***Follow-up:*** Not stated ***Drop-out:*** Not stated	***Multivariate analysis:*** The following were found to be significant in the multivariate analyses: *More likely to attend:* • White (vs other race): OR = 2.171; *p* = 0.07 (mailed questionnaire only) • College graduate or more (vs some college): OR = 2.836; *p* = 0.06 (mailed questionnaire only) • Had high tolerance to test uncertainty (vs low to moderate): OR = 3.849; *p* < 0.0001 (mailed questionnaire only); OR = 3.687; *p* = 0.004 (recruited in waiting room only) • Perceived likelihood of being a carrier, very likely (vs somewhat unlikely): OR = 3.106; *p* = 0.0005 (mailed questionnaire only) *Less likely to attend:* • Aged 18–23 years (vs aged 24–37 years): OR = 0.272; *p* = 0.01 (mailed questionnaire only) • Had a high level of fear of stigma (vs low): OR = 0.433; *p* = 0.02 (mailed questionnaire only); OR = 0.397; *p* = 0.03 (recruited in waiting room only) See appendix 5 for further details	should be offered unless: (1) people who consent to the test understand the risks and benefits of testing; (2) the level of such understanding is documented. ***Comments:*** There was an incentive of $5 to return the questionnaires. However, this differed between the two sampling approaches. In the first approach $5 was given for the return of both questionnaires, but in the second approach only completion of the second questionnaire warranted a $5 reward The featured HMO sites had predominantly Caucasian populations. The reason why four HMO sites were initially recruited but only two were used was not explained The study only looked at the determinants of participants who expressed an interest in taking the test
Taplin, 1989,[74] USA ***Objective:*** To examine the influence on the participation in mammography, of known breast cancer risk factors, as well as a summary risk label (i.e. 'high', or 'moderate') ***Design:*** Cohort ***Screening test(s):*** Mammogram	***Sample:*** All female enrolees aged > 40 years, in a 360,000 member, HMO – Group Health Co-operative of Puget Sound (GHC), were mailed a two-page questionnaire. 7/21 items on the questionnaire specifically dealt with breast cancer risk factors. The response rate for the survey was 85%. Using the questionnaire responses each woman was assigned to a risk category ('high', 'moderate', 'borderline' or 'no increased risk')	The strongest association for mammography attendance, was with the risk category high vs moderate (OR = 2.59; 95% CI, 2.12 to 3.15), then previous biopsy (OR = 1.60; 95% CI, 1.28 to 2.00), and age 60–79 years vs 50–59 years (OR = 1.45; 95% CI, 1.21 to 1.73). Menopause, nulliparity to age 30 years and age < 10 years at menarche showed no association with participation	***Authors' conclusions:*** Multivariate analyses showed participation to be somewhat decreased among women with late menopause and definitely increased among women with any of the following factors: increased age; a family history of breast cancer; and a previous breast biopsy. Women in the high-risk group were most likely to participate but the effect of the label was stronger among women aged 50–59 years compared to women aged

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Each woman who returned the survey was sent a follow-up letter indicting her risk category, and recommending that she perform monthly BSE, obtain a breast physical examination annually and attend the breast cancer screening centre for a mammogram every 1, 3 or 5 years, according to her risk level. The sample of women used in the final analyses who completed a questionnaire were: aged 50–79 years; in the 'high' or 'moderate' risk categories; reported no mammogram during the 1 year prior to being surveyed; and continuously enrolled at GHC since being invited to come for screening. The final sample included 2422 women who received invitations to attend for screening, 300 women who did not receive invitations and 4498 women whose only risk factor was age, and who were not invited for screening ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographics (age). • Health (nulliparity to age 30 years, menarche at age < 10 years, menopause at age > 55 years, family history of breast cancer, previous benign breast biopsy, risk category) ***Follow-up:*** 16 months ***Drop-out:*** 15% of the original population failed to complete the baseline questionnaire	***Multivariate analysis:*** There was a significant interaction between age and risk designation, so the final logistic model consisted of the six risk factors, the risk designation and the interaction term. The following were found to be significantly associated with increased mammography: *More likely to attend:* • Had a family history of breast cancer (vs none): OR = 1.35; 95% CI, 1.02 to 1.70. • Had a previous benign breast biopsy (vs none): OR = 1.36; 95% CI, 1.02 to 1.81 The association of age with participation in screening was also shown to depend on whether the risk label was 'moderate' or 'high' • Increasing age was associated with participation only among women with the 'moderate' risk label (OR = 1.86; 95% CI, 1.49 to 2.32 for 60–79 years vs 50–59 years) • For women labelled 'high' risk participation was essentially the same or even slightly less among older women (OR = 3.09; 95% CI, 2.21 to 4.31 for 60–79 years; OR = 3.94, 95% CI, 2.61 to 5.96 for 50–59 years)	60–79 years. The study results are generally consistent with the previous finding that participants in screening programmes have higher rates of breast cancer. ***Comments:*** The results may have been biased by two potentially confounding factors. Firstly, no data were available on the socio-economic status of the participant; and, secondly, it was not clear whether women had cancer symptoms Study findings are discussed with reference to the Health Belief Model
Taplin, 1994,[75] USA ***Objective:*** To test whether participation in an established screening programme could be increased by: (1) mailing the recommendation letter from each woman's primary care physician rather than from the programme director, and (2) sending a subsequent reminder postcard	***Sample:*** Women from the Group Health Co-operative of Puget Sound (GHC) who had completed a questionnaire for enrolment in the Breast Cancer Screening Programme. The study population consisted of women who were (1) aged 50–79 years and had completed the questionnaire more than 1 year before randomisation, (2) current GHC enrolees who had not been previously invited to a screening centre, and (3) women without a mammogram in the year before	***Multivariate analysis:*** The following were found to be significantly predictive of mammography attendance in the multivariate analysis: *More likely to attend:* • Previously had a mammogram (vs not): OR = 1.87; 95% CI, 1.41 to 2.48; $p = 0.0001$	***Authors' conclusions:*** When preceded by written recommendations to scheduled mammograms, the reminder postcard effectively increased participation. Our work suggests that participation rates are similar across age categories if the recommendation is given. But the recommendation alone will not be sufficient to achieve high rates of participation among women of any age group

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Design: RCT (2 × 2 factorial design) ***Screening test(s):*** Mammogram	randomisation. Only women not having a first-degree family history of breast cancer or more than one minor risk factor were included. A sample of 1500 women was identified and allocated to four groups (*n* = 329, 335, 334, 329). 169 were excluded after randomisation because they terminated GHC coverage (*n* = 34) or obtained a mammogram before being sent the recommendation letter (*n* = 135) ***Setting:*** HMO ***Description and nature of determinants:*** • Socio-demographic (age) • Health (if have fair or poor health,, second-degree family history of breast cancer) • Knowledge, behaviour, attitudes and beliefs (history of mammograms, current smoker, do BSE 12 times per year) • Barriers and facilitating conditions (logistic barriers, clinic was 45 minutes away, appointment wait was 4 weeks ***Follow-up:*** 1 year ***Drop-out:*** After randomisation, 11.5% of women were excluded because they terminated GHC coverage or obtained a mammogram before being sent the recommendation letter	*Less likely to attend:* • Reported fair or poor health (vs good): OR = 0.63; 95% CI, 0.45 to 0.90; *p* = 0.002 • Currently smoked (vs not): OR = 0.48; 95% CI, 0.37 to 0.63; *p* = 0.0001 • Lived > 45 minutes from the screening centre (vs < 45 minutes): OR = 0.44; 95% CI, 0.31 to 0.62; *p* = 0.0001 See appendix 5 for further details	***Comments:*** Differences between the study population of the GHC and the national USA population were identified, i.e. the study included a higher proportion of Caucasians (91% vs 83%), a greater proportion of people with > 15 years of education (34% vs 16%), fewer people with incomes below $15,000 (20% vs 24%) and fewer people with incomes above $50,000 (13% vs 18%). There were inconsistencies between the number of patients reported in the text and in the tables
Thomas, 1995,[99] USA ***Objective:*** To examine the effect of age and other demographic factors on compliance with annual FOBT screening ***Design:*** RCT ***Screening test(s):*** FOBT	***Sample:*** 46,551 participants from rural and urban communities in Minnesota, USA, who were enrolled in a RCT. Participants were eligible if they were aged 50–80 years and reported no history of colorectal cancer, familial polyposis or chronic ulcerative colitis. Participants were randomly assigned to one of three study groups: annually screened, biennially screened, and unscreened. The study used the participants in the annually screened group (15,476/15,570 of whom were eligible)	***Univariate analysis:*** gender, region and phone-mates were found to be significant for phase 1 screening ***Multivariate analysis:*** There was a strong and consistent association effect of: age, with peak uptake among participants around 70 years old, and lower uptake among the youngest (< 55 years) and oldest (> 80 years) participants; a higher rate of screening uptake among participants who lived with other participants, compared with households	***Authors' conclusions:*** The study participants with the lowest screen uptake were those aged < of 55 or > 85 years, those who had not complied with the previous screening, and those who underwent a diagnostic colorectal examination with negative results. While the size of the last subgroup is in part determined by the sensitivity of the screening instrument, the effects of age and non-compliance may pose similar challenges for all programmes of long-term population screening with mailed haemoccult slides

continued

TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Setting: Community (urban/rural). ***Description and nature of determinants:*** • Socio-demographic (age, gender, residence). • Health (whether participants had had a previous negative test result) • Social influence ('phone-mates' or not) ***Follow-up:*** 16 years ***Drop-out:*** 4421/15,476 participants withdrew during the 16-year period of the trial for the following reasons: 323 were diagnosed with colorectal cancer, 4028 died and 70 withdrew permanently from the study	where only one individual participated in the study; participants who underwent a diagnostic colorectal examination with negative results had significantly lower odds of attendance *Men with phone-mates:* 50 years: OR = 65.6%; 95% CI, 62.5 to 68.7 60 years: OR = 78.2%; 95% CI, 76.7 to 79.6 70 years: OR = 78.8%; 95% CI, 77.2 to 80.3 80 years: OR = 68.0%; 95% CI, 64.9 to 71.0 *Women with phone-mates:* 50 years: OR = 1.4%; 95% CI, 68.3 to 74.2 60 years: OR = 82.4%; 95% CI, 81.0 to 83.7 70 years: OR = 82.9%; 95% CI, 81.4 to 84.3 80 years: OR = 73.5%; 95% CI, 70.6 to 76.3 *Men without phone-mates:* 50 years: OR = 60.6%; 95% CI, 57.3 to 63.7 60 years: OR = 74.2%, 95% CI, 72.6 to 75.8 70 years: OR = 74.9%; 95% CI, 73.3 to 76.5 80 years: OR = 63.1%; 95% CI, 60.2 to 66.0 *Women without phone-mates:* 50 years: OR = 66.7%; 95% CI, 63.6 to 69.7 60 years: OR = 79.0%; 95% CI, 77.6 to 80.3 70 years: OR = 79.6%; 95% CI, 78.2 to 81.0 80 years: OR = 69.1%; 95% CI, 66.4 to 71.7 See appendix 5 for further details	***Comments:*** This study formed part of a RCT examining the effect annual, biennial and control (no screening) interventions.[313] Only results concerning the annually screened group were reported It was unclear how uptake was defined in the multivariate analysis of those screened at screen 3 of phase 1, i.e. did individuals attend for all three screening tests or just at least one of the three tests?
Thompson, 1986,[100] USA ***Objective:*** To test several clinically feasible strategies that primary care practitioners may use in routine practice to increase patients' participation in FOBT for colorectal cancer ***Design:*** RCT (modified factorial) ***Screening test(s):*** FOBT	***Sample:*** 616 individuals aged ≥ 45 years who were scheduled for a physical examination at primary healthcare practices were invited to participate. 507 (82%) completed the study protocol. Eligibility: English speaking, free of any debilitating mental illness, aged ≥ 45 years, without a presumed or confirmed diagnosis of colorectal cancer, with existing appointments for a physical examination ***Setting:*** HMO	***Multivariate analysis:*** Significant predictors of FOBT uptake when controlling for the intervention group were as follows (all values are regression coefficients): *More likely to attend:* • Had gastrointestinal symptoms (vs no symptoms): 0.08–0.11 • With increasing age category (age category was a binary variable equal to 0 if age < 65 years and equal to 1 for age > 65 years): 0.07–0.09	***Authors' conclusions:*** Printed Haemoccult instructions followed by a reminder postcard can achieve an uptake level (91.7%) comparable to that achieved by more complex or multiple interventions. Patient health beliefs were of minimal value in predicting uptake in this study ***Comments:*** Participants were selected from those already attending for a medical. These patients were likely to be more motivated

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Description and nature of determinants: • Socio-demographic (age, gender, marital status, education, employment, status, income) • Knowledge, behaviour, attitudes and beliefs (general health motivation (32 items – no further details given), perceived susceptibility, perceived severity, perceived benefits, faith in physicians (8 items – no further details given), general health concerns (9 items – no further details given)) • Barriers and facilitating conditions (barriers) • Health (family history of cancer, presence of symptoms, health status (2 items – no further details given)) • Social influence (social support, support from physician) ***Follow-up:*** 3 months ***Drop-out:*** 616 were invited and 507 (82%) completed. Of those excluded, 24 were ineligible, 45 had incomplete information and 40 refused to participate. Missing data were estimated in the analyses	• With increasing age (for every 1.7–2.5 years of age increase, uptake increased by 1%): 0.004–0.006 Symptomatic individuals were 8–11% more likely to be screened than asymptomatic individuals. People aged > 65 years (7–9%) and people who stated they took good to excellent care of their health (7–11%) were more likely to be screened See appendix 5 for further details	Determinants were based on the Health Belief Model
Weinrich, 1990,[101] USA ***Objective:*** To determine variables that predict whether an older person will participate in FOBT screening ***Design:*** Cohort ***Screening test(s):*** FOBT	***Sample:*** 171 participants of a congregated meal programme (11 Council on Ageing Congregate Meal Sites in central South Carolina, USA). This included 70% of the invited participants who agreed to participate. 80% of the participants were female, 46% were black and the average age was 72 years. The average educational level was eighth grade and 73% had incomes below the 1988 poverty line ***Setting:*** Council on Ageing Congregate Meal Sites ***Description and nature of determinants:*** • Socio-demographic (gender, age, education, ethnicity)	47% of the respondents submitted specimens for FOBT. Female gender was the only demographic variable found to predict participation in FOBS ($\chi^2 = 15.3$; $p < 0.005$). The ability to use the telephone ($\chi^2 = 8.5$; $p = 0.04$) was associated with submission of a faecal specimen ***Multivariate analysis:*** The following significant variables from the univariate analysis were found to be significant in the logistic regression: *More likely to attend:* • Female (vs male): $\beta = -2.49$, $p = 0.0004$; $R^2 = 22\%$	***Authors' conclusions:*** Based on this research, nurses need to provide additional educational information to men to increase their participation in occult blood testing. Likewise, nurses need to be involved in problem-solving strategies with elderly people who have difficulty with activities of daily living of telephone use, shopping, and cleaning to increase their participation in occult blood testing ***Comments:*** Participants were interviewed after the distribution of the screening kits, this may have subsequently influenced their decision to participate

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Health (instrumental activities of daily living, sensory ability (eyesight and hearing), exposure to cancer (history of cancer, family history of cancer, knowledge of colorectal cancer)). • Knowledge, behaviour, attitudes and beliefs (heard or read anything about colorectal cancer, return of faecal specimen within the past year) ***Follow-up:*** 6 days ***Drop-out:*** The interview was discontinued for participants unable to answer one or more of the questions. Eight participants were too confused to complete the interview but were included in the data because two of them returned faecal specimens	• Capable of performing activities of daily living (telephone use, shopping, cleaning the house) (vs not capable): $\beta = -0.50$; $p = 0.02$; $R^2 = 13\%$ • Returned a stool sample in the preceding year (vs not returned): $\beta = -0.15$; $p = 0.04$; $R^2 = 11\%$	The analysis included data on participants who were too confused to participate in the interview ($n = 8$), because 2 had completed the screening test with the help of their caregiver
Weinrich, 1993,[102] USA ***Objective:*** To test the effectiveness of four educator methods on participation in FOBT screening ***Design:*** RCT (cluster) ***Screening test(s):*** FOBT	***Sample:*** Participants visiting a congregate meal site (11 Council on Ageing Congregate Meal Sites in central South Carolina, USA) for the elderly ($n = 180$). 75% ($n = 171$) of the invited participants agreed to take part in the study. 70% of the sample was female; 50% of the sample was black and 50% was white. The average age was 72 years, and the average educational level was eighth grade. More that half of the participants had an income below the poverty line. The educational methods were randomised by meal site, not individuals. The study tested the effects of four educational interventions: traditional, elderly educator method (EE), adaptation for ageing changes (AAC), and combination (included EE and AAC) ***Setting:*** Council on Ageing Congregate Meal Sites ***Description and nature of determinants:*** • Socio-demographic (gender, race/ethnicity, income, education) • Knowledge, behaviour, attitudes and beliefs (colorectal screening during preceding 12 months)	***Multivariate analysis:*** The only variable found to be significant in the multivariate analysis was: *More likely to attend:* • The nurse presenter used: regression coefficient 0.448; SE = 0.179; likelihood ratio $\chi^2 = 6.43$; $p < 0.05$ See appendix 5 for further details	***Authors' conclusions:*** Participants who were taught by the EE and EE + AAC participated to a greater extent in faecal occult blood screening. This research supports one of the tenets of Social Learning Theory. The elderly educators served as believable peer role models; the participants were more likely to return their faecal occult blood kit if they saw modelled behaviour of colorectal cancer screening ***Comments:*** None

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	• Health (instrumental activities of daily living (ability to go places, use telephone, cook, shop, clean)) ***Follow-up:*** 1 week ***Drop-out:*** 75% (n = 171) of the invited participants agreed to take part and all were included in the analysis. Reasons for refusal included having had the test performed by a doctor recently and active involvement in other activities going on at the meal site (e.g. quilting)		
Weinrich, 1998,[76] USA ***Objective:*** To identify predictors for participation in free prostate cancer screening in work sites among 179 men, 64% of whom were African-American ***Design:*** Cohort ***Screening test(s):*** Prostate cancer screening (DRE and PSA)	***Sample:*** 179 men (64% African-American) from work sites in 11 counties in central South Carolina, USA. Industries employing large numbers of African-American workers from low socio-economic levels were targeted. Men were eligible if they were: aged ≥ 50 years, white men, and aged ≥ 40 years, African-American men; had no history of prostate cancer; were not under evaluation for prostate cancer; provided informed consent; and had mental orientation to date and place ***Setting:*** Work ***Description and nature of determinants:*** • Socio-demographics (age, race, household income, education) • Knowledge, behaviour, attitudes and beliefs (previous history of prostate cancer screening) ***Follow-up:*** Not stated ***Drop-out:*** Not stated	***Univariate analysis:*** Race and income were significant, while age, education, marital status, urinary symptoms, pain symptoms, previous DRE and previous PSA, were not ***Multivariate analysis:*** The model included the following terms, significant at the 0.05 level (both income and education were strongly associated with race): *More likely to attend:* • White (vs African-American): OR = 2.24; p = 0.028	***Authors' conclusions:*** No clear conclusions stated. ***Comments:*** The study was part of a larger study, which investigated the effectiveness of educational interventions aimed at encouraging African-American men to attend prostate cancer screening[126]
Weinrich, 1998,[121] USA ***Objective:*** To determine baseline predictors of attendance for FOBT, among socio-economically disadvantaged elderly people ***Design:*** Cohort	***Sample:*** 455 elderly people from 14/173 randomly chosen Council on Ageing Congregate Meal Sites in central South Carolina, USA, were asked to participate in the study. 246/455 (54%) agreed to participate, 211/455 (46.4%) of these participants provided complete data that were used in the subsequent analyses	Two variables that measured access to or utilisation of care were statistically significant: returned stool last year (p < 0.005) and previous rectal examination (p < 0.005). The other variables showed non-significant p values (p > 0.1), and were removed from the subsequent logistic regression analysis (ethnicity, income, exposure to cancer, sensory ability)	***Authors' conclusions:*** Predictors for FOBT in the study were male gender, age 65–75 years, ability to go places without assistance, history of having had a DRE and FOBT. This replication study supports targeting socio-economically disadvantaged populations for FOBT, as well as females, persons ≥ 85 years, persons who need assistance in travel, and persons who have not had

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
Screening test(s): FOBT (This was a replication of a previous study by Weinrich, 1990[101])	***Setting:*** Council on Ageing Congregate Meal Sites ***Description and nature of determinants:*** • Socio-demographic (gender, age, education, ethnicity) • Knowledge, behaviour, attitudes and beliefs (FOBT screening in the last year, ever participated in FOBT) • Health (instrumental activities of daily living, sensory ability, history of cancer, self-reported health status) ***Follow-up:*** Not stated ***Drop-out:*** 23 participants failed to provide a complete set of data for the study questionnaire, and so were excluded from the analysis. These individuals were mainly unable to provide information about their household income. A further 12 participants were also excluded as they failed to exhibit the mental ability required to complete the interview questions	***Multivariate analysis:*** The following were identified as significantly predictive of attendance for screening *More likely to attend:* • Aged 65–74 years (vs ≥ 85 years): regression coefficient –0.42; SE = 0.21; $p = 0.05$ • Able to go places without assistance (vs required assistance): regression coefficient 1.00; SE = 0.39; $p = 0.01$ • Ever had a DRE (vs never had): regression coefficient 0.86; SE = 0.38; $p = 0.02$ • Ever had FOBT (vs never had): regression coefficient 1.11; SE = 0.55; $p = 0.04$ • Had a FOBT in last year (vs not): regression coefficient –0.64; SE = 0.42; $p = 0.13$ Logistic regression coefficients corresponded to ORs that could be proven to differ from each other by more than 25%	FOBT before. The results show that socio-economically disadvantaged persons will participate in FOBT when effective educational interventions that include adaptation for ageing changes are used ***Comments:*** The study population included mainly individuals who were socio-economically disadvantaged. A large number of the participants refused to take part in the study, and this may have biased the study sample. The authors made no attempt to investigate how the high non-participation rate may have influenced the results
Weinrich, 1998,[77] USA ***Objective:*** To test the effect of knowledge on participation in prostate cancer screening ***Design:*** Controlled trial ***Screening test(s):*** Prostate screening (DRE and PSA)	***Sample:*** African-American men from different community sites in 11 counties. Each community site included work sites (33), churches (40), housing projects (7), National Association for Advancement of Colored People/civic sites (3), barber shops (7), a meal site (1), and in-reach sites at a college of nursing (2). Inclusion criteria included: age (40–70 years, African-American men; 50–70 years, Caucasian men); absence of prostate cancer; absence of current diagnosis of testing for prostate cancer; and never undergone previous prostate cancer screening. 965 men completed the knowledge questionnaire at the sites, and 319 were included in the study ***Setting:*** Community	***Multivariate analysis:*** Independent variables included in the multiple logistic regression were: prostate cancer knowledge, ethnicity; education; annual income; urinary symptoms; and four educational interventions. The following were found to be significant: *More likely to attend:* • Caucasian (vs African-American): $\beta = -0.59$; SEM = 0.35; $p = 0.09$ • Had a high school education (vs less education): $\beta = 0.87$; SEM = 0.42; $p = 0.04$ • Knew about prostate cancer (vs did not know): χ^2 [1, $n = 316$] = 3.98; $p = 0.05$ • Had urinary symptoms (vs did not): $\beta = 1.20$; SEM = 0.38; $p = 0.002$	***Authors' conclusions:*** Prostate cancer knowledge was a predictor in participation in screening. Nurses need to target educational interventions for African-American men, who have the highest incidence of and mortality from prostate cancer, to significantly reduce mortality rates. This study documents the importance of providing educational programmes to increase participation in prostate cancer screening ***Comments:*** The study was part of a larger study, which investigated the effectiveness of educational interventions aimed at encouraging African-American men to attend prostate cancer screening[126] Determinants were based on the PRECEDE model

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TABLE 21 contd *Data extraction table for determinant studies*

Study details	Characteristics of study, determinants and methodology	Results	Comments and implications
	Description and nature of determinants: • Socio-demographics (age, ethnicity, education, income, marital status, living status). • Knowledge, behaviour, attitudes and beliefs (cancer knowledge) • Health (family history of prostate cancer, symptoms of prostate cancer) ***Follow-up:*** Not stated ***Drop-out:*** Seven respondents who failed to give a response to three or more of the six questions were dropped from the sample. Of the 319 men who remained, a total of 23 participants did not answer one or two of the six knowledge questions, 19 did not answer one of the six questions, and 4 did not answer two of the six questions. For these participants 0.5 was assigned as a value for the missing values	*Less likely to attend:* • Had an income of $25,021 to $50,000 per year (vs $9600 to $25,000 per year): β = 0.81; SEM = 0.38; p = 0.03, n = 319 • Had an income of $4800 to $9600 per year (vs $9600 to $25,000 per year): β = –0.82; SEM = 0.34; p = 0.02 This is in contrast to findings from the univariate logistic regression where urinary symptoms were not a predictor for participation in free prostate cancer screening (p = 0.78) See appendix 5 for further details	
Wilson, 1996,[114] USA ***Objective:*** To assess psychological predictors of HIV-antibody testing in a sample of non-pregnant, heterosexual, sexually active women residing in a HIV-endemic area ***Design:*** Cohort ***Screening test(s):*** HIV-antibody test	***Sample:*** Participants were approached at one of three healthcare sites providing family planning and obstetrical/gynaecological services in Brooklyn, New York. Women were asked to complete a baseline survey and a final sample of 763 was included in the study ***Setting:*** Primary care practice (urban) ***Description and nature of determinants:*** • Socio-demographic (marital status, income) • Knowledge, behaviour, attitudes and beliefs (previous drug testing, number of sexual partners, belief that could better decide whether to get pregnant if tested, belief that if not tested might find out too late to be treated) • Barriers and facilitating conditions (concern while waiting for test results) • Health (alcohol use, marijuana use) ***Follow-up:*** 1 day ***Drop-out:*** Not stated	***Multivariate analysis:*** The following were found to be significant (p > 0.05) in the multivariate analysis: *More likely to attend:* • Belief that they would be better able to decide whether to get pregnant (vs would not): r = 0.08; β = 0.53; SE = 0.22 *Less likely to attend:* • Belief that if tested it may be too late to be treated (vs did not believe it may be too late): r = –0.10; β = –0.37; SE = 0.14	***Authors' conclusions:*** Prior to counselling women were deterred from testing because they feared the anxiety of waiting for their test results. This suggests that efforts aimed at same-day testing may be beneficial for increasing rates of test taking. Women also tended to follow through on their intentions to be tested if they believed it would better enable them to plan a pregnancy, and if they believed that it would not be too late for treatment ***Comments:*** The study population was selected from those attending healthcare sites in Brooklyn, New York, where HIV is endemic

Appendix 4

Quality of determinant studies

TABLE 22 *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Bastani, 1994,[78] USA	22.4%	±	+	–	+	–	78% (626/802)	+	Significant differences identified (χ^2 analyses) between the demographic factors of those participants included in the final analysis, and those lost to follow-up. No further action was taken to control for this in the final analyses
Burack, 1997,[60] USA	±	±	–	+	–	+	67% (1225/1826)	NA	
Burack, 1996,[61] USA	±	±	–	+	–	+	65% (1527/2364)	±	
Cockburn, 1997,[64] Australia	±	±	–	+	+	–	±	±	Missing data in multivariate analysis; no further details (incomplete baseline questionnaires)
Cockburn, 1997,[63] Australia	±	±	–	+	+	–	±	±	The number of women approached via random telephone interview was not stated. However 219 consented and all were interviewed; their determinant status was therefore known
Crane, 1998,[81] USA	25%	±	+	–	+	–	68.6% (2114/3080)	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 22 contd *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Dolan, 1995,[116] USA	54% (410/759)	±	+	+	+	–	81.7% (285/349)	±	Inconsistencies in the data reported in the text and tables
Gimotty, 1996,[65] USA	±	±	±	±	±	±	±	±	No data on non-participation and follow-up rates, and how the outcome was measured
Grady, 1997,[66] USA	±	±	–	+	+	–	97.5% (11,426/ 11,716)	–	The unit of allocation was the physician. However the follow-up was expressed in terms of patient numbers
Janz, 1997,[67] USA	±	±	–	+	+	–	72% (460/635)	NA	
Johnson, 1994,[83] USA	49% (16/395)	±	+	–	+	–	81%	–	The 16 participants who refused to provide details about mammography uptake in the questionnaire were included in the analysis (no further details given)
Kang, 1993,[84] USA	32%	–	±	±	+	–	±	–	Missing determinant data from the analyses (no further details given). Not all of the study population were eligible for all of the six screening tests studied
Kendall, 1993,[106] USA	0%	±	–	+	–	+	100% (150/150)	NA	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 22 contd *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Kiefe, 1994,[117] USA	50% (120/239)	±	+	+	+	–	88% (105/119)	–	The 11 participants who had missing data were included in the analysis (no further details given)
King, 1998,[85] USA	25% (numbers not stated)	±	+	–	+	–	100% (436/436)	NA	
Kreuter, 1995,[86] USA	25.3% (954/3772)	±	+	–	+	–	65.6% (1850/2818)	–	
Marcus, 1993,[88] USA	2%	+	+	–	+	–	87%	+	Missing data on determinants were replaced by mean values in the analyses
Margolis, 1998,[89] USA	13% (215/1693)	+	+	+	+	–	Mammography: 84% (1395/1483) Pap smear: 93% (904/967)	–	Outcome was measured by medical records, but where there was no record of attendance, women were followed-up using a phone interview (blinded interviewer). If this attempt to contact the woman by phone failed, a survey questionnaire was sent by post. Included in final analysis: mammography 51% (759/1483); Pap smear 55.4% (536/967)

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 22 contd *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Maxwell, 1996,[90] USA	22.4%	±	+	–	+	–	29% (232/802)	–	The multivariate analysis was limited to those women aged > 40 years who completed all three telephone surveys (232/485)
Mayer, 1993,[69] USA	±	±	+	–	+	–	56% (626/1113)	–	Response rates given as percentages for control and intervention groups separately
Montano, 1991,[108] USA	0%	±	–	+	+	–	74% (683/922)	+	Attendance data were available for questionnaire responders and non-responders. Respondents were significantly more likely to participate in screening as determined by χ^2 analyses
Murata, 1992,[91] USA	23% (74/316)	±	–	+	–	+	100% (289/289)	NA	
Nattinger, 1988,[111] USA	0%	±	–	+	+	–	±	±	
Rimer, 1999,[122] USA	±	±	±	±	+	–	70.5% (627/889)	–	
Rothman, 1993,[95] USA	21.2% (53/250)	±	+	–	+	–	74% (185/250)	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 22 contd *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Segnan, 1998,[71] Italy	±	±	±	±	–	+	Mammography: 99.8% (8059/8069) Pap smear:100%	Mammography: – Pap smear: NA	
Sharp, 1996,[72] USA	±	±	–	+	+	–	98% (782/799)	NA	
Siegler, 1995,[97] USA	16% (158/936)	±	±	±	+	–	97% (754/778)	NA	Sampling suggests that the analyses were based on 756 participants. However, only results for 754 participants were reported
Simon, 1998,[118] USA	57% (268/470)	±	–	+	+	–	95% (192/202)	–	Missing determinant data for 10 participants (attendance data available), who were excluded from the multivariate analysis
Skaer, 1996,[113] USA	0%	±	–	+	+	–	95% (76/80)	–	
Skinner, 1994,[98] USA	44% (392/889)	±	+	–	+	–	87.5% (435/497)	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 22 contd *Breast cancer screening (34 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Sutton, 1994,[119] UK	60% (1990/3291)	±	–	+	+	–	100% (1301/1301)	±	Data appear to be missing from the determinant analyses, and there appear to be discrepancies between the data reported in the text and those reported in the figures
Taplin, 1989,[74] USA	±	±	–	+	+	–	±	±	
Taplin, 1994,[75] USA	±	±	–	+	+	–	88%	±	Inconsistencies in figures quoted in the text and those quoted in the tables

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 23 *Cervical cancer screening tests (12 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Bergmann, 1996,[79] Iceland	6.8% (37/538)	±	–	+	–	+	99% (501/508)	NA	
Bowman, 1995,[115] Australia	86% (5553/6431)	±	+	+	+	–	75% (659/878)	–	Significant difference identified (χ^2 analyses) between the individuals who were included in the final analysis and those who were lost to follow-up, in terms of their GP attendance in the previous 12 months ($\chi^2 = 11.1$; df = 3; $p = 0.011$). No further action was taken to control for this in the final analyses
Burack, 1998,[80] USA	7.7% (325/4173)	±	–	+	–	+	65% (3746/5801)	–	
Cecchini, 1989,[62] Italy	±	±	±	±	±	±	±	±	Data relating to outcome assessment, non-participation and follow-up rates were not reported
Gimotty, 1996,[65] USA	±	±	±	±	±	±	±	±	No data given on non-participation and follow-up rates, and how the outcome was measured
Kang, 1993,[84] USA	32%	–	±	±	+	–	±	–	Missing determinant data from the analyses (no further details given). Not all the study population was eligible for all the six screening tests studied

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 23 contd *Cervical cancer screening tests (12 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Kreuter, 1995,[86] USA	25.3% (954/3772)	±	+	–	+	–	65.6% (1850/2818)	–	
Lubitz, 1995,[87] USA	25% (332/1302)	±	–	+	+	–	100% (970/970)	NA	
Margolis, 1998,[89] USA	13% (215/1693)	+	+	+	+	–	Mammography: 84% (1395/1483) Pap smear: 93% (904/967)	–	Outcome was measured by medical records, but where there was no record of attendance women were followed-up using a phone interview (blinded interviewer). If this attempt to contact the woman by phone failed, a survey questionnaire was sent by post. Included in the final analysis: mammography, 51% (759/1483); Pap smear, 55.4% (536/967)
Pritchard, 1995,[103] Australia	3% (22/757)	±	–	+	+	+	45% (335/735)	–	Data were missing for a number of the determinants, with between 335 and 735 women included in the final analysis depending on the determinant. 60% of the women in the tagged notes intervention group did not attend the practice during the intervention period and 53% of the control group did not attend

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 23 contd *Cervical cancer screening tests (12 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Rimer, 1999,[122] USA	±	±	±	±	+	–	70.5% (627/889)	–	
Segnan, 1998,[71] Italy	±	±	±	±	–	+	Mammography: 99.8% (8059/8069) Pap smear: 100%	Mammography: – Pap smear: NA	

+, adequate; ± , unknown or partial; –, inadequate; NA, not applicable

TABLE 24 *Colorectal cancer screening tests (11 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Kang, 1993,[84] USA	32%	–	±	±	+	–	±	–	Missing determinant data from the analyses (no further details given). Not all the study population were eligible for all the six screening tests studied
Macrae, 1984,[107] Australia	0%	±	–	+	+	–	100% (581/581)	NA	
Myers, 1991,[110] USA	0%	±	–	+	+	–	100% (2201/2201)	NA	
Myers, 1993,[109] USA	0%	±	–	+	–	+	100% (1565/1565)	NA	
Myers, 1994,[92] USA	22.4% (145/646)	±	–	+	+	–	71.8% (360/501)	–	Participants who had missing determinant data were compared with those who had a complete set of data. Participants who reported never having performed a FOBT previously were more likely to have missing data. No further action was taken to control for this in the analysis
Myers, 1997,[93] USA	< 1% (9/5591)	±	–	+	–	+	95% (688/727)	–	
Senore, 1996,[96] Italy	1% (16/1186)	±	–	+	+	+	100% (1170/1170)	NA	
Thomas, 1995,[99] USA	0.6% (94/15570)	±	–	+	±	±	71.4% (11055/ 15476)	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

continued

TABLE 24 contd *Colorectal cancer screening tests (11 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Thompson, 1986,[100] USA	14.4% (85/592)	±	–	+	+	–	82% (507/616)	±	
Weinrich, 1990,[101] USA	30% (73/244)	±	–	+	+	–	100% (171/171)	NA	
Weinrich, 1993,[102] USA	25%	±	–	+	+	–	100% (171/171)	NA	
Weinrich, 1998,[121] USA	53.6% (244/455)	±	–	+	+	–	100% (211/211)	NA	

+, adequate; ±, unknown or partial; –, inadequate: NA, not applicable

TABLE 25 *HIV antibody test (7 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Cardonick, 1998,[104] USA	0%	±	–	+	+	–	100% (600/600)	NA	
Collier, 1998,[123] USA	±	±	–	+	+	–	100% (856/856)	NA	
Goodman, 1994,[105] USA	0%	±	+	+	+	–	87% (124/143)	–	Screening status was confirmed using medical records for those who attended and self-report for those who did not (i.e. those who may have been screened elsewhere)
Miller, 1996,[124] USA	±	±	–	+	+	–	100% (470/470)	NA	
Phillips, 1997,[70] USA	±	±	+	–	+	–	41% (2275/5543)	–	
Silvestre, 1993,[73] USA	±	±	–	+	+	–	100% (110/110)	NA	
Wilson, 1996,[114] USA	0%	±	–	+	+	–	100% (763/763)	NA	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 26 *Prostate cancer screening tests (4 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Kang, 1993,[84] USA	32%	–	±	±	+	–	±	–	Missing determinant data from the analyses (no further details given). Not all the study population were eligible for all the six screening tests studied
Myers, 1997,[93] USA	< 1% (9/5591)	±	–	+	–	+	95% (688/727)	–	
Weinrich, 1998,[76] USA	±	±	–	+	+	–	100% (179/179)	NA	
Weinrich, 1998,[77] USA	±	±	–	+	+	–	33% (319/965)	–	Seven participants failed to respond to 3 or more questions and were excluded from the analysis. A further 23 participants provided incomplete questionnaires and these missing values were substituted by 0.5 in the analysis

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 27 *Tuberculosis screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Malotte, 1988,[68] USA	±	±	–	+	+	–	100% (1004/1004)	NA	States that 1004 were recruited, but not how many were approached in total

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 28 *General health screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Norman, 1995,[94] UK	49% (157/321)	±	±	±	+	–	100% (164/164)	NA	None

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 29 *Cystic fibrosis carrier screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Tambor, 1994,[120] USA	51.6% (1714/3321)	±	–	+	+	–	±	–	The final multivariate analysis only looked at those individuals who expressed an interest in taking the test

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 30 *Well-child screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Selby-Harrington, 1995,[112] USA	0%	±	–	+	+	–	100% (1707/1707)	NA	None

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 31 *Cholesterol screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Kreuter, 1995,[86] USA	25.3% (954/ 3772)	±	+	–	+	–	65.6% (1850/ 2818)	–	None

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

TABLE 32 *Preventive Medicare screening (1 study)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self–report	Determinants measured by medical records/ database	Follow–up	Identification of participants lost to follow–up	Notes
German, 1995,[82] USA	44% (264/528)	±	–	+	+	–	74% (3097/4195)	–	Data for individual tests not reported

+, adequate; ±, unknown or partial; –, inadequate; NA,not applicable

TABLE 33 *Studies examining determinants related to the healthcare provider (2 studies)*

Study	Non-participation	Blinding	Uptake measured by self-report	Uptake measured by medical records/ database	Determinants measured by self-report	Determinants measured by medical records/ database	Follow-up	Identification of participants lost to follow-up	Notes
Grady, 1997,[66] USA	±	±	–	+	+	–	97.5% (11,426/ 11,716)	–	Unit of allocation was the physician. However, the follow-up was expressed in terms of patient numbers
Lubitz, 1995,[87] USA	25% (332/1302)	±	–	+	+	–	100% (970/970)	NA	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable

Appendix 5

Summary of intervention studies

TABLE 34 *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Arnold, 1996,[195] USA ***Objectives:*** To assess the effectiveness of an educational brochure and a short educational programme on the uptake of mammography by low-income, low-literacy women ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 445 women aged ≥ 40 years who had not had a mammogram in the past year. 69% were African-American, 30% were white; 97% had a household income < $20,000, 83% had a household income < $10,000; 59% had not graduated from high school ***Setting:*** University medical centre ***Intervention(s): number randomised (number analysed in parentheses)***. Numbers in each group not stated. 1. Brochure for low-literacy women 2. 12-minute educational programme including breast cancer nurse, peer educator and video designed to promote mammography screening 3. Control: recommendation and referral only ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample or power calculations performed. 274 women completed follow-up ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months	***Intervention effects (uptake of screening):*** No actual numbers given, but 23% of all women received a mammogram 1. Educational brochure: 18% 2. Educational programme: 29% 3. Usual care: 21% Women receiving educational programme had significantly higher uptake than women receiving educational brochure or usual care ($p < 0.05$) Accuracy of self-report: 10% of women who said they had received a mammogram had no administrative record of test ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Mammography rate for all groups was higher than previous baseline (8%), with the educational intervention having a marked effect ***Comments:*** Allocation methods and statistical methods not fully discussed. Limited mention of provider characteristics or specific content of interventions. Conference abstract only
Atri, 1997,[259] UK ***Objectives:*** To determine whether a 2-hour training programme for GP reception staff could improve uptake in patients who had failed to attend for breast screening and whether women from different ethnic groups benefit equally ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Women aged 50–64 years from different ethnic groups living in inner London (Newham) who failed to attend for breast screening. Women were excluded if they died, moved, opted out, had gone missing, had been screened recently or were under care. The ethnic origins of the group were 31% white, 17% Indian, 10% Pakistani, 14% black, 6% Bangladeshi, 1% Chinese, 4% other ethnic groups and 16% not reported ***Setting:*** General practice (urban)	***Intervention effects (uptake of screening):*** *All ethnic groups:* 1. Intervention group: 90/995 (9%) 2. Control: 40/1069 (4%) (authors' OR = 2.3; 95% CI, 1.1 to 5.3; $p = 0.04$)	***Authors' conclusions:*** Screening rates in the control and the intervention groups represented overall increases of 1.4% and 3.4%, respectively. Improvement was greatest in Indian women. Intervention is not sufficient in itself to produce acceptable breast screening rates, but it would form a useful component of a multifaceted strategy

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. A receptionist from each intervention practice received 2 hours of training about the screening programme and women's concerns. The receptionist was asked to contact all women on their list of non-attenders by telephone, where possible, or by standard letter from the GP (English with appropriate translation): 995 (995) 2. Control practice, given no training or advice: 1069 (1069) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations were performed. Letter or phone contact was attempted with 646/995 non-attenders (314 letter alone, 219 phone alone, 113 letter and phone). 349 received no contact. Of 332 phoned, 96 no reply, 175 spoken to personally, 61 another household member spoken to. Unit of allocation different from unit of analysis. Intention-to-intervene analysis by original allocation ***Baseline comparability:*** No differences in mean number of GPs per practice and single-handed GPs, proportion of women screened during previous round and proportion of women in minority ethnic groups in local wards ***Baseline of assessment:*** 1069/2822 of control and 995/2672 of intervention group failed to attend ***Follow-up:*** Trial duration 1 year with at least 4-month follow-up of non-attenders (longer for those in first batch)	*Indian women:* 1. Intervention group: 40/206 (19%) 2. Control: 8/149 (5%) (authors' OR = 2.2; 95% CI, 1.3 to 3.8; *p* not stated) *White women:* 1. Intervention group: 14/372 (5%) 2. Control: 22/259 (8%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** One GP practice failed to report the ethnic origin of the group. Most receptionists and GPs spoke an Indian language fluently, thus biasing against other ethnic groups. 3/12 intervention practices made no attempt to contact non-attenders and one practice contacted fewer than 10 women
Bastani, 1994,[78] USA ***Objectives:*** To evaluate the effectiveness of a mail-out intervention for increasing screening mammography rates ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** A random sample of 802 women, aged > 40 years living in Los Angeles County, USA ***Setting:*** Community (urban)	***Intervention effects (uptake of screening):*** *Intervention group:* Uptake increased from 42% to 50% (200/401) ($p < 0.02$) *Control:* Uptake increased from 45% to 56% (224/401) ($p < 0.0004$). Degree of change was not significantly different	***Authors' conclusions:*** Unable to demonstrate the effectiveness of the minimal mail-out intervention in increasing screening mammography rates

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Mail-out material, including information booklet on mammography, thank you note and notepad printed with mammography guidelines and insurance company reimbursement details: ? (401) 2. Control: other cancer related material, which did not specifically target breast cancer. Thank you note and general booklet on cancer: ? (401) ***Theoretical basis of intervention:*** Health Belief Model, Theory of Reasoned Action ***Sample-size calculations and analyses:*** No sample-size or power calculations. Completed follow-up interviews for 78% (n = 626) of original sample. No intention-to-intervene analysis ***Baseline comparability:*** No significant differences except knowledge of screening guidelines (51.6% in control vs 43.3%; $p < 0.02$). In addition, fewer women in the control group reported having a family history of breast cancer (16.7 vs. 22.1%; $p < 0.009$) ***Baseline of assessment:*** Baseline mammogram: 42% of intervention group, 45% of control group ***Follow-up:*** 12 months (approx.)	No interaction effects (age, ethnicity, income, insurance status, never having a mammogram at baseline) were statistically significant ***Intermediate outcomes:*** The two groups did not differ on variables such as knowledge and attitudes and beliefs. The intervention group was more likely to report having received breast cancer materials in the mail (44.2% vs. 29.1%; $p < 0.0001$). In both groups, approximately 85% of those who remembered receiving the material stated that they read everything or almost everything, and about 30% reported that the material influenced them to get a mammogram ***Costs:*** Not stated	***Comments:*** The hypothesis that the baseline telephone interview constituted an intervention is supported by the fact that screening mammography rates significantly increased from baseline to follow-up in both groups
Bejes, 1992,[286] USA ***Objectives:*** To increase patient compliance with screening by flexible sigmoidoscopy and FOBT by offering these tests during office visits, using reminders aimed at physicians and recall letters to patients. Secondary aim was to assess reasons for patients declining ***Design:*** RCT (cluster) ***Screening test:*** FOBT, flexible sigmoidoscopy	***Sample:*** All patients living in a moderate-sized midwestern community (USA), aged ≥ 50 years and presenting for any type of appointment were eligible. Sample of 330 patients in the intervention group, 216 in the control group ***Setting:*** Family practice clinic ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Brief training for physicians plus chart reminder. Patients received information on colorectal cancer: ? physicians; 36 patients (36)	***Intervention effects (uptake of screening):*** *Sigmoidoscopy:* no significant difference in uptake between groups 1 (22%, 8/36 individuals) and 2 (31%, 4/143 individuals) ($p = 0.31$); significantly higher uptake among intervention groups (groups 1 and 2) (29%, 52/173 individuals) than control group (2%, 4/216 individuals) ($p < 0.05$)	***Authors' conclusions:*** Patient compliance with colorectal cancer screening procedures can be increased when physicians offer FOBT and flexible sigmoidoscopy to all physicians over age 50 years, regardless of reason for visit. The recall letter alone did not increase uptake significantly ***Comments:*** Sample-size variations due to individual age differences between physician lists. Physician gender thought to be influential

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Brief training for physicians plus chart reminder. Patients received identical information plus a recall letter via mail 2–3 weeks: ? physicians; 143 patients (143 individuals) 3. Control group received routine individual care with no special emphasis on screening: ? physicians, 216 individuals (216 individuals) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations. Unit of allocation different from unit of analysis. 151 intervention individuals were excluded from the study as physicians failed to offer tests. 15 individuals having already had screening tests were analysed on an intention-to-screen basis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Intervention conducted over 12-week period with recall letters after 2–3 weeks	*FOBT:* no significant difference in uptake between groups 1 (44%, 16/36 individuals) and 2 (59%, 84/143 individuals) returning FOBT cards ($p < 0.10$); significantly higher uptake among intervention group (groups 1 and 2) (56%, 100/173 individuals) than control group (17%, 37/216 individuals) ($p < 0.05$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Bekker, 1993,[29] UK ***Objectives:*** To determine the acceptability and feasibility of screening for carriers of cystic fibrosis in a primary care setting, offered by six methods ***Design:*** RCT for letter interventions, controlled trial for other interventions ***Screening test:*** Cystic fibrosis carrier testing	***Sample:*** 5529 general practice individuals aged 18–45 years living in inner London. All age-eligible individuals were invited to participate ***Setting:*** General practice (urban) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personal letter signed by GP inviting person to make appointment for screening: 502 (502) 2. Same letter as above plus leaflet: 496 (496) 6 weeks later, opportunistic screening was begun (non-random): 3. Patients attending practice handed leaflet, invited to participate; immediate testing available: 471 (471) 4. Patients attending practice approached by researcher, invited to have test at that time: 649 (649)	***Intervention effects (uptake of screening):*** 1. Letter: 59/502 (12%); 95% CI, 9 to 15 2. Letter + leaflet: 47/496 (9%); 95% CI, 6 to 12 3. Passive opportunistic: 81/471 (17%); 95% CI, 14 to 20 4. Personal approach for immediate testing 453/649 (70%); 95% CI, 67 to 73 5. Active opportunistic: return visit: 22/88 (25%); 95% CI, 16 to 34 6. Letter at end of study: 128/2953 (4%); 95% CI, 3 to 5) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The results suggest that the strongest variable in determining the uptake of screening is the active approach by a health professional offering immediate testing ***Comments:*** Additional information was received from the author regarding the randomisation process

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	5. Patients attending practice approached by researcher, told about test and, if agreed, given appointment: 88 (88) 6. 6 weeks before end of programme, all those not approached were sent a letter of invitation: 2953 (2953) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations presented. 481 people completed all three questionnaires. No intention-to-intervene analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 15 months		
Bergmann, 1996,[79] Iceland ***Objectives:*** To study whether recruitment efforts from a healthcare centre on a personal level, may raise attendance in non-attenders for Pap smear screening ***Design:*** Controlled trial ***Screening test:*** Pap smear	***Sample:*** 2510 women aged 35–69 years, who were invited regularly for cervical cancer screening during the preceding 10 years in the town of Hafnarfjordur, Iceland. 2241 had attended screening during the preceding 5 years. 2510 women aged 35–69 years were classified as those who had attended during the previous 5 years (n = 2241, 89.3%), those who had never attended (group A, n = 102, 4.1%) and those who had attended more than 5 years previously (group B, n = 167, 6.7%) ***Setting:*** Community health centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (group A): Letters were sent reminding women that they had never attended a cervical cancer screening. They were asked to complete a questionnaire, and invited for a Pap smear, at the Cancer Society's Detection Clinic, the GP's surgery or with a gynaecologist: 102 (102) 2. Usual care (group B): Women received the usual reminder from the Cancer Society: 167 (167) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** *After 1 year (12–13 months):* 1. Group A: 10/102 (10%) 2. Group B: 19/167 (11%) Overall, the effort to intervene resulted in a 10.8% attendance among non-attenders (groups A + B), and to a total attendance rate of 90.4% instead of 89.2% among women aged 35–69 years ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Total participation rates for cervical cancer screening programmes in Iceland is high. When efforts are taken to lower the non-attendance rate it has to be kept in mind that many women are unwilling or unable to participate in such preventive measures ***Comments:*** Individuals in groups A and B were selected on the basis of whether they were a never attender (group A) or a previous attender (group B). Therefore, the characteristics of the participants were likely to be different

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** Significant differences with regard to specific baseline characteristics such as age, health status and visits to GP ***Baseline of assessment:*** See under Sample details ***Follow-up:*** 12–13 months		
Berry, 1997,[228] UK ***Objectives:*** To assess both the acceptability and neoplasia yield of flexible sigmoidoscopy in a randomised, prospective study of asymptomatic individuals ***Design:*** RCT (cluster) ***Screening test:*** FOBT, flexible sigmoidoscopy	***Sample:*** 6371 asymptomatic individuals aged 50–74 years identified from two general practice registers (3124 men, 3247 women) in Newport, South Wales. Individuals with proven neoplasia, patients under investigation for abnormal symptoms, and those with other advanced disease were excluded ***Setting:*** General practices (one rural and one inner city) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Offered sigmoidoscopy and FOBT testing: 3243 (3243) 2. Offered FOBT only: 3128 (3128) Both groups were sent a GP letter that included a free FOBT and group 1 was also invited to attend the GP surgery on a specified day to discuss a further examination ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculation was used. No losses to follow-up stated. Randomised by household, analysed by individual ***Baseline comparability:*** No differences were seen in the demographic detail of the two groups ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** 1. FOBT and sigmoidoscopy: 48% returned the FOBT but only 649/3243 (20%) went on to have a sigmoidoscopy 2. FOBT only: 1564/3128 (50%) Neither group demonstrated a trend in uptake when assessed for age and sex ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study demonstrated that sigmoidoscopy can significantly increase neoplasia yield but this potential benefit will only be fully realised by identifying strategies to increase compliance with the test. Until the issue of poor compliance is addressed, a 20% compliance with flexible sigmoidoscopy in an average UK population should be used in calculations of potential cost benefits of population screening and potential trial sizes using sigmoidoscopy ***Comments:*** Uptake was not the primary outcome

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Binstock, 1997,[138] USA ***Objectives:*** To evaluate the overall response to and cost-effectiveness of various outreach efforts to women overdue for Pap smear screening ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Women aged 25–49 years who had been enrolled for at least 3 years in an HMO; who were likely to seek outpatient care at one of the three medical centres and who had not had a Pap smear within the last 3 years. Half of those eligible (7630) were entered in the trial ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Telephone call: 1526 (1526) 2. Letter: 1526 (1526) 3. Memo to the woman's primary provider: 1526 (1526) 4. Chart reminder fixed to the outside of the woman's medical record: 1526 (1526) 5. Control group: 1526 (1526) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations not performed. Drop-outs not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 12 months	***Intervention effects (uptake of screening):*** 1. Telephone: 536/1526 (35.1%) 2. Letter: 403/1526 (26.4%) 3. Provider memo: 389/1526 (25.5%) 4. Chart reminder: 365/1526 (23.9%) 5. Control group: 249/1526 (16.3%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The interventions tested in this study resulted in only a modest increase in Pap smear screening, perhaps because they do not address the complex reasons why some women do not obtain screening ***Comments:*** No details were provided about the selection criteria for the half of the women who were entered in the study. Generalisability of the study may be limited to members of an HMO
Boissel, 1995,[260] France ***Objectives:*** To evaluate the effects of an education programme for GPs on their prescribing behaviour for cervical and breast cancer screening tests for detecting breast and cervical cancer in all women in appropriate age groups ***Design:*** RCT (cluster) ***Screening test:*** Mammogram, Pap smear	***Sample:*** All 278 general practices (single and group) in the administrative region of France (Haute-Savoie) ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. One-day seminar; four follow-up bulletins during following year; notes on mammography and Pap test techniques: 139 practices (139), 193 GPs (193) 2. Control group (not stated): 139 practices (139), 192 GPs (192)	***Intervention effects (uptake of screening):*** *Screening mammogram:* 1. Intervention group: 1993 (56.1% of total) (average number per practice aged < 50 years, 4.7; aged ≥ 50 years, 9.6) 2. Control group: 1558 (43.9% of total) (average number per practice aged < 50 years, 4.8; aged ≥ 50 years, 6.4)	***Authors' conclusions:*** This study suggests that it is possible to influence GPs' participation in screening programmes, but that the messages should be carefully presented, since negative effects are possible. The limited number of intervention GPs attending the seminar may have diluted any effect ***Comments:*** The study lacked important information about the GP and population characteristics, which determine the

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Only 83/193 attended the seminar and thus received the intervention. Intention-to-intervene analysis. Unit of allocation the same as unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Only the intervention GP knowledge/attitudes was assessed prior to intervention ***Follow-up:*** 1 year from seminar	*Pap smear:* 1. Intervention group: 5627/12,034 (40.5% of total) (average number per practice, 40.5) 2. Control group: 6407/12,034 (46.1% of total) (average number per practice, 46.1) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	generalisability of the results. 57% of the intervention group did not participate in the intervention. The authors used the phrase 'prescription of screening', which appears to mean the number of screenings undergone by the target population. Different analyses included diagnostic and/or screening mammograms
Bowman, 1995,[115] Australia ***Objectives:*** To assess the comparative efficacy of three interventions to encourage 'at-risk' women to have a Pap smear ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Over 7000 women aged 18–70 years, in an Australian community, were identified by a random household survey (developed by the Australian Bureau of Statistics). Those women who were not sexually active, could not speak English, were infirm, were not at home during visits, or had had a hysterectomy were excluded. Women were considered eligible if they had not had a smear test in the previous 3 years. Of the remaining 6431 women, 88.7% (5706) consented to take part in the study. 913 at-risk, under-screened women were randomised to the interventions ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. GP reminder letter: 220 (178) 2. Women's health clinic invitation: 220 (164) 3. Pamphlet: 219 (162) 4. Control group: 219 (155) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations. No intention-to-intervene analysis. 35 women excluded from GP letter after randomisation	***Intervention effects (uptake of screening):*** *Uptake (from HIC records):* 1. GP letter: 52/178 (29.2%); 95% CI, 23.0 to 35.4 2. Clinic: 26/164 (16.0%); 95% CI, 11.0 to 21.0 3. Pamphlet: 29/162 (18.1%); 95% CI 12.8 to 23.4 4. Control: 26/155 (16.5%); 95% CI, 11.4 to 21.6 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The relative efficacy of the GP letter in prompting screening attendance shows that this strategy is worthy of further investigation. There remains a need to examine barriers to screening for older women and to develop tailored strategies for this population ***Comments:*** Comparison of self-reported uptake and Health Insurance Commission records of uptake indicates that women were very accurate in their self-report of screening when it had actually taken place but inaccurate in almost a quarter of instances when they stated that it had occurred

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: No significant differences in socio-demographic characteristics or risk of cervical cancer ***Baseline of assessment:*** No participants had had a smear in past 3 years ***Follow-up:*** 6 months		
Brown, 1996,[248] Australia ***Objectives:*** To evaluate a collaborative nurse and GP approach to improve screening for cervical cancer ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** Six postal areas in the Hunter Valley of New South Wales, and six demographically similar comparison areas in New South Wales (based on the Australian Bureau of Statistics age and sex profiles, and the percentage of women who were of Aboriginal, Torres Strait Islander, or non-English-speaking background) ***Setting:*** Communities (postal areas) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Women's health nurses worked in collaboration with GPs to promote and provide screening for cervical cancer. Promotion of screening was done at community level by newspaper articles, leaflets and talks to women's groups and posters: 6 communities (6) 2. Control (no intervention): 6 communities (6) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations not performed. Analyses based on intention-to-intervene analysis. Compared number expected to be screened, had the intervention not occurred, with actual number after intervention and adjusted for estimated 20% hysterectomy rate. Unit of allocation different from unit of analysis ***Baseline comparability:*** The intervention and control communities were demographically similar (no further details provided)	***Intervention effects (uptake of screening):*** A significant increase in the number of women attending for cervical cancer screening was observed in four of the five regions where nurses worked with GPs. There were no corresponding increases in the comparison region. When the values for all regions, which received the intervention (including the one region where the offer was declined), were combined for 'intention-to-treat' analysis the difference between the observed values and the expected values was highly statistically significant. This increase was statistically significantly greater than the difference between observed and expected values in the control regions ***Intermediate outcomes:*** Not stated ***Costs:*** The cost of each woman's visit to the nurse was estimated to be about Australian $33. In an 'average' visit each patient received 3.25 clinical services, as well as health information and counselling	***Authors' conclusions:*** There is great potential for nurses to work in collaboration with GPs to improve the availability and coverage of community cervical cancer screening programmes ***Comments:*** The sample of regions and GPs taking part in this pilot trial was small and the results observed may not reflect results which would occur on a larger scale

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: 39% of women in the intervention communities and 42% of women in the control communities had a record of a least one Pap smear in the past 2 years ***Follow-up:*** 6 months		
Buehler, 1997,[139] Canada ***Objectives:*** To determine the effectiveness of a simple call–recall system in improving compliance with cervical cancer screening among women not screened in previous 3 years ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Random sample of 441 women aged 18–69 years listed as patients of the clinics who had not had a Pap test in the 3 years before the study. Patients with a complete hysterectomy, who had moved or had records with clerical errors were excluded ***Setting:*** Family medicine clinics (two) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personal letter and a reminder letter 4 weeks later: 221 (178) 2. Control group (no letter): 220 (208) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size or power calculations performed. Excluded from analysis were 32 women in intervention group who had moved and 23 women who had a Pap smear between matching and intervention (11 intervention group, 12 control group) ***Baseline comparability:*** No significant difference in age, residence or Pap test history ***Baseline of assessment:*** No Pap smear in past 3 years ***Follow-up:*** 2 and 6 months post-intervention	***Intervention effects (uptake of screening):*** *6 months:* 1. Intervention: 19/178 (10.7%) 2. Control: 13/208 (6.3%) ($p < 0.16$) *6-month follow-up by age group:* (i) Age ≤ 40 years: 6.9% (7/101) in intervention, 6.9% (9/131) in control ($p < 0.81$) (ii) Age > 40 years: 15.6% (12/77) in intervention, 5.2% (4/77) in control ($p < 0.06$) *6-month follow-up by residence:* (i) Urban women: 8.7% (9/103) in intervention, 5.6% (8/142) in control ($p < 0.49$) (ii) Rural women: 13.3% (10/75) in intervention, 7.6% (5/66) in control ($p < 0.4$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** A letter of invitation is not enough to encourage more resistant women to attend for screening ***Comments:*** Sample-size calculations did not take into account the lag between taking the test and registering the test, which could cause a loss of subjects
Burack, 1994,[285] USA ***Objectives:*** To determine the effectiveness of a patient and physician reminder system as one component of a programme to increase the use of screening mammography in three different health service organisations	***Sample:*** Women were eligible for inclusion if they had visited a primary care provider at 1 of 5 sites in inner city Detroit during the preceding year and was aged ≥ 40 years at the beginning of the intervention. Women with breast cancer were excluded. Of 4401 eligible women to be randomised to interventions, 2725 visited the sites and received the intervention	***Intervention effects (uptake of screening):*** *Absolute uptake for all sites:* 1. LI: 551/1343 (41%) 2. FI: 732/1382 (53%)	***Authors' conclusions:*** The study demonstrates the effectiveness of a reminder system in increasing the use of screening mammography among inner city women served by a health department, HMO and private hospital. The most effective aspect of FI was the prompting

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT ***Screening test:*** Mammogram	***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Limited intervention (LI) was intended to reduce barriers to mammography, including physician and staff orientation and elimination of out-of-pocket mammography expense for patients: ? (1343) 2. Full intervention (FI) included all elements of LI and added computer-generated reminders that identified patients due for mammography at the time of physician visits and provided reminders to patients in advance of scheduled mammography appointments: ? (1382) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Women randomised to either group who did not visit during the study year were not included as they were not subject to intervention ***Baseline comparability:*** No differences between intervention groups at the same site ***Baseline of assessment:*** Uptake of mammography varied from 29% in FI and 26% in LI at the HMO to 13% in FI and 17% in LI at Health Department site 1. At all sites the uptake varied from 21% at FI and 22% at LI ***Follow-up:*** 6 months for appointment-related outcomes and 14 months for mammogram occurrences	After age adjustment the rates were found to differ significantly ($p < 0.001$), with the HMO (46%) significantly exceeding the health department (34%; $p < 0.001$) and the private hospital (27%; $p < 0.001$) Compared to LI, FI was associated with significant increase in mammography rate at each site. The proportion of FI women at each site with a completed mammogram varied: private hospital 1, uptake 43% (71/164); private hospital 2, 45% (142/316); health department 2, 50% (104/207); HMO, 59% (234/396); health department 1, 64% (191/299). After age adjustment the intervention effect sizes were not significantly different between the sites ($p < 0.348$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	effect on physicians – with significant increases in uptake at each site. There were patient-directed cues from the LI ***Comments:*** (i) Mammography uptake rates do not take account for women refusing due to inappropriateness of procedure; (ii) there were differences in completeness of information provision between FI and LI groups, with LI not including screening outside the sites but FI possibly including this; (iii) non-attenders were not included (38% of randomised women) and these may be the women who are most in need; (iv) intervention contamination by physicians may lessen effect difference
Burack, 1996,[61] USA ***Objectives:*** To determine the joint and individual effectiveness of a patient and physician reminder system on site visitation and mammography use ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 2368 eligible women aged > 40 years visiting two sites of an HMO in metropolitan Detroit, USA, were randomly assigned to one of four groups. 1372 women were randomised from site 1, and 996 women were randomised from site 2. Women with diagnosed breast cancer and those whose last mammography result was serious were excluded before randomisation ($n = 23$). The majority of the women were African-American (96% of those for whom the information was available)	***Intervention effects (uptake of screening):*** Relevant data presented as figures. Although participants randomised to four groups, results not clearly presented in tables or text *Patient reminder:* No effect of patient reminder intervention upon mammography completion at site 1 ($p = 0.524$)	***Authors' conclusions:*** Patient reminder letters had limited impact on visitation in this setting. Patient reminders are more effective but sites vary in their responsiveness. Further improvement in mammography utilisation will require a better understanding of the determinants of patient and physician behaviour

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Setting: HMO (urban) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Patient letter: 590 (388) 2. Patient letter + physician reminder: 590 (388) 3. Physician reminder: 592 (370) 4. Control group (neither reminder): 592 (381) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Primary analysis of 'physician interventions' limited to women who visited during the study year. Exclusions after randomisation due to ineligibility (35%), discontinuation of HMO enrolment (16%) or (for physician intervention) no visit (31%) ***Baseline comparability:*** Among eligible women, there were no significant differences among characteristics of the intervention groups for any of the evaluations ***Baseline of assessment:*** Post mammography. At site 1 (n = 1372), 93% of the 490 ineligible women, 48% of 882 eligible women, 48% of 223 women in patient + physician reminder group, 45% of 226 women in patient reminder only group, 51% of 211 women in physician-only group, and 47% of 222 women in control group had had a mammography in the 18-month period before the study began. At site 2 (n = 996), 93% of the 351 ineligible women, 17% of 645 eligible women, 20% of 165 women in patient + physician reminder group, 15% of 162 women in patient reminder only group, 18% of 159 women in physician-only group, and 15% of 159 women in control group had had a mammography in the 18-month period before the study began ***Follow-up:*** 8 months for the letter, no follow-up for the physician reminder (evaluated at the end of the study year)	*Physician reminder:* At site 1, mammograms completed by 48% in physician reminder groups, compared with 46% (p = 0.975). At site 2, uptake was 59% in the physician reminder group, compared with 43% (p < 0.001) *Combined intervention:* In multivariate analysis, the effect of combined intervention upon mammography was significant for both physician reminder groups compared with the control group (p = 0.002) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Limited information was available concerning physician and patient characteristics. The site that appeared not to have responded was the one that had previously participated in a trial (site 1). Thus, results may not be directly comparable given the difference in previous exposure. Complex study design with a high percentage of exclusions after randomisation. Most of the results were presented in figures

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Burack, 1997,[60] USA ***Objectives:*** To evaluate the sustained effectiveness of a computerised physician reminder system in promoting mammography during a second year of continued implementation To determine if the effect of this intervention diminished during the second year compared with the first year ***Design:*** RCT ***Screening test:*** Mammogram (See Burack, 1994,[285] for more details of year 1 and interventions.)	***Sample:*** Women aged ≥ 40 years who had visited one of the primary care study sites in Detroit, Michigan, USA (5 sites enrolled in year 1, but only 3 of these sites enrolled in year 2), at the beginning of study year 1 or 2 2890 eligible women enrolled in the year-1 trial. Women were then excluded from the year-2 trial if they had been enrolled in the year-1 trial and had not had a mammogram (n = 1019). At the end of the year-1 study, a further 955 new recruits were assigned to establish the year-2 study cohort. There was a total of 2826 eligible women included in year 2 (1871 from year 1, 955 new recruits) ***Setting:*** Primary care practice (health department) and HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Limited intervention (LI) (physician and staff orientation and elimination of out-of-pocket mammography expense for patients): year 1, n = 1343, previously reported data; year 2, n = 1413 (625) 2. Full intervention (FI) (included all elements of LI and added computer-generated reminders, for the physicians): year 1, n = 1382, previously reported data; year 2, n = 1413 (600) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Data analysis only included patients who visited a site during the study period after randomisation. Year 1, 1782/2890; year 2, 1225/2826 ***Baseline comparability:*** There was no difference between visitors in the FI and LI groups for either organisation in either year ***Baseline of assessment:*** Baseline rate during year 1 was 17% at the health department and 26% at the HMO ***Follow-up:*** 1 and 2 years	***Intervention effects (uptake of screening):*** *Year 2 uptake:* 1. LI: 222/625 (35%) 2. FI: 266/600 (43%) Most of the analysis was subgroup by setting. Uptake was 44% for the FI versus 28% for the LI at the health departments (authors' adjusted OR = 1.84; 95% CI, 1.40–2.40) and 45% for the FI and 46% for the LI at the HMO (authors' adjusted OR = 1.06; 95% CI, 0.80–1.42). These year-2 results contrast with those found in year 1, during which a significant effect of the FI was demonstrated for both organisations. After controlling for patient characteristics and site, effect sizes of the FI were reduced significantly in year 2 compared with year 1 (p = 0.05) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The effect of computer-generated mammography reminders can be sustained in a second year of continued intervention, but individual practice sites and organisations vary in their responsiveness to the intervention. Strategies to promote the use of a periodic and repetitive procedure must identify and address time-varying barriers to effectiveness ***Comments:*** Five sites participated in year 1, but only three of these were included in year 2. It was not reported whether the patients of the two sites no longer participating were excluded during the year-2 study. For the year-2 trial, women who had not completed mammography during their participation in year 1 were excluded

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Burack, 1998,[80] USA ***Objectives:*** To evaluate the joint and individual impact of reminders given to patients and physicians on site visitation and Pap smear use ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Women aged ≥ 40 years who had visited one of the primary care study sites in Detroit, Michigan, USA (5 sites enrolled in year 1, but only 3 of these sites enrolled in year 2), at the beginning of study year 1 or 2. There were 2890 eligible women enrolled in the year-1 trial. Women were excluded from the year-2 trial if they had been enrolled in the year-1 trial and had not had a mammogram (n = 1019). At the end of the year-1 study, a further 955 new recruits were assigned to establish the year-2 study cohort. 2826 eligible women were included in year 2 (1871 from year 1, 955 new recruits) ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Mailed letter to women due for a Pap smear: ? (964) 2. Reminders for both physicians and patients: ? (960) 3. Reminders for physicians: ? (960) 4. Control (no reminder to either physicians or patients): ? (964) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Women aged 18–40 years who had visited the HMO site during the preceding year (n = 10,509). Women were excluded if their last smear was abnormal or insufficient for cytology (n = 4708). 5801 women were randomised. During a later second randomisation stage a further 1235 women were excluded as they were no longer enrolled with the HMO and 393 because they had had a Pap smear since the first randomisation phase. Of the remaining 4173 patients 3848 were randomised to receive either patient reminders or no intervention. It is then presumed, although not stated in the paper, that these were the patients included in the data analysis, depending on which intervention they had received (patient + physician reminder, patient-only reminder, physician-only reminder, or no reminder)	***Intervention effects (uptake of screening):*** 1. Letter: 280/964 (29%) (authors' OR = 1.07; 95% CI, 0.88 to 1.30) 2. Patient + physician reminders: 307/960 (32%) (authors' OR = 1.23; 95% CI, 1.01 to 1.50) 3. Physician reminders: 278/960 (29%) (authors' OR = 1.05; 95% CI, 0.86 to 1.28) 4. Control: 270/964 (28%) Unadjusted rates did not significantly differ among the 4 groups (p < 0.179) Controlling for site, neither reminders were significant, but the combined intervention was marginally significant ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Reminders given to patients and physicians had a limited impact on visitation by patients on Pap smear completion ***Comments:*** Unclear methodology. Two-stage randomisation and large numbers of exclusions after the first-stage randomisation

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: No significant differences in age, insurance status, chronic illness or GP visits ***Baseline of assessment:*** Previous Pap smear: 25–32% in letter and combined groups; 29–37% in physician-reminder groups ***Follow-up:*** 1 year		
Byles, 1994,[140] Australia ***Objectives:*** To evaluate three methods for increasing Pap smear use: TV media; TV media combined with letter based recruitment; and TV media combined with GP based recruitment ***Design:*** RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** 12 of 72 postal regions were selected within three adjacent TV broadcasting areas. Regions were chosen to be geographically discrete in order to avoid contamination. Regions were matched on age, sex, ethnicity, socio-economic class and size of target population ***Setting:*** Postal regions in Australia (rural, country towns, urban) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. TV media campaign: 4 regions 2. TV media + personalised letter to all women aged 18–70 years on electoral register: 4 regions 3. TV media + GP based recruitment through workshops: 4 regions ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis. Sample: 1419 households contacted, 1001 women replied ***Baseline comparability:*** Regions matched on census data ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months (TV media + letter) and 6 months (GP intervention)	***Intervention effects (uptake of screening):*** 1. TV media: Significant increase in uptake in rural centres (13.3%; expected (E) = 714, observed (O) = 809) compared to control (–10.5%; E = 1259, O = 1127) ($p < 0.0001$) 2. TV media + letter: Significant increases in rural locality (52.7%; E = 66.2, O = 101) compared to control (10.6%; E = 62.4, O = 69) ($p < 0.037$) and rural centres (43.2%; E = 741.4, O = 1062) compared to control (–10.5%; E = 1259, O = 1127) ($p < 0.0001$) 3. TV media + GP recruitment: Significant increase in rural localities (74.8%; E = 84.7, O = 148) compared to control (10.6%; E = 62.4, O = 69) ($p < 0.002$) and country towns (83.1%; E = 385, O = 705) compared to control (16.6%; E = 222.2, O = 259) ($p < 0.0001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** TV media alone will have little effect in encouraging screening by previously unscreened or overdue women. When combined with other campaigns it appears to have greater effect, particularly GP based campaigns. However, the effect varies by community ***Comments:*** Analysis limited by the 3- and 6-month post-intervention follow-up periods; a longer follow-up period was prevented by contamination by a state-wide media campaign. Differential effects of interventions on outcome for the different regions may reflect different baseline screening rates that could not be assessed during matching

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Byles, 1995,[141] Australia ***Objectives:*** To assess the acceptability, utilisation and differential effectiveness of two direct-mail strategies for increasing community Pap smears ***Design:*** RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** Three geographically separate postal regions in Australia. Each region represented approximately 1000 women, giving a total eligible population of 3640. Women were considered eligible if they were aged 18–70 years and had not had a Pap smear within the preceding 3 years ***Setting:*** Community (postal regions) ***Intervention(s): number randomised (number analysed in parentheses).*** The number in each intervention group was unclear 1. A personally addressed letter containing simple information about Pap smears 2. A personally addressed letter combined with a series of targeted behavioural prompts designed to address a number of aspects of screening which previous research had shown to be associated with poor screening rates. This included five prompt cards which were developed using tactics such as targeting of the intervention strategy, uptake aiding strategies, and counselling strategies used when preparing people for potentially threatening interventions 3. Control (not stated) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** In order to gauge the magnitude of benefit of each intervention, the proportion of women in each community who were screened in response to the campaign was estimated. The estimate was based on the pre- to post-intervention increase in the proportion of women aged 18–69 years who had lodged at least one claim for cervical cytology over the previous 3 years. The total number of women, with adjusted estimated hysterectomy rates of 15%, was used as a denominator. The unit of allocation was different from the unit of analysis ***Baseline comparability:*** The three regions were matched as closely as possible (using Australian Bureau of Statistics Census data) for age, sex, socio-economic class, ethnicity and size of the target population	***Intervention effects (uptake of screening):*** Both interventions resulted in a statistically significant increase in attendance for screening over the post-intervention period: 42.2% in the region receiving the simple prompt and 39.6% in the region receiving the multi-faceted approach. There was no significant difference between the two intervention regions *Screening rates for September 1989:* 1. Intervention 1: 597 (62.27%) 2. Intervention 2: 590 (63.22%) 3. Control: 879 (73.13%) In intervention region 1, an additional 2.3 women were screened for every 100 women in the target population (95% CI, 1.35–3.25). In intervention region 2, an additional 12.15 women per 100 were screened (95% CI, 1.22–3.08). There was no increase in screening in the control region. This increase represents 5.7% of all eligible (unscreened or overdue) women in intervention region 1 and 5.5% of all eligible women in intervention region 2 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The results indicate that direct mail strategies can be effective in prompting attendance for cervical cancer screening. Furthermore, it would appear that a simple information strategy can be at least as effective as a more elaborate package. Both interventions resulted in similar increases in attendance of around 40% ***Comments:*** Regions were not matched on baseline screening rates because the relevant data were not available when the study commenced It is not known how long the intervention period was. Investigators looked at Pap smear results over 3 months. Was the intervention over 3 months or a one-off? Expected values, for when the intervention had not occurred, were calculated from screening results during October–December 1989, i.e. after the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: The Pap smear rates for June 1989 were: intervention 1, 575 (59.97%); intervention 2, 570. (61.07%); control, 886 (73.72%) ***Follow-up:*** 3 months post-intervention (September 1989)		
Byles, 1996,[142] Australia ***Objectives:*** To assess whether the effect of a letter-based recruitment campaign is sustained when the campaign is repeated after a 3-year period ***Design:*** RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** Women aged 18–70 years on the electoral register who lived in nine postal regions in New South Wales, Australia ***Setting:*** Community (postal regions) ***Intervention(s): number randomised (number analysed in parentheses).*** 3 years after the original campaign, three regions that had received letters as part of original study were sent a second letter. The other six regions were randomly allocated within their strata to either: 1. Initial letter-based campaign: 3 regions (3) 2. No intervention: 3 regions (3) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations. Compared number expected to be screened had intervention not occurred with actual number after intervention and adjusted for estimated 15% hysterectomy rate. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Baseline uptake rates (adjusted for hysterectomy rate): *Rural localities:* (a) control, 69.7%; (b) initial letter, 54.7%; (c) second letter, 72.5% *Country towns:* (a) control, 75.0%; (b) initial letter, 56.6%; (c) second letter, 61.4% ***Follow-up:*** 3 months post-intervention (October–December 1992)	***Intervention effects (uptake of screening):*** *Initial letter:* All three regions had significant increases in observed (O) compared to expected (E) uptake: (a) rural localities, 86.7% (E = 46.6, O = 87; $p < 0.0001$); (b) country towns 20.1% (E = 184.9, O = 222; $p < 0.007$); (c) rural centres 14.6% (E = 1051.4, O = 1205; $p < 0.0001$) *Second letter:* Limited significant effect in observed compared to expected uptake: (a) rural localities, 20.4% (E = 82.9, O = 66; $p < 0.06$); (b) country towns, 17.8% (E = 149.4, O = 176; $p < 0.03$); (c) rural centres, –4.3% (E = 887.4, O = 849; $p < 0.19$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Initial campaigns may be effective, but effects may dissipate with repeated exposure ***Comments:*** The influence of previous campaigns may provide an unknown influence on uptake from the current campaign. The iterative process used to provide estimates of expected and observed uptake may be affected by the limited follow-up period, questioning the reliability of the analysis. Only partially randomised (to initial letter)

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Calle, 1994,[181] USA ***Objectives:*** To assess the effectiveness of a telephone intervention strategy, of personal contacts between acquainted women, to increase mammography usage ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Women aged ≥ 40 years. Volunteers were recruited in two American Cancer Society units: the Duvall County Unit in Jacksonville, Florida, and District V in Orlando, Florida. American Cancer Society volunteers were asked to select 10 women whom they knew, who would be willing to be contacted by telephone and who lived in a separate house. The women could be family members, friends, neighbours or acquaintances ***Setting:*** American Cancer Society units ***Intervention(s): number randomised (number analysed in parentheses)*** 1. A telephone intervention strategy (the 'tell a friend' programme) that relied on American Cancer Society volunteers calling their friends three times during a 6-month period in order to persuade them to attend for mammography: 382 (289) 2. Control group (no intervention): 387 (305) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were conducted. Of the 769 eligible women, 594 (77%) completed the post-intervention interview; the response rate was 76% for women in the intervention group and 79% in the control group. Of the women who did not complete the post-intervention interview, 30 (all intervention) refused participation during the intervention, 122 (intervention, 51; control, 71) refused at the time of the interview, and 23 (intervention, 12; control, 11) could not be reached for interview. The final population included in the analysis comprised 289 intervention women and 305 control women who completed the post-intervention interview. Unit of allocation different from unit of analysis	***Intervention effects (uptake of screening):*** 1. Intervention group: 142/289 (49%) 2. Control: 104/305 (34%) (p = 0.005; authors' RR = 1.4, 95% CI, 1.2 to 1.7). The crude OR for the intervention effect (OR = 1.8) was not materially changed when socio-demographic characteristics were simultaneously included in a multiple logistic regression analysis (adjusted OR = 1.9) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The 'tell a friend' telephone intervention strategy of personal contacts between acquainted women can significantly increase mammography use, particularly among women with annual household incomes of less than $40,000. The programme has been developed for nationwide use and is available through many local American Cancer Society divisions and units ***Comments:*** It is not stated how strongly volunteers promoted the use of mammography, nor was the specific relationship between the volunteers and the participating women given

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: There was no significant difference in socio-demographic characteristics between the two groups ***Baseline of assessment:*** 40% of the intervention group and 51% of the control group had never received a mammogram prior to the intervention ***Follow-up:*** 8 months		
Campbell, 1997,[133] Australia ***Objectives:*** To evaluate the impact of computer-generated printed feedback on cervical cancer screening among women who were underscreened for cervical cancer ***Design:*** Quasi-RCT ***Screening test:*** Pap smear	***Sample:*** Women aged 18–70 years in two rural towns in the Hunter Region of New South Wales, Australia. Women who could not speak and read in English, were not well enough to use the computer, or had previously completed the survey were excluded ***Setting:*** General practice (rural) ***Intervention(s): number randomised (number analysed in parentheses).*** All women completed the initial computer risk factor survey using a touch screen 1. Intervention group received two printed sheets on completing the survey: one summarising the risk status for each topic and the local services available, which was kept by the patient; and one summarising risk status, including eligibility for cervical screening and last reported test, which was given to the GP to put in the woman's notes: 354 (74) 2. Control group (did not receive printouts): 325 (65) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Only analysed those women who were underscreened (20% of those randomised) ***Baseline comparability:*** No differences between groups in any variables (age, country of birth, marital status, education and employment) ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months	***Intervention effects (uptake of screening):*** *Underscreened by pathology records:* 1. Intervention group: 52/148 (35%) 2. Control group: 33/124 (27%) *Underscreened by self-report:* 1. Experimental group: 28/74 (38%) 2. Control group: 16/65 (32%) ($p < 0.05$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Unable to draw conclusions regarding the effectiveness of the computer system due to the modest proportions of women screened, the small numbers, and the possibility that the computer survey may have created an effect in the control group ***Comments:*** Poor study design, only analysing underscreened women

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Cargill, 1991,[261] USA ***Objectives:*** To examine the impact of a nurse clinician on the distribution and return of FOBT slides in a teaching hospital medical clinic ***Design:*** Quasi-RCT ***Screening test:*** FOBT	***Sample:*** Patients attending the medical clinic of a university hospital were assigned to a team of residents (10–12 residents, 2 attending physicians, 2 nurse clinicians). Clinic patients were predominately black (> 90%), inner-city population (mean age 63 years) with almost 90% having some form of medical insurance. Exclusion criteria included: age < 50 years or > 70 years; a history of colorectal cancer or colonic polyps; diagnosis of anaemia or weight loss; gastrointestinal endoscopy or barium enema within the past 6 months; peptic ulcer disease; and inflammatory bowel disease. 399 eligible patients were randomised ***Setting:*** University hospital medical clinic ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention: residents were sent a letter advising them to send all eligible patients to the nurse clinician who would be performing FOBTs: 206 (206) 2. Control: residents were sent a letter reminding them of the location of FOBT tests and return envelopes to give to patients: 193 (193) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. No drop-outs or losses to follow-up were reported ***Baseline comparability:*** The two study groups were similar in terms of age and in the percentage with insurance cover ***Baseline of assessment:*** Baseline data were collected from 359 patients (197 intervention, 162 control) during a 4-month period prior to the start of the study (same patients as those in the intervention period). Baseline data: intervention – 4.1% given FOBT kit, 62.5% returned kit; control – 9.9% given FOBT kit, 68.8% returned kit. $p < 0.05$ for given kit and $p < 0.58$ for returned kit ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** *Returning FOBT kit:* 1. Intervention: 67/206 (32%) (only 46.6% given kit) 2. Control: 5/193 (3%) (only 13.0% given kit) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study, in conjunction with the results from others, further documents the poor compliance with certain routine preventive guidelines. Programmes involving nurse clinicians may provide valuable supplementation to physician-generated screening. While these results should be confirmed, this study raises the issues of integration of nurses into routine healthcare screening at the organisational and policy levels ***Comments:*** The generalisability may be limited as the study included mainly black, inner-city patients attending a university medical clinic

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Cecchini, 1989,[62] Italy ***Objectives:*** To investigate the impact of different types of intervention aimed at increasing screening attendance by promoting the active co-operation of GPs ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** 288 GPs in three areas of Florence (75,853 eligible women) were contacted and offered a list of patients who had not had a Pap smear in the last 4 years. 50 GPs accepted ***Setting:*** General practices ***Intervention(s): number randomised (number analysed in parentheses).*** Three interventions (all received patient information leaflets): 1. Visit from physician: ? (193 GPs, 48,968 patients) – only some GPs were randomised to this intervention 2. List mailing of individuals due for screening: ? (25 GPs, 5188 patients) 3. List and visit: ? (25 GPs, 13,584 patients) 4. Control group (received initial offer of lists and patient information leaflets but no other contact): ? (45 GPs, 8123 patients) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. Unit of allocation different from unit of analysis. Drop-outs not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Ranged from 6 months to 2 years	***Intervention effects (uptake of screening):*** Uptake among all non-responders following the interventions was 6.7% (2420/35,918). Response rates varied significantly ($p < 0.001$) by campaign type: 1. Visit: 1656/23,712 (7.0%) 2. List mailing: 199/2382 (8.3%) 3. List and visit: 468/6508 (7.2%) 4. Control: 97/3316 (2.9%:) Uptake rates also varied significantly ($p < 0.001$) by age and place of residence ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Any type of active intervention seems to achieve better results than a minimal effort ***Comments:*** Allocation of the interventions to the different groups provided an opportunity for bias as non-random methods were used. No information on data sources or collection was given. No information was given on intervention implementation (use of leaflets, GP efforts to increase uptake) which may have varied between practices. GPs requesting lists of non-attenders are self-selecting and may have biased the effectiveness of the interventions
Chambers, 1989,[262] USA ***Objectives:*** To determine the impact of computer-generated reminders to physicians on their compliance with mammography screening guidelines ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged ≥ 40 years who visited an outpatient office during a 6-month period. Excluded those not due for mammogram as printed reminders did not start until second visit. 4000 age-eligible patients were initially randomised to experimental and control groups. Only 1262 women were eligible and included in the analysis ***Setting:*** Family practice centre	***Intervention effects (uptake of screening):*** *At end of study:* 1. Intervention group: 170/639 (27%) 2. Control group: 128/623 (21%) ($p < 0.011$)	***Authors' conclusions:*** The computer reminder system increased physician compliance with health screening recommendations. But physicians may have many reasons for not ordering mammograms according to American Cancer Society recommendations

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Date of last mammogram ordered entered onto patient visit form, or noted if no date recorded (physician reminder): ? (639) 2. Control group (no information on last mammogram date added to visit form): ? (623) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. Originally over 4000 women were randomised, but only 1262 women were eligible and included in the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Around 14% of both groups were up to date with mammography at baseline ***Follow-up:*** 2 months after reminder system ceased	Effect of the reminder remained statistically significant in the presence of all other factors in multiple logistic regression models ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Office based reminder system was limited to those patients who visited the physician (only 32% of eligible patients). Control and experimental up-to-date levels fell in the post-intervention group, reinforcing the idea that the Hawthorne effect had been present during the study
Champion, 1994,[197] USA ***Objectives:*** To determine the effects of four theoretically driven interventions on compliance with mammography utilisation ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged ≥ 35 years, who had never had breast cancer, from a midwestern metropolitan area and surrounding counties in the USA ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Belief intervention (participants were visited at home and counselled; pamphlets were distributed to reinforce the information about breast cancer susceptibility, risks, control and the benefit of mammography): ? (74) 2. Informational intervention (participants were visited at home, and given information about mammography and the recommended frequency of screening): ? (75) 3. Combined intervention (belief + informational interventions): ? (73) 4. Control group: ? (78)	***Intervention effects (uptake of screening):*** 1. Belief group (counselling): 53/74 (72%) 2. Informational group: 55/75 (73%) 3. Combined group: 64/73 (87%) 4. Control group: 48/78 (62%) ***Intermediate outcomes:*** Belief interventions significantly ($p < 0.05$) influenced all belief variables (seriousness, benefits, barriers, health motivation, and perceived control) except susceptibility. Beliefs also changed in the control group, which could be the effect of being included in the study, having three interviews and being exposed to questions about breast cancer screening	***Authors' conclusions:*** Women in the belief + informational intervention group were almost four times more likely than those in the control group to comply with mammography recommendations in the year following the intervention (OR = 3.75) ***Comments:*** Less than one-third of the eligible women completed the first data collection and were randomised to treatment. This may have introduced bias into the study population

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Health Belief Model, Theory of Social Behaviour ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. 21 women were lost to follow-up, mainly through moving house ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Control group, pre-intervention, 56%; belief group, pre-intervention, 55%; informational group, pre-intervention, 65%; combined group, pre-intervention, 72% ***Follow-up:*** 1 year	***Costs:*** Not stated	
Cheney, 1987,[263] USA ***Objectives:*** To assess whether an inexpensive reminder system of preventive care checklists would improve physician implementation of periodic health measures ***Design:*** RCT (cluster) ***Screening test:*** Pap smear, mammogram, CBE, pelvic examination, rectal examination, FOBT, serum cholesterol	***Sample:*** 75 members of the University of California, San Diego, house staff studying internal medicine during the academic year 1982–1983. ***Setting:*** University medical clinic ***Intervention(s): number randomised (number analysed in parentheses).*** 200 medical records were analysed for physician compliance, but the numbers in each group were not stated 1. Medical record checklist (checklists placed in medical records): 33 residents (?) 2. Control: 42 residents (?) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Appropriate analysis using clusters not individuals. Data analysed with and without physicians who did not use the checklists ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Academic year	***Intervention effects (uptake of screening):*** Checklists were associated overall with a meaningfully higher rate of compliance with recommended preventive healthcare measures (0.52 ± 0.26 vs 0.39 ± 0.22; $p < 0.002$). Certain physicians supplied with the checklists did not use them and so the data were analysed again to take this into account. Overall, the rates of compliance were: 1. Checklist supplied and used, 0.700 ± 0.213; checklist supplied but not used, 0.436 ± 0.237 2. Control: 0.389 ± 0.00227 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Residents who received checklists performed appropriate preventive health measures at a significantly higher rate than those who did not. These data suggest that a physician's use of simple checklists can provide an inexpensive and effective means of improving implementation of periodic health maintenance ***Comments:*** No raw data provided, only bar charts used

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Cheng, 1997,[182] USA ***Objectives:*** To determine the most effective strategy to encourage adherence with tuberculosis test reading in a high-risk population ***Design:*** Quasi-RCT ***Screening test:*** Tuberculosis skin test	***Sample:*** A consecutive sample of 627 healthy children due for a tuberculosis test. Children were aged 1–12 years with no history of tuberculosis contact. Only one child per family was enrolled. 12 families (2%) refused to participate. 91% were African-American and 74% were on Medicaid ***Setting:*** Hospital outpatient department (urban) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Routine verbal and written instructions: ? (121) 2. Reminder phone call: ? (125) 3. Transportation tokens and toy on return: ? (121) 4. Withholding of school forms until time of reading and need to repeat tuberculosis test if not timely read: ? (162) 5. Parents taught to read induration with nurse home visit: 98 (98). Group 5 was terminated after only 98 patients because of scheduling difficulties with the visiting nurse ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed ***Baseline comparability:*** Participants in the five groups did not differ with regard to maternal education, race, tuberculosis risk factor score, transportation source, or perceived importance of tuberculosis testing ***Baseline of assessment:*** The clinic had been using multiple-puncture tests with parent reading until 4 months prior to the study, when the policy was changed to Mantoux tests with return reading. In the period before the study, the adherence rate for return for test reading was 45% (n = 742) ***Follow-up:*** 1 week	***Intervention effects (uptake of screening):*** Adherence rates for return of test reading increased for all groups 1. Verbal: 70/121 (58%) 2. Phone: 87/125 (70%) 3. Tokens and toy: 81/121 (67%) 4. Withholding forms: 113/162 (70%). Those in group 4 needed school forms completed (39%) had an 84% return rate. Those who did not have school forms had a return rate of 62% 5. Home visit: 70/98 (72%) Compared to group 1, return for test reading was improved in group 4 among those who needed school forms completed ($p < 0.002$) and group 5 ($p = 0.37$). Group 5 was terminated ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** In a high-risk population, adherence with tuberculosis test reading is poor. However, education and return of school forms at reading time can significantly improve adherence. Although requiring larger investment in resources, visiting nurses may also aid in test reading ***Comments:*** The study was conducted in an inner-city urban clinic with limited hours of access for test reading, especially at weekends.

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Clementz, 1990,[143] USA ***Objectives:*** To determine whether a letter recalling patients for a battery of cancer screening tests, as recommended by the American Cancer Society, incorporating patient education material, resulted in a significant increase in the number of cancer screening tests performed and the proportion of patients having cancer screening tests when compared with a control group ***Design:*** RCT ***Screening test:*** Pap smear, mammogram, FOBT, DRE, sigmoidoscopy	***Sample:*** 220 female patients aged 50–69 years attending an ambulatory clinic. Patients who were symptomatic for the cancers being screened and who had previously had cancers diagnosed were excluded ***Setting:*** University family practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personalised letter, 1 month before due date of tests, with an educational component: 116 (102) 2. Control group (received usual care, not described): 104 (76) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations were performed. 42 patients were excluded after randomisation. No intention-to-intervene analyses performed ***Baseline comparability:*** No difference in age (p = 0.19), number of chronic medical illnesses (p = 0.99), number of screening tests in the previous year (p = 0.61), number of office visits in the previous year (p = 0.84), and usual method of payment (p = 0.33) ***Baseline of assessment:*** Number of screening tests in the previous year (mean and SD): intervention group, 1.83 (2.29); control group, 1.91 (2.43) ***Follow-up:*** 4 months	***Intervention effects (uptake of screening):*** No actual numbers provided *One or more tests:* 1. Intervention: 35.3% 2. Control: 44.7%, (p = 0.20) *Breast examination:* 1. Intervention: 29.4% 2. Control: 40.8% (p = 0.11) *Pap smear:* 1. Intervention: 20.6% 2. Control: 30.3% (p = 0.14) *Mammogram:* 1. Intervention: 18.6% 2. Control: 28.9% (p = 0.11) *FOBT:* 1. Intervention: 15.7% 2. Control: 26.3% (p = 0.08) *Sigmoidoscopy:* 1. Intervention: 1.0% 2. Control: 5.3% (p = 0.64, Fisher's exact test) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Recall strategies for cancer screening tests need to be more extensively studied in the USA before they can be routinely adopted in family practice ***Comments:*** The authors offered no explanation as to why the recall intervention had an adverse effect on people attending screening. It seems unlikely that such an intervention would make people less likely to attend. The low power was attributed to imbalances between the intervention and control groups. There was an additional imbalance as a result of excluding inactive patients after randomisation
Clover, 1992,[196] Australia ***Objectives:*** To compare the effectiveness of two strategies (patient education and practitioner recommendation) in encouraging women to attend for mammography screening ***Design:*** RCT	***Sample:*** 13 GP practices. 302 women aged 40–69 years attending the doctor's surgery within the recruitment period, who had no previous history of breast cancer or symptoms, and had no other medical condition preventing them from having a mammogram. Women were considered ineligible if the doctor did not have time to perform the intervention ***Setting:*** Private practice	***Intervention effects (uptake of screening):*** 1. Simple recommendation: 75/91 (82%) 2. Patient education: 75/82 (91%) (p = 0.13)	***Authors' conclusions:*** The results suggest that mammographic screening can be effectively promoted in general practice without extensive patient education ***Comments:*** Excluding women on the basis that their doctor did not have time to perform the intervention introduces bias.

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Simple recommendation to attend for screening: ? (91) 2. Patient education (physician presented information about the test): ? (82) Both interventions were followed by a telephone call to those who completed a registration form, in order to arrange an appointment ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. 36 women were not included in the analysis ***Baseline comparability:*** No difference in age, marital status, employment history, or status of the patient's main lifetime occupation and that of her partner ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intermediate outcomes:*** *Acceptability:* No significant differences were observed between intervention groups on any questions about acceptability *Level of satisfaction with the screening services:* No significant differences between the simple recommendation and patient education groups ***Costs:*** Not stated	Generalisability is limited as women attending private practices in Australia are not representative of the population as a whole. Attendance rates in the study were much higher than those previously reported for Australian populations
Clover, 1996,[250] Australia ***Objectives:*** To evaluate community participation as a strategy to increase uptake of mammography compared with mass media promotion and family practitioner recommendation of screening ***Design:*** RCTs (2 sequential cluster) ***Screening test:*** Mammogram	***Sample:*** Female population aged 40–69 years in eight small, rural towns (population 878–4272) in the area served by the mobile screening unit ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Media promotion (promotion of screening unit's visit to town through newspaper and radio advertisements and other publicity, with frequency and type of coverage decided by the local hospital's community health department): 2 communities (2 communities) 2. Community participation (formation of committee of community representatives; committee planned and implemented intervention): 4 communities (4 communities)	***Intervention effects (uptake of screening):*** *Trial 1:* Significantly higher uptake of screening by women in the community intervention towns compared with media promotion towns (63% vs 34%, difference 29% (95% CI, 19 to 39; $p < 0.001$)); 51% vs 34%, difference 17% (95% CI, 10 to 24; $p < 0.01$)) *Trial 2:* significantly higher uptake of screening by women in one family practitioner intervention town compared with its matched community intervention town (68% vs 51%, difference 17% (95% CI, 10 to 24; $p < 0.01$)); no significant	***Authors' conclusions:*** Both community participation and family practitioner involvement are effective strategies for recruitment of women for mammography and both are superior to media promotion alone ***Comments:*** Women not on the electoral register were excluded from the analysis of uptake rates. Differences in uptake rates may have been due to differences inherent in the communities. Media promotion activities were minimal and varied between towns

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	3. Family practitioner involvement (physician peer support and discussion, reminder system to highlight records of eligible women attending practice): 2 communities (2 communities) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (town) different from unit of analysis (individual). Drop-outs not stated ***Baseline comparability:*** Towns varied in size, the largest being almost five times the size of the smallest (population 4272 vs 878). Of the two towns which were assigned to the practitioner intervention, one had six family practitioners and the other had one ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	difference in attendance in the other pair of towns (68% vs. 58%, difference 10% (95% CI, –2 to 22; $p < 0.11$)) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Cohen, 1982,[264] USA ***Objectives:*** To evaluate the effectiveness of a programme to increase house staff compliance with preventive medicine guidelines ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Three general medical firms at Cleveland General Hospital. Hospital consists of four medical firms. Within firms, patients and house officers are randomly assigned. Each firm consisted of a 28-bed inpatient clinic. 428 women from these firms aged ≥ 50 years were eligible (290 intervention groups, 138 control group) ***Setting:*** Hospital outpatient department ***Intervention(s): number randomised (number analysed in parentheses).*** Five seminars on screening and preventive measures which both intervention firms and control firms could attend 1. Appropriate checklists (by age) were attached to the patients' charts to serve as a reminder to house officers of the preventive measures for that patient: 290 (290) 2. Control (could attend the seminars): 290 (138) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 1. Intervention group: 93/290 (32%) 2. Control group: 6/138 (4%) The difference was significant at the $p < 0.001$ level ***Intermediate outcomes:*** Residents' knowledge and attitudes towards periodic health examinations were measured before and after the intervention. There was no significant improvement in the intervention group with respect to mean post-study knowledge scores compared with pre-study scores (0.59 ± 0.20 vs 0.53 ± 16; difference not significant), or with respect to mean post-study attitude scores compared with pre-study scores (0.74 ± 0.11 vs 0.73 ± 0.10, difference not significant)	***Authors' conclusions:*** This intervention was clearly effective in the short run. However, follow-up studies will be necessary to determine whether the desired long-term effect has been achieved ***Comments:*** It was impossible to eliminate previously screened patients from the tabulation of denominators (i.e. eligible population). Also, because patients tended to return at 3-monthly periods, the drop noted toward the end of the study could represent the return of patients who had already undergone screening

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. Unit of allocation different from unit of analysis. Drop-outs not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Costs:*** Not stated	
Cowan, 1992,[265] USA ***Objectives:*** To determine the effect of a fact-sheet reminder on the performance of periodic health examinations ***Design:*** Quasi-RCT (cluster) ***Screening test:*** Pap smear, mammogram, FOBT, cholesterol test	***Sample:*** The sample consisted of 29 first-year residents belonging to a General Medical Clinic of the University of Illinois Medical Center. All residents were assigned to one of two groups that staffed the clinic on alternate weeks. One of the groups was randomly assigned to the control group according to the week of its clinic (i.e. odd vs even) and the other to the intervention group ***Setting:*** Medical clinic (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Periodic health examination fact sheet on the front of every patient's record: 16 physicians (16) 2. Control (no fact sheet): 13 physicians (13) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up in terms of residents were reported. Unit of allocation the same as unit of analysis ***Baseline comparability:*** The two groups of residents did not differ significantly in mean pre-study knowledge or attitude score. The patients belonging to the two groups did not differ in mean age or gender distribution ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months	***Intervention effects (uptake of screening):*** Considering the resident as the unit of analysis, the performance was: 1. Intervention: mean 10.6% (range 0–36%) 2. Control: mean 3.6% (0–18%); $p < 0.04$ (statistically but not clinically significant) When influenza vaccinations were excluded from the analysis, the overall performance of all periodic health examinations was: 1. Intervention: mean 7.4% 2. Control: mean 1.6%; $p < 0.007$ *Pap smear:* 1. Intervention: 4/32 (12.5%) 2. Control: 1/23 (4.3%); not significant *Mammogram:* 1. Intervention: 5/32 (15.6%) 2. Control: 1/23 (4.3%); not significant *FOBT:* 1. Intervention: 2/46 (4.3%) 2. Control: 0/33 (0%); not significant	***Authors' conclusions:*** These results suggest no clinically meaningful improvement in performance of periodic health examination actions, even when periodic health examination guidelines were available at the time of the physician–patient encounter ***Comments:*** The generalisability of the results may be limited as the study only considered residents and patients from a university general medicine clinic in the USA

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
		Cholesterol test: 1. Intervention: 4/57 (7.0%) 2. Control: 1/37 (2.7%); not significant ***Intermediate outcomes:*** A significant difference was observed in the mean attitudinal and total test scores ($p < 0.05$ in both cases) on post-testing between intervention and control groups ***Costs:*** Not stated	
Crane, 1998,[81,222] USA ***Objectives:*** To evaluate the impact of a telephone outcall intervention (based on the Transtheoretical Model) on screening mammography behaviour among lower income, older women ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Census-tract block groups within low-income and minority neighbourhoods throughout Colorado were identified from a geodemographic database (INFORUM). 19,389 households within the neighbourhoods were identified through marketing lists purchased from a local regional telephone company. From these households 3080 eligible women (aged ≥ 50 years, English-speaking, Colorado residents, with no history of breast cancer) were enrolled in the study ***Setting:*** Community (low-income, minority) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Outcall only-telephone counselling programme: ? (255 at 6 months, 617 at 2 years) 2. Advance card and outcall (outcall preceded by a card): ? (240 at 6 months, 639 at 2 years) 3. Control (basic interview to assess health background): ? (232 at 6 months, 579 at 2 years) ***Theoretical basis of intervention:*** Transtheoretical Model or Stages of Change Model	***Intervention effects (uptake of screening):*** *6-month follow-up:* 1. Outcall group: 64/255 (20.1%) 2. Advance card + outcall group: 65/240 (21.3%) 3. Control group: 61/232 (20.8%) There were no significant differences (at the $p < 0.05$ level) between the three study groups in terms of mammography uptake *2-year follow-up:* 1. Outcall group: 449/617 (73%) 2. Advance card + outcall group: 481/639 (75%) 3. Control group: 393/579 (68%)	***Authors' conclusions:*** The outcall interventions were not effective in stimulating mammography behaviour in the 6 months following the intervention. However, the advance card + outcall intervention had a small impact on mammography uptake in the 2 years following the intervention, but this effect was isolated to those who were adherent to mammography screening at baseline ***Comments:*** Generalisability of the study may be limited as the target population was low-income, minority women

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. 6-month follow-up was 75%, and only those due for a mammogram were included in the analysis (41%). Only those who responded after 6 months were approached for the 2-year follow-up (response rate 81% or 61% of the original study population). No intention-to-intervene analysis. Randomised by household, analysed by individual ***Baseline comparability:*** No differences in age, race/ethnicity, income or education. The groups differed in terms of their baseline mammography stage of change ($p < 0.01$) ***Baseline of assessment:*** Baseline for 2-year follow-up: 18.4% (114/579) of the control group had never had a mammogram, as compared to 23.5% (102/617) of the outcall group, and 21.7% (83/639) of the advance card + outcall group ***Follow-up:*** 6 months	***Intermediate outcomes:*** At 6 months there was a significant shift ($p = 0.002$) towards greater intention to get a mammogram in the two intervention groups compared with the control group. This shift appeared to be greater in the advance card + outcall group than in the outcall group only. There was also a shift from precontemplation to contemplation in both outcall groups ($p = 0.005$). There was no difference between groups in action, maintenance or relapse stages of change. The test for overall effect of study group on stage at follow-up, stratified by stage at baseline, was not significant ***Costs:*** Not stated	
Curry, 1993,[216] USA ***Objectives:*** To assess the effects on rate of participation in mammography screening of obtaining risk factor information and providing general or personalised risk information through direct mailed correspondence ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged ≥ 50 years. Women were excluded if their age or gender was miscoded on computer records, they were disenrolled from the Group Health Cooperative, had had a mammogram in the last 12 months, had a history of breast cancer, had had previous or separate contact with Breast Cancer Screening Program, or had refused to participate following the introductory letter ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. No risk factor questionnaire or generic invitation: 440 (305) 2. No risk factor questionnaire or general risk invitations: 447 (333) 3. Risk factor questionnaire and general risk invitation: 595 (428) 4. Risk factor questionnaire and personal risk invitation: 594 (413)	***Intervention effects (uptake of screening):*** *Participation:* 37.5% of enrolees invited for screening were screened within 12 months (554/1479). Uptake rates did not vary significantly ($p < 0.26$) between groups: 1. No risk factor questionnaire or generic invitation: 121/305 (39.7%) 2. No risk factor questionnaire or general risk invitations: 110/333 (33%) 3. Risk factor questionnaire and general risk invitation: 161/428 (37.6%) 4. Risk factor questionnaire and personal risk invitation: 162/413 (39.2%)	***Authors' conclusions:*** (i) Screening participation was not increased with the addition to the invitation of general risk factors; (ii) or with risk assessment and feedback regarding personal risk factors. (iii) A family history of breast cancer used as a personalised risk factor appears to increase uptake ***Comments:*** Groups differed significantly in their composition due to exclusions. The authors felt these differences were small and should not bias conclusions. Risk factor analysis was limited to groups 3 and 4, due to the limited number of women completing in groups 1 and 2

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Women who did not return the risk questionnaire were sent the general risk invitation letter ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Risk assessment: 80% of the women randomised were eligible to receive the introductory letter (differed significantly between groups; $p < 0.018$) and 71% of the women randomised were eligible for an invitation to schedule a mammogram. Of those invited for screening, 84% completed the risk factor questionnaire, although this varied significantly between groups: groups 1 (79.3%) and 2 (77.5%) completed the questionnaire less often than groups 3 (89.5%) and 4 (87.9%) ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No differences in age or risk factors. Previous mammography ($p < 0.00$) and history of biopsy ($p < 0.042$) did differ, with women in groups 1 and 2 more likely to have reported previous biopsy than those in groups 3 and 4. Women in groups 1 and 2 were less likely to have reported having a previous mammogram ***Follow-up:*** 12 months after mailed invitation	Among those completing the questionnaire, groups 3 and 4, there were insignificant differences ($p < 0.48$) in uptake rates (41.8% (179/428) and 44.6% (184/413)) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Dalessandri, 1998,[178] USA ***Objectives:*** To test whether progressive intervention (in the form of a follow-up phone call by a breast care nurse) increased the uptake of screening mammograms ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** 717 women veterans in Palo Alto, California, who earned less than $22,000 a year, and were eligible for free mammograms ***Setting:*** Veterans Healthcare System ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter and brochure followed by a phone call from a breast care nurse, for those who had not replied within 45 days: ? (366) 2. Control (letter and brochure with no further intervention): ? (351) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 1. Intervention: 100/366 2. Control: 17/351 This is equivalent to more than a five-fold increase in uptake ($p < 0.01$) over a period of 6 months ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The additional intervention of a phone call by a breast care nurse, following the initial letter and brochure, increased the uptake of screening mammograms by more than five-fold over a 6-month period in 1995 ***Comments:*** None

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months		
Davies, 1991,[226] UK ***Objectives:*** To develop a simple, economically viable, and effective means of population screening for diabetes mellitus ***Design:*** RCT ***Screening test:*** Diabetes test	***Sample:*** All patients aged 45–70 years (n = 3057) from one general practice in Suffolk, UK, were identified. 73 patients known to have diabetes were excluded and the remaining 2984 patients were randomised to one of two intervention groups and sent a letter with a test and instruction card ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Test to be done 1 hour before main meal (preprandial): ? (1492) 2. Test to be done before breakfast and 1 hour after breakfast (pre- and postprandial): ? (1492) Both groups were asked to record the results of the tests and return the cards. Postage was pre-paid ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Of the 2984 letters sent out, 17 were returned as the patient had moved; a further 8 patients had died. No intention-to-intervene analysis performed ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** *Test cards returned:* 1. Preprandial: 1167/1492 (78%) 2. Pre- and postprandial: 1196/1492 (80%) ***Intermediate outcomes:*** Not stated ***Costs:*** The cost of screening for diabetes mellitus using a foil-wrapped dipstick was 59 pence per subject and £81 per case detected	***Authors' conclusions:*** A postal request system for self-testing for postprandial glycosuria in people aged 45–70 years is a simple and effective method of population screening for diabetes mellitus ***Comments:*** Tests were provided free of charge with a postage-paid return envelope. Generalisability may be limited as the study focused on patients attending a UK general practice. No baseline comparability or previous testing data were provided

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Davis, 1997,[218] USA ***Objectives:*** To determine which of three methods is the most effective in increasing mammography rates, and to determine whether the interventions are more or less effective depending on a woman's readiness to get a mammogram, as measured by state of change ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 1394 female health plan members, aged 50–75 years, who had not had a mammogram in 2 years and had never been diagnosed with breast cancer ***Setting:*** Managed care organisation ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Birthday card reminder followed by a letter with promotional information: 131 (131) 2. Birthday card reminder followed by a phone call from a registered nurse: 131 (131) 3. Control (birthday card reminder only): 133 (133) ***Theoretical basis of intervention:*** State of change ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 38 women from the telephone intervention group did not receive the intervention, but 133 was used as the denominator ***Baseline comparability:*** No differences in age, but differed in terms of readiness to obtain a mammogram and state of change (p=0.002) ***Baseline of assessment:*** No mammogram in the previous 2 years (no other baseline data collected) ***Follow-up:*** 6 months	***Intervention effects (uptake of screening):*** 1. Card + letter: 12/131 (9%); $p = 0.001$ 2. Card + phone: 37/131 (28%) 3. Card only (control): 20/133 (15%) The telephone group's result was significantly different from both the control and the letter groups ($p < 0.009$ and $p < 0.001$, respectively). The difference between rates in the card and letter groups was not significant ***Intermediate outcomes:*** Among contemplators, women who received the phone intervention were 3.6 times more likely to obtain a mammogram than women who received the card only. The difference between intervention groups was significant ($p = 0.001$) ***Costs:*** Not stated	***Authors' conclusions:*** Findings point to the effectiveness of a multicomponent telephone intervention that includes a reminder, counselling to address barriers, and scheduling of appointments. Results also indicate a simple reminder mailing (card only group) has the same effect as a more comprehensive package of information (letter group) ***Comments:*** Generalisability of the study may be limited
Davis, 1998,[198] USA ***Objectives:*** To determine if intensive, custom-made intervention was more effective than a personal recommendation and an easy-to-read National Cancer Institute brochure in increasing utilisation of screening mammography in a public hospital ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** 445 women aged ≥ 40 years in north-west Louisiana. Predominantly low-income women with low literacy skills ***Setting:*** Hospital (public) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personal recommendation from one of the investigators to get a mammogram: 147 (147) 2. Personal recommendation and brochure specifically designed for low-literacy women: 147 (147)	***Intervention effects (uptake of screening):*** *Uptake at 6 months:* The difference in utilisation between the three intervention groups was statistically significant ($p = 0.05$) in the univariate analysis at 6 months: 1. Personal recommendation: 31/147 (21%)	***Authors' conclusions:*** The custom-made programme demonstrated a significant effect on mammography utilisation in the short term (6 months). The beneficial effect of this one-time intensive intervention disappeared with longer follow-up (24-months) ***Comments:*** There were no baseline data on how often the women went for mammography before any intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	3. Given the recommendation (as in group 1), the brochure (as in group 2) and a custom made 12-minute interactive educational and motivational programme: 151 (151) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** No differences in age, race, income, education or literacy level. Significantly more women in group 1 knew the purpose of mammography ($p < 0.05$) ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 and 24 months	2. Personal recommendation + brochure: 26/147 (18%) 3. Personal recommendation + brochure + video: 44/151 (29%) *Uptake at 24 months:* 1. Personal recommendation: 54/147 (37%) 2. Personal recommendation + brochure: 50/147 (34%) 3. Personal recommendation + brochure + video: 61/151 (40%) The difference between the three groups was no longer statistically significant ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Del Mar, 1995,[239] Australia ***Objectives:*** To evaluate the effect of a cervical smear request form offering direct notification of results on follow-up of abnormal smears ***Design:*** RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** 92 GPs in 42 general practices in urban and rural Queensland, sending 5619 cervical smears from 5274 women to the laboratory ***Setting:*** General practice (urban and rural) ***Intervention(s): number randomised (number analysed in parentheses).*** Both intervention and control groups received new smear test kits, including a redesigned form 1. Intervention group (the form had an extra address section that GPs could ask patients to complete for direct notification of the test result; 2 weeks after the GP received the result, women who completed this section were sent by the laboratory 1 of 3 types of letter, with the test result and advice on what she should do; results seemed to focus on the letter rather than the result notification): ? (116) 2. Control (no extra address section): ? (104)	***Intervention effects:*** *Loss to follow-up of women with reports of 'atypia':* 1. Intervention group: 13% (15/116) 2. Control group: 10% (10/104); not significantly different *Loss to follow-up of women with reports of cervical intraepithelial neoplasia:* 1. Intervention group: 0% (0/52; upper 95% CI, 7.0) 2. Control group: 23% (9/39; 95% CI, 11.0 to 39.0); significantly different ($p < 0.001$) Of the 52 women in the intervention group, 23 were sent a letter of notification	***Authors' conclusions:*** Mailing cervical screening results to women may reduce the loss to follow-up of those with cervical intraepithelial neoplasia ***Comments:*** The invitation to complete the extra address section for direct notification of results in the intervention group was at the GP's discretion. Only half of GPs used them as a matter of course. Questionable validity of using a GP questionnaire as a method of evaluation of outcome. Adequacy of follow-up for women with cervical intraepithelial neoplasia from laboratory files alone showed no significant difference (40% vs 36%)

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-out not stated. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 12 months	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Del Mar, 1998,[144] Australia ***Objectives:*** To evaluate the effectiveness of personalised letters, in addition to a media campaign, on uptake of cervical screening by Vietnamese women ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 689 Vietnamese women aged 18–67 years on the electoral roll and resident in South Brisbane ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses).*** Media campaign on cervical screening introduced for whole region 2 months before letters sent out 1. Personal letter written in Vietnamese inviting them for screening: 359 (359) 2. Control group (did not receive a letter): 330 (330) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** The authors state that they had sufficient numbers to detect any meaningful change. No drop-outs reported ***Baseline comparability:*** No differences in age or postcode ***Baseline of assessment:*** 17% of the intervention group and 21% of controls had had a smear within the previous 2 years ($p = 0.26$) ***Follow-up:*** 1 year	***Intervention effects (uptake of screening):*** *Intervention effect (total):* 1. Intervention group: 63/359 (18%) 2. Control group: 58/330 (18%) *Appropriate screening:* 1. Intervention group: 36/359 (10%) 2. Control group: 39/330 (12%) *Inappropriate screening:* 1. Intervention group: 27/359 (8%) 2. Control group: 19/330 (6%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Being sent an invitation for screening was not associated with any increase in uptake ***Comments:*** Women in both groups were drawn from the Vietnamese community resident in one area, so there is a possibility of contamination. Generalisability of the study's findings is limited, as it was conducted with a sample of Vietnamese women

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Dietrich, 1992,[266] USA ***Objectives:*** To test the impact of physician education and facilitator assisted office system interventions on cancer early detection and intervention services ***Design:*** RCT (cluster) with 2 × 2 factorial design ***Screening test:*** Mammogram, CBE, Pap smear, FOBT, DRE, sigmoidoscopy	***Sample:*** 102 ambulatory care practices agreed to participate and 98 co-operated fully. Physicians were excluded if they had been at their current practice site for less than 24 months, were based at a training site or anticipated leaving their site within the next year ***Setting:*** Ambulatory care practices ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Education only (day-long meeting): 24 physicians (cross-sectional surveys) 2. Office system only (assistance from facilitator in design and implementation of office routines; none of the tools or routines were computer based): 24 physicians (cross-sectional surveys) 3. Office system and education: 26 physicians (cross-sectional surveys) 4. Control: 24 (cross-sectional surveys) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Appropriate analysis using clusters not individuals. Analysis based on two cross-sectional surveys. 4 of the 102 practices did not complete the trial. In the cross-sectional surveys done before and after the interventions began, 2436 and 2595 patients respectively completed the questionnaire, representing 93% and 91% of those eligible at each interval ***Baseline comparability:*** No significant differences in age, gender, speciality, board certified practitioners or type of practice ***Baseline of assessment:*** Proportion of eligible patients: *Mammography:* education only, 0.53; office system only, 0.59; office system + education, 0.57; control, 0.58 *CBE:* education only, 0.71; office system only, 0.79; office + education, 0.80; control, 0.65	***Intervention effects (uptake of screening):*** Proportion of eligible patients: *Mammography:* education only, 0.71; office system only, 0.77; office + education, 0.78; control, 0.57 *CBE:* education only, 0.71; office system only, 0.79; office + education, 0.80; control, 0.65 *Cervical cytology:* education only, 0.63; office system only, 0.71; office + education, 0.65; control, 0.61 *FOBT:* education only, 0.54; office system only, 0.62; office + education, 0.61; control, 0.46 *Sigmoidoscopy:* education only, 0.30; office system only, 0.31; office + education, 0.27; control, 0.24 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Community practices assisted by a facilitator in the development and implementation of an office system can substantially improve provision of cancer and early detection services. Practices assigned to physician education increased mammography only ***Comments:*** The analyses were based on cross-sectional surveys, and therefore causality cannot be attributed

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Cervical cytology: education only, 0.63; office system only, 0.71; office + education, 0.65; control, 0.61 *FOBT:* education only, 0.54; office system only, 0.62; office + education, 0.61; control, 0.46 *Sigmoidoscopy:* education only, 0.30; office system only, 0.31; office + education, 0.27; control, 0.24 ***Follow-up:*** At least 365 days for each patient		
Dietrich, 1998,[267] USA ***Objectives:*** To determine the effect of cancer early-detection services on the uptake of cancer screening, in community health centres for the underserved ***Design:*** RCT (cluster) ***Screening test:*** CBE, Pap smear, FOBT, DRE, sigmoidoscopy	***Sample:*** 89 eligible community health/migrant healthcare centres for the underserved from a total of 97. To be eligible the centre had to have been open for at least 2 years and provide a wide range of primary healthcare services for adults. 27 centres declined, and the remaining 62 sites were entered in the trial. From these centres, patients who were aged ≥ 42 years old, were not terminally ill, had not previously been diagnosed as having cancer, and who had made a first visit to the practice at least 366 days before a record-review date, as well as an additional visit within the previous 365 days, were eligible. 2865 patients who fulfilled these criteria were entered in the study ***Setting:*** Community health centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Office system: 31 practices, 1499 patients (cross-sectional surveys) 2. No assistance (control): 31 practices, 1366 patients (cross-sectional surveys) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Analysis was based on cross-sectional surveys of 20–30 patients per practice. Unit of allocation the same as unit of analysis	***Intervention effects (uptake of screening):*** Median proportions of individuals (p value is for the change from baseline): *Intervention group:* CBE, 0.633 ($p < 0.008$); mammography, 0.652 ($p < 0.06$); Pap smear, 0.552 ($p < 0.32$); home FOBT, 0.194 ($p < 0.23$); DRE, 0.409 ($p < 0.16$); sigmoidoscopy, 0.026 ($p < 0.93$) *Control group:* CBE, 0.588 ($p < 0.02$); mammography, 0.636 ($p < 0.22$); Pap smear, 0.622 ($p < 0.01$); home FOBT, 0.189 ($p < 0.06$); DRE, 0.488 ($p < 0.03$); sigmoidoscopy, 0.024 ($p < 0.45$) Intervention had no significant effect on uptake of any of the screening tests, as compared to the control group ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Cancer early-detection services are improving in community health centres, but the intervention had only a small impact, as determined by record review. To have an impact, the intervention required that there be no change in medical director. The relationship of changes in the practice environment to services delivered is complex and deserves more study ***Comments:*** Generalisability of the study may be limited. There was a variation (no data shown) in the time taken to implement the intervention, and this may have affected the results (i.e. the intervention may have only been running for 18 of the 24 months as the centre took 6 months to set up the systems required for the intervention)

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: No significant differences in centre characteristics, patient demographics, or patient visits and health maintenance checks ***Baseline of assessment:*** Median proportions of individuals by centre who received screening during the previous 24 months *Intervention group:* CBE, 0.500; mammography, 0.583; Pap smear, 0.523; FOBT, 0.094; DRE, 0.350; sigmoidoscopy, 0.026 *Control group:* CBE, 0.545; mammography, 0.591; Pap smear, 0.432; FOBT, 0.068; DRE, 0.341; sigmoidoscopy, 0.024 ***Follow-up:*** 2 years		
Dignan, 1996,[206] USA ***Objectives:*** To evaluate the effectiveness of an education programme using individual lay health workers to increase uptake of mammography among eastern-band Cherokee women ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 996 women aged ≥ 18 years who were enrolled tribal members of the Nashville Indian Health Service, western North Carolina ***Setting:*** Indian health service area ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Culturally sensitive health education programme based on Social Learning Theory through oral learning and self-efficacy. Comprised two one-to-one visits by a lay health educator in the women's home: 481 (385) 2. Control group (received no education): 515 (430) ***Theoretical basis of intervention:*** Social Learning Theory, Health Belief Model, PRECEDE ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. 181 women lost to follow-up; no intention-to-intervene analysis ***Baseline comparability:*** No significant differences ***Baseline of assessment:*** Not stated ***Follow-up:*** ≥ 6 months	***Intervention effects (uptake of screening):*** *Pap smear in last 12 months:* 1. Education programme: 282/385 (73.2%) 2. Control: 275/430 (64%) Logistic regression assessed the effects of pre-test, education and other co-variates on uptake of Pap smear tests. The odds of having a test were higher among women who had insurance to pay (OR = 2.55; 95% CI, 1.31 to 4.95), had annual physical examinations (OR = 5.00; 95% CI, 3.30 to 7.58), had a history of abnormal test results (OR = 2.83; 95% CI, 1.83 to 4.36) and received the education programme (OR = 2.06; 95% CI, 1.14 to 3.72) ***Intermediate outcomes:*** *Knowledge:* Women who received the intervention were more likely to answer all knowledge items correctly after the test (authors': OR = 2.18; 95% CI, 1.08 to 4.39).	***Authors' conclusions:*** Education programme had a positive effect on knowledge and behaviour, with women receiving the education intervention being twice as likely to have a Pap smear test than women not receiving the programme ***Comments:*** Good primary study with limited opportunity for bias

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
		For those women who did receive a pre-test interview, women in the intervention group were no more likely to answer all the knowledge questions correctly than were controls (76.7% vs 76.1%; $p = 0.05$). For those that did not receive a pre-test interview, women in the intervention group were significantly more likely to answer all the knowledge questions correctly (86.9% vs 76.0%, $p = 0.012$) than were controls *Intention to get a Pap smear:* There was no difference between the intervention and control groups in intention to get a mammogram, in either those who had a pre-test interview (45.7% vs 47.9%) and those who did not (48% vs 48.4%) ***Costs:*** Not stated	
Dolan, 1996,[145] USA ***Objectives:*** To test the effect of offering same-day mammography on adherence to physician screening mammography recommendations ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 1221 women who attended an urban academic general medicine practice. Women were eligible if they were aged ≥ 50 years, had no active breast symptoms, had no history of breast cancer, and had not had a mammogram in the preceding 12 months. 615 of the 1221 women were ineligible, 105 declined, 50 did not receive a recommendation, and the remaining 451 were enrolled in the trial ***Setting:*** General practice (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Offered a same-day mammography test: 210 (210) 2. Control: 241 (241)	***Intervention effects (uptake of screening):*** 1. Same-day mammography: 122/210 (58%) 2. Control: 111/241 (46%) In a logistic regression analysis controlling for age, education level, insurance type, marital status, employment status, family history of breast cancer, history of previous breast biopsy, and number of previous mammograms, the authors' OR for the intervention group undergoing mammography was 1.7 (95% CI, 1.08 to 2.57) ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** Same-day mammography availability increases 3-month mammography adherence rates, and is associated with high levels of satisfaction. Advanced notification of this opportunity may further increase its effectiveness ***Comments:*** Published as an abstract only

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No mammogram in the preceding 12 months ***Follow-up:*** 3 months	***Costs:*** Not stated	
Drossaert, 1996,[189] The Netherlands ***Objectives:*** To assess the efficacy of tailored health education leaflets in reducing the number of drop-outs from participation in screening among women who had previously undergone mammography ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** Women invited for their second mammogram in The Hague ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses).*** Using the Elaboration Likelihood Model, two versions of a tailored leaflet aimed at establishing or maintaining positive social norms and high self-efficacy expectations with respect to repeat participation in the screening programme 1. Tailored leaflet with peripheral cues (glossy paper, colours, opinion of expert): ? (891) 2. Simple version of leaflet (black and white, no photographs): ? (1044) 3. Control (standard leaflet): ? (1026) ***Theoretical basis of intervention:*** Elaboration Likelihood Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Women cancelling their appointment for legitimate reasons were excluded. Women were also excluded on a day when there were technical problems with the unit. 2961 women remained in the sample ***Baseline comparability:*** Significant differences were evident in age, education and marital status ***Baseline of assessment:*** Not stated	***Intervention effects (uptake of screening):*** 1. Extended leaflet: 892/891 (90%) 2. Simple tailored leaflet: 941/1044 (90%) 3. Standard leaflet: 912/1026 (89%) Pairwise χ^2 tests revealed no significant differences ***Intermediate outcomes:*** No significant differences regarding beliefs about re-participating were found between the three groups ***Costs:*** Not stated	***Authors' conclusions:*** The non-significant difference between the groups was thought to be due to the visual complexity of the leaflet with extended cues. Such interventions may be too weak to affect the drop-out of women having already attended for screening ***Comments:*** Samples varied in characteristics, and thus extraneous factors may have intervened. In addition, the leaflets did not vary in content, only in presentation

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Follow-up: Approximately 3 months after planned screening days (allowed for women changing appointments)		
El-Hadad, 1995,[211] USA ***Objectives:*** To assess the effectiveness of a supportive educational programme ***Design:*** Controlled trial ***Screening test:*** Pap smear	***Sample:*** 93 Muslim Middle Eastern women ***Setting:*** Not stated ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Supportive education programme based on the Health Belief and Health Promotion Models: 41 (41) 2. Control group (received two pamphlets about Pap test and cervical cancer): 52 (52) ***Theoretical basis of intervention:*** Health Belief Model, Health Promotion Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-out not stated ***Baseline comparability:*** No significant differences were found on pre-test scores in relation to perceived social support, self-efficacy, value of health, perception of risk for cancer, or attitudes to cancer screening ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** The intervention group was more adherent to the request to obtain a Pap test than was the control group ($\chi^2 = 9.73$; $p < 0.001$). No further details provided ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** None ***Comments:*** Information was obtained from the abstract; limited data or contextual information provided
Elwood, 1978,[212] USA ***Objectives:*** To evaluate the public's willingness to perform the do-it-yourself Haemoccult test for colon-rectum cancer, and to assess the relative effectiveness of alternative means of persuading people to do the test ***Design:*** RCT (factorial) ***Screening test:*** FOBT	***Sample:*** Members of National Retired Teachers Association/ American Association of Retired Persons (NRTA/AARP) ***Setting:*** Retired Teachers Association ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Total mail-out method: Mailing test kit and literature (n = 2007); subdivided into postage paid (n = 1003) and not paid (n = 1004) 2. Selective mail-out method: Mailing literature, along with a reply card to request a test kit (n = 2032); subdivided into meat-free diet (n = 1030) and no meat-free diet (n = 1002)	***Intervention effects (uptake of screening):*** 1. Total mail-out group: 309/2007 (15.4%) 2. Selective mail-out group: 266/2032 (13.1%) 3. Come-in group: 353/4100 (8.6%) 4. Group meeting group: 503/1751 (28.7%) 5. At-home group: 250/1225 (20.4%) 6. Postage paid: 357/1617 (22.1%) 7. Postage not paid: 289/1615 (17.9%)	***Authors' conclusions:*** The group method was the most effective personal distribution method. The selective mail-out method was the most effective impersonal method. The return rate was higher when postage was provided. Incorporating certain dietary restrictions did not markedly reduce participation, nor did the inclusion of a DRE. Equal return rates were achieved when the ACS and AARP were identified on a separate basis as sponsors of the programme

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	3. Come-in method: Mailing literature, asking individuals to attend to discuss and collect a test kit (*n* = 4100); subdivided into DRE and American Cancer Society (ACS) sponsorship (*n* = 1016), DRE and AARP sponsorship (*n* = 1014); no DRE and ACS sponsorship (*n* = 1038); no DRE and AARP sponsorship (*n* = 1032) 4. Group meeting method: Attendance at regular AARP chapter meetings to discuss and collect a test kit (*n* = 1751); subdivided into meat-free diet (*n* = 775) and no meat-free diet (*n* = 976) 5. At-home method: Home visit by specially trained staff to discuss and distribute test kits (*n* = 1225); subdivided into postage paid (*n* = 614) and not paid (*n* = 611) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Drop-out not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	8. DRE: 162/2030 (8.0%) 9. No DRE: 186/2070 (9.0%) 10. Meat-free diet: 140/775 (18.1%) 11. No meat-free diet: 204/976 (20.9%) 12. ACS sponsorship, 8.2%; AARP sponsorship, 8.8% ***Intermediate outcomes:*** Not stated ***Costs:*** Costs for the different FOBT interventions were as follows: total mail-out, $580 per 1000 contacts, $3.76 per return; selective mail-out, $370 per 1000 contacts, $2.84 per return; come-in, $280 per 1000 contacts, $3.30 per return; group meetings, $240 per 1000 contacts, $0.83. per return; at-home, $91 per 1000 contacts, $0.45 per return. The most cost-effective personal contact method was the at-home method followed by the group meeting method. The most efficient non-personal method involving mail was the selective mail-out method	***Comments:*** The randomisation procedure was not described in enough detail to determine whether it was of a factorial design
Elwood, 1995,[224] New Zealand ***Objectives:*** To compare the acceptability, yields, costs and unwanted effects of flexible sigmoidoscopy and colonoscopy for colorectal screening ***Design:*** RCT ***Screening test:*** Sigmoidoscopy, colonoscopy, FOBT	***Sample:*** Relatives of patients who had been seen at the district hospital for either colonoscopy or surgery for bowel cancer. 607 previous patients (322 with normal colonoscopy findings, 285 with diagnosis of cancer) were asked to provide the details of first-degree relatives, aged 45–70 years and living in the Otago region. From a subsequent list of 232 eligible relatives (137 with a family history of colorectal carcinoma or adenoma, 95 without), 181 were included in the randomisation process ***Setting:*** Hospital (district)	***Intervention effects (uptake of screening):*** The two procedures were similar in uptake: 1. Colonoscopy : 64/85 (75%) 2. Sigmoidoscopy: 68/89 (76%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The subjects found the preparation for sigmoidoscopy easier, but the procedure more uncomfortable and embarrassing, as colonoscopy was performed under sedation. In this hospital-based study, colonoscopy was as acceptable to subjects, and only slightly more costly than sigmoidoscopy. Advantages of sigmoidoscopy would be greater for use outside hospital and with less intensive follow-up

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Offered FOBT and flexible sigmoidoscopy: 90 (85) 2. Offered FOBT and colonoscopy: 91 (89) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Of the 181 subjects randomised, seven were excluded for clinical reasons ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months		***Comments:*** The generalisability of the findings is limited by the fact that the sample included relatives of patients who had been seen at the district hospital. Uptake was not the primary outcome
Fletcher, 1993,[135] USA ***Objectives:*** To evaluate the effectiveness of a community-wide intervention in increasing uptake of mammography screening for breast cancer ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** Women aged 50–74 years in two rural, biracial, relatively medically isolated counties in North Carolina, USA ***Setting:*** Community (rural, biracial)	***Intervention effects (uptake of screening)***: Self-reported uptake of mammography increased from 35% in 1987 to 55% in 1989 in the intervention county and from 30% to 40% in the control county. The difference between counties of 10% was significant (95% CI, 1.0 to 18.0; $p < 0.03$; adjusted for race, education, age, having a regular doctor). In the intervention county, the increase was lower for black than white women. Uptake increased more in women who had previously had a mammogram, this being a significant difference in the intervention county only The total number of mammograms performed on women aged 50–74 years rose from 2710 to 5129 in the intervention county and from 1633 to 2361 in the control county, relative increases of 89% and 45%, respectively	***Authors' conclusions:*** A community-wide effort to increase mammography uptake was successful, but a long-term effort, with special attention to disadvantaged women, is necessary if national targets are to be reached ***Comments:*** Women without telephones, who are likely to be from the poorest sector of the community, were excluded from the survey, so mammography uptake may have been overestimated in both counties. Differences in uptake rates may have been partly due to differences inherent in the communities. Use of self-reported uptake of mammography may have given an inflated picture of mammography uptake. The number of mammograms performed was also used. Cross-sectional survey data were used, and therefore causality cannot be attributed to the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. TV, radio and newspaper articles describing and promoting the programme and breast cancer screening; 82 community groups addressed by members of the programme's Speakers' Bureau on the same themes; a Minority Task Force to co-ordinate media and social events targeting black women; the breast cancer screening week included free breast examination at specially arranged sites in poorer areas of the city and the distribution of coupons for free or half-price mammograms to eligible women who had not had a mammogram in the previous year; billboard advertisements in economically depressed areas and posters in community businesses; mammogram charges reduced at radiology practices for a 2.5-year period to the end of the intervention year and for 6 months of the intervention year at one site; community physicians appraised of pre-test results and programme objectives, offered a 1-hour training session on breast examination skills and a prompt chart to record breast cancer screening activities in patient records, and sent two newsletters a year with programme updates: cross-sectional surveys 2. In the control county (Pitt County), mammogram charges were decreased, but no other interventions were used: cross-sectional surveys ***Theoretical basis of intervention:*** PRECEDE ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (county) was different from unit of analysis (individuals). Around 75% of women responded to the survey in both communities in both years (different women in each survey)	***Intermediate outcomes:*** *Intention to get a mammogram:* This rose by 30% in the intervention county compared to 17% in the control county ($p < 0.01$). This difference was even greater among black women, with a 32% increase in the intervention county compared with a 7% increase in the control county *Knowledge:* There was little change in women's knowledge or attitudes about breast cancer screening in either county. Physician reports and medical-record reviews in the two counties showed similar increases in the number of mammograms ordered ***Costs:*** Not stated	

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Target populations were comparable in age distribution and having a regular doctor. Pitt County (control group) had a higher proportion of black women and those without insurance, with less education and lower income, and with full-time jobs ***Baseline of assessment:*** Not stated ***Follow-up:*** Post-test, conducted at the end of the intervention year, 2 years after the pre-test		
Flynn, 1997,[134] USA ***Objectives:*** To assess the effectiveness of community education interventions and low-cost mobile mammography van services in increasing uptake of mammography among rural women ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** Two matched sets of communities separated by mountains in an isolated region of the USA. The intervention group consisted of six communities (2966 persons, 750 women aged >35 years) and the comparison group of seven communities (4157 persons, 1039 women aged > 35 years) ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Community educational programme designed to increase levels of perceived social support for breast screening. Engaged natural opinion leaders in organising and hosting small-group education programmes. Participants were given guidelines for all three screening modalities, specific information on mammograms, BSE instruction and breast screening issues were discussed. Women would act as promoters through social networks. Office-based education programmes were offered to primary care providers, discussing guidelines, access, mobile service and CBE techniques, which were based on diagnostic research with the target population: 6 communities (cross-sectional surveys) 2. Comparison groups did not receive the community education programme: 7 communities (cross-sectional surveys) ***Theoretical basis of intervention:*** PRECEDE ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Unit of allocation (towns) different from unit of analysis (individuals). Analysis was based on pre- post-test cross-sectional surveys	***Intervention effects (uptake of screening):*** *Mammography van use* (number of van users per 1000 women aged > 35 years): 1. Intervention area: 49 in 1990; 64 in 1991; 67 in 1992; 179 in 1993 2. Comparison area: 36 in 1990; 26 in 1991; 31 in 1992; 69 in 1993 *Impact on mammography* (intervention vs comparison): most recent test in last 2 years (82% vs 72%; $p < 0.01$); most recent test in last 1 year (64% vs 60%; $p = 0.03$); received test regularly (55% vs 51%; $p < 0.04$), ever received mammography (89% vs 80%; $p < 0.01$); last test from mobile van (34% vs 10%; $p < 0.01$) *Impact on CBE* (intervention vs comparison): reported CBE in last year (75% vs 78%; $p < 0.10$); most recent CBE undertaken by nurse or non-physician (29% vs 21%; $p < 0.01$) ***Intermediate outcomes:*** *Knowledge:* Survey data indicated no impact of programme on knowledge of recommended mammography frequency for women aged < 50 years or ≥ 50 years	***Authors' conclusions:*** Mammography use among women in rural communities can be improved by combinations of barrier-reducing service delivery systems and educational programmes designed to their needs ***Comments:*** The study design and allocation of samples allow the possibility of bias; the lack of a formal pre-test survey may mean that samples were not equivalent, although the census characteristics indicate that they were fairly similar; the brief follow-up period of 6 months may not have provided enough time to act. Cross-sectional surveys pre- and post intervention were used to determine uptake.

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Comparable on educational levels and median ages, but intervention areas had higher incomes ***Baseline of assessment:*** See results ***Follow-up:*** 2-year study period, with assessment 6 months after intervention	*Reinforcing factors:* Significant differences were observed for the reinforcing factors of perceived support from friends (68% vs 56% reporting that it matters to friends; $p = 0.003$) and perceived normative use of mammography (64% vs 52% reporting that many or almost all women aged ≥ 40 years have mammography regularly; $p = 0.004$) ***Costs:*** Not stated	
Fox, 1998,[249] USA ***Objectives:*** To determine if a community-wide series of interventions leads to an increase in the awareness of screening as well as mammography screening rates among Hispanic women, up to a level comparable with those of Anglo and African-American women. To determine if a church-based intervention that included breast-screening services would be acceptable to Hispanic women ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** Eligible women aged ≥ 35 years from three Los Angeles County communities with similar social demographic characteristics. One community acted as the control and the remaining two received the intervention ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Information about breast cancer was provided by the project team through a wide range of outreach activities including educational sessions conducted during English as a second language classes held at County schools. Classes included mainly men, but information leaflets were also distributed. Booths at health fairs to distribute leaflets and answer questions. Classes were held in various community settings (senior centres, beauty shops, and sites that served as meeting places for Hispanic women). Spanish inserts in both Spanish and English newspapers. Bilingual brochures distributed to all offices of primary care providers. Church intervention, which included both supporting educational material and mammography service: 2 communities (cross-sectional survey) 2. Controls (not stated): 1 community (cross-sectional survey) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (community)	***Intervention effects (uptake of screening):*** *Mammogram in previous year:* In 1990, 24% of the women in the control community reported having a mammogram within the year ($p = 0.69$), compared with 27% of the women in the intervention community *Ever had a mammogram:* 44% of the Hispanic women in the intervention community, reported ever having had a mammogram ($p = 0.30$), as compared with 36% in the control group. There was no significant difference between the intervention and the control groups in 1990 The difference between 1988 and 1990 in the control community was not significant ($p = 0.89$), but the improvement in the intervention community was significant ($p = 0.02$)	***Authors' conclusions:*** Underscreened groups, such as Hispanic women, can be accessed and influenced through an intensive, well-planned and theoretically based outreach activity. Although, it cannot be known which of the several outreach activities in the intervention package was most successful in increasing the screening awareness and rates of Hispanic women, the breast health day was perceived by the project outreach team to be the most enthusiastically received activity by the targeted group ***Comments:*** Women in the control group (23%) had significantly higher rates of mammography, as compared to the intervention group (12%) at baseline interview

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	was different from unit of analysis (individual). Only Hispanic women were included in the data analysis (from pre- and post-intervention surveys) ***Baseline comparability:*** No significant difference between the intervention and control groups in terms of age, marital status or education. In 1990 there was no significant difference between the two groups in marital status ($p = 0.09$). However, the intervention community was less educated ($p < 0.001$) and younger ($p = 0.05$) ***Baseline of assessment:*** Mammogram in previous year. In 1988, 23% of the Hispanic women in the control had a mammogram in the previous year ($p = 0.09$), compared with 12% in the intervention community ***Follow-up:*** 1 year	***Intermediate outcomes:*** *Mammography awareness:* there were no significant differences within time frames (years) between the control and intervention communities (1988, $p = 0.13$; 1990, $p = 0.38$). However, in the intervention community Hispanic women reported a considerable improvement in whether they had heard of mammograms (63% in 1988, 82% in 1990; $p < 0.01$). There was no significant improvement over time for controls (75% in 1988, 87% in 1990; $p = 0.08$) ***Costs:*** Not stated	
Freedman, 1994,[230] USA ***Objectives:*** To assess the effectiveness of three methods of returning FOBT kits (by hand, by mail, by pre-paid mail) on screening uptake ***Design:*** Quasi- RCT ***Screening test:*** FOBT using the Haemoccult II card	***Sample:*** Consecutive patients who had FOBT with follow-up visits scheduled in 3 months were enrolled ***Setting:*** Hospital clinic ***Intervention(s): number randomised (number analysed in parentheses).*** All groups received Haemoccult II card (three tests) applicators, with identical written instructions 1. Asked to return completed cards in person (usual care): 49 (49) 2. Asked to return cards in addressed envelopes without paid postage: 46 (46) 3. Asked to return cards in addressed, postage-paid envelopes: 51 (51) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Intention-to-intervene analysis performed ***Baseline comparability:*** Groups comparable in age, gender, race, insurance coverage and screening test	***Intervention effects (uptake of screening):*** 120 patients ordered FOBT. Response rates: 1. Postage not paid: 26/46 (57%) 2. Postage paid: 36/51 (71%) 3. Control: 18/49 (37%) The difference between the groups was significant ($p = 0.003$) ***Intermediate outcomes:*** Not stated ***Costs:*** The cost per FOBT kit was: group 1, $0.82; group 2, $0.92; group 3, $1.21. The cost per completed FOBT kit was: group 1, $2.24; group 2, $1.61; group 3, $1.71. Although group 2 did not achieve the highest adherence rate, its cost per completed test was the lowest	***Authors' conclusions:*** Postage-paid mailing envelopes nearly doubled the return rate for FOBT ***Comments:*** The sample enrolled was smaller than specified by the sample-size calculation. Limited detail was provided on patients, baseline assessment and results of analysis

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Not stated ***Follow-up:*** 3 months		
Garton, 1992,[146] Torgerson, 1993,[166] UK ***Objectives:*** To estimate the response rates and operating costs of three recruitment methods within a regional osteoporosis screening programme ***Design:*** RCT ***Screening test:*** Bone densitometry	***Sample:*** Women aged 45–49 years living within 32 km (20 miles) of Aberdeen, selected at random from the Community Health Index ***Setting:*** Screening unit (osteoporosis) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Fixed appointments with option to change time (fixed group): 400 (400) 2. Fixed appointment but requiring telephoned confirmation (confirmation group): 400 (400) 3. Inviting recipient to telephone to make an appointment (open group): 400 (400) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. 26 (2.2%) letters were returned marked 'unknown at this address' ***Baseline comparability:*** No significant differences in social class ***Baseline of assessment:*** Not stated ***Follow-up:*** 10 days	***Intervention effects (uptake of screening):*** *Response rate:* 1. Fixed group: 299/400 (75%); 95% CI, 71 to 79 2. Confirm group: 277/400 (69%); 95% CI, 65 to 74 3. Open group: 217/400 (54%); 95% CI, 49 to 59 No significant differences were found in the social class of attenders among the three methods ***Intermediate outcomes:*** Not stated ***Costs:*** Opportunity costs: it was estimated that in a programme with 2250 screening slots available annually, by using the improved method (fixed appointment requiring telephoned confirmation) 402 more women can have a screening test, equivalent to a financial benefit of £7820.[166]	***Authors' conclusions:*** The offer of a fixed appointment requiring telephoned confirmation has the potential to reduce the costs of scanning without exaggerating any social bias or significantly reducing response rates, provided that empty appointments can be reassigned at short notice ***Comments:*** None
Gates, 1976,[172] USA ***Objectives:*** To determine whether reminder letters or phone calls could improve compliance with appointments, including those for screening, scheduled more than 3 weeks in advance ***Design:*** RCT ***Screening test:*** Not specified	***Sample:*** 390 appointments for health centre patients. Inclusion: all those scheduled 3 weeks or more in advance over 3 months. Multiple appointments by same patient scheduled 3 weeks or more apart were excluded, and patients without phones were excluded ***Setting:*** Health centre	***Intervention effects (uptake of screening):*** First-appointment keeping by group: 1. Phone reminder (n = 80): 80% kept, 11.3% cancelled, 8.8% failed 2. Letter reminder (n = 92): 83.7% kept, 6.5% cancelled, 9.8% failed 3. Control group (n = 100): 55.0% kept, 7.0% cancelled, 38.0% failed ($p < 0.01$)	***Authors' conclusions:*** Reminding patients of their appointments several days in advance can reduce appointment breaking. Telephone and letter reminders produced similar reductions in appointment failure rate when the patient could be contacted. The greater success in contacting the patient through mailed reminders recommends this method for implementation and greater overall effectiveness

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Telephone reminder (reminder call made by community health worker 1–2 days before appointment date; response was recorded; up to 6 attempts at contact made): ? (80) 2. Letter reminder (personalised reminder letter sent 3–4 days before appointment, indicating day, date, time and reason for appointment, signed by community health worker): ? (92) 3. Control group (no reminder): ? (100) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 23 appointments were excluded because of cancellation by health centre or scheduling errors. 31 appointments from reminder groups received no reminder (27 failed telephone contacts, 4 letters returned from incorrect addresses) and were excluded. No intention-to-intervene analysis performed ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	Differences between the reminder groups were not significant ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** No information was provided on baseline characteristics, comparability of participants, screening tests or actual uptake of tests
German, 1995,[82] USA ***Objectives:*** To test the acceptability of preventive services under Medicare waivers to a community-dwelling population aged ≥ 65 years and to examine the effect of such services on health ***Design:*** RCT ***Screening test:*** Mammogram, Pap smear, FOBT	***Sample:*** Participants (aged ≥ 65 years) were selected from lists of Medicare beneficiaries from participating hospital-based and primary care physicians (Baltimore, USA). 12,111 individuals were identified, 5281 were found to be eligible and 4459 completed baseline interviews. Five physicians withdrew (n = 169 patients) and 95 patients were not known to the participating physicians and so were excluded prior to randomisation. 4195 individuals were randomised to either the control or the intervention group. The majority of participants were white (87.6% intervention, 84.4% control) ***Setting:*** Community health centre	***Intervention effects (uptake of screening):*** In the intervention group 1327/2105 (63%) made any preventive visit. Subgroup analyses were carried out for age, confidence, marital status, race, gender and education (see paper). Uptake rates were not reported for the control group ***Intermediate outcomes:*** Mean change in health status measured by quality of well-being score: control (n = 1755), –0.0832; intervention (n = 1748) –0.0631. The intervention group declined less (by 0.06 points), compared with 0.08 points for controls (p = 0.011)	***Authors' conclusions:*** Older individuals will respond to preventive programmes, and such services will result in modest health gains ***Comments:*** Uptake rates were not provided for the control group or for the individual tests performed. Generalisability may be limited as Medicare beneficiaries in Baltimore, USA, may not be representative of the population in general

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Intervention (voucher for free preventive visits): 2105 (1573) 2. Control (no voucher, but booklet offering information and guidance on preventive healthcare): 2090 (1524) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Participants lost to 2-year follow-up: intervention group, 175 died, 41 moved, 29 in nursing home, 210 refused, 77 other; control group, 231 died, 31 moved, 41 in nursing home, 193 refused, 70 other ***Baseline comparability:*** There were significantly more black individuals in the intervention group (15% vs 12%) and a higher proportion who engaged in brisk physical exercise more than three times a week in the intervention group (57% vs 54%) ***Baseline of assessment:*** Rectal examination within the past 2 years (intervention, 44.1%; control, 46.9%); mammogram within past 2 years (intervention, 40.0%; control, 43.2%); Pap smear within past year (intervention, 50.0%; control, 50.8%) ***Follow-up:*** 2 years	***Costs:*** Not stated	
Gimotty, 1996,[65] USA ***Objectives:*** To determine if computer-generated reminders increase both Pap smear and mammography use ***Design:*** RCT (cluster) ***Screening test:*** Pap smear, mammogram	Sample: 1961 women aged ≥ 40 years from three different clinics in a Detroit HMO ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses).*** Women were sent a letter recommending tests and physicians were provided with a medical record reminder. Numbers assigned to each intervention not stated 1. Co-ordinated reminders prompting Pap and mammography for procedure-due women (BOTH) 2. Co-ordinated reminders prompting only mammography	***Intervention effects (uptake of screening):*** A logistic regression analysis found significant differences in the effectiveness of the intervention among subgroups. At site 1 the adjusted OR was higher for women with at least one mammogram in the 2 years prior to the study (OR = 1.9; 95% CI, 1.2 to 3.1), while this was not so for those with none. In contrast, at site 3 the adjusted OR was higher for women with no mammogram in the 2 years prior to the study (OR = 4.1; 95% CI, 1.8 to 9.2), and not significant for	***Authors' conclusions:*** Physicians and patients in different clinics can respond to the same intervention in different ways. In the future, such co-ordinated interventions can be tailored to specifically promote ongoing use of both Pap smear and mammography as well as to encourage the use of both procedures among underserved women ***Comments:*** Few details provided

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-out not stated. Unit of allocation different from unit of analysis ***Baseline comparability:*** Characteristics of the two intervention groups did not differ within site ***Baseline of assessment:*** Not stated ***Follow-up:*** 1 year	those with a mammogram in that period. The intervention had a significant effect at sites 2 and 3 among those with Medicare (OR = 2.8; 95% CI, 1.6 to 5.0) or Medicaid (OR = 4.1; 95% CI, 1.8 to 9.2), while it was not effective for those with a commercial plan ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Gonzalez, 1989,[268] USA ***Objectives:*** To test the effectiveness of a nurse-initiated prompting system for six health promotion and disease prevention procedures in an internal medicine residents' clinic at a university-affiliated community programme ***Design:*** Quasi-RCT (cluster) ***Screening test:*** Mammogram, Pap smear, CBE, FOBT, DRE	***Sample:*** Upon entering the programme at the Medicine Clinic of New Hanover Memorial Hospital in North Carolina, USA, residents were randomised to a clinic session held on two different days of the week. Residents in clinics on one day were assigned to the control group and on the other day were assigned to the intervention group ***Setting:*** Hospital (community) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (patient records reviewed before their visit by a nurse practitioner who attached a written prompt): 7 residents (7) 2. Control (no intervention): 7 residents (7) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up in terms of residents were reported. Unit of allocation different from unit of analysis ***Baseline comparability:*** There were differences between the two groups at baseline in terms of the percentage of pelvic examinations and Pap smears performed (control 30%, intervention 40%; significance level not reported). No other baseline characteristics were reported	***Intervention effects (uptake of screening):*** Difference between intervention and control groups in terms of percentage of tests performed: *CBE:* baseline 2%, follow-up 23% *Pap smear and pelvic examination:* baseline 10%, follow-up 33% *DRE:* baseline 2%, follow-up 50% *Mammogram:* baseline 2%, follow-up 36% *FOBT:* baseline 6%, follow-up 33% ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This simple nurse-initiated prompting system improved the performance of health promotion and disease prevention manoeuvres ***Comments:*** No absolute values were reported for the number of tests performed, only percentage figures were quoted. The number of participants eligible for the tests was not reported. Few details were provided in order to enable a decision to be made about the baseline comparability of the study groups. Generalisability may be limited as the study only examined residents and tests performed in a community hospital in the USA

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: *Control group:* CBE, 44%; Pap smear and pelvic examination, 30%; DRE, 43%; mammogram, 20%; FOBT, 40% *Intervention group:* CBE, 42%; Pap smear and pelvic examination, 40%; mammogram, 18%; FOBT, 46% ***Follow-up:*** Not stated		
Gottheil, 1993,[254] USA ***Objectives:*** To assess the willingness of substance-abusing individuals to consent to HIV testing by randomly assigning patients entering either a drug-free outpatient programme or a methadone maintenance programme to one of three informed consent conditions differing in degree of perceived coerciveness ***Design:*** RCT ***Screening test:*** HIV-antibody test	***Sample:*** Consecutive individuals seeking admission to a methadone maintenance programme (n = 103) and a drug-free outpatient programme (n = 279) in the USA were randomly assigned to one of three consent conditions for HIV testing ***Setting:*** Methadone maintenance and drug-free outpatient programmes ***Intervention(s): number randomised (number analysed in parentheses).*** The three intervention groups varied in the perceived degree of coerciveness for informed consent (no further details provided): 1. Required testing: 148 (148) 2. Voluntary testing: 148 (142) 3. Delayed testing: 92 (92) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** 48.5% in the methadone maintenance programme and 37.1% in the drug-free outpatients programme had previously been tested ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** 1. Required: 122/148 (82%) 2. Voluntary: 92/142 (65%) 3. Delayed: 50/92 (54%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** As hypothesised the proportion of agreement was highest under the most coercive informed consent condition. Although the results tend to support continuation of voluntary testing programmes, only 5.5% of patients asked indicated that mandatory testing would have deterred them from entering treatment ***Comments:*** Little information was provided as to the exact nature of the three interventions. Generalisability may be limited as the study focused on drug users attending programmes in the USA

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Grady, 1997,[66] USA ***Objectives:*** To test the efficacy of behavioural techniques for increasing mammography referral rates by primary care physicians in small, community practices ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Community-based, non-academic, primary care practices in urban areas of Massachusetts. Practices had to be community based, have six or less physicians, and provide primary care for at least 50 women aged ≥ 50 per month, per physician. 95 physicians in 61 practices completed the first year of the study. 11,716 women aged ≥ 50 years were identified consecutively from appointment books ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Cue enhancement group (same educational materials as control group + general cues (posters) + specific cues (chart stickers and dots for recording when the next mammogram was due)): 18 (18) 2. Cue plus feedback rewards group (same as for cue enhancement group + peer comparison feedback (charts mailed to physicians illustrating individual and collective referral and uptake rates) + token monetary rewards ($50 for a 50% referral rate)): 20 (20) 3. Control group (physician education given during recruitment presentation; materials for use in counselling reluctant patients (laminated sheets with graphics and talking points)): 23 (23) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Appropriate analysis using clusters not individuals. Five physicians and one practice dropped out due to refusal to co-operate with procedures; 5 physicians and 3 practices dropped out. 290 women (2.5%) in the patient sample did not complete the first year ***Baseline comparability:*** Not stated	***Intervention effects (uptake of screening):*** *Practice level at end of 1 year:* The mean mammography completion rate was 40.6 (SD = 14.7) for all groups combined 1. Cue group: 47.9 (SD = 16.4) 2. Cue and reward group: 40.8 (SD = 11.4) 3. Control group: 34.6 (SD = 13.7) *Physician level at the end of 1 year:* Completion rates averaged 13.4% (SD = 8.7%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Chart stickers can significantly increase mammography utilisation in small, community practices ***Comments:*** A limitation of the study is that community-based practices are becoming increasingly rare and thus generalisability of the results is limited. Cross-sectional collection of outcome data (names of women drawn at three points in time)

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: *Practice level:* Mean baseline mammography completion rates were 11.2 (8.7) for the control group, 17.7 (11.6) for the cue group and 12.6 (7.4) for the cue plus rewards group. Mean baseline mammography uptake rates were 35.3 (15.9) for the control group, 44.0 (SD = 17.1) for the cue group and 35.9 (SD = 14.7) for the cue plus reward group *Physician level:* Baseline referral rates averaged 20.4% (SD = 14.4), completion rates averaged 13.4% (SD = 8.7) and the uptake rate averaged 37.6% (SD = 15) ***Follow-up:*** At the end of 1-year, but this was a 3-year trial, so this is an interim report		
Hackett, 1996,[179] USA ***Objectives:*** To assess the effect of a mammography outreach programme designed to increase the perceived threat of breast cancer and the efficacy of mammography while removing the barrier of referral on the uptake of mammography ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 1807 women aged 52.5–74 years from 10 sites which were members of Kaiser Permanente HMO who were 6 months overdue for a mammogram and had not received a mammogram in the last 2.5 years ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter from HMO physician endorsing mammography: ? (602) 2. Group 2 intervention and women able to self refer for mammogram: ? (605) 3. No intervention: ? (600) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations presented. No drop-outs reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 7–12 months after randomisation	***Intervention effects (uptake of screening):*** 1. Letter: 92/602 2. Letter and self-referral: 111/605 3. Control: 83/600 Mammography use was marginally significantly higher in the letter and self-referral group than the control group (p = 0.017). No statistical difference between the two intervention groups ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** A low cost mailed intervention allowing women to self-refer and providing flexibility in appointment scheduling yielded a modest increase in mammography use among women overdue for a mammogram ***Comments:*** Primary outcomes were assessed from the HMO records, but women may have had screening at another site. This bias should affect all groups. Thesis for PhD

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Hart, 1997,[210] UK ***Objectives:*** To assess the effectiveness of a simple health education leaflet in increasing compliance with colorectal cancer screening through FOBT ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** 1571 residents aged 61–70 years registered with one GP practice ***Setting:*** General practice (suburban and rural) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Free FOBT and received an educational leaflet: 806 (806) 2. Control (offered a free FOBT): 765 (765) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Analysed on an intention-to-intervene basis using 1571 people in the sample ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** *Persons aged 61–70 years:* 1. Leaflet: 288/806 (35.7%) 2. No leaflet: 225/765 (29.4%) Uptake rates in men and women (aged 61–70 years) who received the booklet were not significantly different. Uptake among women not receiving the booklet was significantly higher than among men not receiving booklet ($p < 0.02$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** A health education leaflet could significantly increase compliance among men not women ***Comments:*** No information was provided about the participants' socio-demographic characteristics or previous screening history, and this affects the generalisability of the study. Follow-up period and analysis of drop-outs was not discussed
Heath, 1995,[251] USA ***Objectives:*** To assess the effectiveness of a community-based cholesterol intervention in a population that includes black adults ***Design:*** Controlled trial (cluster) ***Screening test:*** Cholesterol	***Sample:*** Two communities were selected: Florence (estimated population 46,227) was the intervention community and Anderson (estimated population 57,246) was the control community. The communities were located approximately 200 miles apart. Eligible participants were aged ≥ 18 years and lived in one of the communities. Cross-sectional surveys (phone surveys by random digit dialling) to assess eligibility and collect data were carried out at baseline and annually for the next 3 years. 11,070 people were included in the study after 142 respondents who indicated race as 'other' or who did not report their age had been excluded from the analyses ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (cholesterol education, targeted media-intensive screening campaigns with organised screening events at worksites, public areas and churches, and special events): 1 community (cross-sectional surveys)	***Intervention effects (uptake of screening):*** Absolute increase in the percentage of participants screened 4 years post-intervention: *Intervention group:* White women, 28.1% ($p < 0.001$); white men, 23.7% ($p < 0.001$); black women, 27.4% ($p < 0.001$); black men, 18.0% ($p < 0.01$); age 18–39 years, 30.9% ($p < 0.001$); age 40–59 years, 25.4% ($p < 0.001$); age ≥ 60 years, 16.4% ($p < 0.01$) *Control group:* White women, 17.8% ($p < 0.001$); white men, 15.2% ($p < 0.01$); black women, 21.2% ($p < 0.001$); black men, 12.8% (not significant); age 18–39 years, 21.8% ($p < 0.01$); age 40–59 years, 13.8% ($p < 0.01$); age ≥ 60 years, 15.9% ($p < 0.01$)	***Authors' conclusions:*** Community-wide blood cholesterol screening and education programmes can be effective in increasing blood cholesterol knowledge, risk awareness, and preventive behaviour, thus serving as part of a public health strategy to lower and treat high blood cholesterol levels in the community ***Comments:*** The generalisability of the study may be limited as the study only included those individuals living in two US communities. The sample population included in the cross-sectional surveys may not be representative of the overall population in the two communities as only those individuals who had a phone and were at home at the time of the survey were included in the study. Participants were also excluded if they reported their race as 'other' (i.e. not white or black) or did not report their age

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Control (no intervention): 1 community (cross-sectional surveys) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 142 respondents who indicated race as 'other' or who did not report their age were excluded from the analyses. Unit of allocation different from unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** The intervention and control communities were similar in demographic characteristics at baseline ***Baseline of assessment:*** *Intervention group:* White women, 52.5%; white men, 54.3%; black women, 39.3%; black men, 41.0%; age 18–39 years, 32.3%; age 40–59 years, 54.8%; age ≥ 60 years, 62.6% *Control group:* White women, 56.3%; white men, 54.7%; black women, 44.2%; black men, 46.4%; age 18–39 years, 35.2%; age 40–59 years, 61.3%; age ≥ 60 years 61.4% ***Follow-up:*** 4 years	*Percentage 4-year net change:* White women, +10.2% ($p < 0.01$); white men, +8.5% ($p < 0.05$); black women, + 6.2% (not significant); black men, +5.2% (not significant); age 18–39 years, +9.1% ($p < 0.05$); age 40–59 years, +11.5% ($p < 0.01$); age ≥ 60 years, +0.5% (not significant) ***Intermediate outcomes:*** Four-year net change values in knowledge: *Knowledge that < 200 mg/dl is a good cholesterol level:* white women, + 8.5% ($p < 0.01$); white men, +8.3% ($p < 0.05$); black women, +8.6% ($p < 0.05$); black men, +7.8% (not significant); age 18–39 years, + 6.4% ($p < 0.05$); age 40–59 years, +8.8% ($p < 0.05$); age ≥ 60 years, +2.4% (not significant) *Knowledge of personal cholesterol level:* white women, +9.3% ($p < 0.01$); white men, +8.5% ($p < 0.05$); black women, +8.5% ($p < 0.05$); black men –0.6% (not significant); age 18–39 years, +5.0% ($p < 0.05$); age 40–59 years, +7.3% ($p < 0.05$); age ≥ 60 years, +5.2% (not significant) ***Costs:*** Not stated	
Herman, 1993,[204] USA ***Objectives:*** To assess the effectiveness of a health promotion programme on mammography screening in low-income women ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** 521 low-income women aged ≥ 60 years attending 16 senior centres in Cleveland ***Setting:*** Senior centres ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Action for Health (AFH) was an 8-week programme (4 hours per week) experimental course taught by peer-	***Intervention effects (uptake of screening):*** No numerators or denominators were provided for individual interventions *Mammography:* Comparative screening rates for eligible women were 69.6% for AFH participants and 49.1% for non-AFH participants ($p = 0.005$)	***Authors' conclusions:*** The AFH programme appears to provide an effective method of increasing uptake of screening ***Comments:*** The allocation of groups to the interventions was non-random, which may have led to bias. Limited information was provided on the baseline uptake for

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	educators focusing on health protective behaviour (8 centres) 2. Traditional printed materials: 4 centres (4) 3. No intervention (control): 4 centres (4) All 16 centres were offered low-cost mammography screening ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 32 participants were lost to follow-up and were not included in the analysis. Unit of allocation (centre) different from unit of analysis (individual), and women not eligible for screening were excluded after randomisation ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Pre-intervention survey indicated that uptake was high (67.1% of participants). Rates by group were not stated ***Follow-up:*** 6 months post-intervention	The effectiveness of the interventions varied by the woman's screening history: 1(a). AFH participants: ever had a mammogram, uptake 77.1%; never had a mammogram, uptake 57% 1(b). AFH sites/non-participants: ever had a mammogram, uptake 46.2%; never had a mammogram, uptake 31.4% 2. Traditional education: ever had a mammogram, uptake 53.9%; never had a mammogram, uptake 35.5% 3. Control: ever had a mammogram, uptake 61.8%; never had a mammogram, uptake 48.9% ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	the different groups, which may have had some influence on the post-intervention uptake rates. The authors reported that the control sites actively encouraged screening, which may have diluted the effect of the interventions
Herman, 1995,[209] USA ***Objectives:*** To compare three approaches for improving compliance with breast cancer screening in older women ***Design:*** RCT (cluster) ***Screening test:*** Mammogram, CBE	***Sample:*** All women aged > 65 years attending an ambulatory medical clinic ***Setting:*** Hospital (public) ***Intervention(s): number randomised (number analysed in parentheses).*** Physicians and nurse practitioners were provided with a monograph that included background articles and guidelines related to preventive care. A lecture series was also provided 1. Combined physician and patient education (pamphlet and sheet): CBE, ? (732)	***Intervention effects (uptake of screening):*** *Documented mammography:* 30.9% of prevention team, 28.4% of patient education group and 19.4% of control patients were offered a mammogram. Overall, the prevention team ($p = 0.002$) and the patient education ($p = 0.012$) groups showed higher rates of mammography screening, which did not differ from each other ($p = 0.6$)	***Authors' conclusions:*** The results provide support for patient education and organisational changes that involve non-physician personnel to enhance breast cancer screening among older women, particularly those without previous screening ***Comments:*** No numbers were given for the overall numbers in each group. There could be some significant sources of bias if the physicians and data collection personnel were not blinded to the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Combined physician and patient education along with expanded nursing and ancillary personnel responsibilities using standing orders (nurse or assistant could complete the mammography request form; HMO request sheet maintained for patients (prevention team)): CBE, ? (613) 3. Control (physician education with same educational materials and lectures as above): CBE, ? (1073) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (practice) different from unit of analysis (individual). 31 patients excluded after randomisation, and 5 lost to follow-up ***Baseline comparability:*** The patient education group had a higher percentage (14.5%) with congestive heart failure ($p = 0.3$) No significant differences in the physicians' level of training ($p = 0.92$) ***Baseline of assessment:*** 67% of the sample had no previously documented CBE and 54% no mammography. No significant differences across groups in baseline levels of CBE ($p = 0.05$) or mammography ($p = 0.97$) ***Follow-up:*** 6-month intervention period followed by 3-month follow-up	On logistic regression using the covariates mentioned previously, the prevention team ($p = 0.001$) and patient education group ($p < 0.005$) ($p = 0.005$) were offered and complied with a mammography recommendation at a significantly higher rate during the intervention period than the control group *Subgroup who had no previous mammography (54%, n = 471):* 36.4% of prevention team ($n = 151$), 31.4% of patient education group ($n = 159$) and 18% of control group ($n = 161$) were offered mammograms. 36.4% of prevention team, 31.4% of patient education group and 18% of control group obtained mammograms ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Hicks, 1997[234] UK ***Objectives:*** To examine whether a simple strategy such as revealing the gender of the smear-taker to the client in the letter of invitation would influence women's attendance for screening ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 75 women from an urban area participated in the study. All were first-time attenders for smear testing ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Invitation card stating that the smear-taker will be male: 25 (25) 2. Invitation card stating that the smear-taker will be female: 25 (25) 3. Control (sex of smear-taker not stated): 25 (25)	***Intervention effects (uptake of screening):*** The results suggest that the uptake of cervical smear tests varies significantly between the three study groups ($p < 0.01$). *Attendance figures:* 1. When screener was known to be male: 8/25 (32%) 2. When screener was known to be female: 20/25 (80%) 3. When the screener's gender was unknown: 14/25 (56%)	***Authors' conclusions:*** This study was a small-scale pilot investigation and clearly is beset by flaws regarding sample size and structure ***Comments:*** This was a pilot study and only used a small sample

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No previous attendance for screening ***Follow-up:*** Not stated	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Hoare, 1994,[199] UK ***Objectives:*** To assess the effectiveness of a link-worker intervention to increase uptake of breast screening by Asian women ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 527 'Asian' women (those with Asian names) aged 50–64 years registered with 7 GPs from a town with an ethnic minority population (mostly Pakistani and Bangladeshi) of around 8% ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Trained link-workers contacted all women a few weeks before invitations were sent. If no information was obtained, a second visit was made. Link-workers conducted the interviews in an appropriate language, using a semi-structured questionnaire. A short explanation about breast screening was provided and women were encouraged to take up a forthcoming invitation: 264 (247) 2. Control group (received no visits): 263 (251) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 17 intervention group women and 12 control group women were not invited for screening because of information demonstrating ineligibility. No intention-to-intervene analysis ***Baseline comparability:*** The numbers of women from each ethnic group, from each general practice, and who were actually invited were comparable, and there was no significant difference in the mean ages of the intervention (55.9 years) and control (56.2 years) groups	***Intervention effects (uptake of screening):*** *All women:* 1. Intervention: 122/247 (49%) 2. Control: 117/251 (47%) $p < 0.53$ *Pakistani women:* 1. Intervention: 83/153 (54%) 2. Control: 79/155 (51%) $p < 0.56$ *Bangladeshi women:* 1. Intervention: 39/94 (42%) 2. Control: 38/96 (40%) $p < 0.79$ *Attendance by subgroup (interviewed women), according to length of time in UK:* in UK 0–5 years ($n = 28$), 14 (50%) attended, 14 (50%) did not attend; in UK > 5 years ($n = 109$), 80 (73%) attended, 29 (27%) did not attend. $p = 0.02$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The link-worker intervention was not a successful strategy for increasing the uptake of screening by Asian women. Attendance was related to length of stay in the UK ***Comments:*** There is a possibility of contamination between groups, as information about screening may have been shared within the community. It is not known whether the study was adequately powered. Contact was made with 145/247 women (59%) in the intervention group, the remainder having moved or being away. Thus over 40% of women randomised to the study group did not receive the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Women interviewed were asked about prior awareness of breast screening ***Follow-up:*** Not stated		
Hurley, 1992,[147] 1993,[314] Australia ***Objectives:*** To evaluate the effectiveness and cost-effectiveness of three public recruitment strategies and five personal strategies on uptake of screening mammography ***Design:*** Controlled trial of personal strategies, with women (?) randomly allocated to telephone reminder intervention ***Screening test:*** Mammogram	***Sample:*** Women aged 50–69 years and on electoral roll, living in the 34 postal districts served by the hospital in Essendon ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses)*** *Personal recruitment strategies:* 1. Letter with specified appointment time + reminder (letter A): 5372 (5737) 2. Letter without specified appointment time + reminder (letter B): 6008 (6008) 3. Telephone call to non-responders to letter A, to extend a follow-up invitation to screening: 703 (376) 4. No telephone call to non-responders (numbers not given) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Telephone numbers were obtained for 65% of the 703 women allocated to telephone follow-up and 82.3% of these were contacted ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Attendance rates analysed for first 16 months of the programme	***Intervention effects (uptake of screening):*** Personal recruitment: 1. Letter A group: 1802/5372 (20.1%) (authors' OR = 0.31; 95% CI, 0.27 to 0.35) 2. Letter B group: 622/6008 (10.3%) (authors' OR = 0.13; 95% CI, 0.08 to 0.17) 3. Telephone follow-up group: 96/376 (25.5%) (authors' OR = 0.25; 95% CI, 0.21 to 0.29) 4. Control group: numbers not provided ***Intermediate outcomes:*** Not stated ***Costs:*** The most cost-effective personal recruitment strategy was an invitation letter without a specified appointment time followed by a second letter to non-attenders. This strategy recruited 35.6% of the target population at a cost of Australian $11 (1988–1989) per attendee	***Authors' conclusions:*** Personal recruitment strategies were more cost-effective than public strategies. The most cost-effective personal strategy was an invitation letter without a specified appointment time, followed by a second letter to non-attenders ***Comments:*** The authors commented that there was no evidence that any public recruitment strategy influenced the response to personal recruitment strategies, but it is not clear how this possible interaction was explored

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Hutchison, 1998,[215] Canada ***Objectives:*** To validate a self-administrated postal questionnaire appraising risk of coronary heart disease. To determine whether use of this questionnaire increased the percentage of people at high risk of coronary heart disease and decreased the percentage of people at low risk who had their cholesterol level checked ***Design:*** RCT (cluster) ***Screening test:*** Cholesterol testing	***Sample:*** 5686 contactable patients aged 20–69 years who on the basis of practice records had not had a cholesterol test performed during the preceding 5 years were included in the RCT. 2837 were in the intervention group and 2849 were in the control group. To minimise contamination, participants were randomised by household unit. The mean age of the sample was 38.8 years. Women comprised 53.6% of the intervention group and 53.7% of the control group ***Setting:*** Primary care practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention group received a health questionnaire appraising risk of coronary heart disease that encouraged those meeting criteria for cholesterol measurement to have a cholesterol test: 2837 (1549) 2. Control group received a health questionnaire that determined whether they were at risk of coronary heart disease without identifying the risk factors as related to coronary heart disease: 2849 (1603) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** A sample-size and power calculation was included. Of the 6722 patients randomly allocated, 454 (6.8%) did not consider themselves to be part of the practice, 582 (8.7%) could not be contacted, and 872 (13/0%) did not return the health questionnaire. A further 1150 were excluded from the analysis because there was a previous cholesterol test recorded in their notes, and 512 had missing data on risk factors. Corrected for effect of cluster randomisation in analysis ***Baseline comparability:*** The intervention and control groups were similar in age and sex distribution. More subjects in the control group than in the intervention group (31.4% (504/1603) vs 27.2% (421/1549); $\chi^2 = 6.902$; $p = 0.009$) met the Toronto Working Group's risk criteria for screening	***Intervention effects (uptake of screening):*** In both the intervention and control groups the percentage of subjects tested was not significantly different in those receiving immediate or delayed follow-up *People without pre-existing coronary heart disease who met predefined screening criteria based on risk:* 1. Intervention group: 45/421 (10.7%) 2. Control: 9/504 (1.8%) *People without a history of coronary heart disease who did not meet criteria for cholesterol testing:* 1. Intervention group: 30/1128 (2.7%) 2. Control: 18/1099 (1.6%) (difference, $p = 0.175$) *People with pre-existing coronary heart disease:* 1. Intervention group: 1/15 (6.7%) 2. Control: 1/23 (4.3%) were tested during follow-up (difference, $p = 0.851$) The mean correlation corrected for chance for cholesterol testing within household clusters was 0.09754 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Although the questionnaire appraising coronary risk increased the percentage of people at high risk who obtained cholesterol testing, the effect was small. Most patients at risk who received the questionnaire did not respond by having a test ***Comments:*** None

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Not stated. However, participants who had a cholesterol test performed during the preceding 5 years were excluded ***Follow-up:*** 3 months		
Irwig, 1990,[148] Australia ***Objectives:*** To determine the proportion of women who attend for mammographic screening in response to a personal written invitation from their GP ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged 45–70 years in a local government area and a breast x-ray programme who had not recently been screened or did not have a serious medical condition ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses).*** To coincide with the visit of the screening van: 1. Letter from GP inviting the woman to attend + a pamphlet ± appointment (allocation non-random): 228 (228) 2. Control (no letter):152 (152) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-out 6%, but analyses were performed on the original groups of allocation ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Approx. 1 month	***Intervention effects (uptake of screening):*** 1. Invitation: 91/288 (32%) 2. Control: 11/152 (7%) Difference: $p < 0.001$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** A written invitation from the GP is an effective and practical method for encouraging attendance for screening by those women who fail to respond to general strategies ***Comments:*** High variability in the procedures between different practices. Allocation to appointment or non-appointment letters was not random
Janz, 1997,[67] USA ***Objectives:*** To evaluate a two-step intervention for mammography screening among older women ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 635 eligible women aged 65–85 years, with no history of breast cancer, who had had no mammogram in the previous 24 months, were not institutionalised, and were Genesee County residents, from 17 primary care practices in Genesee County, Michigan, were entered in the study ***Setting:*** Primary care practice (caring for low socio-economic and minority women)	***Intervention effects (uptake of screening):*** 1. Intervention group: 85/223 (38%) 2. Control group: 37/237 (16%) Difference: $p < 0.001$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The intervention significantly increased screening mammography. Future efforts must be multifaceted and incorporate the unique concerns of older women ***Comments:*** Generalisability of the study may be limited as women aged 65–85 years from a low socio-economic and high minority area are not representative of

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Letter and for those who did not respond within 2 months a follow-up telephone counselling session with a community peer and incentive on completion of mammogram ($15 grocery coupon): 316 (223) 2. Control: 319 (237) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 175 were deemed ineligible because they had obtained a confirmed mammogram within 24 months, died, moved, or resided in a nursing home (93 intervention group, 82 control group). No intention-to-intervene analysis ***Baseline comparability:*** There was no significant difference between groups with regard to race; however, the control group was younger than the intervention group (mean age 73.0 years vs 74.1 years; $p < 0.036$) ***Baseline of assessment:*** No mammogram in the 2 years prior to the intervention ***Follow-up:*** 1 year		the general population. 74% of the study participants were white, 24% were non-white (African-Americans composed 95% of the non-white sample)
Jenkins, 1999,[252] USA ***Objectives:*** To evaluate the effectiveness of a media-led information and education campaign in raising awareness of cancer screening and promoting check-ups and breast and cervical cancer screening tests among Vietnamese-American women ***Design:*** Controlled trial (cluster) ***Screening test:*** Check-up, Pap smear, mammogram, CBE	***Sample:*** The initial sample included Vietnamese-American adults (aged ≥ 18 years) who lived in one of four counties (n = 202,000 according to 1990 census). Response rates for the total sample were 45% in the intervention area (n = 604) and 57% in the control area (n = 621) at pre-test, and 45% in the intervention area (n = 605) and 42% in the control area (n = 606). However, only women were included in the current study. Women who had had a hysterectomy were excluded from the analysis for Pap smear and only women aged ≥ 40 years were included in the analysis of mammography uptake ***Setting:*** Community	***Intervention effects (uptake of screening):*** *Pap smear:* 10.7% (p = 0.002) *CBE:* 10.6% (p = 0.002) *Mammogram:* 9.5% (p = 0.039) After controlling for confounders, there was no positive effect on being up to date for any of the screening tests	***Authors' conclusions:*** A media-led education intervention succeeded in increasing recognition of and intention to undertake screening tests more than receipt of or currency with the tests ***Comments:*** There were significant differences between the control and intervention populations at baseline. It was not stated how many participants were initially approached and how many refused to participate. The sample population was selected from a telephone directory and

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Intervention was a media-led community education campaign 2. Control (not stated) Pre-test telephone interviews were conducted of 451 randomly selected women in the intervention area and 482 women in the control area, and post-test interviews with 454 and 422 women, respectively ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size calculations were performed. Appropriate analysis, using clusters not individuals. Analysis was based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** Respondents in the control area were significantly less likely than those in the intervention area to have a female physician or to perceive their health as excellent or good, and more likely to have a Vietnamese physician. At post-test, control-area respondents were less likely to have a female physician or have health insurance and had immigrated an average of 1.5 years earlier than intervention-area respondents. Differences between respondents interviewed in 1992 and those surveyed in 1996, regardless of their region of residence, suggest trends of continuing immigration, increasing poverty and fewer visits to female physicians. Such differences in characteristics over time and between sites were controlled for in the multivariate analyses ***Baseline of assessment:*** The percentages of women up to date with various screening tests at the pre-test survey was as follows: *Intervention area:* the uptake rates included 70.9% for check-ups, 54.4% for Pap tests, 63.0% for CBE and 52.6% for mammography	***Intermediate outcomes:*** *Knowledge:* Mean cancer knowledge index scores were low in both areas but improved between pre-test and post-test (intervention area, from 2.4 to 2.7 ($p < 0.01$); control area, from 2.3 to 2.9 ($p < 0.01$)). At post-test, after controlling for demographic differences in the surveyed populations, the ORs for the intervention effect were statistically significant for: having heard of a general check-up, Pap test and CBE; planning to have a check-up, Pap test, CBE and mammogram; and having had a check-up and Pap test ***Costs:*** Not stated	may therefore not be representative of the general Vietnamese population in that area. The generalisabilty of the findings will also be limited due to the selected population

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Control area: the uptake rates included 61.0% for check-ups, 43.6% for Pap tests, 50.0% for CBE and 46.6% for mammography ***Follow-up:*** 4 years		
Kalichman, 1993,[190] USA ***Objectives:*** To examine the effectiveness of a culturally tailored HIV and AIDS risk-reduction message targeted at African-American urban women ***Design:*** RCT ***Screening test:*** HIV-antibody test	***Sample:*** 106 African-American women living in inner-city, low-income housing projects in an area of Chicago with a high incidence of AIDS, were recruited through a community-based family resource centre. The mean age of the sample was 32.1 years (SD = 7.8 years); 32% had obtained less than a high-school education; 87% had annual incomes below $10,000; 80% were single; 96% had at least one child; 37% reported having more than one sexual partner in the past year; 3% had history of drug use; 1% had partners who used intravenous drugs; 4% had bisexual partners; 29% had a history of STDs; and 20% had been previously tested for HIV and found to be negative ***Setting:*** Family resource centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Cultural context intervention: video tape with educational presentations by African-American women with culturally specific framing: ? (33) 2. Ethnicity and sex control intervention: video tape with educational presentations by African-American women: ? (21) 3. Standard: standard public health service tape: ? (22) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 30/106 (28%) women were lost to follow-up (reasons not stated) ***Baseline comparability:*** No significant differences reported in terms of demographic characteristics, risk histories, HIV-antibody testing or pre-test AIDS-related knowledge and beliefs	***Intervention effects (uptake of screening):*** *Number tested during 2-week follow-up:* 1. Cultural intervention: 18/33 (55%) 2. Ethnicity and sex intervention: 0/21 (0%) 3. Standard group: 0/22 (0%) Difference: $\chi^2 = 8.48$, $p < 0.05$ ***Intermediate outcomes:*** *Knowledge (number correct on a 16-item true/false objective test):* 1. Cultural context intervention: pre-assessment 12.0 (SD = 1.8), post-assessment 12.9 (SD = 1.9), follow-up 12.5 (SD = 2.3) 2. Ethnicity and sex control intervention: pre-assessment 12.2 (SD = 1.8), post-assessment 13.0 (SD = 1.5), follow-up 12.4 (SD = 2.2) 3. Standard group: pre-assessment 12.7 (SD = 1.7), post-assessment 13.3 (SD = 1.9), follow-up 13.2 (SD = 1.7) ***Costs:*** Not stated	***Authors' conclusions:*** The results support the use of culturally sensitive AIDS prevention messages targeted to specific populations, particularly to promote HIV-antibody testing ***Comments:*** The numbers of participants originally randomised to the study groups were not stated. Absolute numbers of participants previously tested at baseline were not stated. The interventions were multifaceted, and so it is difficult to determine what specific features of the intervention were important. Generalisability may be limited as the study only featured African-American women who lived in Chicago

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Overall 20% had been previously tested for HIV and found to be negative, but absolute values and values for individual groups were not stated ***Follow-up:*** 2 weeks		
Kant, 1997,[149] The Netherlands ***Objectives:*** To test the hypothesis that a personal invitation for cervical screening from a women's own GP achieves a higher attendance of women with an increased risk for cervical cancer ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** 11 practices had computerised systems and the remaining practices did not (number not stated). All eligible females in the intervention practices were included in the study, and 235 randomly selected women from the control practices were included in the control group ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personal letter sent by the GP: (2 GP practices, 238 patients) 2. Control (invitation letter sent by the local authority): (2 GP practices 235 patients) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Due to the biased nature of the control and intervention groups, the attendance figures were analysed in terms of risk groups within the two intervention groups. Unit of allocation different from unit of analysis ***Baseline comparability:*** Differences in marital status, educational level and number of sexual partners ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** Screening attendance rates post intervention: 1. GP intervention group: 152/238 (64%) 2. Control: 115/235 (49%) The personal invitation by the GP resulted in an 18% higher overall attendance, and a 28% higher attendance of women with greater risk because of sexual behaviour and smoking ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Greater involvement of the GP in inviting women for cervical cancer screening results in a higher attendance, particularly among women with increased risk, than a less personal health authority call system ***Comments:*** The intervention and control groups were not comparable, as participants in the GP invitation group were required to have computerised records. Groups showed unequal distributions of participant characteristics
Kendall, 1993,[106] USA ***Objectives:*** To establish the relative effectiveness of three reminder letters on making and keeping repeat mammogram appointments	***Sample:*** 150 women from a medium-sized medical facility in south-east USA, aged 36–80 years due for repeat screening mammography. Inclusion criteria: at least one mammogram at the facility and never been diagnosed as having breast cancer ***Setting:*** Community health centre	***Intervention effects (uptake of screening):*** Overall, appointments were kept by 96% (64/67) 1. Reassuring letters: 27/27 (100%) 2. Anxiety-provoking letter: 20/21 (95%)	***Authors' conclusions:*** The hypothesis that a reassuring letter would be more effective in motivating women to schedule and keep appointments and the standard letter least effective was partially supported

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: Controlled trial ***Screening test:*** Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Reassuring letter: 50 (27) 2. Anxiety-provoking letter: 50 (21) 3. Standard letter (control): 50 (19) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated ***Baseline comparability:*** Although not matched groups, an ANOVA and a χ^2 test indicated that the three groups were equivalent on the four variables tested (no statistics given) ***Baseline of assessment:*** 49% reported monthly BSE, 38% reported irregular BSE and 13% never attempted BSE. The number of previous mammograms ranged from 1 to 6, with a sample average of 2.4 ***Follow-up:*** 30 days for appointment-making	3. Standard hospital prompt letter: 17/19 (89%) Differences across all three groups: not significant ($p = 0.12$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** None
Kiefe, 1994,[117] USA ***Objectives:*** To compare the effectiveness of Medicare health coverage with provision of free screening in encouraging uptake of screening mammography among low-income older women ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 530 women aged 60–89 years were selected from a general medical clinic in an inner-city hospital in the USA. 291/530 women were excluded because they met the following exclusion criteria: severely ill ($n = 37$), a personal history of breast cancer ($n = 17$) or a first-degree relative with breast cancer ($n = 31$), a mammogram within the previous 2 years ($n = 197$), and signs or symptoms of breast disease ($n = 9$). The remaining 239 women were asked to take part in the study. 34/239 refused to take part, leaving 119 participants, who were subsequently randomised to two intervention groups ***Setting:*** Hospital (inner-city) ***Intervention(s): number randomised (number analysed in parentheses).*** All women were given information and encouragement to obtain a mammogram, reinforced by a pamphlet	***Intervention effects (uptake of screening):*** Overall uptake of mammography was 33/119 (28%) 1. Voucher group: 27/61 (44%) 2. No-voucher group: 6/58 (10%) Difference: significant ($p < 0.001$) The authors' adjusted OR for obtaining a mammogram after having received a voucher was 7.4 (95% CI, 2.5 to 21.4; $p < 0.001$) ***Intermediate outcomes:*** *Knowledge:* Improvement was observed in each of the groups, but it was not significantly different between groups	***Authors' conclusions:*** The financial intervention was more important than education in achieving compliance. However, in a low-income, inner-city population of older women, financial barriers to screening mammography persists despite Medicare coverage ***Comments:*** The study was conducted with American inner-city, low-income women, including many from ethnic minorities, thus limiting the generalisability of the results

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	1. Voucher group (received voucher for free mammogram): ? (61) 2. No-voucher group: ? (58) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Power calculations called for a sample size of 200, but study entry stopped after an interim review as the results obtained were considered more than sufficient to test the main hypothesis. 8 (9.2%) participants were lost to follow-up ***Baseline comparability:*** Women in the two groups differed significantly only in the number of women who thought a mammogram would be painful (7% in group 1, 22% in group 2; $p < 0.01$). Groups were comparable in socio-demographic characteristics ***Baseline of assessment:*** 52% of the sample had had a previous mammogram, > 2 years before the study ***Follow-up:*** Participants interviewed after 2 months	*Fear:* Answers to fear-related questions and the fear index did not change significantly with the intervention ***Costs:*** Not stated	
King, 1992,[177] Australia ***Objectives:*** To evaluate the effect and cost-effectiveness of five postal screening invitation strategies on the uptake of FOB screening for colorectal cancer ***Design:*** Controlled trial ***Screening test:*** FOBT	***Sample:*** Patients aged 45–75 years registered with three general practices and with no serious pre-existing disease were excluded. Patients were from three general practices chosen at random from six in the Sydney Southern Area Health Service ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. GP letter, Haemoccult kit with two test cards, prepaid return envelope; dietary restriction required: 199 (199) 2. GP letter and kit, diet unrestricted: 190 (190) 3. GP letter and kit plus Cancer Council information brochure, diet unrestricted: 204 (204)	***Intervention effects (uptake of screening):*** 1. GP letter + diet: 95/199 (47.7%); 95% CI, 40.8 to 54.6 2. GP letter, no diet restriction: 104/190 (54.7%); 95% CI, 47.6 to 61.8 3. GP letter + brochure: 93/204 (45.6%); 95% CI, 38.8 to 52.4) 4. GP letter + where to phone: 53/173 (30.6%); 95% CI, 23.7 to 37.5 5. Letter from professor: 45/200 (22.5%); 95% CI, 16.7 to 28.3 ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** An explanation from the family doctor addressed personally to the patient, sent with a test kit, can achieve high compliance rates ***Comments:*** It is not clear whether the study was adequately powered; no sample-size calculations were presented. 50% of the area's residents aged 45–75 years were offered screening in a pilot study; it was not clear whether the study sample included any of these women

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	4. GP letter with details of where to phone for delivery of Haemoccult kit by return mail (when patients phoned they were sent a kit, instructions and a prepaid return envelope), diet unrestricted: 173 (173) 5. Kit and a similar letter from a hospital professor was delivered by hand and addressed 'To the Householder'; subjects in this group were unaware of their GP's involvement in the screening offer: 200 (200) For groups 1 to 4, two follow-up letters were sent at 1-month intervals. No follow-up letters were sent to group 5 ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. 51 letters were undeliverable, but were included in the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** All received an offer of screening without receiving prior screening information from a GP. A pilot study had been conducted in the area ***Follow-up:*** Not stated	***Costs:*** The relative cost of each approach per FOBT kit returned in a sample of 2000 showed that intervention 2 (simple reminder), which had the highest uptake, was also the least expensive at $9.50 per kit returned (group 1, $11.06; group 3, $12.03; group 4, $14.14; group 5, $47.01). Costs in relation to diagnostic follow-up were excluded	
King, 1994,[188] USA ***Objectives:*** To evaluate interventions implemented with women who had not taken up their free mammogram referral ***Design:*** RCTs (2 studies) ***Screening test:*** Mammogram	***Sample:*** Step 1: 4250 women aged 50–75 years who had not responded to an annual programme were enrolled in a HMO. Step 2: From a total of 2127 women, 745 were eligible for evaluation, and 440 were evaluated. Step 3: From a total of 1265 women, 598 were eligible for evaluation, and 569 were evaluated ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** *Step 2:* 1. Reminder letter: 381 (381) 2. No reminder letter: 364 (364)	***Intervention effects (uptake of screening):*** *Step 2 evaluation:* 1. Reminder group: 159/381 (42%) 2. Non-reminder group: 100/364 (28%) Difference: $p < 0.001$ *Step 3 evaluation:* 1. Letter reminder: 23/198 (12%) 2. Preventive office visit letter: 28/198 (14%) 3. Telephone counselling 57/173 (28%) Difference: $p < 0.001$	***Authors' conclusions:*** A simple reminder letter resulted in significant improvement in mammography use. For women who still remained non-adherers, telephone counselling, compared with a second reminder, nearly doubled the odds of getting a mammogram ***Comments:*** The generalisability of study is reduced by removal of the cost barrier, as the HMO provided free mammograms

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Step 3: 1. Second reminder letter: 198 (198) 2. Preventive office visit letter urging women to have a check-up: 198 (198) 3. Telephone counselling: 202 (202) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No power or sample-size calculations performed. No drop-outs reported ***Baseline comparability:*** No significant differences in the demographic characteristics of the study groups ***Baseline of assessment:*** Not stated ***Follow-up:*** The study took place over 1 year. Telephone survey at 95 days (step 2) and 90 days (step 3)	***Intermediate outcomes:*** Not stated ***Costs:*** The cost of step 2 (first reminder) was $0.91 per success. The cost of step 3 (second reminder + telephone counselling) was $4.92 per success, but it doubled the odds of uptake of a mammogram. The cost of a second reminder was $2.73, and that of a preventive letter was $3.68. All interventions were considered reasonably inexpensive by the authors	
King, 1998,[85] USA ***Objectives:*** To evaluate the impact of mammography-enhancing interventions implemented in 40 senior citizens' housing facilities in Pennsylvania and North Carolina ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** 40 senior citizens' housing facilities in Pennsylvania and North Carolina (93 contacted, 22 declined, 31 did not meet inclusion criteria). Facilities were eligible if they: had ≥ 40 female residents aged 65–84 years; could provide a list of eligible residents' names and telephone numbers; and had not had breast cancer education or been visited by a mobile mammography van during the preceding 2 years. Data were collected from a sample of women from each facility. Inclusion criteria for women were: age 65–84 years; had not had a mammogram in the preceding 2 years; their most recent mammogram was for screening purposes only; had no history of breast cancer; and had completed a 6-month follow-up survey. 1505 women completed the baseline survey. 919 were excluded as they reported having had a mammogram within the preceding 2 years, leaving 586. Of these, 436 met the inclusion criteria ***Setting:*** Senior citizens' housing ***Intervention(s): number randomised (number analysed in parentheses).*** The numbers allocated to each group were not stated	***Intervention effects (uptake of screening):*** 1. Standard care group: 13% 2. Education group: 18% 3. Access group: 21% 4. Combined group: 15% When each intervention was compared against the standard-care group, the largest difference was between the access and standard-care interventions (7.4%; $p = 0.08$) Bivariate analyses suggested that there was no difference in the effects of the interventions ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The combination of community-directed mammography education and access to mammography appointments encourages mammography use primarily by women who are already predisposed to having mammography ***Comments:*** Generalisability of the study may be limited as women in senior citizens' housing facilities are not representative of the general population. The analyses were based on two cross-sectional surveys, and thus causality cannot be attributed

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	1. Standard care: a Medicare mammography benefit flier 2. Education: the flier and a community education programme 3. Access: the flier, mammography appointments and transportation 4. Combined: all interventions ***Theoretical basis of intervention:*** PRECEDE ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis. The overall completion rate was 61% for the baseline survey and 75% for the follow-up survey ***Baseline comparability:*** Facilities were categorised according to the socio-economic status (SES) and racial background of the majority of residents. Statistically significant differences in the baseline populations of the study groups existed in facility SES, racial composition, age and ever having had a mammogram. Higher proportions of older women and women from the mid–upper white SES facilities were represented in the standard-care and access groups. The combined group had a higher proportion of African-American women from low–mid SES facilities and women aged 65–69 years. Women from both the access and combined groups were more likely to report having had a mammogram at least once ($p < 0.001$) ***Baseline of assessment:*** 250/436 (57%) had had a mammography at least once ***Follow-up:*** 6 months		
Kinsinger, 1998,[269] USA ***Objectives:*** To evaluate an outreach intervention designed to improve performance rates of breast cancer screening through implementation of office systems in community primary care practices ***Design:*** RCT (cluster)	***Sample:*** 62 randomly selected family medicine and general internal medicine practices. Eligibility criteria: physicians provided primary care (at least 20 hours a week); and practice located in one of the two Area Health Education Centre areas (predominantly rural). Eligible patients: women aged ≥ 50 years who had visited the practice at least once in the index year (1991 for baseline and 1994 for follow-up survey) and had made at least one previous visit, and did not have a diagnosis of cancer	***Intervention effects (uptake of screening):*** *Mammogram report:* intervention 32.7%; control 34.0% ($p = 0.56$; authors' OR = 1.1) *CBE:* intervention 46.4%; control 43.9% (difference $p = 0.06$; authors' OR = 1.3)	***Authors' conclusions:*** A moderately intensive outreach intervention to increase rates of breast cancer screening through the development of office systems was modestly successful in increasing indicators of office systems and in documenting mention of mammography, but had little impact on actual performance of breast cancer screening

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Mammogram, CBE	***Setting:*** Primary care practice (rural) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Office systems (practices encouraged to work with research team in planning system changes to increase performance): 32 physicians (31) 2. Control (practice physicians received information about own practice's baseline breast cancer screening rates but in a different format from the intervention practices): 30 physicians (27) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Four practices not available at follow-up (1 intervention practice lost owing to retirement of physician, 1 control practice lost as solo physician moved away, and 2 control practices refused follow-up data collection). Unit of allocation the same as unit of analysis ***Baseline comparability:*** Practice, physician and patient characteristics were similar ***Baseline of assessment:*** Review of medical records of 2887 eligible patients for performance indicators: *Mammogram mention:* intervention (n = 32) 38.7%; control (n = 30) 40.5% *Mammogram report:* intervention (n = 32) 28.0%; control (n = 30) 30.6% *CBE:* intervention (n = 32) 41.1%; control (n = 30) 44.6% 4 *Mammogram mention and CBE:* intervention (n = 32) 28.2%; control (n = 30) 30.3% ***Follow-up:*** 3 years	All indicators showed a greater increase in intervention practices compared with control practices, with significant increases in three of the five indicators ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Many physicians were not convinced of the need for a 'systems approach' to accomplish screening. The study was conducted in a single, mostly rural, state, which may limit the generalisability of the results. There was possible contamination between physicians in neighbouring practices assigned to different study groups

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Kreuter, 1996,[214] USA ***Objectives:*** To compare the effects of feedback from an enhanced health risk appraisal (HRA) with a typical HRA and a control group among adults from eight family medical practices ***Design:*** RCT ***Screening test:*** Pap smear, mammogram, cholesterol test	***Sample:*** 1317 adult patients from eight family medical practices in North Carolina, USA. To be included in the study participants had to be aged 18–75 years, to have completed a baseline survey, and to have consented to take part in the study. 65% female; 86% white; 90% completed high school; mean age 40 years. Individuals were randomised within practices to either one of two intervention groups or a control group. 1131 participants completed a 6-month follow-up questionnaire and 674 who were needed to make health changes (i.e. were at risk) or wanted to make changes were included in the analysis ***Setting:*** Family medical practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Typical HRA (computerised assessment of participants' health risks and provision of individualised feedback as to their calculated mortality risks): 427 (227) 2. Enhanced HRA (as for typical HRA, but also assesses benefits, barriers and other psychosocial factors influencing individuals' health related behaviour in order to provide individualised feedback designed to facilitate self-change in health behaviours): 427 (199) 3. Control (no feedback given to participants): 463 (248) ***Theoretical basis of intervention:*** Health Belief Model, Theory of Reasoned Action ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 186/1317 failed to complete the 6-month follow-up questionnaire; 457/1131 were not considered to be at risk or did not want to change and so were not included in the final analysis ***Baseline comparability:*** No significant differences between the intervention and control groups in terms of demographic variables	***Intervention effects (uptake of screening):*** *Cholesterol test:* 1. Typical HRA: 10/36 (28%) 2. Enhanced HRA: 16/30 (53%) 3. Control: 16/40 (40%) Authors' OR = 1.68; 95% CI, 1.06 to 2.68; $p < 0.0029$ *Pap smear:* 1. Typical HRA: 24/46 (52%) 2. Enhanced HRA: 30/48 (63%) 3. Control: 21/32 (66%) Authors' OR = 1.17; 95% CI, 0.80 to 1.73; $p < 0.759$ *Mammogram:* 1. Typical HRA: 19/38 (58%) 2. Enhanced HRA: 13/24 (54%) 3. Control: 17/31 (55%) Authors' OR = 1.01; 95% CI, 0.62 to 1.65; $p < 0.961$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Overall, participants receiving the enhanced HRA were 18% more likely to change at least on risk behaviour than were patients receiving typical HRA or no feedback (control). The enhanced HRA appeared to promote changes in cholesterol screening, but not in Pap smear and mammography uptake ***Comments:*** The precaution adaption model was also mentioned. Absolute values for the original number of individuals eligible to receive the tests at baseline were not stated. Generalisability may be limited as the study only considered adults attending general medical practices in the USA

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: No cholesterol test in the previous 5 years: typical HRA 31%; enhanced HRA 25%; control 31%. No Pap smear in the last year: typical HRA 38%; enhanced HRA 33%; control 29%. No mammogram according to American Cancer Society guidelines: typical HRA 28%; enhanced HRA 20%; control 22% ***Follow-up:*** 6 months		
Lancaster, 1992,[225] UK ***Objectives:*** To evaluate the effect of a combined invitation for cervical smear testing and breast screening on the uptake of cervical screening, compared with the smear testing being offered opportunistically on attendance for breast screening; and to compare the effect of the two approaches on uptake of breast screening ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Women registered with general practices in north Manchester. 2131 women aged 50–64 years were invited; 219 were excluded after randomisation, leaving 1912 eligible women ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Cervical screening invitation sent with breast screening invitation: ? (908) 2. Breast screening invitation only sent (control): ? (886) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 2131 women aged 50–64 years were invited; 210 were excluded after randomisation, leaving a total of 1920 eligible women. A further 219 women found to be ineligible for screening were excluded ***Baseline comparability:*** Mean age of women in both intervention groups was 56 years ***Baseline of assessment:*** Of the 1794 women in the study eligible for smear testing, 54% had been tested in the past 5 years and 6% in the past 5–10 years, and 5% had not been tested in the past 10 years. Data were missing for 35% of participants ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** 1. Invitation: 151/908 (17%) 2. Control: 89/886 (10%) Difference was significant ($p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The cervical screening facility did attract some women who were overdue for a smear test who might not normally have attended. An advance cervical screening invitation seemed more effective than an invitation upon arrival at the breast-screening unit ***Comments:*** Eligibility criteria for participation in the study and for breast and cervical screening were not made explicit. The number and timing of the reminder letters to non-responders were not specified

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Landis, 1992,[150] USA ***Objectives:*** To determine whether physician prompts or patient letters or both would enhance compliance with mammography among inadequately screened patients ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** 122 women, aged 50–70 years and 24 physicians. Women were eligible if they had been seen at least twice during the preceding 2 years ***Setting:*** Family health centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Patient letter: 41 (41) 2. Physician reminder: 14 (14) 3. Physician reminder + patient letter: 24 (24) 4. No letter: 43 (43) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations presented. Unit of allocation (physicians) different from unit of analysis (patients) ***Baseline comparability:*** No significant differences in median age or insurance status. The physician reminder + patient letter group had more (p = 0.03) black patients (38%) ***Baseline of assessment:*** No mammogram in previous year ***Follow-up:*** 3 months	***Intervention effects (uptake of screening):*** 1. Letter: 6/41 (15%) 2. Physician reminder: 1/14 (7%) 3. Physician reminder + patient letter: 6/24 (25%) 4. Control: 1/43 (5%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Among patients who had not had a recent mammogram, we were able to increase the proportion who received a screening mammogram from 5% in the no doctor prompt/placebo letter group (usual care) to 25% by using both a doctor prompt and a patient letter ***Comments:*** Subjects were randomised by physician, but analysed by patient. This resulted in unequal numbers in the study groups
Lantz, 1995,[255] USA ***Objectives:*** To evaluate the impact of a physician reminder letter and a telephone contact on the use of Pap tests and mammograms by women enrolled in a low-income managed-care programme ***Design:*** Quasi-RCT ***Screening test:*** Mammogram, Pap smear	***Sample:*** 659 women from a community health centre providing an insurance-like package for people with low incomes. Women were aged 40–79 years, did not claim to have had a mammogram in the past 18 months (if aged ≥ 50 years) or 2 years (if aged 40–49 years), and/or did not claim to have had a Pap smear in the past 3 years ***Setting:*** Community health centre	***Intervention effects (uptake of screening):*** *Women needing Pap test only:* 13 (21.7%) of the intervention and 3 (3.8%) of the control group had the test (authors' OR = 6.9; 95% CI, 1.9 to 25.6)	***Authors' conclusions:*** The study suggests that a physician reminder letter combined with telephone contact is an effective strategy for increasing uptake of cervical and breast cancer screening by low-income women ***Comments:*** The study design did not allow an evaluation of the relative impact of the physician reminder letter vs counselling. The study was conducted in a population of enrolees in an American low-income health programme; thus the findings may not be generalisable

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Reminder letter from primary care physician based on which test(s) the woman needed. Follow-up call from a health educator (nurse or social work intern) 7–10 days after the letter was sent, to offer barrier counselling and/or assistance with appointment making. Second letter sent to those with no telephone (*n* = 13): 337 (337) 2. Control group (received 'usual care', which was not described): 332 (322) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 33 (10%) women assigned to the intervention group did not receive the intervention; these women were included in the analysis ***Baseline comparability:*** No significant differences between groups (age, race, education, self-reported history of mammogram, no doctor or doctor > 48 km away, or doctor advising that Pap smear was no longer needed) ***Baseline of assessment:*** Women in the sample identified by medical-claims data as due or overdue for screening. No difference between control and intervention groups ***Follow-up:*** 6 months	*Women needing mammogram only:* 56 (53.8%) of the intervention group and 17 (20.7%) of the control group had a mammogram (authors' OR = 4.5; 95% CI, 2.3 to 8.6) *Women needing both tests:* 32 (18.5%) of the intervention group and 11 (6.8%) of the control group had the tests (authors' OR = 3.1; 95% CI, 1.4 to 6.9) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Lee, 1990,[217] USA ***Objectives:*** To motivate worksite FOB testing ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** Employees aged ≥ 40 years from three federal agencies in Washington State ***Setting:*** Workplace ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention group received letter about facts on colorectal cancer and a colorectal cancer risk appraisal. The appraisal included feedback on an individual's risk of developing colorectal cancer compared to his or her peers in terms of 'normal', 'moderate' or 'high' risk status: (139)	***Intervention effects (uptake of screening):*** In the analysis of the three major outcomes, two possible confounding factors (dietary fat and family history of colorectal cancer) were controlled by logistic regression. The intervention group had 4.3% higher uptake rate of the FOB test during the follow-up period compared to the control group (p = 0.10). Actual numbers not given	***Authors' conclusions:*** None given ***Comments:*** Although the study was undertaken in the USA, it was written up in a Korean journal. We were unable to get a translation of the original article, so the English abstract was used for data extraction

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Control group received a letter stating the availability of the FOB test at the worksite clinic: (139) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs and losses to follow-up not reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months	***Intermediate outcomes:*** The largest effect of the intervention was on the employees' intention to get a FOB test within the next year (62.6% in intervention group; 36.2% in control group) (OR = 3.18; $p < 0.001$) ***Costs:*** Not stated	
Lerman, 1992,[213] USA ***Objectives:*** To evaluate the effectiveness of a mailed psycho-educational booklet using two styles of presentation, positive framing and negative framing, to improve the adherence to subsequent annual mammography among women with abnormal mammograms ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged 50–74 years who had received an abnormal mammogram in the previous year and were due an annual screening mammogram ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Survey (psycho-educational booklet, negative framing): ? (62) 2. Survey (psycho-educational booklet, positive framing): ? (73) 3. Control (no survey): ? (80) 4. Control (survey): ? (50) ***Theoretical basis of intervention:*** Prospect Theory ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Of 446 women randomised, only 265 (59%) were included in the analysis ***Baseline comparability:*** No significant differences in age, education or mammogram results ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months after intervention	***Intervention effects (uptake of screening):*** 1. Intervention groups (both): 89/135 (66%) ($p < 0.005$) 2. Control groups (both): 69/130 (53%) No significant differences between control groups (53% vs 55%) or intervention groups 1. Negative framing: 49/73 (67%) 2. Positive framing: 41/62 (66%) Controlling for the index of suspicion, prior mammogram result and socio-demography showed that the intervention significantly increased mammography adherence (authors' OR = 1.7; $p < 0.005$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Tailoring invitation letters does not have a significant effect on uptake rates for breast screening and does not justify the additional workload required ***Comments:*** No information was given about the participants' baseline characteristics or the comparability between groups. It is not possible to say to what extent the study findings may be generalisable

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Litzelman, 1993,[270] USA ***Objectives:*** To investigate the effects of a computer-generated reminder system on the uptake of FOBTs, mammograms and Pap smears ***Design:*** Quasi-RCT (cluster) ***Screening test:*** FOBT, mammogram, Pap smear	***Sample:*** 179 physicians practising in the General Medicine Practice (GMP of the Regenstrief Health Centre in Indianapolis. Three physicians were excluded, leaving 31 faculty internists and 145 residents to participate in the study ***Setting:*** Primary care practice (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Computer-generated reminders on which physicians had to circle responses: 92 physicians (15 faculty physicians, 77 residents) 2. Control (computer-generated reminders): 84 physicians (16 faculty physicians, 68 residents) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Appropriate analysis using clusters, not individuals ***Baseline comparability:*** Comparisons between the control and intervention physicians in terms of numbers, status and patient characteristics showed no significant differences ($p > 0.05$) ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months	***Intervention effects (uptake of screening):*** Intervention physicians complied more frequently than control physicians with all reminders combined (46% vs 38%, respectively; $p = 0.002$, absolute difference 8%; 95% CI, 2 to12) and separately with reminders for FOBT (61% vs 49%, respectively; $p = 0.0007$; absolute difference 12%; 95% CI, 5 to 20) and mammography (54% vs 47%, respectively; $p = 0.036$; absolute difference 7%; 95% CI, 0 to 13), but not Pap smears (21% vs 18%, respectively; $p = 0.2$; absolute difference 3%; 95% CI, –1 to 7) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Requiring physicians to respond to computer-generated reminders improved their compliance with preventive care protocols, especially for elderly patients, for whom control physicians' compliance was the lowest ***Comments:*** Intervention physicians felt that the reminders were not applicable 21% of the time (due to inadequate data in patients' electronic medical records) and stated that their patients refused 10% of the time
Majeed, 1997,[186] UK ***Objectives:*** To determine the effectiveness of follow-up letters to non-attenders for screening on the breast screening uptake in practices with a low preliminary uptake of screening ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** 93 general practices in south-west London took part in the study. All women aged 50–64 years who were eligible for screening within these practices were identified through health authority age–sex records ***Setting:*** General practice	***Intervention effects (uptake of screening):*** *Intervention:* preliminary uptake 53.8%, final uptake 58.5%; difference 4.6% *Control:* preliminary uptake 67.6%, final uptake 67.6%; difference 1.6% ($p < 0.0001$) ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** Reminder letters can help to increase the uptake of screening in practices with a low preliminary uptake of breast screening. However, they had a limited role in improving the uptake of breast screening in inner city areas

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. A clerical officer sent a list of non-attenders to the practice, offered to visit the practice to check the list of non-attenders against practice records, and sent reminder letters to all non-attenders: ? (40 practices) 2. Control: ? (53 practices) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated. Unit of allocation different from unit of analysis ***Baseline comparability:*** No baseline comparability data provided ***Baseline of assessment:*** Preliminary uptake of the intervention was 51.9%, and that of the control was 66.3% ***Follow-up:*** 6 months	***Costs:*** The total cost of the intervention was £3700 (payment for a clerical officer for two sessions a week and the costs of stationery and postage). Assuming that 3% of the women who attended for screening did so as a result of the letter, the marginal cost of the intervention was about £7 for each additional woman screened (compared with an average cost of about £27 for each woman screened)	***Comments:*** Eligibility for practices in the intervention group was a population of > 40% non-attenders. Eligibility for practices in the control practices was a population of < 40% non-attenders. Generalisability of the study is limited as women living in south-west London may not be representative
Malotte, 1998,[68] USA ***Objectives:*** To assess the independent and combined effects of different levels of monetary incentives and a theory-based educational intervention on return for tuberculosis skin test reading in a sample of active intravenous drug and crack cocaine users ***Design:*** RCT ***Screening test:*** Tuberculosis skin test (Mantoux test)	***Sample:*** Active or recent drug users (who were not in a drug programme) (n = 1004) were recruited from an AIDS community-based outreach/intervention research programme, Long Beach, California (April and August 1995). Recruitment was either direct, through street outreach, or after completion of participation in a street outreach project aimed at HIV prevention for out-of-treatment drug and crack users. Participants were interviewed about their tuberculosis and drug-use history. Individuals providing a clear history of a positive skin test were considered infected and were not eligible for the study ***Setting:*** Community-based outreach/intervention research programme ***Intervention(s): number randomised (number analysed in parentheses)*** 1. $5 monetary incentive + brief motivational education session: 203 (203)	***Intervention effects (uptake of screening):*** 1. $5 incentive + education: 84.3% 2. $10 incentive + education: 92.1% 3. Educational session: no impact on return of skin test reading 34.3% 4. No monetary incentive (control): 33% 5. $5 incentive only: 85.8% 6. $10 incentive only: 93% *Percentage of participants who returned test on time (authors' adjusted ORs):* 1. $5 and education: 167/198 (84.3%); authors' OR = 12.88 (95% CI, 7.13 to 23.24; p < 0.001)	***Authors' conclusions:*** Monetary incentives dramatically increase the return rate for tuberculosis skin test reading among drug users who are at high risk of tuberculosis infection. The difference between individuals who received $5 and $10 was not nearly as great, however, as the difference between those who received none. Thus, it appears that relatively small monetary incentives are nearly as effective as larger incentives in motivating return. By contrast, the educational intervention appeared to have no impact on return rates ***Comments:*** All participants were offered $5 as an incentive to take part in the study and completion of the baseline interview

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. $10 monetary incentive + brief motivational education session: 198 (198) 3. Motivational educational session: 99 (99) 4. The importance of returning for the skin test was stressed (control): 100 (100) 5. $5 monetary incentive only: 204 (204) 6. $10 monetary incentive only: 200 (200) ***Theoretical basis of intervention:*** Theory of Reasoned Action ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Intention-to-intervene analysis ***Baseline comparability:*** No differences for any demographic, drug use or cognitive variables ***Baseline of assessment:*** Not stated ***Follow-up:*** An outside limit of 4 days (96 hours) for reading skin tests was used	2. $10 and education: 187/203 (92.1%); OR = 25.96 (95% CI, 13.17 to 51.17; $p < 0.001$) 3. Education only: 34/99 (34.3%), OR = 1.09 (95% CI, 0.35 to 2.00; $p < 0.786$) 4. No monetary incentive (control): reference category 5. $5 only: 175/204 (85.8%), OR = 13.59 (95% CI, 7.49 to 24.63; $p < 0.001$) 6. $10 only: 214/230 (93%); OR = 30.94 (95% CI, 15.25 to 62.77; $p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Mandelblatt, 1993,[223] USA ***Objectives:*** To compare nurse practitioner and physician rates of breast and cervical screening among poor, elderly black women ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear, mammogram	***Sample:*** Women aged ≥ 65 years attending two urban public hospital primary care clinics in New York City, USA. The majority of women were black ***Setting:*** Hospital (urban, public) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention site: Nurse practitioners recruited women for screening in two ways (directly from the waiting room or by asking clinic providers and nurse counsellors to refer patients). Patients were approached on each clinic visit until they refused or completed screening. Smear tests and examinations were available on the same day or a future appointment could be made. Mammography was available by appointment	***Intervention effects (uptake of screening):*** At the intervention site, annual mammography and Pap smear testing rates both increased significantly compared with the control site ($p < 0.01$). *Intervention site:* mammography 18.3% at baseline, 40.0% post-intervention; Pap smear 17.8% at baseline, 56.9% post-intervention *Control site:* mammography 18.1% at baseline, 18.2% post-intervention; Pap smear 11.8% at baseline, 18.2% post-intervention	***Authors' conclusions:*** Use of a nurse practitioner to deliver same-day screening substantially increased uptake of breast and cervical cancer screening and is an effective strategy to target poor, elderly black women, although screening in this population remains below nationally targeted levels ***Comments:*** The study was conducted in the USA with participants who were mostly urban, black elderly women with low incomes, which may limit the generalisability of the findings. Sample-size calculations were based inappropriately on a one-sided test

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Control site: A checklist summarising a health maintenance protocol was implemented prior to the study and served as a reminder to providers, who could (on a later visit) perform Pap smear or refer patients to a gynaecology clinic and perform or order directly CBE and mammography ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Drop-out not stated. Unit of allocation (site) different from unit of analysis (individual). Analysis based on pre-test and post-test reviews of medical records (cross-sectional data) ***Baseline comparability:*** Women were comparable in terms of age, race, number of hospital admissions, number of chronic illnesses, history of breast or cervical cancer and insurance status. They differed significantly in the number mean of clinic visits (5.0 for intervention site, 4.1 for control site) ($p < 0.001$) ***Baseline of assessment:*** Baseline annual screening rates were comparable in the two study sites, and both the rates decreased with increasing patient age ***Follow-up:*** Post-intervention audit conducted over 2 months from the end of the intervention. Rates for the post-intervention period included the 1-year intervention period	Post-intervention, the trend for decreasing screening uptake with increasing age persisted at the control site but was no longer significant at the intervention site (data not presented) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Manfredi, 1998,[284] USA ***Objectives:*** To evaluate a HMO-sponsored intervention to improve cancer screening in private physician practices serving a low-income, minority population ***Design:*** RCT (cluster) ***Screening test:*** Mammogram, Pap smear, FOBT, CBE	***Sample:*** Chicago HMOs identified as being located in primarily black and Hispanic low socio-economic status areas. Random samples of 60 records per practice were selected for analysis (approximately 20 HMO patients aged 18–39 years, 20 charts of HMO patients aged ≥ 40 years, and 20 charts of non-HMO patients aged ≥ 18 years). A total of 2316 (baseline) and 2238 (post-intervention) patient records were included in the study ***Setting:*** HMO (low-income, minority populations)	***Intervention effects (uptake of screening):*** The effective change resulting from the intervention as compared to the control group was: *HMO patients:* CBE –1.3%; mammography –12.9%; Pap smear 11.9% ($p < 0.05$); FOBT 14.1% ($p < 0.05$) *Non-HMO patients:* CBE 15.3% ($p < 0.05$); mammography 9.4%; Pap smear 2.9%; FOBT 20.2% ($p < 0.05$)	***Authors' conclusions:*** Implementation of an HMO-mediated, multicomponent intervention to improve cancer screening was feasible, and effective for the Pap smear, FOBT, and CBE, but not for mammography ***Comments:*** Generalisability of the study may be limited as patients belonging to private HMOs are not representative of the general population. This study also

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Reminder cards for physicians and patients, changes in the HMO's quality-assurance protocols to reinforce screening programme maintenance: 24 practices, 1172 patients 2. Control (practices received only a card announcing the start of the new initiative): 23 practices, 1066 patients ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Uptake measured by random sample of patient charts. Five intervention and seven control sites refused to provide data for non-HMO patients. Unit of allocation the same as unit of analysis ***Baseline comparability:*** No differences in sex, age, type of insurance, number of visits, or continuity of care ***Baseline of assessment:*** *HMO patients:* intervention group, CBE 34.8%, mammography 38.5%, Pap smear 55.7%, FOBT 3.2%; control group, CBE 28.0%, mammography 29.6%, Pap smear 56.1%, FOBT 9.2% *Non-HMO patients:* intervention group, CBE 26.6%, mammography 33.8%, Pap smear 40.2%, FOBT 4.5%; control group, CBE 26.9%, mammography 26.0%, Pap smear 35.2%, FOBT 20.4% ***Follow-up:*** 2 years	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	looked at private HMOs in poor neighbourhoods. Public sector facilities probably provide the majority of care in these areas
Mant, 1992,[238] UK ***Objectives:*** To determine the effectiveness of a health check in increasing uptake of FOBT screening for colorectal cancer ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** General practice patients in Oxfordshire (828 men, 760 women) aged 45–64 years. Patients who had attended a health check or well woman clinic within 3 years, being investigated for bowel problems, or considered physically or emotionally unable to perform the test were excluded ***Setting:*** General practice	***Intervention effects (uptake of screening):*** *Haemoccult test:* 1. Test only: 103/404 (25.5%) (95% CI, 21.2 to 29.8) 2. Test + invitation by post: 126/397 (31.7%) (95% CI, 27.1 to 36.3)	***Authors' conclusions:*** Sending an FOBT with an invitation for a health check may be the method of choice for most practices, but improved compliance may be offset by wasted resources by non-usage of kits. In a practice with high baseline attendance for checks and a persuasive nurse, offering FOBT at a health check is a feasible alternative

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Sent Haemoccult kit: ? (404) 2. Sent Haemoccult kit + invitation for health check: ? (397) 3. Sent invitation for health check and explanation that nurse would offer Haemoccult kit at health check: ? (402) 4. Sent invitation for health check: ? (385) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 'A small number' (figure not given) of patients were withdrawn after assignment (no intention to intervene) ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Sample had not had health check in previous 3 years ***Follow-up:*** Not stated	3. Test offered at health check: 83/402 (20.6%) (95% CI, 16.6 to 24.6) 4. Sent invitation for health check: FOBT not given ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Patients who had previously had a health check were excluded; these people may be more compliant than those included in the study
Marcus, 1992,[152] USA ***Objectives:*** To test three clinic-based interventions as strategies to increase return rates of women with abnormal cervical cytology ***Design:*** Quasi-RCT (cluster), factorial design ***Screening test:*** Pap smear	***Sample:*** 2044 women with abnormal Pap smears from 12 Los Angeles area primary healthcare clinics ***Setting:*** Primary healthcare clinic ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personalised follow-up (letter notifying women of abnormal Pap smear results) 2. Transportation incentives (bus tickets to allow two one-way fares; one site also gave a parking permit) 3. Educational slide–tape programme (12-minute programme about Pap smear, etc., shown in clinic waiting rooms; produced in English and Spanish; clinic staff were responsible for implementing the programme)	***Intervention effects (uptake of screening):*** Logistic regression OR for the total sample and for county vs non-county patients. Total (n = 2004) county vs non-county, severity of Pap smear and age are included as covariates: *PF:* OR = 0.90; 95% CI, 0.64 to 1.27 *ST:* OR = 0.97; 95% CI, 0.63 to 1.49 *TI:* OR = 1.48; 95% CI, 1.06 to 2.06; $p < 0.05$ *PF + ST:* OR = 2.30; 95% CI, 1.21 to 4.34; $p < 0.01$ *PF + TI:* OR = 1.09; 95% CI, 0.67 to 1.76	***Authors' conclusions:*** The results obtained suggest varying levels of success at implementing the different interventions. For the sample as a whole, both transport incentives and the personalised follow-up combined with the slide–tape programme had a significant positive impact on return rates ***Comments:*** Implementation of the intervention protocols was less than perfect, and thus likely to introduce a conservative bias into the outcome evaluation. Complex study design including: unit of randomisation (months of the year); pre-screening (slide–tape programme) and post-screening

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Factorial design meant that the women were placed in one of the following groups: 1. Personalised follow-up (PF) 2. Slide–tape programme (ST) 3. Transportation incentives (TI) 4. Personalised follow-up + slide–tape programme (PF + ST) 5. Personalised follow-up + transportation incentives (PF + TI) 6. Transportation incentives + slide–tape programme (TI + ST) 7. Personalised follow-up + transportation incentives + slide–tape programme (PF + ST + TI) 8. No intervention 533 women were assigned to PF, 724 to TI, and 534 were assigned to ST. No further breakdown of numbers was given ***Theoretical basis of intervention:*** Health Belief Model, Theory of Reasoned Action, PRECEDE ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Complete loss to follow-up ranged from 13% to 44%. 29% of the study group were classified as being lost to follow-up. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 4 months	*ST + TI:* OR = 0.87; 95% CI, 0.47 to 1.59 *PF + ST + TI:* OR = 0.44; 95% CI, 0.18 to 1.06 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	interventions (personalised follow-up, transport incentives) both combined and separately
Marcus, 1993,[88] USA ***Objectives:*** To evaluate the effect of a proactive counselling protocol to promote screening mammography among age-eligible female callers to the Cancer Information Service (CIS)	***Sample:*** Women calling the CIS. Women were eligible if aged ≥ 40 years, not calling about breast cancer or breast cancer screening or reporting breast cancer symptoms, not a cancer patient, and had made no previous call to the CIS during the recruitment period	***Intervention effects (uptake of screening):*** 1. Intervention group: 567/870 (65.2%) 2. Control group: 608/961 (63.3%)	***Authors' conclusions:*** The proactive counselling protocol was effective among a subgroup of CIS callers with a total family income of $30,000 or more, which constitutes nearly 60% of all age-eligible female callers to the CIS

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: Quasi-RCT (cluster) ***Screening test:*** Mammogram	***Setting:*** CIS offices ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Usual service + screening mammography counselling protocol (SMCP): ? (870) 2. 'Control group (usual service only): ? (961) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Response rate to the 12-month interview was 87%. Unit of allocation different from unit of analysis ***Baseline comparability:*** No significant differences in age, education, income, ethnicity or caller type ascertained at follow-up telephone interview ***Baseline of assessment:*** Baseline screening mammography rates not obtained for control subjects ***Follow-up:*** 12 months (telephone interview)	Significant intervention effect found only at one site and only among callers with a total family income of $30,000 or more (OR = 1.38; $p < 0.04$) ***Intermediate outcomes:*** There was a modest, but statistically significant, difference in knowledge of screening mammography guidelines for women aged ≥ 50 years (75% in intervention group, 70.7% in control group; $p < 0.04$). No such difference was found in the 40–49 years age group. There were no significant differences in the beliefs about efficacy of screening or early diagnosis between the two groups ***Costs:*** Not stated	***Comments:*** The finding of a significant effect of the intervention at only one site may reflect a difference in intervention implementation at the two sites
Margolis, 1996,[173] USA ***Objectives:*** To evaluate two interventions, mailed reminders and nurse counselling, to improve mammography appointment keeping ***Design:*** Controlled trial ***Screening test:*** Mammogram	***Sample:*** 970 women scheduled for 1072 mammograms at the County Medical Centre, Minnesota, USA. Enrolled consecutive women for whom mammograms had been ordered by a clinic physician over 13 months ***Setting:*** Community health centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Mailed reminder (sent to arrive 3–5 days before appointment): 384 (384) 2. Nurse counselling: 264 (264) 3. Control (usual care; exit interview by nurse): 424 (424) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 1. Mailed reminder: 306/384 (80%) 2. Nurse counselling: 212/264 (80.3%) 3. Control group: 316/424 (74.5%) The difference did not reach significance ($p < 0.13$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Mailed reminders modestly improve mammography appointment keeping, and nurse counselling has little additional effect ***Comments:*** Biases reported: different practice styles of nurses (2 nurses per intervention group); more same-day mammography appointments in control group; and fewer enrolled in reduced-cost programme in mailed reminder group

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: Sample-size and power calculations performed. Drop-out not stated ***Baseline comparability:*** Groups comparable in age and appointment scheduling interval. Proportion of patients having same-day mammogram and enrolled in reduced-cost programme differed significantly between groups ***Baseline of assessment:*** 25% mammography appointment failure rate for previous 4 years ***Follow-up:*** 6 weeks		
Margolis, 1998,[89] USA ***Objectives:*** To determine if women would have higher breast and cervical cancer screening rates if lay health advisers recommended screening and offered a convenient screening opportunity ***Design:*** Quasi-RCT ***Screening test:*** Mammogram, Pap smear	***Sample:*** 1908/4247 women aged ≥ 40 years. Women were excluded if they were too disoriented to give their address, were acutely ill, or refused to participate (*n* = 215). Women who had a history of cervical cancer or hysterectomy were eligible only for the breast-cancer-screening component of the intervention, and vice versa. 35/1693 had a history of breast cancer, leaving a final sample of 1658 for the breast cancer study. 591/1693 women had a hysterectomy or a history of cervical cancer, leaving 1102 eligible for the cervical cancer study ***Setting:*** Community health centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Lay health workers assessed screening status and offered women screening with a female nurse practitioner: mammography 857 (772); Pap smear 566 (501) 2. Usual care: mammography 801 (711); Pap smear 536 (466) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. The multivariate analysis included only a subgroup of women who were due for screening at baseline. This included 759/1658 for the mammography study, and 536/1658 for the Pap smear study	***Intervention effects (uptake of screening):*** *Mammography:* 1. Intervention: 535/772 (69.3%) 2. Usual care: 447/711 (62.9%) *Pap smear:* 1. Intervention: 552/501 (70.3%) 2. Usual care: 293/466 (62.9%) Logistic regression analyses were carried out on patients due for screening at baseline *Mammography:* 1. Model 1: intervention group vs control group (authors': OR = 1.56; 95% CI, 1.16 to 2.10) 2. Model 2: effect of intervention only significant in: Native American women (authors' OR = 2.59; 95% CI, 1.25 to 5.37) and women of another nationality (authors' OR = 8.76; 95% CI, 2.42 to 31.67)	***Authors' conclusions:*** Breast and cervical cancer screening rates were improved in women attending non-primary-care outpatient clinics using lay health advisors and a nurse practitioner to perform screening. The effect was strongest in women in greatest need of screening ***Comments:*** The method of allocation to intervention and control groups (odd or even medical record numbers) did not result in an equal distribution of patients on several potentially important confounders. However, the multivariate analyses suggested that the overall study results were not due to baseline differences between the groups

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Baseline differences in age, screening status and insurance status ***Baseline of assessment:*** *Mammography:* 61% in usual care group and 52% in intervention group were due for screening ($p = 0.01$) *Pap smear:* 63 in usual care group and 59% in intervention group were due for screening ***Follow-up:*** 12 months after the women were due for screening	*Pap smear:* 1 Model 1: intervention group vs control group (authors' OR = 1.64; 95% CI, 1.16 to 2.34) 2. Model 2: effect of intervention only significant in white women (authors' OR = 1.72; 95% CI, 1.09 to 2.71) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Mayer, 1989,[240] USA ***Objectives:*** To test the effectiveness of an incentive strategy in improving compliance with mammography in self-referred women ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** One of 29 radiology facilities participating in the American Cancer Society intervention study was selected on the basis of staff willingness to participate in the additional component. Women aged ≥ 35 years who called the mammography programme phone bank. 89% were white, 51% had family income ≥ $30,000. Women were excluded if they had a history of breast cancer, had had silicone injections, had current breast problems or were pregnant or breast-feeding ***Setting:*** Radiology facilities ***Intervention(s): number randomised (number analysed in parentheses).*** American Cancer Society programme: promotion of low-cost mammograms through local TV news; those interested had to call a phone bank for a mailed information pack and were then assigned to a radiology facility to schedule an appointment. Test facility subjects were assigned to further intervention or control 1. Incentive group received an information pack, a letter encouraging appointment-making and a coupon (redeemable for a nutrition information kit): 47 (47) 2. Control group received only the information pack: 49 (49) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported	***Intervention effects (uptake of screening):*** Appointment-making was significantly higher among the incentive group than the control group (81% vs 59%; $p < 0.05$). Of the 67 women who made appointments, one did not keep it 1. Intervention group: 37/47 (79%) 2. Control group: 29/49 (59%) Of the 37 incentive group participants who kept appointments, 28 (76%) returned coupons to redeem their incentives ***Intermediate outcomes:*** Not stated ***Costs:*** The incentive procedure was relatively inexpensive (approximately $106, including $2 per stay-fit kit plus postage for coupons) and was cost-effective for the radiology facility as well as from the cancer control perspective	***Authors' conclusions:*** The intervention had a significant positive effect on appointment-making. Once an appointment was made, there was a high probability that it would be kept irrespective of whether an incentive had been offered ***Comments:*** The study design did not allow for the determination of the separate effects of the incentive and prompting strategies. As the intervention affected appointment-making, the generalisability of results may be limited to self-referral programmes

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Comparable on all demographic variables except age, with incentive group participants being on average 53 years old compared with 47 years old in the control group ($p < 0.01$) ***Baseline of assessment:*** 56% of the sample had not had a mammogram before entering the programme ***Follow-up:*** Not stated		
Mayer, 1993,[69] USA ***Objectives:*** To promote mammography among university employees by means of printed media, on-site workshops and incentive drawings. To educate insured employees regarding their insurance coverage and to address other potential barriers to mammography compliance ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** 600 of 926 eligible women were randomly selected from the intervention campus, Californian State University, and 513 of 782 eligible women were randomly selected from the control campus. Sample-size calculations were based on achieving a differential uptake rate of 23% between intervention and control groups. Participants were aged ≥ 35 years and received health insurance through the university's benefits plan ***Setting:*** University ***Intervention(s): number randomised (number analysed in parentheses).*** All women aged ≥ 35 years (n = 1100) received mailed brochures at their office: 1. Picture of Health Mammography Project (a combination of print media (brochures describing mammography bill and insurance coverage, recommendations, and barriers to mammography), on-site mammography workshops, and incentives (lottery draws)): 600 (384) 2. Control (no details given): 379 (513) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. High drop-out rate and women in the 35–39 years age group were excluded from the analysis as not enough subjects were recruited. Unit of allocation different from unit of analysis	***Intervention effects (uptake of screening):*** *Change in mammography rate for women aged 40–49 years:* 1. Intervention group (n = 216): baseline, 40.3%; year 1, 57.9%; change, 17.6% (95% CI, 7.9 to 27.3; $p < 0.001$) 2. Control group (n = 220): baseline, 46.4%; year 1, 60%; change, 13.6% (95% CI, 4.1 to 23.1; $p = 0.005$) *Change in mammography rate for women aged > 50 years:* 1. Intervention group (n = 168): baseline, 55.4%; year 1, 67.3%; change, 11.9% (95% CI, 2.3 to 21.5; $p = 0.015$) 2. Control group (n = 159): baseline, 61.6%; year 1, 67.9%; change, 6.3% (95% CI, –2.9 to 15.5; $p = 0.181$)	***Authors' conclusions:*** Although rates of mammography and awareness of insurance coverage increased significantly in the intervention group, they also increased in the control group ***Comments:*** The control group also showed an increased rate of mammography, perhaps due to general secular trends. Also, one-third of controls had been exposed to some mammography information during the study year. Baseline mammography rates were different in the intervention and control groups (57% vs 42%), and thus it might be expected that the group with the lowest baseline rate would show the highest increase

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Authors reported no differences at baseline between groups on demographic and health variables. However, there were less women in the 35–39 years age group in the control group (19% vs 28%). Also, the percentage of women aged > 40 years who had had a mammogram in the previous year was 57% in the intervention group and 42% in the control group ***Baseline of assessment:*** Pre-test mammography rates: intervention group (n = 216), 40.3%; control group (n = 220), 46.4% ***Follow-up:*** 1 year	***Intermediate outcomes:*** *Knowledge of coverage:* Knowledge significantly increased at both sites, with a larger increase occurring in the intervention group for those aged ≥ 50 years (19.3% vs 12.4%) and those aged 40–49 years (22.4% vs 19.6%). There were, however, no significant differences in the increase between the intervention and control groups for either age group ***Costs:*** Not stated	
Mayer, 1994,[153] USA ***Objectives:*** To assess the effectiveness of three in-reach reminder strategies to increase annual return rates for mammography ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 485 women aged ≥ 50 years with no breast cancer history and negative test results from previous screen ***Setting:*** Hospital affiliated mammogram facility ***Intervention(s): number randomised (number analysed in parentheses)*** *Study 1:* 1. Reminder postcard + gift: 96 (96) 2. Control group (reminder postcard): 91 (91) *Study 2:* 1. Reminder phone call + reminder postcard: 92 (92) 2. Control group (reminder postcard): 92 (92) *Study 3:* 1. GP letter: 32 (32) 2. Control group (delayed standard reminder at end of study): 32 (31) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** *Study 1:* 1. Incentive; 31/96 (32%) 2. Control: 33/91 (36%) Difference: $p < 0.57$ *Study 2:* 1. Phone call: 44/92 (48%) 2. Letter: 41/92 (44%) Difference: $p < 0.55$ *Study 3:* 1. Letter: 15/32 (47%) 2. Control: 6/31 (19%) Difference: $p < 0.05$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Relative to a standard mailed facility reminder, the addition of a small incentive or substitution of a telephone reminder did not increase uptake significantly. The physician reminder provided significant increases in uptake compared to no reminder ***Comments:*** None

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. 100% follow-up ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months		
McAvoy, 1991,[208] UK ***Objectives:*** To assess the effectiveness of three different methods of providing health education on the uptake of cervical smear testing among Asian women ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 737 randomly selected Asian women (defined as those of New Commonwealth and Pakistani ethnic origin or descent, including those form Bangladesh and east Africa) from Leicester, aged 18–52 years and not recorded as having had a smear test ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Home visit and shown a video: 263 (263) 2. Home visit and shown a leaflet and fact sheet: 219 (219) 3. Posted a leaflet and fact sheet: 131(131) 4. Control (no intervention): 124 (124) Information on the video, leaflet and fact sheet was provided in English, Gujarati, Punjabi, Urdu, Hindi and Bengali, addressing issues concerning the screening process as well as details of where to obtain the test ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. 199 women dropped out but were included in the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 4 months post-intervention	***Intervention effects (uptake of screening):*** 1. Video and home visit: 80/263 (30%) 2. Leaflet and home visit: 57/219 (26%) 3. Receiving leaflets by post: 14/131 (11%) 4. Control group: 6/124 (5%) Visits to show the leaflet were 2.5 times more effective than sending the leaflet by post (χ^2 =11.93; df = 1; 95% CI, 5.5 to 25.1), while visiting to show the video was three times as effective as sending the leaflet (χ^2 = 18.74; df = 1; 95% CI, 10.8 to 28.7) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The results relate to the Asian population of Leicester and may not hold for other such communities. Within the sample, there was overrepresentation of Urdu speakers, Moslems and women born in Pakistan ***Comments:*** The sample may not be representative because it (i) originated from a previous study on the use of health services, (ii) was specific to Leicester, and (iii) had a specific ethnic group representation. The sample had an overrepresentation of Moslems

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
McCarthy, 1997,[237] USA ***Objectives:*** To develop, within the framework of continuous quality improvement, new processes for offering mammography and to determine whether protocols executed completely by non-physicians would increase mammography utilisation ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** 5934 women, aged 40–75 years, making 16,546 visits to one of the clinics during the study period (September 1992 to November 1993) ***Setting:*** Hospital (urban, academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention clinic: medical assistants and nurses were trained to identify women due for mammography using a preventive services flow sheet. If the woman was not up to date with mammography, it was offered and ordered if the women agreed. A team approach with active involvement of non-physicians in patient care: 1 clinic 2. Control group (usual care): 2 clinics (designated A and B) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated. Based on cross-sectional data. Unit of allocation (clinic) different from unit of analysis (visits) ***Baseline comparability:*** The demographic characteristics (age, race, insurance status) of patients who visited the clinics were reported, but no significance testing was performed ***Baseline of assessment:*** For the month prior to the assessment, mammography uptake (from billing records) was: intervention (n = 327 visits), 68% (95% CI, 63 to 73); control (A or B, not stated) (n = 315 visits), 66% (95% CI, 61 to 71); control (A or B, not stated) (n = 424 visits), 66% (95% CI, 61 to 71) ***Follow-up:*** 60 days after end of study	***Intervention effects (uptake of screening):*** 1. Intervention: 77% (195/253) (95% CI, 72 to 82); absolute increase 9% (95% CI, 2 to 16) 2. Control (A or B, not stated): absolute increase 1% (95% CI, –5 to 7) 3. Control (A or B, not stated): absolute difference –2% (95% CI, –3 to 5) Reanalysed, limiting the analysis to one visit per woman The magnitude of difference in the intervention clinic over 15 months was 9% (95% CI, –2 to 20). The results for the intervention group remained consistent with a linear trend (p = 0.04) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Redesigning the clinic process to make offering of mammography by non-physicians a routine part of the clinic encounter can lead to mammography rates that are superior to those seen in physicians' usual practice, even when screening levels are already high ***Comments:*** Analysis was based on pre-test and post-test cross-sectional surveys. The greatest improvement in the proportion of visits in which women were successfully screened occurred when the nurse and medical assistants began sampling the medical records. When the data were analysed a second time using only one random visit per woman, the results were not materially different
McDonald, 1984,[271] USA ***Objectives:*** To determine the effect of reminder messages generated by a computer medical record system, on the behaviour of physicians in terms of patient care	***Sample:*** 27 physician teams (consisting of a staff physician, 3 or 4 residents, and a nurse-practitioner or nurse) in the general medicine clinic of a US hospital. No sample-size or power calculations were performed ***Setting:*** Hospital (clinic)	***Intervention effects (uptake of screening):*** There were no significant differences between patients cared for by intervention physicians and control physicians with respect to their overall number of clinic visits during the 2-year period of the study (no data given)	***Authors' conclusions:*** The computer reminder messages had no overall effect on the measure of patient outcome ***Comments:*** Outcome measures depended on incomplete data, obtained in the routine care process. Also, the sample

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT (cluster) ***Screening test:*** Mammogram, Pap smear, tuberculosis skin test, FOBT	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Computer-generated reminder messages to physicians (number of practice teams assigned not stated, 61 residents) 2. Control group: (number of practice teams not stated, 54 residents) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Appropriate analysis using clusters, not individuals. Patients of physician teams with < 100 reminder messages during the study were excluded ***Baseline comparability:*** Neither patients nor control providers differed significantly in age or race ***Baseline of assessment:*** Not stated ***Follow-up:*** 2 years	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	sizes were too small to find differences. The potential effect of reminder messages was diluted by care provided during hospitalisation, non-medicine clinics and emergency room visits
McDowell, 1989,[154] Rosser, 1991,[315] Canada ***Objectives:*** To compare the effectiveness of three types of computer-generated reminder for increasing rates of cervical screening in women who are overdue for testing ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 2034 women from Ottawa, aged 18–35 years and with no Pap smear in the previous year ***Setting:*** Hospital (family medicine centre, academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. GP letter + reminder letter after 21 days: 367 (367) 2. Physician reminder: 322 (322) 3. Telephone call: 377 (377) 4. Control group: 377 (330) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No intention-to-intervene analysis. No drop-outs reported. Based analysis on all women, and just those women due for screening	***Intervention effects (uptake of screening):*** 1. Letter group: 76/367 2. Physician group: 41/332 3. Telephone group: 60/377 4. Control group: 35/330 Difference: $p < 0.005$ (physician vs control group, not significant; $z = 0.62$) ***Intermediate outcomes:*** Not stated ***Costs:*** The letter reminder yielded an additional 36 screenings at a cost of $12–14 each; nurses telephone calls yielded an extra 19 screenings at a cost of $11 each; the physician reminder yielded an extra 6 screenings at a cost of $6–12 each. The authors concluded that the physician reminder is very cost-effective	***Authors' conclusions:*** The modest impact of reminders may be due to the rigour of the study ***Comments:*** The original sample allocated was reduced from 2034 women to 1587 women not screened in the previous year. This number was further reduced to 654 actual successful contacts

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: There were no significant differences in terms of marital status and age ***Baseline of assessment:*** Not been screened in past year: 77.2% control, 76.8% physician, 79.8% letter, 79.5% telephone ***Follow-up:*** 1 year	screenings at a cost of $6–12 each. The authors concluded that the physician reminder is very cost-effective	
McDowell, 1989,[155] Canada ***Objectives:*** To compare the effectiveness of three ways of encouraging patients in a large family medical centre to attend for blood pressure screening ***Design:*** RCT (cluster) ***Screening test:*** Blood pressure screening	***Sample:*** Four general practices (4247 families, 5744 individuals aged > 18 years due for blood pressure screening) in Ottawa ***Setting:*** Hospital (family medicine centre, academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter reminders + reminder letter after 21 days: 1108 families, 1508 individuals (1094) 2. Physician reminder: 1032 families, 1432 individuals (1059) 3. Telephone reminders: 1069 families, 1433 individuals (1042) 4. Control: 1016 families, 1371 individuals (996) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size calculations performed but not shown. No intention-to-intervene analysis. Excluded those not due for screening. Unit of allocation different from unit of analysis ***Baseline comparability:*** No significant differences in sex, age, marital status or mean family size ***Baseline of assessment:*** In the control group, 73% (996/1371) of patients had not had a blood pressure reading recorded in the previous year. This compared with 72.5% (1094/1508) of the letter reminder group ***Follow-up:*** 1 year	***Intervention effects (uptake of screening):*** 1. Letter: 391/1094 (35.7%) 2. Physician reminder: 325/1059 (30.7%) 3. Telephone: 251/1042 (24.1%) 4. Control: 210/996 (21%) ***Intermediate outcomes:*** Not stated ***Costs:*** The total cost for the letter reminder was $2300, which amounts to $14 per blood pressure reading gained. The cost per additional nurse reading was $31. The cost per reading gained for the physician reminder was $1.70 or $1.33, according to salary level. The physician reminder was the most cost-effective method, followed by the letter. The telephone call was the least cost-effective method	***Authors' conclusions:*** Although statistically significant, the impact of the reminders was modest. A better approach might involve a combination of routine reminders to the physician, followed by letters to non-compliant patients ***Comments:*** The analysis included only patients who were due for blood pressure measurement (i.e. not the total number randomised)

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
McPhee, 1989,[272] Bird, 1990,[316] USA ***Objectives:*** To assess the feasibility, of three intervention strategies, comparing their acceptability, difficulty and cost ***Design:*** RCT (cluster) ***Screening test:*** FOBT, DRE, sigmoidoscopy, Pap smear, CBE, mammogram	***Sample:*** 62 internal medical residents in the General Internal Medicine Group Practice, University of California. Patients were drawn from the 'eligible population' of each resident's panel. Eligible patients were identified according to the following criteria: age ≥ 40 years, at least one practice visit during the intervention period, and medical records extending 1 year before the most recent practice visit. No sample-size or power calculations performed ***Setting:*** General practice (academic) ***Intervention(s): number randomised (number analysed in parentheses).*** Patient education related only to BSE and mammography and was aimed at all women aged ≥ 40 years 1. Control: 11 physicians (random sample) 2. Audit/feedback: 10 physicians (random sample) 3. Reminder (cancer screening reminder, printed for each patient appointment):10 physicians (random sample) 4. Patient education:10 physicians (random sample) 5. Audit/feedback + patient education: 10 physicians (random sample) 6. Patient education + reminder (cancer screening reminder, printed for each patient appointment): 11 physicians (random sample) 21 were assigned to no physician intervention; 20 were assigned to audit/feedback; 21 were assigned to reminder); 31 had no patient education; 31 had patient education ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Appropriate analysis using clusters, not individuals. Uptake was evaluated from a random sample of patients. Reminders were generated for 4510 appointments. Patients failed to keep 12.2% of these and an	***Intervention effects (uptake of screening):*** Regression results: effects of interventions on compliance scores (URC is the unstandardised regression coefficient) *FOBT:* 1. Audit: URC = 12.3; $p = 0.048$ 2. Reminders: URC = 19.0; $p = 0.002$ *DRE:* 1. Audit: URC = 14.0; $p = 0.020$ 2. Reminders: URC = 22.6; $p < 0.001$ *Sigmoidoscopy:* 1. Audit: URC = –1.2; $p = 0.889$ 2. Reminders: URC = 31.3; $p = 0.002$ *Pap smear:* 1. Audit: URC = 29.5; $p = 0.198$ 2. Reminders: URC = 34.8; $p = 0.122$ *CBE:* 1. Audit: URC = 25.3; $p = 0.001$ 2. Reminders: URC = 24.3; $p = 0.001$ 3. Education: URC = 2.3; $p = 0.679$ *Mammography:* 1. Audit: URC = 20.6; $p = 0.008$ 2. Reminders: URC = 15.7; $p = 0.04$ 3. Patient education: URC = 16.7; $p = 0.009$ ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** The results indicate that the cancer screening reminders strategy was the most cost effective in promoting the performance of routine cancer screening tests ***Comments:*** Use of medical records may have under-reported the performance of physical examinations. Residents had contact with each other during practice, and thus there was potential for contamination. Choosing residents as subjects meant post-intervention follow-up was not possible, as one third of the residents finished the residency annually. Study limited to resident physicians in a university based general internal practice, and thus the generalisability may be limited

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	additional 11.7% cancelled. Of the 1936 patients who had post-intervention medical record reviews, 3% refused DRE, 4% refused sigmoidoscopy, 5% refused Pap smear and 6% refused pelvic examinations ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No significant differences in pre-intervention scores between the two groups ***Follow-up:*** 9 months	***Costs:*** Included costs of faculty effort, supplies and printing, project staff time for non-research aspects of data collection, data entry, data processing, and administrative/clerical tasks reported separately.[316] Relative costs were calculated rather than actual costs. Cost calculations used both number of 'sample' patients and the number of patients in the 'eligible' population. Two standardised costs: the average per patient cost of implementing the strategy equals the total cost divided by the number of patients in the eligible population; and the average cost per additional screening test *Audit and feedback*: total cost $8976; pro-rated cost $45; cost per patient $9.60; cost per additional test $50.40 *Cancer screening reminders:* total cost $12,000; pro-rated cost $58; cost per patient $13; cost per additional test $18 *Patient education:* total cost $4000; pro-rated cost $1300; cost per patient $3; cost per additional test $51 Overall, the physician reminders were the most cost-effective intervention	
McPhee, 1991,[273] USA ***Objectives:*** To assess the effectiveness of a computerised reminder system and educational materials in promoting 11 cancer prevention activities by primary care physicians ***Design:*** RCT (cluster)	***Sample:*** 40 primary care physicians from the University of California. Inclusion criteria: patients had to be aged ≥ 40 years, have made at least one practice visit during the intervention period, and have been enrolled in the practice for ≥ 1 year before the most recent visit ***Setting:*** Primary care practice	***Intervention effects (uptake of screening):*** Post-intervention performance scores (mean and (SD)): *FOBT:* 1. CPRS (n = 20): 50.4 (17.3) 2. Control (n = 19): 34.2 (13.0) Difference: p = 0.002	***Authors' conclusions:*** The results indicate that a computer-based reminder system, supplemented by educational materials, can promote cancer prevention activities by primary care physicians in community-based practices

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: FOBT, DRE, sigmoidoscopy, Pap smear, CBE, mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Reminder system (CPRS) (report + rack of educational materials (use not tested)): 20 physicians (20) 2. Control group (no information given): 20 physicians (19) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. One control group physician dropped out but was included in the analysis. Unit of allocation the same as unit of analysis ***Baseline comparability:*** No differences in age, year of graduation, proportion of men, or proportion of family physicians ***Baseline of assessment:*** Not stated ***Follow-up:*** 12 months	*Sigmoidoscopy:* 1. CPRS (n = 20): 39.5 (41.9) 2. Control (n = 19): 31.4 (27.1) Difference: p = 0.480 *Pap smear:* 1. CPRS (n = 20): 154.7 (44.8) 2. Control (n = 19): 120.9 (48.4) Difference: p = 0.029 *CBE:* 1. CPRS (n = 20): 57.3 (17.6) 2. Control (n = 19): 48.7 (15.8) Difference: p = 0.118 *Mammography:* 1. CPRS (n = 20): 40.1 (14.2) 2. Control (n = 19): 34.9 (13.7) Difference: p = 0.245 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** The study was limited to volunteer family physicians and general internists in solo and small group practices, which may limit the generalisability of the results. The study design did not allow evaluation of the separate effects of the reminder system and educational materials, or of the long-term impact of the intervention on physician behaviour. Only 40% of the intervention group physicians said they 'always' or 'nearly always' offered patients the patient reminder, and 30% 'never' did so
Meldrum, 1994,[184] UK ***Objectives:*** To determine if attendance for second-round mammography screening in those sent a tailored letter is increased compared with those sent a standard letter, and to investigate the acceptability of tailored letters ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged 50–65 years from north-west Glasgow with an all-clear result from baseline screening, with a false-positive result from baseline screening, or previously too young to be invited for screening. Women with breast cancer or with no available screening history were excluded ***Setting:*** Screening centre (breast) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Standard letter (basic information on mammography and the programme): ? (1531)	***Intervention effects (uptake of screening):*** 1. Standard letter: 922/1531 (60%) 2. Tailored letter: 956/1552 (62%) Difference: not significant (p = 0.4) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Tailoring invitation letters does not have a significant effect on uptake rates for breast screening and does not justify the additional workload required ***Comments:*** No information was given about the participants' baseline characteristics or the comparability between groups. It is not possible to say to what extent the study findings may be generalisable

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Tailored letter (the same basic information as the standard letter + woman's screening history: ? (1552) Women not attending were sent a standard letter 4 weeks after their original appointment time ***Theoretical basis of intervention:*** Leventhal's Parallel Response Model ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. 110 letters returned as women had moved away. No intention-to-intervene analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 weeks		
Michie, 1997,[127] UK ***Objectives:*** To assess the impact on women's decisions of presenting information about a screening test for Down's syndrome in different ways ***Design:*** RCT ***Screening test:*** Down's syndrome test	***Sample:*** 1580 women attending antenatal booking clinics at a London teaching hospital were invited to take part in the study, 1332 agreed to take part. All were English speaking, literate, of < 16 weeks' gestation and eligible to undergo maternal serum testing for Down's syndrome. 720 completed a questionnaire at 10–12 weeks' gestation and 382 also completed a questionnaire at 16 weeks' gestation. Mean age 29.3 years (range 17–43 years) ***Setting:*** Hospital (academic) ***Intervention(s): number randomised (number analysed in parentheses).*** The numbers initially randomised were not stated 1. Simple information leaflet: ? (88) 2. Information leaflet with decision tree: ? (93) 3. Simple information leaflet and video: ? (76) 4. Information leaflet with decision tree and video: ? (67) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 261/324 (81%) of women were tested 1. Simple information leaflet: 70/88 2. Information leaflet with decision tree: 76/93 3. Simple information leaflet and video: 58/76 4. Information leaflet with decision tree and video: 57/67 ***Intermediate outcomes:*** Two-way ANOVA revealed that the intervention groups did not differ on any of the following outcome measures (mean (SD)): *Change in knowledge:* simple information leaflet 0.6 (1.7), information leaflet with decision tree 0.6 (1.5), simple information leaflet and video 0.2 (1.8), information leaflet with decision tree and video 0.7 (1.6)	***Authors' conclusions:*** The addition of a video or expanded leaflet does not confer any benefit in terms of knowledge, decision-making or anxiety to women being offered serum screening for Down's syndrome. This suggests that we should not accept at face value the seemingly positive contribution of videos as aids to information giving and decision-making. The results also have implications for the way the decision-making process is conceptualised, an issue in urgent need of further study ***Comments:*** The sample may not be representative of the initial population, as only around 20% of the women initially approached were included in the final analysis and these women were more likely to be white and have had more education than the overall sample

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. Only 382/1332 women completed both follow-up questionnaires. Drop-out was due to: miscarriage, transfer to another hospital, not attending antenatal care, not handing back the first follow-up questionnaire (lack of time, thinking it was not relevant, thinking it was same as the one previously completed). Due to study drop-out, 324 of those completing both questionnaires received the intervention to which they had been randomly allocated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 16 weeks' gestation	*Change in anxiety:* simple information leaflet –0.6 (8.0), information leaflet with decision tree –1.4 (12.0), simple information leaflet and video –1.4 (12.0), information leaflet with decision tree and video –0.7 (8.8) *Satisfaction with decision:* simple information leaflet 14.6 (3.4), information leaflet with decision tree 15.3 (3.5), simple information leaflet and video 14.5 (3.6), information leaflet with decision tree and video 14.8 (3.8) ***Costs:*** Not stated	
Miedzybrodzka, 1995,[219] UK ***Objectives:*** To perform a rigorous comparative evaluation of stepwise and couple approaches to antenatal carrier screening for cystic fibrosis ***Design:*** RCT ***Screening test:*** Cystic fibrosis test	***Sample:*** 2002 women (couples) attending for a booking antenatal visit at Aberdeen Maternity Hospital antenatal clinic, of < 17 weeks' gestation with no family history of cystic fibrosis. Women were dissuaded from participating if their partner was not available for testing. Response rates for the women's questionnaire were 92% (1844/2002) at recruitment, 82% (1642/2002) with the test result, 88% (42/48) with partner's result, and 77% (1470/1908) after delivery. Partners' response rates were 1421/2002 (71%) at recruitment and 74% (1413/1908) after delivery ***Setting:*** Hospital ***Intervention(s): number randomised (number analysed in parentheses).*** Offering counselling and carrier testing for cystic fibrosis, either 1. to women in the first instance (stepwise): 1641 (1641), *or* 2. to couples: 361 (361) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations were performed. No drop-outs reported	***Intervention effects (uptake of screening):*** 1. Stepwise testing: 1487/1641 (91%) 2. Couple screening: 321/361 (89%)	***Authors' conclusions:*** Couple screening allows carriers to avoid transient high levels of anxiety, but is associated with more anxiety and false reassurance among most screens who will test negative. Stepwise screening gives carriers and their relatives genetic information and is, in our opinion, the better method ***Comment:*** None

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: There was little difference in the ages of women or their partners between the two arms of the study, or in social class, economic status, race, number of children, or reproductive intentions ***Baseline of assessment:*** Not stated ***Follow-up:*** 93 women were not sent a questionnaire after delivery (because of loss of pregnancy or baby, or new address unknown)	***Intermediate outcomes:*** *Knowledge:* At recruitment those offered couple testing were slightly more anxious than those offered stepwise testing ($p = 0.02$). On receipt of negative test results women from the couple screening arm were significantly more anxious than women from the stepwise arm ($p < 0.001$). There was no significant difference in perception of the baby's risk of cystic fibrosis between the two methods. There was no significant difference between the groups in the proportion of those correctly perceiving their baby to have no risk of cystic fibrosis ($p = 0.9$). After delivery, partners' perception that their baby might have cystic fibrosis was greater than women (both arms of the study; $p < 0.01$) There were no differences between attitudes of the two groups receiving negative results ***Costs:*** Not stated	
Miller, 1993,[241] USA ***Objectives:*** To study the effect of pre-paid postage on the rate of return of FOBTs ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** Participants were recruited from a convenient sample of indigent and private insurance patients in outpatient clinics at Duke University Medical Center after they were asked to undergo FOBT by their physician. Clinic staff distributed intervention and control FOBT tests at random to the patients ***Setting:*** Medical centre (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (FOBT packs with postage-paid return envelope): 159 (159) 2. Control (FOBT packets with unstamped return envelope): 166 (166)	***Intervention effects (uptake of screening):*** 1. Intervention: 117/159 (74%) 2. Control: 102/166 (61%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Removing even small financial barriers (e.g. providing a postage stamp) can enhance compliance for indigent patients ***Comments:*** Generalisability may be limited as the study examined patients attending a US university medical centre

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. No drop-outs or losses to follow-up reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 2 months		
Mitchell, 1991,[156] Australia ***Objectives:*** To compare the effectiveness of different recruitment strategies (campaign + invitation letter, campaign only, invitation only) in encouraging older women to have a Pap smear test ***Design:*** RCT (only randomised to letter intervention), cluster controlled clinical trial for community interventions ***Screening test:*** Pap smear	***Sample:*** Women aged 40–69 years, on the electoral roll in two regions of Victoria ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Campaign (1-month campaign, including local media coverage, information sessions, special screening clinics) + invitation letter (group A): 1998 (1131) 2. Campaign only (exposed to campaign as above, but no invitation sent) (group B): 3381 (1939) 3. Invitation only (sent personal invitation letter and brochure) (group C): 1994 (1177) 4. Control group (no campaign or invitation) (group D): 3231(1857) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 140 (3.5%) invitations returned as the woman had moved. 16 people had masculine names and were excluded. Only women eligible for screening were included in the analysis. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated	***Intervention effects (uptake of screening):*** 1. Campaign + invitation: 142/1131 (12.6%) 2. Campaign: 157/1939 (8.1%) 3. Invitation: 74/1177 (6.3%) 4. Control: 79/1857 (4.3%) Authors' OR of an eligible woman being screened in response to campaign (assessed across groups A and B) was 1.86 (95% CI, 1.49 to 2.33; $p < 0.001$) and in response to invitation (groups A and C) was 1.61 (95% CI, 1.34 to 1.92; $p < 0.001$). The campaign was slightly more effective than the invitation, but the difference was not significant ($p < 0.05$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Both personal invitation letters and community-based campaigns are effective in recruiting women for Pap test screening. Combined strategies are more effective than single strategies ***Comments:*** The absence of a state-wide register precluded comprehensive identification of women in the target population screened in the previous 2 years. Women were not randomised to the community intervention, as this was already underway in one region

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Pre-intervention uptake by eligible women: campaign + invitation, 4.1%; campaign, 4.8%; invitation, 3.3%; control, 4.4% ***Follow-up:*** 12 weeks		
Modell, 1998,[274] UK ***Objectives:*** To investigate the feasibility of improving screening for carriers of haemoglobin disorders in general practice by using a nurse facilitator to work with primary care teams and the relevant haematology laboratories; to identify problems in communication between all those involved in delivering the service, and to implement solutions ***Design:*** RCT (cluster) ***Screening test:*** Haemoglobin disorder screening	***Sample:*** 295 GPs in 93 practices in 50 wards of five north London boroughs, UK, were invited by letter to participate in the study. After providing basic information and receiving a visit from a member of the research team, 26/93 (28%) of the practices (27% of the GPs) joined the study. The practices were stratified by the proportion of ethnic-minority residents and the number of GPs in the practice ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention: nurse facilitator who provided posters and leaflets to inform relevant ethnic groups, and a practice manual for GPs containing background information and laminated cards for summarising who should be tested. Nurse facilitators also took part in three educational sessions aimed at providing staff with information about the tests: 13 practices (13) 2. Control (no intervention): 13 practices (13) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up reported. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated. Practices were stratified in terms of the number of ethnic-minority patients and the number of GPs ***Baseline of assessment:*** Number of test requests during the baseline year: control 328; intervention 295 ***Follow-up:*** 1 year	***Intervention effects (uptake of screening):*** Number of tests performed in the intervention year: intervention, 587; control, 254. This was a significant change (Mann–Whitney $U = 21.5$; $p < 0.001$) from the number of tests performed during the baseline year: intervention, +292 (median change in intervention group, 8.0); control, –74 (median change in control, 2.0) (95% CI, 0.5 to 15.0) ***Intermediate outcomes:*** Requests in intervention year as a percentage of requests at baseline: intervention, 199%; control, 77%. The Poisson regression analysis confirmed the positive relation between practices' requests in the study year and at baseline (regression coefficient = 0.025 (SE = 0.0009); $p < 0.0001$), but the association between requests in the study year and being an intervention group practice was stronger (regression coefficient = 1.15 (SE = 0.0361); $p < 0.0001$). The number of requests in the study year for intervention practices (adjusted for baseline request) was 3.2 times higher (95% CI, 2.9 to 3.4) than for the control practices ***Costs:*** Not stated	***Authors' conclusions:*** GPs and practice nurses are willing to undertake a new genetic screening service (or expand an existing one) if they are persuaded that it benefits the health of a significant proportion of their practice population. They need appropriate tools (e.g. information materials for carriers and groups at risk), and the laboratory must be sensitive to their needs. Preconceptional carrier screening and counselling need to be coupled with antenatal screening ***Comments:*** The generalisability of the results is limited as the study only looked at GP practices in north London, UK

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Mohler, 1995,[157] USA ***Objectives:*** To evaluate the relative efficacy and cost-effectiveness of three interventions to increase mammography rates in non-responders to invitation ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 151 female private practice patients aged 50–59 years, who had had no mammogram in the preceding 2 years. Inclusion criteria: no mammogram in the preceding 2 years, seen by a physician in the previous 5 years or telephone contact in the previous 3 years, no history of breast cancer or implants, local address and phone number ***Setting:*** Primary care practice (private) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personalised physician letter: 38 (38) 2. Telephone call (medical assistant): 37 (37) 3. Telephone call (physician): 38 (38) 4. Control group (received no intervention): 38 (38) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** No significant differences in age, physician, marital status, insurance status or zip code reported ***Baseline of assessment:*** The practice had a higher than average mammography adherence rate (actual figures not stated) ***Follow-up:*** 2 months	***Intervention effects (uptake of screening):*** 1. Letter: 7/38 (18%) ($p < 0.26$ vs control not significant) 2. Medical assistant telephone group: 16/37 (43%) ($p < 0.001$ vs control) 3. Physician telephone groups: 11/38 (29%) ($p < 0.041$ vs control) 4. Control: 4/38 (11%) Significantly better rate for both telephone call groups (27/75, 36%) than for the physician letter group (7/38, 18%) ($p < 0.042$) ***Intermediate outcomes:*** Not stated ***Costs:*** The costs per intervention and costs per mammogram, respectively, were: physician telephone call, $15, $52; medical assistant call, $1.30, $3; physician letter, $2.50, $14. The authors concluded that the medical assistant intervention was cost-effective	***Authors' conclusions:*** All interventions were less than 50% effective. Biases reported: Only one female carried out medical assistant calls, as opposed to 5 male physicians. The small sample size may have interfered with significant difference between subgroups. The high baseline mammography rate in this practice compared with the general population makes the interventions less applicable to practices with lower mammography rates ***Comments:*** None
Morrissey, 1995,[282] USA ***Objectives:*** To assess the effects of a financial and office system intervention to increase preventive care in physicians' offices for patients aged ≥ 65 years ***Design:*** RCT	***Sample:*** 1914 participants were randomised within practices ***Setting:*** Primary care practice	***Intervention effects (uptake of screening):*** Percentage participation rates (actual numbers not stated): *Intervention group:* blood pressure, not stated; CBE, 86%; Pap smear, 85%; DRE, not stated; FOBT, 91%; cholesterol, 60%; mammogram, 43%	***Authors' conclusions:*** Adding reimbursement for preventive services to Medicare – even with the office systems changes made in this study – will not by itself lead to effective implementation of preventive services in community medical practices. To enhance patient benefit from

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Blood pressure measurement, CBE, Pap smear, FOBT, cholesterol test, mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (full Medicare reimbursement to physicians for preventive care and health promotion packages (i.e. free to patient), regular prompting of physician to schedule preventive care visits, new office system whereby nurses carry out many preventive procedures, and use of a charting form): 954 (?) 2. Control (usual care): 960 (?) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Randomised n = 1914. 347/1914 (18%) were lost to follow-up, 30.8% refused to be interviewed, 46.1% died, and 23.1% either dropped out because of transport problems, moved, or could not be located. Patients lost to follow-up were somewhat older and had less education than those who completed the study. Uptake was measured from a sample of patient records ***Baseline comparability:*** There were no significant differences in baseline comparability between the control and intervention groups in terms of demographic differences. However, baseline attendance for Pap smears differed (control 57% vs intervention 46%) ***Baseline of assessment:*** Percentage participation rates: *Control group:* blood pressure, not stated; CBE, 61%; Pap smear, 57%; DRE, not stated; FOBT, 58%; cholesterol, 61%; mammogram, 25% *Intervention group:* blood pressure, not stated; CBE, 54%; Pap smear, 46%; DRE, not stated; FOBT, 55%; cholesterol, 62%; mammogram, 33% ***Follow-up:*** 24 months	*Control group:* blood pressure, not stated; CBE, 42%; Pap smear, 31%; DRE, not stated; FOBT, 43%; cholesterol, 58%; mammogram, 28% ***Intermediate outcomes:*** Mean quality-of-life measures (assessed using quality of well-being scale): overall score at baseline 0.70 (SD = 0.11); post-intervention – control group 0.65, intervention group 0.66 ($p < 0.05$). This suggests that less deterioration in quality of life occurred in the intervention group compared to the control group over the 2-year period of the study ***Costs:*** Not stated	preventive services, greater attention needs to be focused on an organised approach to patient follow-up ***Comments:*** Tests were also performed for glucose protein, vision, hearing, depression and incontinence. It is not possible, as the intervention is multifaceted, to identify which part(s) of the intervention were important. Generalisability of the results may be limited as this study only examined participants with Medicaid attending medical practices in North Carolina, USA

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Myers, 1991,[110] USA ***Objectives:*** To determine the impact of health education interventions on the return of mailed FOBTs in a colorectal cancer screening programme ***Design:*** RCT, factorial design ***Screening test:*** FOBT	***Sample:*** 2201 subjects (1162 men, 1039 women) aged 50–74 years ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Usual care + reminder phone call at 30 days if no tests returned: 450 (450) 2. Usual care + self-held screening booklet (Colorecord) + 30 day call: 450 (450) 3. Usual care + instruction call + Colorecord booklet + 30 day call: 700 (700) 4. Control group ('usual' care – advance letter + screening kit + mailed reminder for those who did not return tests within 15 days: 601 (601) Also, embedded within each Colorecord, advance letter, screening kit cover letter, and reminder letter was either a 'gain' message or a 'loss' message. Subjects were randomly assigned within each study group to receive only gain or only loss messages ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. All those randomised to treatment were analysed ***Baseline comparability:*** No significant differences in sex. Groups differed in age ($p = 0.001$) ***Baseline of assessment:*** None of the subjects had received prior FOBT mailings in the programme ***Follow-up:*** 90 days	***Intervention effects (uptake of screening):*** 1. Phone call: 167/450 (37.1%) 2. Colorecord: 168/450 (37.3%) 3. Phone call + Colorecord: 336/700 (48.1%) 4. Control: 165/601 (27.4%) Differences between groups: $p < 0.001$ Message framing (gain/loss): gain, 400/1101 (36.3%); loss, 437/1100 (39.7%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Adherence increased by 10% when a reminder call was added to usual care. Addition of the Colorecord booklet did not appear to have any impact. The most intensive package was associated with a relatively large adherence increment (21%) in comparison to usual care. No meaningful difference in adherence can be attributed to receipt of either 'gain' or 'loss' print messages ***Comments:*** None

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Myers, 1994,[92] USA ***Objectives:*** To develop an explanatory framework, referred to as the Preventive Health Model, for use in predicting factors associated with prospective adherence to colorectal cancer screening ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** 12,800 older adult (aged 50–74 years) men and women who were members of an independent practice association type HMO. Each of the individuals included in the sample had a working telephone number. A random sample of 646 individuals were selected from the sampling frame. 501/646 individuals were interviewed by phone and subsequently randomised into either the experimental or the control group. 251/501 were male; almost two-thirds of the population were aged 50–59 years; the median level of education was 12 years; nearly three-quarters were married; 78% were white; 28% had a personal or family history of colorectal disease; 70% had never had a FOBT ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (mailed FOBT + reminder after 15 days + educational booklet + telephone call): 250 (250) 2. Control (mailed FOBT + reminder after 15 days): 251 (251) ***Theoretical basis of intervention:*** Preventive Health Model, Theory of Reasoned Action ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up reported ***Baseline comparability:*** There were no significant differences between the study groups in terms of age, gender, race, education, marital status, past FOBT, personal and family history of colorectal cancer or polyps, or personal symptoms of colorectal cancer ***Baseline of assessment:*** 70% of participants (both groups combined) had never had a FOBT ***Follow-up:*** 90 days	***Intervention effects (uptake of screening):*** Number of participants tested: 1. Intervention: 126/250 2. Control 72/251 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** These findings indicate that, for both men and women, adherence is influenced strongly by the extent to which the behaviour is judged to make sense in everyday life. It also appears that additional education and encouragement may persuade men and younger women to participate in screening ***Comments:*** Generalisability may be limited as the study examined mainly white patients of HMOs in Pennsylvania and New Jersey, USA. No individual baseline data for the two study groups were provided

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Nattinger, 1988,[111] USA ***Objectives:*** To investigate the effects of two strategies aimed at increasing the uptake of mammography screening ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** Seven medical housestaff teams working at the Strong Memorial Hospital. Eligible female patients who had attended the clinic since July 1986 (aged 50–74 years) were identified through a computer database ***Setting:*** Hospital ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Feedback intervention (a computerised audit with a monthly feedback to the physicians): 2 house staff teams (97 individuals) 2. Visit-based strategy (information (education) and a mammography request form supplied to patients on entry to the examination room): 2 house staff teams (87 individuals) 3. Control group: 3 house staff teams (159 individuals) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No differences were found in the baseline mammography rates in the year prior to the trial ***Follow-up:*** 3 months	***Intervention effects (uptake of screening):*** 1. Feedback group: 44/97 (45.4%) (vs control group, $p = 0.03$) 2. Visit group: 47/87 (56%) ($p < 0.001$) 3. Control group: 53/159 (33.3%) The difference between the uptake rates in the two intervention groups was not significant ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The policy intervention was successful in improving utilisation. Feedback may also be successful. Further research is required on the relative effectiveness of policy versus feedback, and the study needs to be extended to include physicians in practice ***Comments:*** The generalisability of the study may be limited as women in the particular hospital studied are not representative of the population as a whole
Nattinger, 1989,[256] USA ***Objectives:*** To evaluate two strategies for improving uptake of mammography ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** 508 women aged 50–74 years with one or more outpatient visits during the 6-month intervention period ***Setting:*** Hospital (outpatients) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Audit with feedback: 2 teams (152 women) 2. Visit-based strategy (patient handout; request card attached, completed apart from doctor's signature; patient given handout by clinic staff): 2 teams (129 women)	***Intervention effects (uptake of screening):*** Completed mammograms: 1. Feedback: 75/152 (49%) 2. Visit: 60/129 (47%) 3. Control: 74/227 (33%) Visit and feedback groups had a significantly higher proportion of women who had completed mammograms than the control group ($p < 0.007$), with no significant differences between intervention groups	***Authors' conclusions:*** Audit with feedback and a new visit-based strategy of a patient cue associated with simplification of the ordering process both greatly improved uptake rates for screening mammography. Practitioners could choose the strategy most suited to their situation ***Comments:*** Possibility of a Hawthorne effect (the residents in all study arms may have changed their behaviour as they knew they were being studied)

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	3. Control (no intervention): 3 teams (227 women) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Unit of allocation different from unit of analysis ***Baseline comparability:*** Patients were similar in age and race. Residents were fairly equally distributed with regard to year of residency. The feedback group had a slightly higher proportion of male residents ***Baseline of assessment:*** Prior to study, 21.6% of age–sex eligible patients seen had a mammogram order ***Follow-up:*** 6 months; mammogram ascertainment extended back for 12 months prior to end of intervention	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Navarro, 1995,[191] 1998,[317] USA ***Objectives:*** To describe the short-term impact of the intervention known as *Por La Vida* on cancer screening for Latinas in San Diego, California ***Design:*** RCT (cluster) ***Screening test:*** Mammogram, Pap smear, CBE	***Sample:*** 500 Latinas, in groups of 10–15, were initially recruited through *consejeras* (individuals that have a traditional lay health-worker role in the Latino community). Groups of individuals were randomly assigned to either the intervention or control group on the basis of their *consejeras*. 512 individuals were interviewed at baseline. However, 147 failed to complete the post-test survey and were excluded from the analysis. The average age of the participants was 34 years (range 18–72 years) and on average they had a low socio-economic status (median 7 years' education, yearly income $12,000, average family size 5). The majority were married and full-time home-makers; 92% were born in Mexico, 5% in the USA, 3% in other Spanish-speaking countries; women not born in the USA had been resident in the country for approximately 8 years; average acculturation (Marin's short scale of acculturation) was 2; over 60% had no health insurance; over 40% had no regular healthcare provider ***Setting:*** Community	***Intervention effects (uptake of screening):*** *CBE:* 1. Intervention: 119/199 (59.8%) 2. Control: 96/162 (59.6%) *Mammogram:* 1. Intervention: 45/80 (56.4%) 2. Control: 34/78 (43.6%) *Pap smear:* 1. Intervention: 130/199 (65.3%) 2. Control: 99/162 (61.1%) *Pre- and post-test changes in women who completed mammograms:* 1. Women as unit of analysis: intervention (21.4%), control (7%); $p = 0.029$ 2. *Consejeras* as unit of analysis: intervention (24.3%), control (6.8%); $p = 0.063$	***Authors' conclusions:*** Key to the *Por La Vida* intervention model is the identification of natural helpers in the Latino community and their subsequent training in interventions based on Social Learning Theory using culturally appropriate educational materials. The model is an effective and viable approach for increasing the use of cancer screening tests in Latinas of low socio-economic level and low level of acculturation ***Comments:*** The generalisability may be limited as the study focused on USA Latinas of low socio-economic status who have a low level of acculturation. The differences between the control (community living skills) and intervention (*Por La Vida*) programmes are not very clear. Only women aged ≥ 40 years were included in the mammography analysis. The results are presented using both the women and the *consejeras* as the units of

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Intervention (18 *consejeras* participated in the *Por La Vida* programme, whereby they conducted 12 weekly educational sessions): 274 (199) 2. Control (18 *consejeras* participated in a 'community living skills' programme): 238 (162) ***Theoretical basis of intervention:*** Cognitive Social Learning Theory ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 147/512 women failed to complete the follow-up survey and 151/512 were excluded from the final analysis (76 control, 75 intervention). Appropriate analysis using clusters, not individuals ***Baseline comparability:*** Only one statistically significant difference was found between the control and intervention groups at baseline: proportion of women employed (17.5% control vs 8.9% intervention). This was not regarded as a threat to the internal validity of the study because it was only one of 16 variables tested and no other systematic pattern of differences in socio-economic status was detected ***Baseline of assessment:*** Percentage of women: *CBE:* intervention 103/199 (52%), control 84/162 (51.9%) *Mammogram:* intervention 60/199 (30.4%), control 40/162 (24.6%) *Pap smear:* intervention 93/199 (46.7%), control 84/162 (51.6%) ***Follow-up:*** Not stated	*Pre- and post-test changes in women who completed CBE:* 1. Women as unit of analysis: intervention (17.7%), control (15.5%); $p = 0.589$ 2. *Consejeras* as unit of analysis: intervention (19.5%), control (19.3%); $p = 0.967$ *Pre- and post-test changes in women who completed Pap smear:* 1. Women as unit of analysis: intervention (23.1%), control (16.2%); $p = 0.096$ 2. *Consejeras* as unit of analysis: intervention (23.4%), control (18.4%); $p = 0.369$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	analysis. The authors state that the results are limited as the test completion rates for both the pre-test and the post-test were lower than desired

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Nichols, 1986,[158] UK ***Objectives:*** To evaluate whether compliance with screening for colorectal cancer using the Haemoccult test could be improved using several different methods of invitation ***Design:*** RCT, some parts factorial ***Screening test:*** FOBT	***Sample:*** 23,345/25,852 people aged 40–70 years. Exclusions: left the practice, unsuitability, death, not contacted due to limited time ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter from GP + Haemoccult test + educational booklet: ? (4134) 2. Letter from GP + Haemoccult test (no educational booklet): ? (4002) 3. Letter from GP + specific appointment + educational booklet: ? (1740) 4. Letter from GP + specific appointment (no educational booklet): ? (1958) 5. Letter from GP + request to make appointment + educational booklet: ? (1076) 6. Letter from GP + request to make appointment (no educational booklet): ? (1066) 7. Letter from GP + request to collect test (1 health centre only) + educational booklet: ? (220) 8. Letter from GP + request to collect test (1 health centre only) (no educational booklet): ? (201) 9. Consultation + educational booklet: ? (1732) 10. Consultation (no educational booklet): ? (1695) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Only 67% of those allocated to routine consultation actually attended. 7545/17,824 (42%) completed the test and 5521 were excluded from the analyses ***Baseline comparability:*** Not stated	***Intervention effects (uptake of screening):*** 1. Letter + test + booklet: 1572/4134 (38%) 2. Letter + test (no booklet): 1536/4002 (38%) Both groups: 3108/8136 (38%) 3. Letter + appointment + booklet: 833/1740 (48%) 4. Letter + appointment (no booklet): 976/1958 (50%) 5. Letter + make appointment + booklet: 276/1076 (26%) 6. Letter + make appointment (no booklet): 311/1066 (29%) 7. Letter + collect test + booklet: 41/220 (19%) 8. Letter + collect test (no booklet): 31/201 (15%) 9. Consultation + booklet: 991/1732 (58%) 10. Consultation (no booklet): 978/1695 (57%) Overall effect of booklet: booklet 991/1732; no booklet: 978/1695 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Uptake of screening for colorectal cancer can be increased if invitations are issued personally. The most effective method was clearly the one in which the GP offered the Haemoccult test during a routine consultation. The overall uptake rate achieved by offering the test during a routine consultation was nearly 60%. Sending a letter with a specific appointment to invite patients to colorectal screening resulted in a lower uptake rate than the 'opportunistic' approach, but a higher rate than sending the test by post ***Comments:*** The results reported in this smaller groups (7 and 8%) must be treated with caution as the subjects may not have been randomised. Denominator is unclear

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Not stated ***Follow-up:*** Not stated		
O'Connor, 1998,[159] UK ***Objectives:*** To determine the effect of a personalised letter from the GP recommending mammography, sent to coincide with an invitation from the NHS breast screening programme, on uptake of breast cancer screening ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 473 women from a general practice covering an area of high deprivation with a large Turkish population. Exclusion: mammography within the past 3 years; under investigation for breast cancer; terminal illness; living abroad; moved from practice area; 'ghosts'; Pap smear data unavailable ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. GP letter + explanatory leaflet + invitation from NHS breast screening programme: 234 (236) 2. Control (invitation from NHS breast screening programme): 234 (234) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No intention-to-intervene analysis, but only two women were lost to follow-up ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Previous uptake for screening was taken as 36 ***Follow-up:*** 3 months	***Intervention effects (uptake of screening):*** 1. Letter: 134/236 (57%) 2. Controls: 120/234 (51%) This difference (5.5%; 95% CI, –3.5 to 14.5) was not significant ($p = 0.23$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Personal recommendation by letter prompting attendance of mammography from the GP known best to women due to be screened did not improve uptake of breast screening ***Comments:*** Generalisability may be limited as the study only looked at patients from one GP practice
Ornstein, 1991,[160] USA ***Objectives:*** To assess the impact of computer-generated reminders to patients and/or physicians on the uptake of five preventive services ***Design:*** RCT (cluster) ***Screening test:*** Cholesterol test, FOBT, mammogram, Pap smear	***Sample:*** 7397 patients who had made a clinic visit within the previous 2 years, aged ≥ 18 years. 49 physicians participated ***Setting:*** Family medicine centre (academic) ***Intervention(s): number randomised (number analysed in parentheses).*** It is unclear what numbers were used in the analysis 1. Physician reminders (computer-generated reminders): 1988 patients; 14 physicians (?)	***Intervention effects (uptake of screening):*** Percentage change from baseline: *Cholesterol:* 1. Physician reminders: 12.3% ($p < 0.0001$) 2. Patient reminders: 13.6% ($p < 0.0001$)	***Authors' conclusions:*** A 1-year comprehensive preventive services programme can dramatically increase adherence to four widely accepted preventive services in a well-defined population of family patients. Administrative changes and education alone resulted in significant improvements

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Patient reminders (2 personalised letters, 6 months apart): 1908 patients; 13 physicians (?) 3. Physician and patient reminders (both the above interventions): 1925 patients; 12 physicians (?) 4. Control group (no additional intervention): 1576 patients; 10 physicians (?) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No intention-to-treat analysis. Unit of allocation (practice group) different from unit of analysis (patient) ***Baseline comparability:*** Groups differed significantly ($p < 0.0001$) in race, type of insurance and visit frequency ***Baseline of assessment:*** *Pap smear:* patient reminders 37.4%; physician reminders 43.8%; physician and patient reminders 40%; control group 46% *Mammography:* patient reminders 18.2%; physician reminders 20.6%; physician and patient reminders 11.4%; control group 11.7% *Cholesterol:* patient reminders 17.5%; physician reminders 22.9%; patient and physician reminders 19.5%; control 19.2% *FOBT:* patient reminders 14.7%; physician reminders 18.1%; patient and physician reminders 9.3%; control 10.7% ***Follow-up:*** 1 year	3. Physician and patient reminders: 18.6% ($p < 0.0001$) 4. Control: 9.1% ($p < 0.0001$) *FOBT:* 1. Physician reminders: 5.1% ($p = 0.003$) 2. Patient reminders: 8.7% ($p < 0.0001$) 3. Physician and patient reminders: 17.7% ($p < 0.0001$) 4. Control: 8.1% ($p < 0.0001$) *Mammography:* 1. Physician reminders: 10.7% ($p = 0.0009$) 2. Patient reminders: 2.8% ($p = 0.35$) 3. Physician and patient reminders: 15.7% ($p < 0.0001$) 4. Control: 15.7% ($p < 0.0001$) *Pap smear:* 1. Physician reminders: –4.5% ($p = 0.001$) 2. Patient reminders: –2.1% ($p = 0.12$) 3. Physician and patient reminders: –0.8% ($p = 0.6$) 4. Control: –0.9% ($p = 0.54$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Biases reported: the study was limited to analyses of attending patients; physicians in the four groups were in the same building, so blinding was not possible; and the Hawthorne effect may have contributed to some of the improvements noted. Baseline differences in patient characteristics
Owen, 1990,[137] Australia ***Objectives:*** To assess the impact of follow-up letters and incentives on retest rates and biometric changes in follow-up screenings for cholesterol levels ***Design:*** RCT	***Sample:*** The study population consisted of 12,067 people (7235 females, 4832 males, mean age 49 years, age range 18–98 years) whose cholesterol levels were screened as part of a community-based cholesterol screening programme in New South Wales. Those with cholesterol levels > 210 mg/dl ($n = 5205$) were counselled on how to reduce their cholesterol level. These individuals were then	***Intervention effects (uptake of screening):*** Number of participants who returned for a retest 1. SAF: 947/1648 (59.1%) 2. SAFI: 1001/1629 (61.4%)	***Authors' conclusions:*** There was no significant different between the three intervention conditions in participation rates and a number of biometric measures. These results suggest that additional health information and prize incentives do not enhance rates of return

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Cholesterol test	randomised to one of three intervention groups and invited to take another test 4–5 months later ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (screening and advice plus follow-up (SAF); contacted by letter 4 weeks after screening and reminded about lowering their cholesterol levels and sent an order form for low-cost cookery books): 1648 (1648) 2. Intervention (screening, advice, follow-up and incentive (SAFI); as SAF, but also sent a coupon which if they attended their retest would enter them into a competition to win a microwave oven): 1629 (1629) 3. Control (screening and advice (SA); not contacted any further until they were sent a reminder 3 months later for the retest): 1659 (1659) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up were reported ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 4–5 months after initial test	3. SA (control): 1043/1659 (62.9%) This difference in return rates was not significant (χ^2 = 0.28, df = 2; p = 0.88) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	for retest or changes in dietary and exercise behaviours within the context of a community screening programme in Australia ***Comments:*** The generalisability may be limited as the study only included communities in Australia who attended a first round of screening through a community screening programme. No sample-size or power calculations were performed to assess whether the study groups were of sufficient size to detect clinically significant differences in attendance
Palm, 1997,[151] The Netherlands ***Objectives:*** To assess the effect of the family physician on improving compliance with follow-up of abnormal smears in cervical cancer screening ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** 511 women registered with 86 family practices that sent their smears to Nijmegen laboratory, in two Regional Health Authority districts in the east of The Netherlands. Women had a cytological abnormality that had been detected in the first smear, during the first screening round. 75 women were excluded (from the initial sample of 586) because of a previous abnormal smear ***Setting:*** Family practice	***Intervention effects (uptake of screening):*** Overall, optimal follow-up 76%, suboptimal follow-up 12%, lost to follow-up 12%. Women who failed to comply with follow-up were more likely to be older (p = 0.031) and have a less severe degree of cytological abnormality (p = 0.007) than those who returned for follow-up. There was no relationship between marital status and uptake (p = 0.935)	***Authors' conclusions:*** The study shows that family physicians who are involved in inviting women for cervical screening are more successful in obtaining follow-up of abnormal smears than family physicians not involved in the initial invitation. Practices with a fail-safe system for follow-up were more successful in compliance with follow-up than practices without such a system

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Intervention practices – women were sent a personal invitation for screening from their family physician. All these practices had a fail-safe system for follow-up in which they sent an invitation for follow-up or contacted women who did not respond to recommended follow-up: ? (153) 2. Control practices – women were invited for screening by the Regional Health Authorities (national call system). Some practices had fail-safe systems for follow-up. In all practices, the family physician took the smears: ? (140) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Data on practice of 'fail-safe' systems for follow-up were known for the nine practices with practice-based call systems from the intervention study and 45 other practices from a postal survey conducted in part of the region ***Follow-up:*** 12 months	Remaining analyses excluded the 205 women registered with practices with no data on monitoring and surveillance for follow-up *Follow-up and involvement of family physician:* 1. Practices with a fail-safe system: intervention (n = 53), optimal follow-up 45 (84.9%), suboptimal follow-up 6 (11.3%), lost to follow-up 2 (3.8%); control (n = 140), optimal follow-up 111 (79.3%), suboptimal follow-up 17 (12.1%), lost to follow-up 12 (8.6%) 2. Practices without a fail-safe system: control (n = 113), optimal follow-up 74 (65.5%), suboptimal follow-up 19 (16.8%), lost to follow-up 20 (17.7); p = 0.02 Severity of abnormality and presence of a fail-safe system for follow-up had an independent association with follow-up. There was no independent effect of involvement in the family-practice-based call system, or of age ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** None
Park, 1993,[231] USA ***Objectives:*** To compare compliance with two screening FOBTs, the Coloscreen Self-Test and Haemoccult II guaiac-impregnated cards, for colorectal cancer ***Design:*** Quasi-RCT ***Screening test:*** FOBTs (Coloscreen Self-Test; Haemoccult II guaiac-impregnated cards)	***Sample:*** 100 patients (98 men, 2 women) from a veterans' affairs general medicine clinic and 183 university private practice patients (65 men, 118 women) aged ≥ 50 years ***Setting:*** Veterans' affairs clinic, private practice (academic) ***Intervention(s): number randomised (number analysed in parentheses).*** Two FOBTs compared, both requiring completion over 3 consecutive days	***Intervention effects (uptake of screening):*** *Uptake in the two intervention groups:* 1. Coloscreen Self-Test: 88/136 (60%) 2. Guaiac cards: 105/147 (71%) Difference: not significant (p = 0.49)	***Authors' conclusions:*** Coloscreen Self-Test does not improve patient compliance with FOBT and may reduce compliance in some sectors of the population ***Comments:*** Previous experience of FOBT with guaiac cards by some of the sample (number not given) may have influenced uptake

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	1. Coloscreen Self-Test result recorded on the card provided in the kit and mailed to the physician: 136 (136) 2. Haemoccult II guaiac-impregnated cards were returned to the physician for analysis: 147 (147) Patients in both groups were given oral and written instructions by clinic nurses, and pre-paid envelopes ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Patients returning incomplete tests or results cards were included in the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Some of the sample had previously been screened using guaiac cards (number not given) ***Follow-up:*** Not stated	*Uptake by site:* Of the veterans' affairs clinic patients, 84% (42/50) completed guaiac cards and 46% (23/50) completed the Coloscreen Self-Test, a significant difference ($p < 0.05$). 76% (65/86) of private patients completed the Coloscreen Self-Test and 65% (63/97) guaiac cards, a significant difference ($p < 0.01$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Paskett, 1990,[174] USA ***Objectives:*** To evaluate the effectiveness of a pamphlet designed to motivate women with abnormal Pap smears to return for a repeat smear ***Design:*** Quasi-RCT ***Screening test:*** Pap smear	***Sample:*** 170 women with abnormal Pap smear, not pregnant and not advised to have colonoscopy ***Setting:*** Women's care centre (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Pamphlet (with prompt) + notification letter + explanation sheet about Pap smears: 83 (80) 2. Control group (letter + explanation sheet): 87 (81) ***Theoretical basis of intervention:*** Hierarchical Weighted Utility Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Nine women were excluded after randomisation and not included in the analysis. Drop-outs ($n = 43$) were included in the analysis ***Baseline comparability:*** Women did not differ significantly in their demographic or medical characteristics	***Intervention effects (uptake of screening):*** 1. Intervention group: 51/80 (64.2%) 2. Control group: 42/81 (51.3%) Difference: 12.9% (95% CI, –2.0 to 28.2; $p < 0.097$); OR = 1.71 (95% CI, 0.91 to 3.20; $p < 0.097$) Adjustment for demographic, medical, attitudinal and knowledge variables had no significant effect ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The authors' express concern about the generalisability of the results. The sample contained a few women from black or lower educational status ***Comments:*** The majority of patients seen in the centre were self-referred (70%), thus affecting the generalisability of the results

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: Almost all women had a Pap smear annually and knew that routine smears should occur 3 times yearly. 34% had had a prior abnormal smear and 88% an atypical smear ***Follow-up:*** 6 weeks to 9 months depending on women's history and abnormality and physician methods		
Pierce, 1989,[161] UK ***Objectives:*** To evaluate whether systematic methods of call and recall are more effective than a non-systematic method and to see which of the two systematic methods was more effective ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 477/1232 women aged 35–64 years registered with a general practice. 650 women who were already on the recall list or known to have had a smear in the past 5 years and 166 who had had a hysterectomy were excluded ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter asking women to have a smear: 140 (140) 2. Physician reminder (tagged notes): 142 (142) 3. Control group: 134 (134) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 27% of women in the tagged group did not receive the intervention. More women from the screening group (14%) than the tagged (8%) or control (6%) groups were removed from the practice list ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Women in the sample had not been screened in the past 5 years ***Follow-up:*** 1 year	***Intervention effects (uptake of screening):*** 1. Letter group: 45/140 (32%) 2. Physician reminder: 39/142 (27%) 3. Control group: 20/134 (15%) Difference between the two intervention groups (6%) was not significant (95% CI, 2 to 17, $p < 0.4$). The difference between the intervention groups and the control group (15%) was significant (95% CI, 7 to 23, $p < 0.01$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The systematic methods of call and recall were more effective than a non-systematic method. There were no significant differences between the two systematic methods after 1 year ***Comments:*** Only 73% of the women allocated to the tagged group actually received the intervention, as they did not consult their doctor during the study period
Plaskon, 1995,[242] USA ***Objectives:*** To test if a combination of a brief one-to-one educational talk by a physician addressing health beliefs (i.e. cues, risk, severity, and benefits of screening) and provision of a free, simple to use FOBT kit would increase utilisation	***Sample:*** Volunteers were recruited whilst visiting a poor rural family practice in a geographic area known for high rates of colorectal cancer morbidity and mortality. Eligible patients were aged 50–70 years who presented for any medical problem other than a general physical or colorectal symptoms that required an immediate FOBT. Initial sample size not given	***Intervention effects (uptake of screening):*** 1. Intervention: 24/47 (51%) 2. Control: 0/34 (0%) Difference: $\chi^2 = 24.67$, df = 1, $\phi = 0.55$, $p < 0.001$). When using logistic	***Authors' conclusions:*** The findings suggest free kits encourage more use; yet further exploration is needed to explain non-use, even when free kits are provided. Recommendations for future social work practice and research are discussed

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT ***Screening test:*** FOBT	***Setting:*** General practice (rural, low-income) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention group received educational materials, one-to-one talk by doctor and a free FOBT kit: 47 (47) 2. Control group received educational materials and one-to-one talk by doctor: 34 (34) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** The size of the sample still made it possible to use a χ^2 test to detect a moderate effect at the 0.05 two-tailed significance level with a statistical power of 0.8. The number of participants lost to follow up is not stated ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Approximately one-third of the sample said they had used an FOBT kit before and most were not sure. The details of uptake among the two intervention groups were not stated ***Follow-up:*** 1 week	regression analysis to estimate a more precise intervention effect, the authors' OR for the group membership was 52.45 (t = 3.49, p < 0.001), indicating that participants in the experimental group were 52 times more likely to use a screening kit than those in the control group, controlling for sex, previous use, perceived risk and education ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** The authors did not state the number of participants who were randomised to each study group; they only gave the number of participants that remained at the end of the study. According to the self-reports on the follow-up questionnaire, 47 subjects claimed to have received a kit. However, only 45 kits were distributed. This may suggest that the use of self-report as a reliable method for measuring both group allocation and uptake may be questionable. A follow-up period of 1 week may not allow sufficient time for members who were not given a free FOBT (control) to obtain one, having been given time to think about it
Powers, 1992,[162] USA ***Objectives:*** To determine the impact of written patient reminders on physician performance ***Design:*** RCT (? cluster) ***Screening test:*** Mammogram, CBE, Pap smear, FOBT, sigmoidoscopy	***Sample:*** 37 internal medicine and 14 family medicine residents ***Setting:*** Health centre ***Intervention(s): number randomised (number analysed in parentheses).*** Numbers differed according to eligibility for screening test. Total numbers allocated to each group were not stated 1. Written reminders by clinic nurses (individualised according to the age and gender of the patient) 2. Control group patients were not given reminder ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** *CBE (n = 999):* 1. Letter: 57% 2. Control: 48% difference (p < 0.05) *Mammogram (n = 845):* 1. Letter: 53% 2. Control: 45% difference (p < 0.05) *Pap smear (n = 999):* 1. Letter: 55% 2. Control: 52% difference (not significant)	***Authors' conclusions:*** Written patient reminders do not require great expenditure of physician time, and lead to a small but significant improvement in performance of cancer screening tests, especially in older age groups ***Comments:*** Data extracted from an abstract only

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. No details of analyses. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** None stated	*FOBT (n = 993):* 1. Letter: 56% 2. Control: 49% difference ($p < 0.05$) *Sigmoidoscopy (n = 993):* 1. Letter: 37% 2. Control: 28% difference ($p < 0.05$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Pritchard, 1995,[103] Hyndman, 1996,[318] Australia ***Objectives:*** To examine the effectiveness (Pritchard) and cost-effectiveness (Hyndman) of three interventions encouraging uptake of Pap smear. Secondary aim to evaluate acceptability of a special screening clinic ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 757 female patients (of 2139 age-eligible women) at a university general practice in a socio-economically disadvantaged area of Perth, aged 36–69 years. Exclusions: women with a Pap smear in the past 2 years, hysterectomy, no attendance at the practice for 3 years or more, known to attend another practice, terminally ill ***Setting:*** General practice (academic, rural, low-income) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Physician reminder (tagged notes) group: 198 (198) 2. Letter only group: 206 (206) 3. Appointment letter group: 168 (168) 4. Control group: 185 (185) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations undertaken. 22 women randomised to intervention groups were found to have had a hysterectomy but were retained in the analyses 60% of women in the tagged notes group did not attend the practice during the study period and so did not receive the intervention. 53% of control group women did not attend	***Intervention effects (uptake of screening):*** 1. Tagged notes: 42/198 (21.2%) 2. Letter only: 53/206 (25.7%) 3. Appointment: 51/168 (30.4%) 4. Control: 31/185 (16.8%) Logistic regression showed that a significantly higher proportion of women in the appointment group than in the control group had a Pap smear at the practice (authors' OR = 2.14; 95% CI, 1.28 to3.59) and that women in the letter group were more likely to have a smear than controls (authors' OR = 1.66; 95% CI, 1.00 to 2.75) ***Intermediate outcomes:*** Not stated ***Costs:*** Compared with the control group, tagging of notes had the lowest incremental cost-effectiveness ratio ($15); the two letter interventions had incremental cost-effectiveness ratios approximately 6 times larger ($98 for letter only, $87 for letter and appointment). So, although the letter interventions were more successful at	***Authors' conclusions:*** Individual invitation letters issued from a general practice to its patients are more effective in encouraging women to attend for a Pap smear than unsystematic opportunistic screening, especially when the letter includes a specific appointment time, although the difference in outcome between letters with and without appointments was not statistically significant ***Comments:*** The follow-up period was 1 year and the recommended screening interval 2 years, so some women may have been screened after the study period but within the recommended interval

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: No statistically significant differences between study groups and all women who attended the practice during the study period for age, country of birth, marital status and education ***Baseline of assessment:*** Practice record of previous smear found for 41% of the sample; 60% of smears had been taken more than 3 years before the study. No significant difference between study groups in screening history ***Follow-up:*** 12 months	recruiting women for screening, the extra cost involved makes them less marginally cost-effective than tagging files[318]	
Pye, 1988,[207] UK ***Objectives:*** To assess the efficacy of personalised GP letters, educational leaflet and symptom questionnaires in increasing compliance with FOBT screening ***Design:*** RCT (cluster) ***Screening test:*** FOBT	***Sample:*** 3860 patients aged 50–74 years from participating general practices ***Setting:*** Screening project ***Intervention(s): number randomised (number analysed in parentheses)*** 1930 people in the intervention group were randomised to five interventions: 1. FOBT and doctor's letter: 385 (385) 2. FOBT, doctor's letter and educational leaflet: 385 (385) 3. FOBT, doctor's letter, bowel symptom questionnaire: 387 (387) 4. Educational leaflet 2 weeks prior to FOBT and doctor's letter: 388 (388) 5. Bowel symptom questionnaire 2 weeks prior to FOBT and doctor's letter: 385 (385) 6. Control group (no details provided; ? not a randomised control) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated. Unit of allocation was household, unit of analysis was individual	***Intervention effects (uptake of screening):*** 1. FOBT and doctor's letter: 210/385 (55%) 2. FOBT, doctor's letter and educational leaflet: 176/385 (46%) 3. FOBT, doctor's letter, bowel symptom questionnaire: 185/387 (48%) 4. Educational leaflet 2 weeks prior to FOBT and doctor's letter: 197/388 (51%) 5. Bowel symptom questionnaire 2 weeks prior to FOBT and doctor's letter: 185/385 (48%) No significant difference between men and women ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Neither educational material nor bowel symptom questionnaires increased compliance. The personal letter from the GP appears to achieve satisfactory compliance ***Comments:*** No mention was made of the control group in the analysis of uptake, with comparisons made between the five intervention groups

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 weeks after FOBT sent to patients		
Reynolds, 1990,[200] USA ***Objectives:*** To evaluate the effectiveness of two educational programmes designed to increase compliance with American Cancer Society recommendations for mammography ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** 156 women aged > 35 years from 12 community groups ***Setting:*** Not stated ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Educational (information) programme only (E): ? (50) 2. Educational (information) programme plus psychological programme (refuting of barriers, demonstration of accessing service, and participant commitment through signing a contract) (EP): ? (72) 3. Control group (delayed treatment): ? (54) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 112 women (71%) completed the post-intervention interview; women who had had a mammogram in the past year were excluded. No intention-to-intervene. Appropriate analysis using clusters, not individuals ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months post-intervention	***Intervention effects (uptake of screening):*** ANOVA showed there were no significant differences in compliance between the three groups (F = 1.21, p = not significant). No numbers were provided ***Intermediate outcomes:*** *Intention to obtain a mammogram:* At post-test, EP women had a greater intention to obtain a mammogram than did control women (p = 0.002) *Knowledge:* EP and E women had higher levels of knowledge and higher levels of perceived benefit of mammography than did control women (p = 0.001) ***Costs:*** Not stated	***Authors' conclusions:*** No significant differences were found between the experimental groups on uptake, and uptake was low. The interventions appeared to significantly increase knowledge and intentions, not uptake ***Comments:*** The sample was selected from specific groups representing white middle-class women. Outcomes were directed more to the knowledge and intentions

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Richardson, 1994,[163] New Zealand ***Objectives:*** (1) To evaluate the effect of supporting letters from GP sent with invitations for screening on participation in a breast cancer screening programme. (2) To compare the effect of postal reminders with telephone reminders for women who did not respond to an initial invitation to participate in the programme ***Design:*** RCTs (two) ***Screening test:*** Mammogram	***Sample:*** Two separate studies were conducted: (1) 482 women aged 50–64 years registered at a health centre; and (2) 641 women who did not respond to an initial invitation within 2 weeks ***Setting:*** Health centre (urban) ***Intervention(s): number randomised (number analysed in parentheses)*** *Study 1:* 1. Invitation letter from GP; if no reply within 2 weeks a postal reminder was sent from the screening centre: 248 (203) 2. Control group did not receive a letter with the invitation: 234 (192) *Study 2:* 1. Telephone reminder (up to 3 calls made at different times of day): 248 (248) 2. Postal reminder: 247 (247) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Study 1 (GP letter): 87 women (45 intervention, 42 control) were found to be ineligible and were not included in analysis. Study 2 (telephone/postal reminder): 20% of invitations sent to postal reminders group returned because the address was incorrect ***Baseline comparability:*** Women in the GP letter trial groups were similar in age and in the number found to be ineligible for screening. No details were given for the second trial ***Baseline of assessment:*** Not stated ***Follow-up:*** Groups compared after all screening dates had passed	***Intervention effects (uptake of screening):*** *GP letter trial:* Total screened (including a reminder): 1. Intervention: 144/203 (71%) 2. Control: 119/192 (62%) Difference: 9% (95% CI, –0.3 to 18.2; $p = 0.06$) Excluding those ineligible/not contacted, those screened without reminder were: 1. Intervention: 113/203 (56%) 2. Control: 82/192 (43%) Difference: 13% (95% CI, 3.2 to 22.7; $p = 0.01$) *Telephone/postal reminder trial:* 1. Telephone: 118/248 (48%) 2. Postal: 121/247 (49%) Difference: 1.4% (95% CI, –10.2 to 7.4; $p = 0.8$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** GP endorsement of invitations increased participation in breast cancer screening. Postal reminders were as effective as telephone reminders in encouraging women who did not respond to an initial invitation to participate in screening ***Comments:*** To be on the practice register, the women in the studies must have visited their GP within the past 2 years. Thus the findings may not be generalisable to women who do not attend a GP and are not on a practice register. The study lacked information about the extent to which the study groups were comparable

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Richardson, 1996,[205] USA ***Objectives:*** To evaluate the effectiveness of a mailed intervention comprising written materials, audiotape and reminders designed to improve compliance with breast cancer screening guidelines among women at elevated familial risk ***Design:*** Quasi-RCT ***Screening test:*** Mammogram, CBE	***Sample:*** 511/597 twin sisters of women with breast cancer, Caucasian, free from cancer other than non-melanoma skin cancer, aged 42–80 years ***Setting:*** National study of cancer aetiology ***Intervention(s): number randomised (number analysed in parentheses).*** The numbers in each group were not stated 1. Personalised mailed educational materials concerning basic cancer risk and cancer screening information 2. Control (not stated) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 23 were excluded, 369 were included in the analysis of intervention ***Baseline comparability:*** No significant differences in age, education marital status, twin status, health beliefs ***Baseline of assessment:*** Baseline mean screening rates were 0.68 for control and 0.74 for intervention, while for mammography they were 0.48 and 0.50 for control and intervention, respectively (not significant) ***Follow-up:*** 2.5 years post-intervention with follow-up questionnaire	***Intervention effects (uptake of screening):*** *Annual CBE:* 1. Intervention: 49.4% 2. Control: 36.6% Authors' OR = 1.69; 95% CI, 1.10 to 2.60 *Mammograms:* 1. Intervention: 40.1% 2. Control: 29.8% Authors' OR = 1.58; 95% CI, 1.02 to 2.49 Intention-to-treat analysis, including drop-outs (assumed not to be screened at follow-up): annual CBE (authors' OR = 1.28; 95% CI, 0.85 to1.93) or mammograms (authors' OR = 1.25; 95% CI, 0.81 to1.92) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Although the intervention caused many women to be screened more regularly, those who had not been screened in the past or who held opinions that were not conducive to screening were more likely to drop out ***Comments:*** Sample characteristics and drop-outs may affect the generalisability of the results. Drop-outs differed significantly in some characteristics
Rimer, 1992,[257] USA ***Objectives:*** To measure the impact of health education interventions and the presence of a mobile mammography van on increased use of mammography, while subsidising mammography ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Women residing in one of eight retirement communities in the metropolitan Philadelphia area. Women were then excluded if they had reported having a mammogram in the past year ***Setting:*** Retirement communities ***Intervention(s): number randomised (number analysed in parentheses).*** For both groups, posters and promotional materials were used to promote the availability of $40 vouchers	***Intervention effects (uptake of screening):*** *6-month follow-up:* 1. Intervention group: 95/213 (45%) 2. Control group: 24/199 (12%) Logistic regression for mammography use indicated an OR of 6.1 associated with being in the experimental group	***Authors' conclusions:*** Results suggest that Medicare coverage alone will not increase mammography use sufficiently to achieve year 2000 objectives. However, the addition of access enhancing and health education interventions boosts utilisation dramatically ***Comments:*** The analysis of uptake rates was based on self-report. There is probably bias due to differences between groups

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	1. Letter from medical director; letter for women to give to their physician; educational session; reminder; mammography van: ? (213) 2. Control (vouchers and promotional materials as above): ? (199) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis. 532 (86%) completed the follow-up survey. No intention-to-intervene analysis ***Baseline comparability:*** Differences in ethnicity ($p < 0.001$), educational status ($p = 0.001$), beliefs ($p = 0.042$). Women in the control group were more likely to report never having had a mammogram ($p = 0.017$) ***Baseline of assessment:*** Last mammogram: 55/185 (30%) controls and 76/196 (39%) of intervention group had had a mammogram within past 2 years. 22/185 (12%) controls; 30/196 (15%) of intervention group had had a mammogram > 2 years previously; 108/185 (58%) controls and 91/196 (46%) of intervention group had never had a mammogram ***Follow-up:*** 3 months after the baseline interview women were interviewed again	***Intermediate outcomes:*** There were significant differences between the intervention (30%) and control (40%) groups in their agreement with the belief that if you feel fine, mammograms are not necessary ($p = 0.040$), as well as the belief that if you are healthy you do not need a mammogram (20% vs 35%; $p = 0.002$) ***Costs:*** Not stated	
Rimer, 1999,[122] USA ***Objectives:*** To assess whether increasing intensity of information-based tailored interventions was related to compliance with cancer screening tests ***Design:*** RCT ***Screening test:*** Pap smear, mammogram, CBE	***Sample:*** Adult users (aged > 18 years) of the Lincoln Community Health Centre (which serves 30% of the black population and is the most important provider of care for low-income people) who had visited in the preceding 18 months ($n = 3490$). After correcting for disconnected/wrong numbers ($n = 2419$), subjects who could not be contacted, had serious hearing problems or refused to be interviewed were excluded (final baseline sample $n = 1318$). Only women ($n = 926$) who remained eligible for the follow-up survey were included in the analysis ($n = 889$) ***Setting:*** Community health centre	***Intervention effects (uptake of screening):*** Women in the TP + TTC group were significantly more likely to have had Pap tests within the past year ($p = 0.05$) as compared to those in the other treatment groups (P 56%, TP 52%, TP + TTC 64%). For overall cancer screening uptake (Pap test uptake and age-appropriate breast cancer screening, which includes CBE) borderline statistically significant results ($p = 0.06$, Cochran–Mantel–Haenszel test) were found among the treatment groups, withthe greatest	***Authors' conclusions:*** The tailored interventions were helpful in promoting Pap test compliance and overall cancer test compliance. These results confirm others and suggest, as clinicians have long known, that giving patients messages that are relevant, personalised and address their individual concerns are more effective than generic admonitions. This is a message that should have world-wide relevance. Rapid advances in digital technology should provide more tools to augment the clinician's limited time

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Provider prompting intervention (P): ? (201) 2. P + tailored print communications (birthday cards) (TP): ? (204) 3. P + TP + tailored telephone counselling (TTC): ? (213) ***Theoretical basis of intervention:*** Transtheoretical Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Of the initial sample of 2419, 22% could not be contacted, 4% had serious hearing problems and 3% refused to be interviewed at baseline. Of the 889 eligible women, 37 died before the follow-up interview, and a further 24% could not be reached due to disconnected phones, 2% were not eligible for the follow-up interview for health reasons and 2% refused to participate. The final sample included 627 women ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 16 months	level of overall uptake in the TP + TTC group (analysis adjusted for hysterectomy status and the number of observed behaviours). Among women without hysterectomy, 61% of the women in the TP + TTC group were compliant compared to 52% in the P group and 48% in the TP group. There was no significant effect of the interventions on mammography (P 86%, TP 82%, TP + TTC 85%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** The study only included participants who had visited the centre within the preceding 18 months
Roberts, 1983,[175] USA ***Objectives:*** To assess, in two experiments, the effects of different methods of encouraging return compliance in a tuberculosis detection drive ***Design:*** RCT ***Screening test:*** Tuberculosis test (Mantoux test)	***Sample:*** Volunteers, mostly students, 200 in experiment 1 and the next 553 volunteers in experiment 2 ***Setting:*** University ***Intervention(s): number randomised (number analysed in parentheses)*** *Experiment 1:* All participants given test. Received standard message to return in 48 hours to have skin test reaction read Authority status: Four groups received a message from an expert (an older male identified as the District Health Officer): (1.000). Four groups received a message from a non-expert (female identified as undergraduate volunteer): (1000) 1. Take-home reminder card with signature and identification of expert/non-expert: ? (45)	***Intervention effects (uptake of screening):*** *Experiment 1 (n = 200):* The authority variable (expert/non-expert) was not statistically significant (p = 0.99) 1. Take-home card: 37/45 (82.2%) 2. Postcard: 56/69 (81.2%) 3. Postcard and phone call: 35/42 (83.3%) 4. Person-to-person reminders: 39/44 (88.6%)	***Authors' conclusions:*** No experimental procedure improved on typical procedure used in tuberculosis detection drives ***Comments:*** Participants were volunteers and most were college students, who may have been highly motivated to comply, which may limit the generalisability of the study's findings to other populations

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Postcard with signature and identification of expert/non-expert to arrive before test-reading day: ? (69) 3. Verbal statement by telephone from expert/non-expert the evening before the test reading: ? (42) 4. Verbal statement from expert/non-expert at the final check-out point: ? (44) *Experiment 2:* Completed questionnaire of views of tuberculosis and intentions regarding the test reading; same technical procedures as above 1. Standard message recommending return in 48 hours: ? (274) 2. Enhanced message stressing the possible negative consequences of non-return: ? (279) 3. As (2), combined with a take-home reminder card: ? (278) 4. As (2), combined with an oral message alone: ? (275) 5. As (2) combined with a read message and asked for a verbal commitment to return: ? (185) 6. As (2), combined with a verbal and written commitment to return (188) or not asked for commitment (180) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 3/4.5 people in experiment 1 telephone reminder group could not be contacted and were excluded from the analyses. A follow-up survey of non-compliers found 6/75 postcards were not received (these participants were not counted as non-compliers). No intention-to-intervene analyses performed ***Baseline comparability:*** No significant differences found (sex, race, age, family history of tuberculosis) ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	*Experiment 2 (n = 553):* 1. Standard message: 196/274 (71.5%) 2. Enhanced message: 199/279 (71.3) 3. Enhanced message + take-home reminder card: 197/278 (70.9%) 4. Enhanced message + oral message alone: 198/275 (72%) 5. Enhanced message + read message + verbal commitment: 139/185 (75.1%) 6. Enhanced message + verbal and written commitment to return: 188 (not asked for commitment: 128/188 (68.1%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Robie, 1988,[281] USA ***Objectives:*** To evaluate the impact of education and reminders to physicians on their performance of cancer screening examinations ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear, mammogram, FOBT, sigmoidoscopy	***Sample:*** 41 medical residents working in an outpatient department ***Setting:*** School of medicine ***Intervention(s): number randomised (number analysed in parentheses).*** Both groups had taken an exam testing their knowledge of American Cancer Society screening guidelines 1. Over a 6-week period, 1-hour presentations given, followed by printed reminders for physicians put on outpatients' charts for 10 weeks: 21 residents (?) 2. Control (no intervention): 20 residents (?) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. All residents participated and all charts were complete and available for study. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Pap smear: 31% intervention (4/13) vs 21% (6/28) control. FOBT: 56% (23/41) vs 54% (19/35) ***Follow-up:*** 1 and 6 months	***Intervention effects (uptake of screening):*** *Pap smear – 1 month:* 1. Intervention: 10/20 (50%) 2. Control: 7/32 (22%) Difference: $p < 0.04$ *Pap smear – 6 months:* 1. Intervention: 11/24 (46%) 2. Control: 7/30 (23%) Difference: $p < 0.08$ *FOBT – 1 month:* 1. Intervention: 48% (12/25) 2. Control: 17/37 (46%) *FOBT – 6 months:* 1. Intervention: 19/26 (73%) 2. Control: 21/36 (58%) Difference: $p < 0.2$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The resident intervention group had a sustained increase at 6 months in Pap smear performance and a trend towards performing more stool guaiac tests. There was little increase in the performance of other cancer screening tests ***Comments:*** It is not clear whether the study was adequately powered to demonstrate differences. There may have been differences in the group of patients seen by each group of residents
Robinson, 1993,[232,319] UK ***Objectives:*** To compare the compliance, positive rate and yields of flexible sigmoidoscopy and FOBT screening vs FOBT alone ***Design:*** RCT (cluster) ***Screening test:*** FOBT, Sigmoidoscopy	***Sample:*** 1991 participants aged 50–74 years ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. FOBT + sigmoidoscopy: 958 (958) 2. FOBT alone: 1033 (1033)	***Intervention effects (uptake of screening):*** 1. FOBT/sigmoidoscopy: 457/958 (47.7%) FOBT and 270/958 (28.2%) flexible sigmoidoscopy tests were completed 2. FOBT: 573/1033 (55.4%) ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** The additional yield of flexible sigmoidoscopy over Haemoccult is encouraging, but methods of invitation to improve compliance with flexible sigmoidoscopy are required ***Comments:*** No dietary restrictions were imposed on the participants

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up reported. Unit of allocation different from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Costs:*** Not stated	
Robinson, 1994,[229] Hardcastle, 1983,[320] UK ***Objectives:*** To evaluate the effect of dietary restrictions on compliance with Haemoccult FOBT for colorectal cancer ***Design:*** RCT ***Screening test:*** FOBT	***Sample:*** 153 general practice patients in Nottingham aged 50–74 years. People with known malignant disease or serious health problems were excluded ***Setting:*** Screening programme (pilot) ***Intervention(s): number randomised (number analysed in parentheses).*** All participants were sent a standard letter of invitation by their GP. Numbers in each group not stated 1. Haemoccult FOBT for 3 days with dietary restrictions: ? 2. Haemoccult FOBT for 3 days without dietary restrictions: ? 3. Haemoccult FOBT for 6 days with dietary restrictions: ? 4. Haemoccult FOBT for 6 days without dietary restrictions: ? ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-out not stated ***Baseline comparability:*** No significant differences between groups in age or sex ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** No significant difference in uptake between the 3-day and 6-day groups either before reminder letter (42.7% (32/75) vs 38.5% (30/78); $p < 0.5$) or after it (61.3% (46/75) vs 62.8% (49/78); $p < 0.8$) Those in restricted-diet groups were significantly less likely to comply than those in unrestricted-diet groups, both before the reminder letter (27.6% (21/76) vs 53.2% (41/77); $p < 0.01$) and after it (51.3% (39/76) vs 72.7% (56/77); $p < 0.01$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** In a British population, compliance with Haemoccult screening is adversely affected by the imposition of dietary restrictions ***Comments:*** The sample size was small and no sample-size or power calculations were presented

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Robson, 1989,[236] UK ***Objectives:*** To assess whether an organised programme of prevention, including the use of a health promotion nurse improved recording, and follow-up of cardiovascular risk factors and cervical smears in a general practice ***Design:*** RCT ***Screening test:*** Pap smear, blood pressure measurement	***Sample:*** All women and men aged 30–64 years registered with a general practice in inner London, UK, with a high workload and overcrowded premises ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Protocol agreed for preventive activity and follow-up by health promotion nurse. Patients had open access to the nurse, who also contacted those with no record of risk factors or needing recall, identified by monthly computer searches: 799 Pap smears (799); 1620 blood pressure readings (1620) 2. Control group managed by GP alone; no (or restricted?) access to health promotion nurse: 806 Pap smears (806); 1586 blood pressure readings (1586) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Women with hysterectomy excluded from analyses relating to smear testing. Trial was discontinued after 2 years, instead of 3 as planned, as the GPs were no longer willing to exclude half the patients from accessing the health promotion nurse ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Practice had baseline of recorded preventive activity above average for inner London ***Follow-up:*** Study ran over 2 years; data on outcome measures analysed at the end of this period	***Intervention effects (uptake of screening):*** *Uptake of cervical smear:* 1. Intervention: 606/799 (76%) 2. Control: 392/806 (49%) A significant difference of 27% (95% CI, 22.5 to 31.9; $p < 0.001$) *Blood pressure recorded in previous 5 years:* 1. Intervention: 1511/1620 (93%) 2. Control: 1160/1586 (73%) A significant difference of 20% (95% CI, 17.5 to 22.7; $p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** An organised programme which includes a nurse with responsibility for adult disease prevention is likely to make an important contribution to recording of risk factors and follow-up of those patients with known risks ***Comments:*** No data were presented on the use by the intervention group members of the system of open access to the nurse, and the nurse's skills were an unquantified part of the intervention programme

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Rothman, 1993,[95] USA ***Objectives:*** To examine how altering attributions of responsibility for maintaining one's health affected women's attitudes and behaviour regarding screening mammography ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** 250 women aged ≥ 40 years who had not had more than 50% of the recommended number of screening mammograms and who worked in a large utility company in Connecticut, USA ***Setting:*** Workplace ***Intervention(s): number randomised (number analysed in parentheses).*** Women attended a session at work to view one of three 20-minute video programmes. The tapes differed solely in their attribution of responsibility for preventing and detecting breast cancer 1. Internal (tape emphasised a woman's own responsibility): ? (90) 2. External (tape emphasised doctor's responsibility): ? (44) 3. Information only (tape designed to communicate information): ? (63) After presentation, women completed a sealed packet of measures, received by post, with a stamped addressed envelope provided. Then received a thank you letter and a pamphlet with information about the Yale Mobile Mammography Unit with a slogan relevant to their assigned condition ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 197/250 women completed and returned the two questionnaire pack. Mammogram data were available for 185/197 women ***Baseline comparability:*** The women in the three groups were comparable in race, religion, education, income, marital status, subjective health status, cancer/breast related history, age, mammography history, and doctor visits ***Baseline of assessment:*** Baseline percentage of women in Connecticut used for comparison with study participants	***Intervention effects (uptake of screening):*** Uptake of mammograms after the presentation (numbers in groups not given): 1. Internal group: 65.9% 2. External group: 57.1% 3. Information group: 55.2% Women in the internal group were significantly more likely to obtain a mammogram than women in either of the other groups ($p < 0.01$), and than the average woman in Connecticut ($p < 0.005$) ***Intermediate outcomes:*** Subjects' positive and negative reactions to the video presentation did not vary by experimental condition, or in the amount of knowledge about breast cancer and mammography they acquired from the presentation ***Costs:*** Not stated	***Authors' conclusions:*** The study findings strongly suggest that a persuasive presentation emphasising one's own responsibility for maintaining health is most effective in promoting mammogram use ***Comments:*** The study conducted with women who were educated, relatively affluent and predominantly white, thus limiting the generalisability of the results. Participants all worked for the same company, so there was a possibility of contamination between groups. There were unequal numbers of subjects in each group, primarily due to differences in preferred viewing times

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Follow-up: Women contacted at 6 months and, if not reached or had not obtained a mammogram, again at 12 months		
Schapira, 1992,[164] USA ***Objectives:*** To determine if the use of a wallet-sized plastic screening 'credit' card would increase participants' compliance for subsequent mammograms when compared with traditional methods of increasing compliance ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** 220 women, aged 40–70 years undergoing their first screening mammography ***Setting:*** Cancer centre and research institute ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Screening plastic reminder card and return appointment date: 55 (44) 2. Screening plastic reminder card with return appointment date and a mailed reminder: 55 (43) 3. Appointment card for the next annual mammogram at the time of the first mammogram: 54 (43) 4. Verbal recommendation to return for a mammogram in 1 year: 56 (48) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No intention-to-intervene analysis ***Baseline comparability:*** No significant differences in age, mean duration between mammograms (months) or subjects initially referred by physician for mammograms ***Baseline of assessment:*** Women were all attending mammography screening for the first time ***Follow-up:*** 15 months	***Intervention effects (uptake of screening):*** 1. Reminder card and appointment: 32/44 (72.7%) 2. Reminder card and appointment + mailed reminder: 31/43 (72.1%) 3. Appointment card: 19/43 (44.2%) 4. Verbal recommendation: 17/48 (35.6%) Comparison of groups, $p = 0.0002$ (based on χ^2 statistic) Groups 1 and 2 combined ($n = 87$): 72.4% Groups 3 and 4 combined ($n = 91$): 39.8% ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The 'credit' card was designed to show the participant's screening anniversary, and the durability of the card may have been a factor in increasing the return rate. The use of reminder credit cards may increase compliance for periodic screening examinations for other cancers and chronic diseases ***Comments:*** Differences in reporting of data in tables and text
Segnan, 1998,[71] Italy ***Objectives:*** To assess the impact on compliance of different organisational options in the context of a population screening programme for cervical and breast cancer	***Sample:*** 8385 eligible women (aged 25–64 years). Exclusion criteria (screened by GP) included women who were already followed for a previously diagnosed cervical or breast cancer, those who attended for mammography during the year preceding the invitation, and those suffering from terminal illness or severe psychiatric symptoms	***Intervention effects (uptake of screening):*** *Pap smear:* 1. Group A: 759/2100 (36.1%) 2. Group B: 474/2093 (22.7%)	***Authors' conclusions:*** Women are more likely to attend screening tests if the invitation letter indicates a specific time and date for the test proposed, whereas attendance is very low if women are supposed to personally make arrangements for the test date. The GP

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT (cluster) ***Screening test:*** Mammogram, Pap smear	***Setting:*** Screening programme (population-based) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Personal letter signed by GP with prefixed appointment (group A, control): ? (2100 Pap smear; 2013 mammography) 2. Personal letter, signed by GP prompting appointment (group B): ? (2093 Pap smear; 2016 mammography) 3. Same letter as group A, but signed by programme co-ordinator (group C): ? (2094 Pap smear; 2015 mammography) 4. Personal letter with extended text signed by GP with prefixed appointment (group D): ? (2098 Pap smear; 2025 mammography) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported. Unit of allocation different form unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 12 months	3. Group C: 647/2094 (30.9%) 4. Group D: 770/2098 (36.7%) *Mammography:* 1. Group A: 945/2013 (46.9%) 2. Group B: 683/2016 (33.9%) 3. Group C: 837/2015 (41.5%) 4. Group D: 965/2025 (47.7%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	involvement may also further enhance participation, since women receiving letters with a prefix appointment, an invitation signed by their family physician was associated with a significant increase in compliance ***Comments:*** None
Selby-Harrington, 1995,[112] USA ***Objectives:*** To test the effectiveness and cost-effectiveness of three outreach interventions to promote well-child screening for children on Medicaid ***Design:*** RCT (cluster) ***Screening test:*** Child health screening	***Sample:*** 2053 families out of 2541 randomly selected families with 3377 children, due or overdue for a Medicaid health screening, in six medically underserved counties in North Carolina, USA. Children with disabilities were excluded ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Mailed pamphlet/letter: 589 (589) 2. Educational phone call by a nurse, appointment, and transport if desired: 284 (284)	***Intervention effects (uptake of screening):*** Authors' OR for intervention compared to control: *Pamphlet (families with phone):* 19/294 (6.5%). Unadjusted OR = 1.40 (95% CI, 0.69 to 2.85); adjusted OR = 1.49 (95% CI, 0.72 to 3.07) *Pamphlet (families without phone):* 26/295 (8.8%). Unadjusted OR = 1.61 (95% CI, 0.85 to 3.03); adjusted OR = 1.72 (95% CI, 0.89 to 3.32)	***Authors' conclusions:*** Briefly informing parents about the programme (control group) is unlikely to result in adequate use of the programme. The interventions in this study produced more screenings than the usual (control) method of informing. The increases were only significant for families with phones who received either a phone call or a home visit. In absolute terms, these increases were minimal. Alternative outreach methods are needed, especially for families without phones

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	3. Home visit made by nurse (mirrored that of the phone call); pamphlet given: 583 (582) 4. Control group (pamphlet about the programme): 598 (598) ***Theoretical basis of intervention:*** PRECEDE ***Sample-size calculations and analyses:*** Sample-size calculations and power calculations performed. Pamphlets appeared to reach 99% of with-phone families, and 97% of no-phone families. Even if a family could not be reached, they were included in the analysis. Appropriate analysis using clusters, not individuals ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 4 months	*Phone call:* 35/284 (12.3%). Unadjusted OR = 2.85 (95% CI, 1.50 to 5.42); adjusted OR = 3.00 (95% CI, 1.55 to 5.81) *Home visit (families with phone):* 50/307 (16.3%). Unadjusted OR = 3.95 (95% CI, 2.13 to 7.31); adjusted OR = 4.17 (95% CI, 2.21 to 7.87) *Home visit group (families without phone):* 25/275 (9.1%). Unadjusted OR = 1.67 (95% CI, 0.88 to 3.16); adjusted OR = 1.83 (95% CI, 0.94 to 3.56) *Control group (families with phone):* 14/298 (4.7%) *Control group (families without phone):* 17/300 (6.7%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Due to the characteristics of the sample and setting, the generalisability of the findings may be limited
Senore, 1996,[96] Italy ***Objectives:*** To assess the impact on compliance of three invitation methods, as well as the acceptability and efficacy of two bowel preparation regimens, for endoscopic screening in the general population ***Design:*** RCT ***Screening test:*** Sigmoidoscopy	***Sample:*** 1274 male and female patients (aged 55–59 years) from 14 randomly selected GP lists (Turin, Italy) were screened to see if they fulfilled the entry criteria for the study. Patients with a terminal illness or severe psychiatric symptoms, those who had been diagnosed with colorectal cancer, adenomas, or chronic inflammatory bowel disease, who had undergone a sigmoidoscopy or total colonoscopy within the previous 2 years, or who were no longer resident in Turin were excluded from the study. 1186 patients were randomly allocated within each GP practice to one of three groups according to the invitation procedure. Within each invitation group the participants were randomly allocated to one of two subgroups receiving different bowel preparations. 1170 participants were included in the final analysis ***Setting:*** General practice	***Intervention effects (uptake of screening):*** 1. GP invitation group: 112/382 (29.3%) 2. Scientist letter group: 95/381 (24.9%) 3. Study co-ordinator invitation group: 109/407 (26.8%) *Overall attendance by bowel preparation:* single enema, 163/587 (27.8%); double enema, 154/583 (26.4%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Compliance with this screening procedure tends to be low. One enema, self-administered 2 hours before sigmoidoscopy, can ensure a satisfactory bowel preparation ***Comments:*** All test procedures were performed free of charge. Within the analysed samples selected for postal and then telephone reminders, a number of individuals were no longer resident in Turin and therefore were not eligible to received the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses). It was not stated how many individuals were originally randomised to the study groups 1. Personal letter, signed by GP inviting patient to attend for a pre-fixed appointment: ? (382) 2. Personal letter and a letter signed by a well-known scientist supporting the study: ? (381) 3. Personal letter signed by the study co-ordinator: ? (407) Within each invitation group participants were assigned to either a single (*n* = 587 analysed) or double enema (*n* = 583 analysed). All invitation letters also included a leaflet explaining the rationale for the study, what the test involved, guidelines for use of bowel preparation, as well as information about possible side-effects of the test ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Initially 1200 participants were to be included, as this ensured an 80% power for declaring significant a 10% absolute difference in uptake across the invitation groups, assuming statistical significance at 0.05. With the same assumptions an absolute difference in uptake of about 8% between the two groups defined by the two bowel preparation regimens could be declared significant. 1170/1186 participants were included in the final analysis. 16/1186 participants were excluded after randomisation as they were subsequently found to be ineligible. The drop-outs were distributed evenly across the three groups (exact group assignments of drop-outs not stated) ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated		

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Seow, 1998,[194] Singapore ***Objectives:*** To determine if mailed health education material alone, or the same material delivered during a home visit made to the subject and her family would increase the uptake among Singapore women who had not responded to two previous invitations for mammography screening as part of the project ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 1500 women (aged 52–67 years) who had not responded to an invitation and first reminder, and were due to receive their second reminders. The sample broadly resembled the national population in ethnic composition (72.3% Chinese, 17.8% Malay, 9.0% Indian, 0.8% other). The unit of randomisation was individual women ***Setting:*** Screening centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Routine second reminder letter (with a screening date) sent through the mail (R): 500 (500) 2. Same letter with a family information pack designed to address the most significant barriers to mammography (RP): 500 (500) 3. Additional home visit to make contact with the woman and her family (RV): 500 (428) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** A sample-size calculation showed that 500 subjects were needed in each treatment group. Due to time constraints, 82 in the RV group did not receive a home visit and were not included in the analysis ***Baseline comparability:*** There was no difference in the mean age and ethnic distribution between the groups ***Baseline of assessment:*** Not stated ***Follow-up:*** 5 weeks	***Intervention effects (uptake of screening):*** 1. R: 35/500 (7.0%) 2. RP: 38/500 (7.6%) 3. RV: 57/428 (13.3%) The authors calculated that the rate ratio for attendance in group RP compared with group R was 1.09 (95% CI, 0.70 to 1.70) and for group RV compared with R was 1.90 (95% CI, 1.27 to 2.84). When analysed by the groups they were originally assigned to, women in the RV group remained significantly more likely to attend than those in groups R or RP ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Educational material sent by mail did not increase screening uptake among initial non-attenders in the local population, whereas a screening invitation delivered personally to the women and their family members achieved a significant increase. Such an intervention, if combined with additional efforts to improve cost-effectiveness, may be feasible among selected groups who are unlikely to respond to more traditional print material, or whose contact with the healthcare system is infrequent ***Comments:*** None
Sharp, 1996,[72] UK ***Objectives:*** To determine the relative effectiveness of three interventions designed to increase the uptake of breast screening ***Design:*** RCT	***Sample:*** 799 women aged 50–64 years who lived in area of south-east London, UK, served by the Butterfly Walk Breast Screening Clinic in Camberwell. Those who did not attend for screening after being sent two invitations were included in the trial. Only 'true' non-attenders were randomised. Women who had declined screening, had already been screened or had moved were excluded prior to randomisation	***Intervention effects (uptake of screening):*** 1. Home interview + health education: 36/315 (11.4%) (95% CI, 7.9 to 14.9) 2. Home interview (no health education): 24/307 (7.8%) (95% CI, 5.1 to 11.4)	***Authors' conclusions:*** Sending non-attenders a personal letter from the GP seems to be as least as effective as a nurse making a home visit (? health education). If a nurse's visit takes place, the addition of the health education element may be of considerable benefit (up to about 8%)

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Mammogram	***Setting:*** Screening centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Nurse delivered home interview with a patient-specific health education component: 324 (315) 2. Nurse delivered home interview, but without the health education component: 313 (307) 3. Personal letter from GP: 162 (160) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations were performed. 17 were excluded from all analyses after randomisation because they had already been screened or had moved, leaving 782 women. 14% of women in groups 1 and 2 seemed to have moved, 20% could not be contacted, and 30% of women in both groups 1 and 2 declined a visit. Thus uptake rates for interventions 1 and 2 were only 30–35% ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Total uptake before sending out reminders was about 71.5% ***Follow-up:*** 12 weeks	3. GP letter: 21/160 (13.1%) (95% CI, 7.9 to 18.4) The difference in attendance rates between group 1 and 3 (control) was –1.7% (95% CI, –8.0 to 4.6) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** None
Shelley, 1991,[247] Australia ***Objectives:*** To measure the impact of a health education campaign: whether there was an increase in the number of Pap smears performed in New South Wales in the period following the campaign, compared to that expected from data on the prior time period ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** 10% of women (aged 18–70 years) registered with Medicare ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses).*** The actual number of women included in the study was not reported 1. Health education campaign which involved mass media, some related community-level promotional activities and mailing of an educational package to all GPs 2. Control (no intervention)	***Intervention effects (uptake of screening):*** From the logistic regression models it was estimated that, for women aged ≥ 50 years in New South Wales, there was a 30% increase overall in Pap smears during the 4 months following the campaign and a 50% increase among those who had had a smear in the previous 2 years. Smaller increases were observed in the other states. Increases of 13–20% were observed among the younger age groups in New South Wales. In New South Wales there was an overall increase in Pap smear	***Authors' conclusions:*** There is little doubt that the campaign had a marked impact on Pap smear rates in New South Wales. However, the magnitude and duration of the impact, and whether it was due to the media campaign, the provider campaign or a combined effect of these two approaches, is more difficult to assess ***Comments:*** There was contamination of the control states, as at least one major media component of the campaign was televised nationally

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations. Drop-out not stated. Unit of allocation the same as unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** Not stated ***Baseline of assessment:*** The raw data were not presented (shown in graph form only) ***Follow-up:*** Each month for up to 4 months	rates from 14% to 32%, and from 19% to 52% among those overdue for screening ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Simpson, 1998,[129] UK ***Objectives:*** To determine whether various methods of offering the HIV test to pregnant women would lead to significantly different uptake rates. The study also looked at the impact of the different methods on the woman's response in terms of her satisfaction, anxiety and knowledge. Demographic and situation factors were examined to determine their effect on uptake ***Design:*** RCT ***Screening test:*** HIV test (prenatal)	***Sample:*** 3505 pregnant women booking at an antenatal clinic in Edinburgh for their first visit, over a 10-month period. Women were excluded if they were known to be HIV positive (n = 1) or if there was a language difficulty and no interpreter was available (n = 6) ***Setting:*** Hospital ***Intervention(s): number randomised (number analysed in parentheses).*** Different presentations of an offer of voluntary named HIV testing 1. 'All blood tests' leaflet and 'minimal' discussion protocol (education only): ? (495) 2. 'All blood tests' leaflet and 'comprehensive' discussion protocol: ? (521) 3. 'HIV specific' leaflet and 'minimal' discussion protocol (education only): ? (495) 4. 'HIV specific' leaflet and 'comprehensive' discussion protocol: ? (519) 5. Control group: ? (994) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 1. 'All blood tests' leaflet and 'minimal' discussion protocol (education only): 179/495 (36.2%) 2. 'All blood tests' leaflet and 'comprehensive' discussion: 193/521 (37%) 3. 'HIV specific' leaflet and 'minimal' discussion (education only): 171/495 (34.5%) 4. 'HIV specific' leaflet and 'comprehensive' discussion: 164/519 (31.6%) 5. Control group: 55/994 (5.5%) for those in control group and 35% for all those directly offered the test Each of the methods of directly offering the test resulted in a higher uptake than in the control group (p < 0.001). However, there was no significant difference between the four methods (p < 0.27)	***Authors' conclusions:*** A policy of offering an HIV test to all women resulted in higher uptake and did not increase anxiety or dissatisfaction. No one method of offering the test emerged as the most effective, as shown by uptake, suggesting that the extent of information given is irrelevant ***Comments:*** For ethical reasons, it was made clear that the women could ask for a HIV test if they wanted. In response to this there was an increase in testing from < 1% in the previous year to 6%

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: Sample-size and power calculations performed. 3024/3505 women participated (exclusions after randomisation). No intention-to-treat analysis ***Baseline comparability:*** No significant differences for mean age, marital status, primiparous, unemployment, area risk code (according to post code) or social deprivation score ***Baseline of assessment:*** The previous-year's uptake was less than 1% ***Follow-up:*** Not stated (study duration 10 months)	***Intermediate outcomes:*** *General knowledge:* General knowledge of HIV did not differ significantly by method of offering the test *Specific knowledge:* Specific knowledge about vertical transmission and the effects of zidovudine and breast-feeding was greatest when the information was repeated in both the leaflet and the discussion *Satisfaction and anxiety:* Neither satisfaction nor anxiety was affected by the method of offering testing ***Costs:*** Not stated	
Skaer, 1996,[113] USA ***Objectives:*** To evaluate the effect of full subsidisation on uptake of mammography among migrant Hispanic women ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** Migrant Hispanic women aged 40–76 years (average 52.4 years), with no history of breast cancer, and no mammogram within the past year ***Setting:*** Health clinics (rural) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention group – informed of guidelines for screening and its importance, told they were due for mammogram, given instructions for making an appointment, directions to the facility and a voucher for a free mammogram, redeemable within 30 days: ? (40, 20 in each clinic) 2. Control group – as above, but no voucher: ? (40, 20 in each clinic) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** Groups comparable in age, number of years resident in the USA, educational level, marital status, family income, and health insurance status	***Intervention effects (uptake of screening):*** 1. Intervention group: 35/40 (87.5%) 2. Control group: 7/40 (17.5%) Women with health insurance were 6 times more likely to obtain a mammogram than those with none (authors': OR = 6.29; 95% CI, 1.06 to 37.34; $p < 0.04$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Cost is a major barrier to accessing screening mammograms in this low-income migrant population, and women are more likely to use this service when financial barriers are removed ***Comments:*** The study was conducted with low income migrants to the USA, thus limiting the generalisability of the findings

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: 38% had had a mammogram at some time in the past ***Follow-up:*** 30 days		
Skinner, 1994,[98] USA ***Objectives:*** To evaluate the effectiveness of printed tailored recommendations compared with standardised printed recommendations on women's beliefs/ understanding and uptake of mammography ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** Women aged 40–65 years, in North Carolina, who had visited family practice groups in the previous 2 years, had a telephone and had not had breast cancer ***Setting:*** Family practice ***Intervention(s): number randomised (number analysed in parentheses)***. No details of number allocated to each group provided 1. Tailored letter 2. Control group (standardised letter) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 69 drop-outs. No intention-to-intervene analysis ***Baseline comparability:*** No differences in demographic characteristics, family history of breast cancer, or mammography status ***Baseline of assessment:*** 64% had had mammograms within the recommended interval and were not due for rescreening ***Follow-up:*** Telephone interviews at 3 and 8 months	***Intervention effects (uptake of screening):*** Of those due for a mammogram (n = 157), 44% of the intervention group had one, compared with 31% of controls; the difference was not significant (p = 0.16). Overall, there were no significant effects for stage movement (intention to have a mammogram) by letter type. For black and low-income women, tailored letters significantly improved mammography stage and uptake compared with standardised letters (race × intervention, $p < 0.05$; income × intervention, $p < 0.01$) ***Intermediate outcomes:*** Women who received tailored letters were more likely to remember them than standardised-letter recipients ($p < 0.05$) and were more likely to thoroughly read the contents ($p < 0.01$) ***Costs:*** Not stated	***Authors' conclusions:*** Tailored messages are a more effective medium for a physician's mammography recommendations; tailoring may be especially important for women of low socio-economic status ***Comments:*** It is unclear whether there were aspects of the tailored letter that were particularly effective for black and low-income women or whether there was a ceiling effect for white and higher income women because their percentage of possible change was limited by elevated baseline rates. Women without phones were excluded from the study
Somkin, 1997,[165] USA ***Objectives:*** To evaluate the effectiveness of two reminder interventions to increase the use of screening mammograms and Pap smears among female members of a large HMO ***Design:*** RCT ***Screening test:*** Pap smear, mammogram	***Sample:*** 7077 female HMO members aged 50–74 years with no mammogram in the previous 30 months or aged 20–64 years with no Pap smear in the previous 36 months ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. A letter inviting women to make an appointment: mammography 1171 (1171); Pap smear 1188 (1188)	***Intervention effects (uptake of screening):*** *Mammography:* 1. Letter: 310/1171 (26.5%) 2. Physician and patient reminder: 362/1171 (30.9%) 3. Usual care: 187/1171 (16.0%)	***Authors' conclusions:*** The authors recommend the use of patient reminder letters as an effective first step in an outreach programme for women who have not obtained recommended mammography and Pap smear screening ***Comments:*** There was no record of the extent to which the participants may have obtained screening outside the HMO. The

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Physician reminder and patient letter mammography 1171 (1171); Pap smear 1188 (1188) 3. Usual care (required a referral from physician) mammography 1171 (1171); Pap smear 1188 (1188) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. No drop-outs reported ***Baseline comparability:*** No differences in age ***Baseline of assessment:*** Not stated ***Follow-up:*** 6 months	*Pap smear:* 1. Letter: 230/1188 (19.4%) 2. Physician and patient reminder: 271/1188 (22.8%) 3. Usual care: 108/1188 (9.1%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	effect of the chart reminders was contingent on whether the participants' visited the practice during the study period
Sorenson, 1997,[193] USA ***Objectives:*** To assess the educational effectiveness and psychosocial impact of cystic fibrosis carrier education and testing in the home vs the clinic ***Design:*** RCT (cluster) ***Screening test:*** Cystic fibrosis test	***Sample:*** Families (n = 320) of patients being treated at a large cystic fibrosis centre in south-east USA were randomised to either the intervention or control group. Relatives of the patients were contacted by letter and then by phone to assess their eligibility and willingness to take part in the study. Eligible relatives had relations (first, second or third degree) with one of six cystic fibrosis mutations (F508; G542X, G551D, R553X, W128X, N1303K), were aged ≥ 18 years, were not pregnant and were contactable by telephone. Participants were excluded if they were already taking part in another research project. Of the 699 eligible relatives, 548 were contacted and a further 34 were excluded because of ineligibility. 514 relatives took part in the study. 48.2% were female; 55.7% were aged 26–45 years and 27.1% were aged 18–25 years; 48% had incomes less than $20,000 and 45% had incomes between $20,001 and $50,000; 65.7% were married; 59.8% were not planning to have a child in the future; 90% were Protestants and 1.3% were Catholic or Jewish; 89.5% were not willing to abort a foetus with cystic fibrosis ***Setting:*** Cystic fibrosis centre ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention – home-based cystic fibrosis education and testing: 94 families, 309 relatives (309)	***Intervention effects (uptake of screening):*** 1. Intervention group: 208/309 (67%) 2. Control: 91/205 (44%) After adjusting for unit-of-analysis error, authors' OR = 2.58; 95% CI, 1.36 to 4.90 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Within the limits of this study and its design, even when cystic fibrosis carrier testing is offered free of charge, including education and testing in the home, acceptance of education and testing, while higher than in the general population, is not universal among at-risk relatives ***Comments:*** The generalisability of the results may be limited as the study only featured relatives of patients attending a US cystic fibrosis clinic. Testing and education were provided free of charge in order to eliminate any confounding economic influences

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Control – clinic-based cystic fibrosis education and testing: 109 families, 205 relatives (205) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs or losses to follow-up reported. Appropriate analysis using clusters, not individuals ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated (immediately after testing)		
Stead, 1998,[185] UK ***Objectives:*** To find the most cost- and time-effective way of increasing uptake by re-invitation on non-attenders after an initial invitation ***Design:*** Quasi-RCT ***Screening test:*** Mammogram	***Sample:*** 2229 women who had failed to attend, and had not declined their first invitation, for screening ***Setting:*** Screening programme (NHS Breast Screening Programme) ***Intervention(s): number randomised (number analysed in parentheses).*** A second written appointment in one of the following forms: 1. 'Open' invitation asking women to phone the screening unit for an appointment: 1228 (1228) 2. A 'fixed' appointment time: 1001 (1001) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported ***Baseline comparability:*** No significant difference in age between the two groups ***Baseline of assessment:*** The total uptake before sending out the reminders was about 71.5% ***Follow-up:*** 1 month	***Intervention effects (uptake of screening):*** 1. 'Open' appointment: 151/1228 (12.3%) 2. 'Fixed' appointment: 228/1001 (22.8%) A significant difference of 10.5% (95% CI, 7.3 to 13.7; $\chi^2 = 43.498$; df = 1; $p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Second appointments are an important way of increasing screening uptake and thus reducing mortality, which should not be dismissed. The type of invitation is important, with fixed appointments being more effective, and the best predictor of attendance being attendance in the previous screening rounds

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Stevens, 1997,[280] Australia ***Objectives:*** To determine the acceptability, effectiveness and cost of a face-to-face educational outreach intervention in the context of a programme aimed at increasing cervical screening in Victoria, Australia ***Design:*** Quasi-RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** Two local government areas in the Victoria health region. 59/85 eligible practices in intervention area and 91/91 in the control area participated. Eligible patients were aged 20–69 years and had an intact uterus ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Practitioner education and support – a GP educator visited the practices to give a presentation on the national cervical screening policy, and to provide information and support: 1 geographical area, 85 practices (cross-sectional survey) 2. Control: 1 geographical area, 91 practices (cross-sectional survey) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Unit of allocation different from unit of analysis. Practitioners were excluded from the study after randomisation, if they were found to be a specialist, or no longer practising at the site listed ***Baseline comparability:*** No significant differences in the gender of the practitioners or the type of practice ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months	***Intervention effects (uptake of screening):*** Overall there was an increase in screening in both the intervention and non-intervention regions, comparing pre-intervention with post-intervention (control group increased from 2896 to 3198, and the intervention group from 2945 to 3282). For the intervention group, the authors' OR for an eligible woman being screened in the 1994 study period relative to the 1993 comparison period was 1.13 (95% CI, 1.07 to 1.19). For the control group the corresponding OR was 1.12 (95% CI, 1.06 to 1.18). The ratio of the ORs for the intervention and non-intervention areas was 1.01 (95% CI, 0.94 to 1.09), indicating that there was no overall difference in the screening patterns between the two areas ***Intermediate outcomes:*** Not stated ***Costs:*** The cost per GP visited was $34. The authors report that if the costs incurred in this intervention are used as a rough guide to estimate costs of using the process on a wider basis, it would cost about Australian $40,000 to cover one health region, $120,000 to cover the Melbourne metropolitan area and about double that ($240,000) to cover the state of Victoria (given that there are fewer doctors in rural areas but that the time spent travelling would be much greater). The authors concluded that it is an expensive intervention	***Authors' conclusions:*** This strategy cannot be recommended for widespread use in a cervical screening programme ***Comments:*** There was already a difference between the control and intervention populations at the pre-intervention stage (49/2945 more women obtained screens in the intervention group as compared to the control group). No distinctions were made in the update data in terms of whether women were attending for screening or as part of a diagnostic follow-up; or whether women were due for screening or presenting earlier than the recommended time. During the study period there was a large amount of publicity regarding false-negative smear test results, and there was a subsequent rush for smear tests

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Stoner, 1998,[243] USA ***Objectives:*** To determine the effect of a voucher for free mammography on compliance with recommended mammography screening guidelines ***Design:*** RCT (cluster) ***Screening test:*** Mammogram	***Sample:*** Primary respondents were eligible only if they had lived on a farm for at least 5 years and were aged ≥ 40 years ***Setting:*** Community (rural, farming) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Information about the test and a voucher for a free mammogram: 2 counties, (116 women) 2. Information about the test (control): 4 counties (116 women) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (counties) different from unit of analysis (individual). 11 with a history of breast cancer were excluded from all analyses. The response rate for the follow-up survey was 85% (of eligible respondents to the baseline survey). Voucher recipients were more likely to respond to the follow-up survey, but not significantly ($p = 0.13$) ***Baseline comparability:*** No significant differences in demographic characteristics, access to and use of preventive healthcare, cancer risk factors, knowledge and perceived efficacy of cancer screening and prevention, risk factor knowledge, perceived risk, and insurance status ***Baseline of assessment:*** Mammography uptake at baseline (pre-intervention) ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** Logistic regression: *Model 1:* 1. Voucher: coefficient = 1.00; $p = 0.001$ 2. Control: coefficient = 0.07; $p = 0.75$ *Model 2:* 1. Voucher: coefficient = 1.57; $p = 0.001$ 2. Control: coefficient = –1.10; $p = 0.03$ Baseline uptake: coefficient = 2.12; $p = 0.000$ Voucher + baseline uptake: coefficient = –1.00; $p = 0.14$ *Model 3:* 1. Voucher: coefficient = 1.59; $p = 0.0042$ 2. Control: coefficient = –0.89; $p = 0.02$ Baseline uptake: coefficient = 2.34; $p = 0.000$ Voucher + baseline uptake: coefficient = –1.40; $p = 0.069$ Vulnerable: coefficient = –1.05; $p = 0.356$ Voucher + vulnerable: coefficient = 0.14, $p = 0.922$ Baseline uptake + vulnerable: coefficient = –1.31; $p = 0.372$ Voucher + baseline uptake + vulnerable: coefficient = 1.69; $p = 0.4$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Vouchers, even when distributed randomly within a population of rural Midwestern women, can significantly improve uptake rates. Vouchers are no less effective a means of increasing screening among vulnerable women than among other women ***Comments:*** The generalisability of the study is limited as women living in rural farming communities in the USA are not representative of the population as a whole. The small sample size enabled only large differences between the groups to be detected

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Straton, 1995,[180] Australia ***Objectives:*** To evaluate the effectiveness of the Pap smear service in increasing the uptake of Pap smears among eligible women, by comparing the effect of offering Pap smears to women with the effect of a simple educational intervention and with no intervention ***Design:*** Controlled trial (cluster) ***Screening test:*** Pap smear	***Sample:*** Female hospital inpatients in Perth, aged 20–69 years who were eligible to be offered a Pap smear, in terms of the woman being due for a smear according to the Australian guidelines as well as being considered well enough to under go the test ***Setting:*** Hospital (academic) ***Intervention(s): number randomised (number analysed in parentheses).*** Number of wards in each group not stated 1. Offer of a Pap smear: 1 ward (184 women) 2. Given a leaflet on Pap smear at the time of discharge: 1 ward (193 women) 3. Control (no intervention): 1 ward (176 women) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations were undertaken which showed an effective sample size of 83 in the service group and 195 in each of the control and education groups. In the service group, 37% of female inpatients (aged 20–69 years) had been discharged or transferred before their records were examined for eligibility. The number of eligible women who did not return their postal questionnaires was 114 (26%) in the control ward and 172 (30%) in the education ward. The unit of allocation (hospital wards) was different from the unit of analysis (individual women) ***Baseline comparability:*** There was no significant difference between women in the three intervention groups in their age, education, marital status, socio-economic status, country of birth or language spoken, although women in the service group were significantly less likely to have children ***Baseline of assessment:*** Not stated ***Follow-up:*** 4 months for the control and education intervention groups	***Intervention effects (uptake of screening):*** 1. Service group: 132/184 (71.7%) (95% CI, 68.4 to 75.0) 2. Education: 42/175 (24%) (95% CI, 20.8 to 27.2) 3. Control: 39/193 (20.1%) (95% CI, 17.3 to 23.1) reported having a smear in the 4 months after discharge from hospital The service group showed a very large effect relative to the control group (authors' OR = 17.71; 95% CI, 10.05 to 31.22), but there was no significant difference between the education and control groups ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study has shown that opportunistic cervical screening of hospital inpatients, if systematically carried out, can make an important contribution to the screening of women who would not otherwise be reached. Hospital-based cervical screening services should be seen as one strategy in an organised approach to the reduction of morbidity and mortality ***Comments:*** Only 26% of eligible women in the education group reported receiving the educational leaflet. Information about the types of ward and individual patient length of stay were not presented and therefore it was not possible to assess the extent of contamination between intervention groups. For both the control and education groups, only eligible women who responded to mailed questionnaires were included in the analysis, whereas all eligible women from the service wards were included. For the service group, only smears undertaken in hospital were counted, whereas for women in the control and education groups Pap smears undertaken in the 4 months after discharge were included. Some women in the control and education groups may not have felt that they had recovered sufficiently to take time out to obtain a Pap smear

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Suarez, 1997,[246] USA ***Objectives:*** To evaluate an intervention programme for Mexican-American women to increase Pap smear and mammography use ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram, Pap smear	***Sample:*** Mexican-American women aged ≥ 40 years in two cities in Texas ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Interventions were targeted at a mainly Spanish-speaking, poverty-level, immigrant population and were carried out by a local health department and a service provider consortium. Based on the A Su Salud model, the intervention included: the presentation of role models in the media, and positive reinforcement of health behaviours by community volunteers (45 Mexican-American women); a newsletter; and a cancer consortium was created to ensure that breast and cancer-screening services were available to all eligible women: 1 community (cross-sectional surveys) 2. Comparison community (no intervention): 1 community (cross-sectional surveys) ***Theoretical basis of intervention:*** Social Learning Theory ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Pre-intervention, 450 (82% response rate) women in the intervention group and 473 (85% response rate) women in the comparison group were surveyed. Post-intervention, 450 (76% response rate) and 473 (84% response rate) were surveyed, respectively. Unit of allocation different from unit of analysis ***Baseline comparability:*** *Age:* More women in the intervention group were older (pre-test women aged > 65 years, 28.4% vs 22.2%; $p < 0.05$; post-test women aged > 65 years, 37.1% vs 25.6%; $p < 0.05$) *Income:* More women in the intervention group had lower incomes (? 100% poverty, 70.4% vs 54.2%; $p < 0.05$)	***Intervention effects (uptake of screening):*** *Pap smear:* The percentage of women in the intervention group having a Pap smear increased from 45.5% to 51.4% (difference 5.9%) compared with from 50.1% to 56.7% (difference 6.6%) in the comparison group *Mammography:* The percentage of women in the intervention group having a mammography increased from 21.4% to 38.1% (difference 16.7%) compared with from 24.1% to 43.3% (difference 19.2%) in the comparison group After controlling for age, education and insurance status, screening changes in the comparison and intervention groups were identical (mammography – adjusted OR = 1.01; 95% CI, 0.66 to 1.55; Pap smear – adjusted OR = 1.00; 95% CI, 0.68 to 1.47) ***Intermediate outcomes:*** *Knowledge:* The intervention community had a greater increase in knowledge about mammography as an early detection method than the comparison community (19.7% vs 11.4%; $p < 0.05$), but the comparison community had a greater increase in knowledge about Pap smear and mammography screening guidelines than the intervention community ***Costs:*** Not stated	***Authors' conclusions:*** The peer intervention failed to accelerate the secular trend in cancer screening in low-income Mexican-American women. Likely, promotional activities were too diffuse and the comparison community was contaminated with similar interventions. Strong social and market forces make it difficult to measure the effect of a specialised intervention on cancer screening rates ***Comments:*** The cross-sectional nature of the study means that causality cannot be attributed to the intervention. Generalisability of the results may be limited. A cancer-screening outreach programme began in the comparison community during the study

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Health insurance: More women in the comparison group had no health insurance (pre-test women, 52.6% vs 45.3%; $p < 0.05$; post-test women, 52.2% vs 40.0%; $p < 0.05$). More women in the intervention group were on Medicare or Medicaid (pre-test women, 29.6% vs 21.1%; $p < 0.05$; post-test women, 39.3% vs 18.8%, $p < 0.05$) *English-language use:* More women in the intervention group had low English usage (pre-test women, 64.6% vs 58.0%; $p < 0.05$; post-test women, 71.8% vs 65.5%; $p < 0.05$) ***Baseline of assessment:*** Pap smear rates: 45.5% intervention group, 50.1% comparison group. Mammography rates: 21.4% intervention group, 24.1% comparison group ***Follow-up:*** 3 years		
Sung, 1997,[203] 1992,[321] USA ***Objectives:*** To assess the effectiveness of an in-home educational intervention conducted by lay health workers in increasing adherence of low-income, inner-city, African-American women to breast and cervical cancer screening schedules ***Design:*** RCT ***Screening test:*** Pap smear, CBE, mammogram	***Sample:*** 321 inner-city, low-income, African-American women from an inner city community health centre, residents of public and senior citizen housing projects, inner-city business settings and a health-oriented, self-help organisation for African-American women ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Lay health workers visited women three times (after 1 month and 2 months) to provide a culturally sensitive educational programme emphasising the need for screening. Visits provided information on cancers, screening and reproductive health through printed material and video: 163 (93) 2. Control group (received educational information on completion of follow-up): 158 (102) ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** Intention-to-intervene analysis(post-intervention respondents and non-respondents included): *Pap smear:* 1. Intervention: 27/44 (61.4%) 2. Control: 26/51 (51%) *CBE:* 1. Intervention: 27/38 (71.1%) 2. Control: 20/43 (46.5%) *Mammography:* 1. Intervention: 27/54 (50.0%) 2. Control: 22/62 (35%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The culturally sensitive intervention in the home to low-income, inner-city, African-American women tended to increase the rate at which they were screened for breast cancer through BSE, CBE and mammography more than women in the control group during the interval between baseline and follow-up interviews (not always significant). Pap smears improved similarly for both groups; the intervention had no effect ***Comments:*** The analysis of responders to the post-intervention survey showed that the intervention had a significant effect only on CBE and mammography. Losses to follow-up and a Hawthorne effect may have biased the effects of the intervention

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations performed. Analysis was undertaken including (assuming status as per pre-survey) and excluding those patients lost to follow-up (23 refused, 9 died or were ill, 94 had moved away). Data were also analysed using an intention-to-intervene analysis ***Baseline comparability:*** No significant difference between groups in age, income, marital status, education, employment, insurance or baseline screening histories ***Baseline of assessment:*** 51% of participants had received a Pap smear in the last year, 55% had received CBE in the last year, and 35% of women aged ≥ 35 years had received mammography ***Follow-up:*** 6 months post-intervention		
Tambor, 1994,[120] USA ***Objectives:*** To determine factors associated with cystic fibrosis carrier test utilisation in a primarily non-pregnant population ***Design:*** Controlled trial (cluster) ***Screening test:*** Cystic fibrosis carrier test	***Sample:*** 3321, mainly Caucasian, enrolees in an HMO in the Baltimore Metropolitan area who were of child-bearing age (individuals 18–44 years, and couples where the woman was aged 18–44 years). Most were either not pregnant or did not have a pregnant partner. Only one randomly selected person per household was included in the analysis. Two separate sampling methods were used ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. A questionnaire was mailed and subjects were offered $5 for its return (316 undelivered; *n* = 2713). 1130 participants completed their questionnaire and those who expressed an interest in the test (*n* = 471) were invited to attend an education session (attended *n* = 109), at the end of which they were asked to give a saliva sample (*n* = 101)	***Intervention effects (uptake of screening):*** 1. Educational session: 101/2713 (3.7%) 2. Opportunistic: 143/608 (23.5%) ***Intermediate outcomes:*** In approach (1), those who had the test perceived their risk of being a carrier as higher and had a lower fear of stigma, a higher tolerance for ambiguity, and a higher tolerance for test uncertainty (TTU). In the logistic regression analysis, participants with a high TTU were almost four times as likely to have the test as were those with a lower TTU (authors' OR = 3.849; $p < 0.0001$). In approach (2), only TTU and fear of stigma were associated with testing decisions in the bivariate analysis. In the logistic regression analysis, participants with a high TTU were almost four times as likely to have the test authors' (OR = 3.687; $p = 0.0041$), and those with a low fear of	***Authors' conclusions:*** Factors associated with the decision to be tested had more to do with the implications of being a carrier *per se* than with concerns of having a child with cystic fibrosis. In view of the low level of interest and, more important, the difficulty of assuring adequate understanding of cystic fibrosis testing, we do not believe that cystic fibrosis carrier screening of men and non-pregnant women of reproductive age should be offered unless (1) people who consent to the test understand the risks and benefits of testing, and (2) the level of such understanding is documented ***Comments:*** The study included two very different samples of participants, and therefore the difference in uptake may not be solely due to the different approaches used for offering a cystic fibrosis test. In approach (2), all 608 selected participants

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Enrolees were approached when in the waiting room for a scheduled visits (n = 608). Participants were asked to complete an initial questionnaire (responded n = 477). Participants were then offered $5 for the return of a second questionnaire, given to those who expressed an interest in the test (n = 235). All these enrolees were then asked to give a saliva sample (responded n = 198) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations conducted. Individuals whose packs were returned by the post office as undelivered (n = 316) were deleted from the denominator. Unit of allocation different from unit of analysis ***Baseline comparability:*** No information was given on the baseline characteristics of the two groups. However, there were significant differences in the demographic characteristics of responders in the two approaches, which may suggest that the two groups differed. Responders in approach (2) were significantly less likely to have a college degree than were responders in approach (1). In addition, responders in approach (2) were more likely to be younger, female and white than were responders in approach (1). They were also more likely to be married and have children, but were less likely to be planning to have children than were responders in approach (1) ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	stigma were more than twice as likely to be tested (authors' OR = 0.397; p = 0.03) ***Costs:*** Not stated	were approached to participate, while for approach (1) it is not known how many of the 2713 participants received the initial letter asking them to participate. The distribution of a $5 incentive for return of questionnaires differed between the two groups. In approach (1) $5 was given for the return of both questionnaires, but in approach (2) $5 was only given for completion of the second questionnaire
Tape, 1993,[275] USA ***Objectives:*** To study the effect of a computerised medical record and other practice factors on the delivery of preventive healthcare ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram, FOBT, sigmoidoscopy, Pap smear	***Sample:*** 45 internal residents and their 4 supervising attending physicians who had clinics on alternating weeks were recruited between July 1985 to June 1987. Patients whose residents had their clinics in one week were assigned to the control group and those in the other alternating week were assigned to the intervention group ***Setting:*** Hospital (academic)	***Intervention effects (uptake of screening):*** Number of eligible patients (% tested): *FOBT:* 1. Intervention: 517 (28.1%) 2. Control: 471 (25.3%)	***Authors' conclusions:*** Although computerised medical records markedly improved the performance of prevention manoeuvres by committed physicians, many physicians using computer systems failed to make use of the resource. The reasons for this were complex. Future work in this area should carefully control for personal behaviours and focus on

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses). It was unclear how many physicians and individuals were randomised 1. Intervention: computerised medical records with reminders 2. Control: conventional paper medical records with a healthcare maintenance flow chart ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Power analyses were performed for those tests with non-significant differences in uptake rates (it was not clear whether 'uptake' relates to physician compliance with the computerised reminders or patient uptake with the physicians' recommendations) in order to determine the minimum improvement that could have been detected given the available sample size. No drop-outs or losses to follow-up were reported, either in terms of physicians or patients. Unit of allocation different from unit of analysis ***Baseline comparability:*** No details were provided with regard to physician comparability between the intervention and control groups. There were no important differences between the clinics in alternating weeks in terms of patient numbers or case mix ***Baseline of assessment:*** Not stated ***Follow-up:*** 1 year	*Sigmoidoscopy:* 1. Intervention: 493 (7.1%) 2. Control: 460 (4.4%) *Mammography:* 1. Intervention: 341 (32.8%) 2. Control: 313 (30.4%) *Pap smear:* 1. Intervention: 462 (24.7%) 2. Control: 443 (23.9%) Mean per-visit compliance for physicians: *FOBT:* control 12.9; intervention 14.3 *Sigmoidoscopy:* control 2.4; intervention 3.2 *Mammography:* control 14.7; intervention 15.1 *Pap smear*: control 12.1; intervention 11.7 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	administrative changes that more effectively implement these potentially powerful tools ***Comments:*** It is not stated how many physicians were allocated to the intervention and control groups, or how many were included in the final analysis. Compliance was calculated in two ways: physician compliance with the computerised reminders; and patient compliance with the physicians' recommendations
Taplin, 1994,[75] USA ***Objectives:*** To test whether participation in an established screening programme could be increased by mailing the recommendation letter from each woman's primary care physician rather than from the programme director, or by sending a subsequent reminder postcard	***Sample:*** Women from an HMO who were aged 50–79 years, were current enrolees who had not been previously invited, had not had a mammogram in previous year, and had no first-degree family history of breast cancer ***Setting:*** HMO	***Intervention effects (uptake of screening):*** 1. Letter: 150/329 (45.6%) 2. Reminder postcard: 196/335 (58.5%) 3. Letter + reminder postcard: 206/334 (61.7%) 4. Control: 154/329 (46.8%)	***Authors' conclusions:*** When preceded by written recommendations to scheduled mammograms, a reminder postcard effectively increased participation ***Comments:*** The study was done in an HMO setting and the lack of effect of personal physician letters may not be generalisable to the fee-for-service practice of the USA

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT (2 × 2 factorial design) ***Screening test:*** Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Physician invitation letter: ? (329) 2. Reminder postcard: ? (335) 3. Physician invitation letter + reminder postcard: ? (334) 4. Usual-care control group: ? (329) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. After randomisation, 11.5% were excluded because they had left the HMO or had obtained a mammogram before being sent the recommendation letter ***Baseline comparability:*** No significant differences in demographic characteristics, health status or logistical barriers ***Baseline of assessment:*** No significant differences between groups in screening history ***Follow-up:*** 1 year	Adjusting for baseline covariates, the authors' OR for the group receiving the reminder postcard was 1.92 (95% CI, 1.36 to 2.71; $p = 0.0002$) and for the primary physician invitation + postcard was 1.95 (95% CI, 1.38 to 2.74; $p = 0.0001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Taylor, 1996,[253] USA ***Objectives:*** To evaluate the impact of community organisation strategies to promote breast cancer screening ordering by primary care physicians in Washington state ***Design:*** Controlled trial (cluster) ***Screening test:*** CBE	***Sample:*** All practising physicians in four Washington state communities who provided primary care to at least some women in the age group 50–75 years. In 1989, a total of 355 primary care physicians were eligible and 277 (78%) responded (83% and 73% in the two intervention communities, and 76% in both control communities). In the 1993 survey a total of 388 primary care physicians were eligible and 225 (58%) responded (63% and 62% in the intervention communities, and 61% and 43% in the control communities) ***Setting:*** Community	***Intervention effects (uptake of screening)***: There was no significant difference in CBE practice between the intervention and control communities at either baseline or follow-up During the 1993 survey, 84% of physicians in the intervention community reported carrying out CBE as compared to 88% in the control community ***Intermediate outcomes:*** There were no significant differences with respect to predisposing factors between the intervention and control groups in 1989 or 1993. There were no significant differences	***Authors' conclusions:*** Although we found no intervention–control differences, this study provides information on the changes in physician beliefs that accompanied the changes in mammography practice. Over 80% of the physicians who responded to the 1993 survey indicated that they routinely performed CBE on their female patients aged ≥ 50 years ***Comments:*** The number of physicians responding to the questionnaire was very small. The analyses were based on a cross-sectional survey and thus causality cannot be attributed

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Community organisation effort targeting primary care physicians and women aged 50–75 years; Formation of local physician planning groups. Core activities included a series of informational mailings, medical office staff training sessions, and reminder system support (for solo or small group practitioners): (1989, 130; 1993, 110) 2. Control communities: (1989, 94, 1993, 82) ***Theoretical basis of intervention:*** PRECEDE–PROCEED ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** At baseline the intervention community physicians were more likely to be recent medical school graduates, but this was no longer the case by the time of the follow-up survey. In 1993, the intervention and control physician groups differed with respect to practice setting. The percentage of intervention community physicians who were in group practice increased during the 4 years between the two surveys, as did the proportion whose speciality was gynaecology. A similar increase was seen with respect to female physicians practising in the control communities ***Baseline of assessment:*** CBE: 57% of intervention community reported as compared to 44% in the control community ***Follow-up:*** 4 years	between intervention and control groups in reinforcing factors such as perceptions of colleagues' use of mammography. There were no differences between the intervention and control communities with respect to physician recollection of informational mailings about mammography, breast cancer screening education for medical office staff, or materials addressing patient reminder systems ***Costs:*** Not stated	
Taylor, 1997,[192] USA ***Objectives:*** To determine if healthcare utilisation and health status among high-risk children is modified by the use of group well-child care as compared with traditional one-to-one individual well-child care	***Sample:*** High-risk children were recruited from two urban paediatric clinics at the University of Washington, USA. Children were eligible if enrolled before 4 months of age and if their mothers had one of the following risk factors: single, education level less than completion of high-school, participation in Medicaid, age < 20 years at time of delivery, previous substance abuse, history of abuse as a child. Children	***Intervention effects (uptake of screening):*** Number of study visits attended: 1. GWCC: 324/690 visits (47%) 2. IWCC: 54% (unclear how many visits were scheduled in total)	***Authors' conclusions:*** Healthcare utilisation and health status was similar in high-risk children whether they received GWCC or IWCC. GWCC is a viable format for health supervision visits in this population

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT ***Screening test:*** Well-child screening	were excluded if their parents were non-English speaking, the primary caregiver was not the biological parent, an older sibling received primary care from another provider, or there was a serious ongoing medical condition. 220 children were enrolled in the study and randomised to either the intervention or control group. Overall, one-third of mothers had not completed high school, two-thirds were unmarried; almost 50% had household incomes below $500 per month; and significant proportions of the women had positive screens for substance abuse, depression, history of abuse and poor parenting confidence ***Setting:*** Paediatric clinic (urban) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (group well-child care (GWCC)) – the healthcare provider led a discussion of child health in groups of parents with similarly aged children, followed by individual examinations: 111 (106) 2. Control (individual well-child care (IWCC)) – traditional one-to-one healthcare advice and examinations: 109 (104) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Seven children (3 GWCC, 4 IWCC) dropped out post-randomisation as their parents refused to participate despite signing the initial consent form. Three children (2 GWCC, 1 IWCC) were dropped from the analysis as they were removed from the home because of abuse or neglect during the study period ***Baseline comparability:*** Mothers of children randomised to GWCC were similar to those of IWCC recipients in most baseline characteristics, except for drug abuse, which was more common in mothers of GWCC children ($p < 0.05$) ***Baseline of assessment:*** Not stated ***Follow-up:*** Until children were 15 months old	Difference, $p < 0.14$ ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** It is not clear how many IWCC visits were scheduled or how many were attended, as the data are only presented as percentages with no denominator given. The generalisability may be limited as the study only examined children of high-risk mothers in Washington, USA

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Thomas, 1990,[227] UK ***Objectives:*** To examine the effect of 6-day testing on the yield of neoplasia in asymptomatic individuals participating in a screening study, where the effect on compliance must also be taken into account ***Design:*** RCT (cluster) ***Screening test:*** FOBT	***Sample:*** In a previous trial (1981) 123,000 asymptomatic individuals in Nottingham aged 50–74 years were randomised by household to receive a FOBT (test group) or no test (control group). The tests were offered at 2-yearly intervals. Only age- and sex-matched individuals who remained in the test group during the period 1986–1988 were included in the current study (n = 35,184) ***Setting:*** Screening programme (pilot) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Participants offered a 3-day FOBT: 17,616 (17,616) 2. Participants offered a 6-day FOBT: 17,568 (17,568) No initial dietary restrictions were imposed, but participants with a positive test were asked to repeat the test with standard dietary restrictions ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No power or sample-size calculations were reported. Unit of allocation different from unit of analysis ***Baseline comparability:*** No demographic data were presented. However, individuals were matched by age and sex prior to being randomly allocated to either of the intervention groups ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** 1. 3-day test: 10,176/17,616 (57.8%) 2. 6-day test: 9461/17,568 (53.9%); a significant decrease in uptake ($p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study has not demonstrated a significant increase in the yield of neoplasia in asymptomatic subjects offered Haemoccult over 6 days. However, there was a significant decrease in compliance and a higher rate of colonoscopy in those offered 6-day testing ***Comments:*** Participants had been recruited to receive bi-annual FOBT 5 years prior to the current intervention group. No information was provided on the demographic characteristics of the sample or how individuals were recruited. Assessing the generalisability of the study is therefore difficult
Thompson, 1986,[100] USA ***Objectives:*** To test several clinically feasible strategies that primary care practitioners may use in routine practice to increase patient participation in FOBTs for colorectal cancer	***Sample:*** 616 individuals aged < 45 years who were scheduled for physical examination Inclusion: English speaking, free of debilitating mental illness, aged < 45 years, and without a presumed or confirmed diagnosis of colorectal cancer ***Setting:*** HMO	***Intervention effects (uptake of screening):*** 1. Control: (38/56) 67.9% (95% CI, 55.7 to 80.1) 2. Phone call: (46/55) 83.6% (95% CI, 71.2 to 92.2)	***Authors' conclusions:*** Printed Haemoccult instructions followed by a reminder postcard can achieve a compliance level (91.7%) comparable to that achieved by more complex or multiple interventions

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: RCT, modified factorial design ***Screening test:*** FOBT	***Intervention(s): number randomised (number analysed in parentheses).*** All patients received the Haemoccult test pack and identical instructions describing test procedures and diet. The added interventions were: 1. Physician talk for 3–5 minutes 2. Nurse talk (as above) for 3–5 minutes 3. Reminder postcard once the patient had returned home 4. Phone reminder The modified factorial design meant that people were assigned to one of 10 groups: 1 Control: (56) 2. Phone call: (55) 3. Reminder card: (55) 4. Physician talk: (52) 5. Phone call + reminder card: (45) 6. Phone call + physician talk: (48) 7. Physician talk + reminder card: (48) 8. Physician talk + reminder card, phone call: (54) 9. Nurse talk: (51) 10. Nurse talk + reminder card + phone call: (43) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** Sample-size calculations may have been performed. 616 were invited and 507 (82%) completed the study protocol. Of those excluded, 24 were ineligible, 45 had incomplete information and 40 refused to participate ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 3 months	3. Reminder card: (51/55) 92.7% (95% CI, 82.4 to 98.0) 4. Physician talk: (42/52) 80.8% (95% CI, 67.4 to 90.4) 5. Phone + reminder card: (42/45) 93.3% (95% CI, 81.7 to 98.6) 6. Phone + physician talk: (44/48) 91.7% (95% CI, 80.0 to 97.7) 7. Physician talk + reminder card: (41/48) 85.4% (95% CI, 72.2 to 93.9) 8. Physician talk + reminder card + phone call: (51/54) 94.4% (95% CI, 84.6 to 98.8) 9. Nurse talk: (38/51) 74.5% (95% CI, 62.3 to 86.3) 10. Nurse talk + reminder card + phone call: (40/43) 93.0% (95% CI, 80.9 to 98.5) ***Intermediate outcomes:*** Not stated ***Costs:*** Direct costs (in 1995): postcard reminders $0.95; phone call reminders $5.10; nurse talk (5 minutes) $1.25; physician talk (5 minutes) $5.20. Analysis for a cohort of 10,000 persons aged > 50 years offered with and without postcard reminders suggests that the initial costs of a formal postcard reminder for Haemoccult testing would be likely to be offset by savings in long-term care	***Comments:*** Generalisability of the results may be limited as the population was already attending for a medical and therefore likely to be more motivated. The authors state that, "If the intervention was altered, the subject was reassigned by study personnel to the appropriate treatment group." Reassigning patients to another intervention group after randomisation is a possible source of bias

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Thornton, 1995,[128] UK ***Objectives:*** To evaluate the effect of extra non-directive information about prenatal testing, given individually or in class, on uptake of prenatal screening ***Design:*** RCT ***Screening test:*** Prenatal tests: ultrasonography, serum screening for Down's syndrome, haemoglobinopathy screening, cystic fibrosis	***Sample:*** 3368 women attending antenatal clinics in two hospitals before 15 weeks' gestation. 1691 consented ***Setting:*** Hospital (academic and district) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Individual information – offered extra prenatal testing information, before 16 weeks' gestation, at specifically scheduled hospital visit: 567 (567) 2. Information in classes – invited for similar session in classes of 4–12, separate from any antenatal clinic visit; same subjects covered and reinforced by written information: 561 (561) 3. Control group – offered only the routine information given by midwife or doctor: 563 (563) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Drop-out not stated ***Baseline comparability:*** Groups comparable in mean age (28 years), ethnicity, gestation and social class ***Baseline of assessment:*** Baseline 1% refusal rate for ultrasonography and 34% uptake of serum screening ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** *Down's syndrome:* 1. Offer of individual information group: 164/441 (37%) 2. Offer of a class: 135/427 (32%) 3. Control group: 146/431 (34%) *Cystic fibrosis testing:* 1. Offered individual information: 48/74 (65%) 2. Offer of classes: 43/69 (62%) 3. Controls: 61/77 (79%) Attendance at extra sessions was 52% overall and lower at classes than individual sessions (authors' adjusted OR = 0.45; 95% CI, 0.35 to 0.58) ***Intermediate outcomes:*** *Anxiety:* At 20 weeks, those offered individual information were significantly less anxious than controls ($p = 0.02$). At 30 weeks the group given individual information was still less anxious on two scales (hospital anxiety and depression scale; $p = 0.049$), but at 6 weeks after delivery the difference was only significant on the state-trait anxiety inventory ($p = 0.018$). Women in both intervention groups felt that they had received more relevant information and understood it better. They were also more satisfied with the information they had received, although this did not translate into feeling surer that they had made the right decision ***Costs:*** Not stated	***Authors' conclusions:*** The offer of extra information has no overall adverse effects on anxiety and reduces uptake of blood tests when background uptake rate is high, but not when it is already low. Ultrasonography is valued for non-medical reasons and chosen even by fully informed people who eschew prenatal diagnosis ***Comments:*** None

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Tierney, 1986,[276] USA ***Objectives:*** To compare the effects on physician compliance of supplying monthly feedback reports of compliance with preventive care protocols to physicians, with the effects of specific reminders given at the time of patient visits ***Design:*** Quasi-RCT (cluster) ***Screening test:*** FOBT, tuberculosis skin test, Pap smear, mammogram	***Sample:*** 135 residents practising in the General Medicine Clinic of Wishard Memorial Hospital, Indianapolis ***Setting:*** Hospital (academic) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Reminder for group A protocols, followed by feedback with group A protocols: (33 residents, 1487 eligible patients) 2. Reminder for group A protocols, followed by feedback for group B protocols: (31 residents, 1451 eligible patients) 3. Reminder for group B protocols, followed by feedback with group B protocols: (35 residents, 1501 patients) 4. Reminder for group B protocols, followed by feedback with group A protocols: (36 residents, 1606 patients) This was designed as two concurrent RCT studies. Those residents receiving feedback and reminders for the group B protocols served as controls for studying the effects of the interventions on the group A protocols, and vice versa ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Drop-outs not stated. Unit of allocation the same as unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 7 months	***Intervention effects (uptake of screening):*** For cervical smears, only physicians receiving reminders had significantly less compliance than controls ($p < 0.05$), regardless of feedback status. For mammography, physicians receiving either reminders of feedback have significantly greater compliance than control physicians ($p < 0.01$), but the effects are not additive in those physicians receiving both reminders and feedback. For FOBT, physicians receiving either reminders or feedback have significantly greater compliance than control physicians ($p < 0.01$), but the effects are not additive in those physicians receiving both reminders and feedback ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Staff receiving feedback more often complied with FOBT and mammography than did the control group. There was also significantly more compliance with the same protocols by staff receiving reminders, but the increase for FOBT was twice that seen in physicians given feedback alone. Overall compliance with the preventive care protocols was low: 10–15% in physicians receiving neither feedback nor reminders, increasing to 15–30% in those receiving reminders ***Comments:*** Raw data for the individual screening tests were not given, except in graphical form (bar chart)
Torgerson, 1993,[183] UK ***Objectives:*** To compare two methods of appointment in a screening programme for osteoporosis ***Design:*** RCT ***Screening test:*** Bone densitometry	***Sample:*** Women in Aberdeen ***Setting:*** Screening unit (osteoporosis) ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Standard method (initial letter offering a fixed appointment + reminder): ? (375)	***Intervention effects (uptake of screening):*** Response rate: 1. Standard method: 299/375 (80%) (95% CI, 76 to 84) 2. Improved method: 286/373 (77%) (95% CI, 72 to 81)	***Authors' conclusions:*** The offer of a fixed appointment requiring telephoned confirmation has the potential to reduce the costs of scanning without exaggerating any social bias or significantly reducing response rates provided that empty appointments can be reassigned at short notice

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Improved method (initial letter was open, asking the recipient to contact the screening unit to make an appointment + reminder): ? (373) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Not enough data on analyses ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Reported as a letter only
Trock, 1993,[283] USA ***Objectives:*** To examine the effect of a multistaged intervention on mammography utilisation aimed at women and physicians ***Design:*** Controlled trial (cluster), RCT (results not reported) ***Screening test:*** Mammogram	***Sample:*** All age-eligible women who were members of a HMO were exposed to the intervention. Women were excluded if they had a prior history of breast cancer ***Setting:*** HMO ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Interventions directed at physicians included a tutorial covering breast cancer screening and treatment and office based CBE training. There were also courses for participating radiologists. A stepped approach to health education in conjunction with the provision of free mammograms. Every year women members of the HMO (aged ≥ 50 years) are sent a breast cancer screening pack (letter from programme medical director, information brochure, a referral for a free mammography within 90 days): cross-sectional surveys 2. Control (not stated): cross-sectional surveys ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys	***Intervention effects (uptake of screening):*** *1989:* 1. Intervention (n = 445): proportion who obtained mammography, 0.62 2. Control (n = 440): proportion who obtained mammography, 0.43 $p < 0.0001$; rate ratio = 1.4 (95% CI, 1.3 to 1.6) *1990:* 1. Intervention (n = 450): proportion who obtained mammography, 0.68 2. Control (n = 437): proportion who obtained mammography, 0.49 $p < 0.0001$; rate ratio = 1.4 (95% CI, 1.2 to 1.5) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study demonstrates that mammography utilisation can be significantly increased, particularly among women with lower income, through a combined approach to reduce barriers associated with cost, access, knowledge and psychosocial factors, along with education of both primary care physicians and radiologists ***Comments:*** No specific data (i.e. numbers, results, baseline compatibility) were given for the part of the trial where the non-attendees were randomised to three different interventions

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Intervention women were significantly younger than control women (mean age 61.0 years for controls and 59.6 years for intervention). Health coverage other than the HMO differed between the two groups ***Baseline of assessment:*** Proportions who had had a mammogram were similar (intervention 0.41; control 0.39) ***Follow-up:*** 2 years (year 1 (1988) was prior to intervention)		
Turnbull, 1991,[167] Australia ***Objectives:*** To determine the proportion of women who attend for mammographic screening in response to a written invitation with a appointment from the screening service ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 243 women aged 45–69 years served by a local government area and breast X-ray programme. Screening was conducted at a mobile van ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Appointment and pamphlet with translations in Greek and Italian: 163 (163) 2. Control group (no invitation): 80 (80) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Analyses performed in original groups even if women could not be reached at given address. Three letters returned, as women had moved ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Before the study, 36% of eligible women had attended for screening ***Follow-up:*** 6.5 weeks	***Intervention effects (uptake of screening):*** 1. Invitations: 53/163 (33%) (95% CI, 25 to 40) 2. Control group: 7/80 (9%) (95% CI, 4 to 17; $\chi^2 = 16.3$; df = 1; $p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** A personalised invitation using the electoral listing to identify eligible women appears to be an effective method for encouraging attendance in those not responding to community-based generalised campaigns ***Comments:*** None
Turnbull, 1992,[202] Australia ***Objectives:*** To assess two strategies aimed at encouraging women to attend for mammographic screening ***Design:*** Four RCTs, one uncontrolled trial (cluster)	***Sample:*** Women aged 45–70 years ***Setting:*** Screening programme	***Intervention effects (uptake of screening):*** Denominator unknown *Trial 1 (1608 leaflets):* 1. Intervention: 13 women 2. Control: 3 women	***Authors' conclusions:*** The trials indicate that letterbox drops are ineffective regardless of location and the time of the drop in relation to the screening van's visit to the area. About 500 leaflets needed to be dropped to elicit one (extra) attendance

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letterbox drops of leaflets containing information about breast cancer and mammography. The leaflets in the four RCTs ranged from a one-page explanation about the service to a two-page leaflet with more detail in a question-and-answer format 2. The control group in each RCT received no leaflet. Denominator unknown ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation (streets) different from unit of analysis (individuals). 16 intervention streets (17%) in which no drop was made were excluded from the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** *Trial 1:* Intervention group, 36 women attended pre-intervention; control, 9 women *Trial 2:* Intervention group, 4 women attended pre-intervention; control group, 7 women attended *Trial 3:* Intervention group, 5 women attended before the intervention; control group, 11 women attended *Trial 4:* Intervention group, 82 women attended before the intervention; control group, 58 women attended ***Follow-up:*** 3 months	Authors' RR = 1.08 (95% CI, 0.22 to 7.16) *Trial 2 (600 leaflets):* 1. Intervention: 23 women 2. Control: 27 women Authors' RR = 1.49 (95% CI, 0.33 to 7.80) *Trial 3 (776 leaflets):* 1. Intervention: 11 women 2. Control: 3 women Authors' RR = 1.15 (95% CI, 0.24 to 7.58) *Trial 4 (1000 leaflets):* 1. Intervention: 15 women 2. Control: 10 women Overall, the estimated increase in attendance due to the drops was 15% (authors' RR = 1.06; 95% CI, 0.41 to 2.84) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** Denominator for estimating the attendance rates (i.e. the number of eligible women) was not known. In 3 of the 4 trials there was a large decrease in the number of attendees in the 3-month follow-up period in both control and intervention groups. In the fourth trial, however, it was the reverse, i.e. three times as many women in both the intervention and the control group attended after the intervention, as before
Turner, 1990,[176] USA ***Objectives:*** To determine if patients who carried health maintenance cards had an increase in the performance of health maintenance procedures above that achieved by attaching a computer-generated reminder to the patient's chart	***Sample:*** Patients (423 men and women) were entered in the study, 117 in the intervention group. Of the patients who normally attend the clinic, 60% were black and 40% were white. 24 resident physicians (8 in first year, 9 in the second year, 7 in the third year) ***Setting:*** Hospital (academic)	***Intervention effects (uptake of screening):*** Performance of health maintenance procedures (denominator is the number of patients who were indicated to have that procedure performed)	***Authors' conclusions:*** Patient-carried health maintenance reminder cards are useful in increasing the physician performance of rectal examinations and Haemoccult tests, Pap smears and breast examination

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: Quasi-RCT (cluster) ***Screening test:*** Pap smear, DRE, FOBT, mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Physician reminder (computer-prompting system) (control): 12 physicians 2. Physician reminder (computer-prompting system) plus card prompts (intervention group). As above, but also patients were given a health maintenance prompt card which contained items for men and women. The patients were instructed to carry the card and show it to their physician at scheduled appointments to remind them to perform the screening tests: 12 physicians ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations. Unit of allocation different from unit of analysis. The higher number of patients in the control group reflects a higher number of missed appointments in the intervention group (numbers not given). No intention-to-intervene analyses performed ***Baseline comparability:*** Physicians, intervention group: 4 were in their first year, 3 were in their second year, and 5 were in their third year. Physicians, control group: 4 were in their first year, 6 were in their second year, and 2 were in their third year. Patients: intervention group, 112 (63%) were female, compared with 170 (69%) in the control group (p = 0.03); intervention group, 65 (37%) were aged > 64 years, compared with 76 (31%) in the control group (p = 0.16) ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	*Pap smear:* 1. Intervention: 28/94 (30%) 2. Control: 30/151 (20%) Difference: p = 0.038 *Breast examination:* 1. Intervention: 44/84 (52%) 2. Control: 34/118 (29%) Difference: p = 0.0005 *Mammography:* 1. Intervention: 18/98 (18%) 2. Control: 25/130 (19%) Difference: p = 0.434 *FOBT:* 1. Intervention: 86/147 (59%) 2. Control: 91/196 (46%) Difference: p = 0.014 ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** The results may not be generalisable to other training institutions and practising physicians. No information available on the proportion of intervention-group patients who presented the prompt cards, as instructed. Small group of patients and residents at a single institution. Residents in the intervention group could have been performing the health maintenance items at a higher rate than the control residents
Turner, 1994,[187] UK ***Objectives:*** To determine whether the acceptance rate of a second invitation for breast screening might be increased by an accompanying letter from a GP. To identify the additional costs of sending such a letter	***Sample:*** 465 women aged 50–64 years in Aberdeen who failed to respond to their fist invitation for screening. A woman was eligible for the trial if she had failed to attend her first invitation within 1 month and had not positively declined the request ***Setting:*** Cancer screening unit	***Intervention effects (uptake of screening):*** 1. GP letter: 49/234 (21%) 2. Invitation only: 23/231 (10%)	***Authors' conclusions:*** The inclusion of a GP letter appeared to be effective and feasible in increasing the attendance rate to the second invitation

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Design: Quasi-RCT ***Screening test:*** Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. A second invitation was sent to non-attenders. The second invitation did not give a specific appointment but requested the recipient to contact the screening centre. In this context: Second invitation + standard photocopied letter signed by the non-attender's doctor: 234 (234) 2. Control group – only received the second invitation from the screening centre: 231 (231) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Drop-outs not stated ***Baseline comparability:*** The tests and control groups were comparable in age, deprivation scores and previous screening history ***Baseline of assessment:*** Uptake at the first round was 75% after the first invitation ***Follow-up:*** 1 month after the second invitation women were classified as attenders or non-attenders	Combining the test and control groups, women who had previously been screened attended more than women who had never been screened (28% vs 7%; $p < 0.01$) ***Intermediate outcomes:*** Not stated ***Costs:*** The average cost of a GP letter included with the invitation was 1.1 pence and the marginal cost for each extra attender was 9.6 pence. No non-monetary costs were identified	***Comments:*** The study group had a higher proportion of older women and a higher proportion with high deprivation scores than the general population; both factors are described with a lower probability to attend. Overall uptake in Aberdeen is high compared with the UK average (81% vs 77%), which may limit the extent to which the results are generalisable
Urban, 1995,[245] USA ***Objectives:*** To investigate the impact of promotional activities on the use of screening in two communities in which community organisation occurred compared with two similar control groups ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram	***Sample:*** Participants in communities within Washington state who were aged 50–75 years, had lived in the study area for at least 2 years, and had not had breast cancer ***Setting:*** Community	***Intervention effects (uptake of screening):*** At follow-up, rates of recent mammography screening were 77.1% among women aged > 65 years in community A, 67.5% among women aged > 65 years in community B and about 75% in women aged < 65 years and women aged > 65 years in the control communities. Among women aged 50–64 years, the rates were 69.9% in community A and 74.9% in community B ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Although several activities were useful in promoting mammography use, organisation of the community did not enhance efforts undertaken spontaneously by comparable communities ***Comments:*** Results of logistic regression confirmed that the secular trend in screening was very strong and that the intervention effects were negligible and not statistically significant. The small number of communities included in the study and the cross-sectional nature of the data on individual women preclude a causal interpretation of the data

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Intervention(s): number randomised (number analysed in parentheses) 1. Community organisation effort: direct mail Medicare intervention among Medicare-eligible women aged 62–75 years in community B (during the second half of the intervention period). Three mail-outs: the first contained information about Medicare's new coverage; the second included the Breast Health Plan, which the woman was instructed to take to her physician to initiate a plan for regular breast cancer treatment; the third was a follow-up to the second and a reminder that Medicare helps to pay for screening mammograms. All primary care physicians received a notification letter informing them of the project and inviting their participation, and a second letter informing them of coverage of screening: 2 communities (cross-sectional surveys) 2. Control communities (no intervention): 2 communities (cross-sectional surveys) ***Theoretical basis of intervention:*** PRECEDE ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit from analysis. Analysis based on results from two cross-sectional surveys. Response rate to baseline survey 72% ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Use of mammography in the past 2 years among women aged 50–75 years was 55.7% in the intervention communities and 55.8% in the combined comparison communities. Among women aged 50–64 and 65–75 years, recent mammography rates were 67.2% ***Follow-up:*** Follow-up interview 4 years after the start of the study (study duration approx. 18 months)		

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Verne, 1993,[233] UK ***Objectives:*** To compare compliance with three methods of FOBT screening for colorectal cancer, in combination with and without dietary restriction, following a personal invitation by the GP ***Design:*** RCT, factorial design (cluster) ***Screening test:*** FOBT, Early Detector (ED) test, Coloscreen Self-Test (CST)	***Sample:*** People aged 40–74 years in an Oxfordshire market town. Exclusion: colorectal cancer or any terminal disease, symptoms suggestive of colorectal malignancy, or considered by GP to be physically or mentally unable to participate ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Haemoccult kit (FOBT) – three cards returned for laboratory analysis: 634 (634) 2. Early Detector (ED) self-administered test – a self-report results form was supplied: 609 (609) 3. Coloscreen Self-Test (CST) – a self-report results form was supplied: 599 (599) All three groups also randomised to diet-restricted groups (919) or no dietary restrictions (923) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Drop-out: not stated. Randomised by household, analysed by individual ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No previous FOBT screening ***Follow-up:*** Time-scale not stated	***Intervention effects (uptake of screening):*** 1. Haemoccult: 311/634 (49.1%) 2. ED: 317/609 (52.1%) 3. CST: 303/599 (50.6%) Uptake was not reduced significantly by dietary restriction: 1. Restricted diet (all groups): 453/919 (49.3%) 2. Unrestricted diet (all groups): 478/923 (51.8%) (Restricted diet: ED 54.0%, CTS 48.1%, Haemoccult 45.8%, all 49.3%. Unrestricted diet: ED 50.1%, CST 53.4%, Haemoccult 52.0%, all 51.8%.) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** As the physical aspects of test performance do not appear to determine an individual's decision to be screened, self-administered tests will not overcome the problem of poor compliance with FOBT screening ***Comments:*** Evaluation of uptake by the return of the results card may underestimate the use of the screening test where the result is read by the patient
Verne, 1998,[235] UK ***Objectives:*** To compare the feasibility of mass screening by either flexible sigmoidoscopy, FOBT (Haemoccult) or both tests combined ***Design:*** RCT (cluster) ***Screening test:*** Flexible sigmoidoscopy, FOBT	***Sample:*** 3933 (29%) initially identified as being within the study age range (50–75 years). 3744 (50% men) patients were randomised ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Flexible sigmoidoscopy: ? (1249) 2. FOBT: ? (1245) 3. FOBT and flexible sigmoidoscopy: ? (1250)	***Intervention effects (uptake of screening):*** 1. Flexible sigmoidoscopy: 582/1249 (46.6%) 2. FOBT: 393/1245 (31.6%) 3. Combined test: 376/1250 (30.1%). (Combined test group who took either only one or both tests 494/1250 (39.5%); $p < 0.001$.)	***Authors' conclusions:*** Offer of screening by both FOBT and flexible sigmoidoscopy had a detrimental effect on uptake and did not increase detection of neoplasia, so we conclude that the synchronous offer of both tests is not worthwhile ***Comments:*** Telephone survey of a random sample of non-responders in the sigmoidoscopy group revealed that up to 16% of the invitations could have been

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Total number of inaccuracies on the list and postal returns of randomised patients not stated. Randomised by household, analysed by individual ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** Not stated	Uptake was significantly higher in the flexible sigmoidoscopy group and in the group having both tests ($p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	sent inappropriately. Some of the patients in the group allocated to receive both tests only received one test
Vietri, 1997,[220] USA ***Objectives:*** (1) To determine the attitudes and beliefs of women toward breast cancer screening. (2) To determine the barriers to compliance identified by women in breast cancer screening. (3) To determine the effects of supportive interventions by a professional nurse and compliance with breast cancer screening in women ***Design:*** RCT ***Screening test:*** Mammogram, CBE	***Sample:*** 200 women working at a state university, selected by random numbers, were sent an introductory letter and consent form. Of the 200 women approached by letter, 62 consented to take part ***Setting:*** University ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Coaching and supportive interventions over the course of the study following an initial presentation and information handout: ? (30) 2. No further interventions following the initial presentation and information handout (control group): ? (30) ***Theoretical basis of intervention:*** Health Belief Model ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Two women who failed were excluded from the final analyses ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** One academic year	***Intervention effects (uptake of screening):*** No significant difference in terms of the uptake with mammogram and CBE (no figures or statistics quoted) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** It appears that supportive interventions from a professional nurse did make a difference in compliance with BSE. Monthly reminders may also have helped to eliminate at least one barrier to compliance (difficulty remembering to perform BSE) ***Comments:*** The authors stated that the study was limited in terms of its applicability to the general population, and that subjects may also have supported each other in compliance with breast screening

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Ward, 1991,[221] Australia ***Objectives:*** To evaluate the efficacy and acceptability of two interventions designed to increase the probability that women would accept the offer of the Pap smear during a routine consultation with a male GP ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** 202 women (from 621 approached) aged 20–65 years (mean 40.8 years) in the inner metropolitan region of Sydney attending surgery sessions. Women who were pregnant, had had a smear in the past year or were attending for a smear that day, had had a hysterectomy, had never been sexually active with a male partner, or had insufficient command of English to complete the questionnaire were excluded. GPs: 16 male (from 39 eligible), aged 32–65 years (average 47 years) ***Setting:*** General practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Minimal intervention: at the end of the consultation the GP advised the woman of the need for a smear and offered to perform one immediately; GPs advised those not consenting to make an appointment for a smear within a week: 99 (95) 2. Maximal intervention: at the end of the consultation the GP advised the woman of the need for a smear and offered to perform one immediately; GPs attempted to persuade those not consenting during that consultation by exploring barriers and self-exclusions. GPs were given a list of possible self-exclusions and potential responses. If women still did not consent, GPs were advised making an appointment for a smear within a week: 103 (89) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size calculations performed. 88% follow-up, no intention-to-intervene analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** Not stated ***Follow-up:*** 1 month	***Intervention effects (uptake of screening):*** 1. Minimal intervention: total 52/95 (55%) (95% CI, 45.0 to 65.0); at same consultation 34/95 (36%); within 1 month 19% (18/95) 2. Maximal intervention: total 60/89 (67%) (95% CI, 57.0 to 77.0); at same consultation 55% (49/89); within 1 month 12% (11/89); no significant difference between groups ($p < 0.107$) Implementation of interventions: 9/16 GPs used the interventions on 100% of required occasions ***Intermediate outcomes – GPs:*** Minimal intervention was rated by GPs as more acceptable than maximal intervention in terms of ease (91% vs 78%), duration (97% vs 84%) and perceived acceptability to patients (89% vs 77%); these differences were significant ($p = 0.024$, 0.011, 0.045, respectively). There were no significant differences in GP ratings of intervention acceptability to themselves or how pressed for time they felt ***Costs:*** Not stated	***Authors' conclusions:*** Brief advice is as effective as maximal persuasion in increasing women's compliance with opportunistic screening in routine consultations ***Comments:*** Fidelity of intervention implementation could not be checked; audiotapes available for only a few consultations. The mean duration for the minimal interventions was 32 seconds (range 10–70 seconds). The mean duration for the maximal intervention was 91 seconds to 3 minutes and 44 seconds).

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Weber, 1997,[258] USA ***Objectives:*** To improve mammography completion rates for urban women aged 52–77 years who had not had a mammogram in at least 2 years ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 376 patients aged 52–77 years who had not had a mammogram in the previous 2 years and had no prior breast cancer or mastectomy ***Setting:*** Primary care practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter followed by standardised case management protocol including patient education, reminders, telephone calls, home visits, office visits, mailed cards, identification and removal of barriers (transportation, dependants' care, etc.) (community health educators (CHE) intervention): 186 (186) 2. Letter only (control group): 190 (190) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Three subsets of intention-to-treat analyses were performed (All randomised patients; excluding 38 patients who never received the control or CHE intervention; a truly eligible analysis excluding another 82 ineligible patients.) ***Baseline comparability:*** The two study groups were similar in their demographic characteristics, but there was variation between the two groups in terms of their insurance status ($p < 0.002$) ***Baseline of assessment:*** No mammogram in the preceding 2 years. 65% of the CHE group had had a prior mammogram, as opposed to 54.7% of the control group ($p < 0.03$) ***Follow-up:*** 16 weeks	***Intervention effects (uptake of screening):*** During the 16-week intervention period: 1. CHE group: 41/163 (25%) 2. Control group: 17/174 (9.8%) (χ^2 test, $p < 0.001$) *Intention-to-treat analysis (authors' values):* RR = 2.57 (95% CI, 1.53 to 4.35) for the CHE group. Taking into account the 38 patients who did not receive the intervention (authors' values): CHE group, RR = 2.67 (95% CI, 1.59 to 4.48; χ^2 test, $p < 0.001$). Taking into account the 82 women who thought they had previously had a mammogram, 41/99 (41%) of the CHE group completed mammograms compared with 17/118 (14%) of the control group (authors' values: RR = 2.87; 95% CI, 1.75 to 4.37; χ^2 test, $p < 0.01$) ***Intermediate outcomes:*** Not stated	***Authors' conclusions:*** Personalised education and case management are successful in enhancing compliance with breast cancer screening among historically non-compliant vulnerable urban women. This intervention, when combined with a preventive care information system, has the potential to achieve 'Healthy People 2000' objectives for breast cancer screening ***Comments:*** Generalisability may be limited as women living in this particular urban area of the USA and attending these primary care practices may not be representative of the general population

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
		Costs: In the 16-week intervention period, the 6 community health educators spent approximately 15% of their time for a total personnel cost of $8300. Mailing, transportation and non-monetary incentives cost an additional $700. These CHE costs ($9000) produced 24 incremental mammograms in the intention-to-treat analysis ($375 per incremental mammogram). If 500 women similar to the study patients must be screened to save one additional life (0.8% cancer detection rate, 25% mortality reduction per cancer detected), the incremental cost of saving that life would be $23,000: (500 × $375 per incremental mammogram CHE cost) + (500 × $100 per mammogram) + (500 × 3.4% work-up rate and $1000 per work-up) – ($25,000 for terminal care avoided)	
Weinrich, 1993,[102] USA ***Objectives:*** To test the effectiveness of four educator methods on participation in FOBT screening ***Design:*** RCT (cluster) ***Screening test:*** FOBT	***Sample:*** Participants visiting a congregate meal site for the elderly (n = 180) in South Carolina. 75% (n = 171) of the invited participants agreed to take part in the study. 70% of the sample were women; 50% of the sample were black and 50% were white. The average age was 72 years, and the average educational level was eighth grade. More that half of the participants had an income below the poverty line. The educational methods were randomised by meal sites, not individuals ***Setting:*** Ageing congregate meal sites ***Intervention(s): number randomised (number analysed in parentheses).*** Not stated how many sites were randomised to each group 1. Traditional method, which included a standard American Society slide–tape presentation and a handout on colorectal cancer: ? (41)	***Intervention effects (uptake of screening):*** 1. Traditional method: 23/41 (59%) 2. EE method: 36/59 (61%) 3. AAC method: 18/42 (43%) 4. EE + AAC method: 27/29 (93%) A χ^2 test for the methods considered jointly gave clear evidence of differences in stool return rate (χ^2 = 18.8; df = 3; p = 0.000) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Participants who were taught by the elderly educator methods (EE and EE + AAC) participated to a greater extent in faecal occult blood screening. This research supports one of the tenets of Social Learning Theory. The elderly educators served as believable peer role models; the participants were more likely to return their faecal occult blood kit if they saw modelled behaviour of colorectal cancer screening ***Comments:*** The generalisability of the findings may be limited due to the setting used and the type of participants enrolled

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Elderly educator method (EE), which was identical to the traditional method, except that elderly persons were used as teachers and demonstrators in the presentation: ? (59) 3. Adaptation for ageing changes (AAC), which used techniques to modify the slide–tape presentation to accommodate for normal ageing changes (e.g. increased time needed for learning and changes in sensory abilities): ? (42) 4. Combination (included EE and AAC): ? (29) ***Theoretical basis of intervention:*** Social Learning Theory (in the EE group only) ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 75% (n = 171) of the invited participants agreed to take part and all were included in the analysis. Reasons for refusal included having had the test performed by a doctor recently and active involvement in other activities going on at the meal site (e.g. quilting). Unit of allocation differed from unit of analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** The sample as a whole had a baseline uptake of 22% (n = 171) ***Follow-up:*** 1 week		
Weinrich, 1998,[77] USA ***Objectives:*** To test the effect of knowledge on participation in prostate cancer screening ***Design:*** Controlled trial ***Screening test:*** Prostate cancer screening test	***Sample:*** 965 men from community sites within 11 counties in a south-eastern USA state (age 40–70 years, African men; 50–70 years, Caucasian men). Inclusions were men with no previous history of prostate cancer screening ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses).*** No data were given on the numbers of men assigned to each group 1. Peer educator method (using men of the same age and race as teachers and demonstrators)	***Intervention effects (uptake of screening):*** Using the traditional (control) group as a reference group, the following values were stated for the intervention groups: *Peer educator method:* estimate = –0.15; SEM = 0.38; p = 0.70 *Client navigator method:* estimate = 1.36; SEM = 0.37; p = 0.0003 (p = 0.05) *Combination method:* estimate = 1.03; SEM = 0.34; p = 0.003 (p < 0.05)	***Authors' conclusions:*** Although all men share the potential for prostate cancer, they vary greatly in their educational backgrounds, knowledge or prostate cancer, and values and beliefs about the importance of screening. Materials and approaches must be literacy-appropriate and culturally sensitive ***Comments:*** Analyses and other statistics were poorly reported. No details were given on uptake, baseline characteristics or denominators for each group. Generalisability of the study may be limited

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	2. Client navigator method (using a social worker to assist the men in navigating the healthcare system, making their appointment, arranging transportation, and remembering to attend) 3. Combination method (peer educator and client navigator methods combined) 4. Traditional (control) method ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Unit of allocation different from unit from analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No previous history of prostate cancer or screening ***Follow-up:*** 1 year	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Williams, 1989,[168] UK ***Objectives:*** To determine whether a letter with an appointment for breast cancer screening would improve uptake of screening compared with an open-ended request to make an appointment ***Design:*** RCT ***Screening test:*** Mammogram	***Sample:*** 450 women aged 45–64 years ***Setting:*** Screening office and mobile screening unit ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter specified an appointment and women were asked to cancel or alter appointments, but not to confirm them: ? (188) 2. Open-ended letter inviting women to return a form indicating convenient times; appointment was then sent: ? (204) Letters were signed by a GP. Alternate appointments were allocated to the two groups at the screening office. Reminder was sent to non-responders after 3 weeks. Non-attenders from both groups were sent another appointment ***Theoretical basis of intervention:*** Not stated	***Intervention effects (uptake of screening):*** 1. Appointment: 162/188 (86.2%) 2. Invitation: 154/204 (75.5%); a significant difference (p = 0.01) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Including an appointment with an invitation for screening significantly enhances compliance with screening compared with an open-ended invitation ***Comments:*** Short report only

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TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Sample-size calculations and analyses: No sample-size or power calculations presented. Excluded three men inadvertently invited, women who had moved or had recently been screened (numbers ?), nine women sent invitations instead of appointments and one woman sent an appointment instead of an invitation, leaving 392 women from the original sample of 450. Intention-to-intervene analysis performed, but results not presented ***Baseline comparability:*** Groups comparable for age, previous screening and place of residence ***Baseline of assessment:*** 56 (30%) of group 1 and 69 (34%) of group 2 had been screened before ***Follow-up:*** Not stated		
Williams, 1998,[277] USA ***Objectives:*** To test the effectiveness of a patient-initiated, touch-sensitive computer system for improving screening rates for cancers of the breast, cervix, colon and rectum, and oral cavity ***Design:*** RCT, stratified, two-stage cluster sampling ***Screening test:*** Mammogram, CBE, Pap smear, FOBT, DRE, flexible sigmoidoscopy	***Sample:*** *Stage 1:* 329 non-teaching primary care practices in a 43-county area in Virginia, USA. The total number of patients in these practices was 9858, and of these 5789 were eligible for study (i.e. aged ≥ 18 years) *Stage 2:* 50 patient medical records (secondary sampling units) were selected at random from the practices' adult population before the intervention. Another 50 were randomly selected after the intervention ***Setting:*** Primary care practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Touch-sensitive computer system and a nurse, who served as a liaison, provided information and training: 30 practices (random sample of patient records) 2. Control: 30 practices (random sample of patient records) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** Sample-size and power calculations performed. Two practices withdrew after randomisation. Unit of allocation the same as unit of analysis	***Intervention effects (uptake of screening):*** The difference in change between the intervention and control practices (%) was: 1. Mammography uptake: 8.8% ($p < 0.05$) 2. CBE: 8.3% ($p < 0.05$) 3. DRE: 2.1% 4. FOBT: 1.0% 5. Flexible sigmoidoscopy: 1.3% 6. Pap smear: 2.7% ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** Patients who have health maintenance examinations (HMEs) are more likely to receive cancer screening; however, a computer-based system for preventive services can contribute to improvement in screening. Among those patients who did not have an HME, touch-sensitive computer system users had higher rates of breast cancer screening than non-users ***Comments:*** None

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline comparability: Not stated ***Baseline of assessment:*** Uptake of screening tests pre-intervention (% of patients) was assessed: *Intervention practices:* Mammography 25.0%, CBE 30.9%, DRE 23.6%, FOBT 9.3%, flexible sigmoidoscopy 5.0%, Pap smear 25.0% *Control practices:* Mammography 24.6%, CBE 30.0%, DRE 24.3%, FOBT 6.9%, flexible sigmoidoscopy, 5.1%, Pap smear 19.0% ***Follow-up:*** 1 year		
Wilson, 1987,[169] UK ***Objectives:*** To investigate two methods of call up as part of the pilot scheme for the Nottingham cervical cytology programme ***Design:*** RCT ***Screening test:*** Pap smear	***Sample:*** Women aged 45–65 years from five general practices in the Nottingham Health Authority. Women were excluded by their GP if they had had a hysterectomy or had another medical condition ***Setting:*** Screening programme ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Letter of invitation to make an appointment + two reminders: 125 (122) 2. Sent an appointment + two reminders: 125 (118) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. 10 women were dropped from the study, and not included in the analysis ***Baseline comparability:*** Not stated ***Baseline of assessment:*** No history of smear tests ***Follow-up:*** Not stated	***Intervention effects (uptake of screening):*** 1. Letter: 39/122 (32%) 2. Appointment: 56/118 (47%), a 15% greater response in the appointment group (95% CI, 3 to 28) *Women aged 54.5–65 years:* 23% (11/48) of the letter-only group and 47% (27/57) of the appointment group attended ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** The overall response rate was lower than in other studies. The results suggest that middle-aged women who have not had a smear test are more likely to accept an invitation to have one if the GP offers a specific appointment rather than an open invitation ***Comments:*** Published as a letter only. The final number of study participants was small compared with the initial study population. 588 women who fulfilled the study criteria were not included

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Winickoff, 1984,[278] USA ***Objectives:*** To assess the effectiveness of an intervention aimed at improving physician performance through peer comparison feedback ***Design:*** RCT (cluster) cross-over ***Screening test:*** FOBT	***Sample:*** 16 physicians from the Department of Internal Medicine at the Kenmore Center of the Harvard Community Health Plan (prepaid group practice based in Boston, USA) participated in the study. The Harvard Community Health Plan was responsible for 65,000 patients at the time of the study. The physicians were randomised into two groups of eight after stratification on the basis of performance during the preceding 6-month period. One group was assigned to the control and the other to the intervention. After 6 months the groups were crossed over ***Setting:*** Private practice ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Intervention (peer performance feedback): 8 physicians (869 patients) 2. Control (no feedback): 8 physicians (978 patients) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations were performed. There were no drop-outs or losses to follow-up in terms of the physicians. Unit of allocation different from unit of analysis ***Baseline comparability:*** There were no significant differences in physician performance between the two groups at baseline ***Baseline of assessment:*** Group 1, 549/832 (66%) tests done; group 2, 569/843 (67.5%) tests done ***Follow-up:*** 12 months	***Intervention effects (uptake of screening):*** *6-months follow-up:* 1. Intervention: 694/869 (79.9%) 2. Control: 750/978 (76.7%) *12-month follow-up (6 months after crossover):* 1. Intervention: 876/1041 (84.1%) 2. Control: 679/851 (79.8%) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** This study demonstrates the effectiveness of peer comparison feedback in improving provider compliance with a given standard of care ***Comments:*** The results suggest that contamination may have occurred during the first 6-month period as the performance of both the control and the intervention group improved to similar levels. This seems likely, as both groups were based in the same centre and no specific attempts were made to separate the two groups. Very few baseline data were provided in terms of physician characteristics and so it is difficult to tell if the study groups were comparable
Wolosin, 1990,[170] 1989[322] USA ***Objectives:*** To evaluate the effectiveness of an appointment scheduling and reminder scheme in increasing mammography among asymptomatic women ***Design:*** Quasi-RCT	***Sample:*** 700 women aged ≥ 35 years. Women were eligible for a baseline or repeat mammogram if they had no signs or symptoms on examination or from history, and no acute problems requiring hospitalisation or precluding breast examination ***Setting:*** Private practice (urban and rural)	***Intervention effects (uptake of screening):*** Uptake rate overall: actual numbers were not reported; 54% of women in the control and 73% of women in the experimental group ($p < 0.001$)	***Authors' conclusions:*** Scheduling appointments on the spot and sending a reminder postcard increased uptake of mammography. Such an intervention, if implemented on a wide scale, would augment the value of screening mammography in controlling breast cancer

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
Screening test: Mammogram	***Intervention(s): number randomised (number analysed in parentheses)*** 1. Information + an offer to telephone and make an appointment for them then and there. If accepted, the appointment was made. A reminder postcard was sent 4 days before their scheduled appointment: approx. 350 2. Control group (told how to obtain a mammogram and to make an appointment within 30 days): approx. 350 ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Two rural practices withdrew. Two sites entered 89 and 98 women (instead of 100). No intention-to-intervene analysis ***Baseline comparability:*** The numbers of patients per practice, their health insurance status, mammogram costs and distance from the screening unit varied widely from site to site ***Baseline of assessment:*** Not stated ***Follow-up:*** None stated	1. Intervention group: excess in uptake rates compared to control varied from 4% at site 4 to 34% at site 6, with a mean of 19%. Difference in overall adherence rates was significant ($p < 0.001$) 2. Control group: percentage of adherent women varied from 32% to 80%. The difference between sites was significant ($p < 0.001$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Comments:*** No matching of patient groups. The difference between control group adherence between sites probably reflects the differences in patient population, costs and barriers, and in physician or office staff commitment to mammography
Yancey, 1995,[201] USA ***Objectives:*** To assess the effectiveness of health education videos in increasing uptake of cervical cancer screening among women from low-income, inner-city African-Americans and Latinos ***Design:*** Quasi-RCT (cluster) ***Screening test:*** Pap smear	***Sample:*** Two community health clinics serving low-income, inner-city African-American and Latino populations in Los Angeles and New York. Intervention groups included women who kept appointments with physicians, or were seen on a walk-in basis during on-weeks. Controls groups were women visiting during contiguous off-weeks ***Setting:*** Health clinic ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Videos played in designated waiting rooms for 4 weeks: 2 clinics (968) 2. Control (the week-off period): 2 clinics (876)	***Intervention effects (uptake of screening):*** Women screened: 1. New York intervention: 78/533 (14.6%) 2. New York control: 57/551 (10.3%); difference, $p < 0.016$ 3. Los Angeles intervention: 26.9% (90/335) 4. Los Angeles control: 19.4% (63/325); difference, $p < 0.011$ Women exposed to the intervention had a significantly higher uptake than controls	***Authors' conclusions:*** Culturally sensitive videos significantly increase uptake of cervical cancer screening among community health centre patients from low-income, inner-city populations (those most difficult to reach) ***Comments:*** Other effects not accounted for include the effects of word-of-mouth dissemination, and women exposed to the intervention may have obtained services elsewhere

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Theoretical basis of intervention: Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. No drop-outs reported. Unit of allocation different from unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** No significant differences between intervention and control groups were evident within site (χ^2 analysis). The New York patients were older and more likely to have insurance, while Los Angeles had more African-American women ***Baseline of assessment:*** Not stated ***Follow-up:*** 3–5 months	***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	
Zapka, 1993,[244] USA ***Objectives:*** To evaluate the impact of a multicomponent intervention implemented between 1987 and 1990 to increase a community's utilisation of breast cancer screening by women aged > 50 years of age ***Design:*** Controlled trial (cluster) ***Screening test:*** Mammogram, CBE	***Sample:*** Analysis limited to women aged ≥ 52 years ***Setting:*** Community ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Physician intervention (in-service programmes, periodic newsletters, and patient education materials. A complementary continuing education programme was also run for radiologists): cross-sectional studies 2. Women intervention (educational groups, community media efforts, fliers, notepads and an intervention aimed at low-income Latina women): cross-sectional studies ***Theoretical basis of intervention:*** Social influences ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. Refusal to answer telephone resulted in response rates of 75.3%, 75% and 73.9% of eligible households. Unit of allocation different from unit of analysis. Analysis based on pre-test and post-test cross-sectional surveys ***Baseline comparability:*** Significant differences in level of physician advice to have a mammogram, women enrolled in the HMO, education and mammography use	***Intervention effects (uptake of screening):*** At midpoint, there was significantly more change ($p < 0.05$) in the intervention city in the proportion who had never had a mammogram (51% to 29%) than in the comparison city (41% to 28%). However, over the entire study period, the difference between cities in the amount of change was not significant ($p > 0.005$) ***Intermediate outcomes:*** The intervention city showed more improvement in selected variables than did the comparison community in the early phases of the project between baseline and midpoint. These included increased advice by physicians to have a mammogram, increased knowledge, and decreased perceptions of barriers to CBE ***Costs:*** Not stated	***Authors' conclusions:*** The findings demonstrate a limited impact of a community intervention during a period of increasing adoption of mammography screening, in part, due to this rapidly rising secular trend. Additionally, increased activities in the comparison community were documented ***Comments:*** At baseline, there were significantly more women in the comparison group who had been advised to have a mammogram. Since the surveys were cross-sectional, causality cannot be attributed

continued

TABLE 34 contd *Data extraction table for intervention studies*

Study details	Characteristics of the study, interventions and methodology	Results	Comments and implications
	Baseline of assessment: In the intervention city more women reported never having had a mammogram as compared to the control group (51 vs 41%; $p < 0.03$). Fewer women in the intervention group reported that they were previous but not recent users (19 vs 20%). 58% of the intervention group reported having a CBE in the past year, as compared to 58% in the comparison group ***Follow-up:*** 4 year period; telephone surveys were done at approximately 18-month intervals		
Zarod, 1992,[171] UK ***Objectives:*** to evaluate the effectiveness of a school dental screening in encouraging dental attendance by school children aged 4–6 years ***Design:*** RCT ***Screening test:*** Dental examination	***Sample:*** All 4–6 year olds at 13 primary schools in Wallasey, Merseyside on examination day were screened for evidence of untreated dental caries. Children with oral sepsis, extensive cavitation, or recent dental treatment were excluded ***Setting:*** School ***Intervention(s): number randomised (number analysed in parentheses)*** 1. Parents were sent a referral letter, via the child, advising that the child should visit a dentist + reminders: 270 (262) 2. Control group (received no communication): 258 (243) ***Theoretical basis of intervention:*** Not stated ***Sample-size calculations and analyses:*** No sample-size or power calculations performed. 23 children (3% of intervention group; 6% of control group) were excluded from the analyses ***Baseline comparability:*** No differences in mean age or socio-economic status ***Baseline of assessment:*** Not stated ***Follow-up:*** 4 months	***Intervention effects (uptake of screening):*** Dental attendance confirmed: 1. Intervention group: 191/262 (72.9%) 2. Control group: 102/243 (42.0%) Significant difference ($p < 0.01$) ***Intermediate outcomes:*** Not stated ***Costs:*** Not stated	***Authors' conclusions:*** School dental screening, combined with careful referral and follow-up, is effective in increasing dental attendance ***Comments:*** Baseline screening may have prompted dental attendance in the control group among school children aged 4–6 years

Appendix 6

Quality of intervention studies

TABLE 35 *Invitation studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Binstock, 1997,[138] USA	±	±	100%	NA	±	+	NA	
Bowman, 1995,[115] Australia	±	±	74% I1; 75% I2; 74% I3; 71% C	–	+	+	NA	
Buehler, 1997,[139] Canada	±	±	81% I; 95% C	–	±	+	NA	
Burack, 1996,[61] USA	±	±	66% I1; 66% I2; 62% I3; 64% C	–	+	+	NA	Exclusions after randomisation due to ineligibility (35%), discontinuation of HMO enrolment (16%) and no visit (31%) (for physician intervention only)
Burack, 1998,[80] USA	±	±	66%	–	+	+	NA	Over 20% of study participants were excluded after randomisation. Ineligible participants and non-attenders were excluded from the analysis. Randomised in two stages. Methodology unclear
Byles, 1994,[140] Australia	±	±	71%	–	±	–	–	Partially randomised. Analysis compared intervention groups with a non-randomised control group
Byles, 1995,[141] Australia	±	±	85% I; 85% C	–	±	+	–	Adjusted for 15% estimated hysterectomy rate
Byles, 1996,[142] Australia	±	±	±	–	±	+	–	Not clear how many women were originally included in the study. Only part of the study was randomised
Calle, 1994,[181] USA	±	+	76% I; 79% C	–	+	–	–	
Cheng, 1997,[182] USA	–	±	±	±	+	+	NA	Children were allocated by day of the week to one of five groups
Clementz, 1990,[143] USA	+	±	88% I; 73% C	–	+	+	NA	Exclusions after randomisation (29%)
Dalessandri, 1998,[178] USA	–	±	±	±	±	±	NA	Allocated by social security number
Del Mar, 1998,[144] Australia	±	±	100%	NA	+	+	NA	
Dolan, 1996,[145] USA	±	±	100%	NA	±	±	NA	Conference abstract only

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 35 contd *Invitation studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Garton, 1992,[146] UK	±	±	±	±	+	±	NA	
Gates, 1976,[172] USA	±	±	69.7%	–	±	+	NA	Exclusions after randomisation
Hackett, 1996,[179] USA	±	±	±	±	±	+	NA	PhD thesis
Hurley, 1992,[147] Australia	–	±	53% I; ±% C	–	±	±	NA	Possible RCT of personal recruitment strategies; cohort with no control for public recruitment strategies
Irwig, 1990,[148] Australia	±	+	100%	+	±	+	NA	Drop-outs (6%) included in analysis
Kant, 1997,[149] The Netherlands	–	±	87%	–	–	+	–	Controlled trial. Intervention and control groups not comparable. Differences between groups not taken into account in the analyses
King, 1992,[177] Australia	–	±	100%	+	±	+	NA	Controlled trial. Losses to follow-up (5%) included in the analysis
Landis, 1992,[150] USA	±	±	100%	NA	–	+	–	Differences between groups not taken into account in the analyses
Marcus, 1992,[152] USA	–	±	48% I; 81% I2; 95% I3	–	±	+	–	Allocated by month of Pap smear
Margolis, 1996,[173] USA	–	±	±	±	–	+	NA	Partially randomised. Different practice styles between nurses. Differences between groups not taken into account in the analyses
Mayer, 1994,[153] USA	±	±	±	±	±	±	NA	Not clear how many of those randomised were included in the analysis
McDowell, 1989,[154] Canada	±	±	72% I1; 74% I2; 73% I3; 73% C	–	+	+	NA	Ineligible participants excluded from the analysis
McDowell, 1989,[155] Canada	±	±	65% I1; 86% I2	–	+	+	–	Ineligible participants excluded from the analysis
Meldrum, 1994,[184] UK	+	±	100%	+	±	±	NA	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 35 contd *Invitation studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Mitchell, 1991,[156] Australia	+	+	±	–	±	+	NA	Ineligible participants excluded from the analysis. Logistic regression used to control for confounders. Pre-and post-test values were based on estimates
Mohler, 1995,[157] USA	+	±	100%	NA	+	+	NA	Short follow-up
Myers, 1991,[110] USA	±	±	±	±	+	+	NA	
Nichols, 1986,[158] UK	±	±	69%	–	±	+	NA	25,852 people randomised, but only 17,824 were offered the test and included in the analysis. The researcher may have acted as a facilitator
O'Connor, 1998,[159] UK	+	–	99% I; 100% C	–	+	+	NA	
Ornstein, 1991,[160] USA	±	–	64%	–	–	±	–	Those not receiving the physician intervention were excluded from the analysis. Baseline differences in uptake were not taken into account in the analyses
Owen, 1990,[137] Australia	±	±	100%	NA	±	+	NA	
Palm, 1997,[151] The Netherlands	–	±	54.5%	–	–	+	–	Controlled trial. Differences between groups were not taken into account in the analyses
Paskett, 1990,[174] USA	–	±	95%	–	±	±	NA	Allocation by hospital numbers. Drop-outs (27%) were included in the analysis, but there were exclusions after randomisation
Pierce, 1989,[161] UK	±	±	86% I1; 82% I2; 94% C	–	±	±	NA	Groups followed up for different lengths of time
Powers, 1992,[162] USA	±	±	±	±	±	±	–	Abstract only
Pritchard, 1995,[103] Australia	+	±	100%	+	+	±	NA	Drop-outs (2%) were included in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 35 contd *Invitation studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Richardson, 1994,[163] New Zealand	±	±	82% I; 82% C (study 1), 100% (study 2)	–	+	+	NA	Two separate RCTs
Roberts, 1983,[175] USA	±	±	95.5% (study1), 100% (study 2)	–	+	+	NA	
Schapira, 1992,[164] USA	–	±	81%	–	+	±	NA	Allocated to treatment consecutively
Senore, 1996,[96] Italy	±	±	99%	–	±	+	NA	No baseline comparability or baseline attendance data reported
Skinner, 1994,[98] USA	±	±	87%	–	+	–	NA	Excluded women without phones
Somkin, 1997,[165] USA	±	±	±	±	+	+	NA	
Straton, 1995,[180] Australia	–	±	±	–	–	–	–	According to the sample-size calculations carried out by the authors both the control and education samples were too small. Differences between groups were not taken into account in the analyses
Taplin, 1994,[75] USA	±	±	88%	–	+	+	NA	Exclusions after randomisation
Thompson, 1986,[100] USA	±	±	±	±	±	+	NA	
Torgerson, 1993,[183] UK	±	±	±	±	±	±	NA	
Turnbull, 1991,[167] Australia	±	±	100%	+	±	+	NA	Drop-outs (2%) were included in the analysis
Turner, 1990,[176] USA	–	±	±	±	–	+	–	Allocation by clinic day. Differences between groups were not taken into account in the analyses
Williams, 1989,[168] UK	±	+	87%	–	+	±	NA	Intention-to-intervene analysis was undertaken, but not reported
Wilson, 1987,[169] UK	+	±	94% I1; 96% I2	–	±	±	NA	
Segnan, 1998,[71] Italy	+	±	100%	+	+	+	–	

+, Adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 36 *Reminder studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Bergmann, 1996,[79] Iceland	–	±	93%	–	–	+	NA	Controlled trial. Baseline differences were not taken into account in subsequent analyses
Hurley, 1992,[147] Australia	–	±	53% I; ±% C	–	±	±	NA	Possible RCT of personal recruitment strategies; cohort with no control for public recruitment strategies
King, 1994,[188] USA	±	±	59% (study 1), 95% (study 2)	–	+	+	NA	Two separate RCTs
Majeed, 1997,[186] UK	–	±	±	±	–	+	–	Allocated by baseline characteristics (% uptake in GP practice). Unit of allocation (practices) was different from unit of analyses (individual). Differences between groups were not taken into account in the analyses
Richardson, 1994,[163] New Zealand	±	±	82% I; 82% C (study 1), 100% (study 2)	–	+	+	NA	Two separate RCTs
Sharp, 1996,[72] UK	+	+	97%	–	±	+	NA	
Stead, 1998,[185] UK	–	+	100%	NA	+	±	NA	Allocation by Sx number (a number allocated to all women when they are called for mammography screening in the UK)
Turner, 1994,[187] UK	–	+	±	±	+	+	NA	Allocation by community health number

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 37 *Education studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Arnold, 1996,[195] USA	±	±	61.6%	–	±	+	NA	Conference abstract only
Bastani, 1994,[78] USA	±	±	78%	–	–	–	NA	Baseline differences were not taken into account in the subsequent analyses
Bekker, 1993,[29] UK	+	±	93%	–	±	±	NA	Partially randomised (letter intervention). The numbers in each group varied considerably. Additional information was received from the author regarding the randomisation process
Bowman, 1995,[115] Australia	±	±	74% I1; 75% I2; 74% I3; 1% C	–	+	+	NA	
Champion, 1994,[197] USA	±	±	93%	–	±	–	NA	
Cheng, 1997,[182] USA	–	±	±	±	+	+	NA	Children were randomised by day of the week to one of five groups
Clover, 1992,[196] Australia	±	±	89%	–	+	+	NA	Women were excluded if the doctor did not have time to perform the intervention
Davis, 1998,[198] USA	–	±	100%	NA	–	+	NA	Allocation by days of the week. Differences in baseline characteristics were controlled for in the subsequent analyses
Dignan, 1996,[206] USA	±	±	80% I; 83% C	–	+	–	NA	
Drossaert, 1996,[189] The Netherlands	–	±	97.5%	–	–	+	NA	Randomised by planned appointment days. Differences in baseline characteristics were controlled for in the analyses
El-Hadad, 1995,[211] USA	–	±	±	±	+	–	NA	Allocation by alternation. Conference abstract only
Elwood, 1978,[212] USA	±	±	±	±	±	+	NA	
Hart, 1997,[210] UK	±	±	100%	+	±	+	NA	Analysed on an intention-to-intervene basis
Herman, 1993,[204] USA	–	±	65%	–	±	–	–	Controlled trial. Ineligible participants were excluded from the analysis
Herman, 1995,[209] USA	±	±	96%	–	–	+	–	Differences between groups were not taken into account in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 37 contd *Education studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Hoare, 1994,[199] UK	±	±	94% I; 95% C	–	+	+	NA	Only 59% of the intervention group received the intervention (others could not be contacted)
Kalichman, 1993,[190] USA	±	+	72%	–	+	+	NA	
Malotte, 1998,[68] USA	±	±	100%	+	+	+	NA	Intention-to-intervene analysis
Marcus, 1992,[152] USA	–	±	48% I1; 81% I2; 95% I3	–	±	+	–	Allocated by month of Pap smear
McAvoy, 1991,[208] UK	±	±	100%	+	±	+	NA	Losses to follow-up (27%) were included in the analyses
Michie, 1997,[127] UK	+	±	45%	–	±	+	NA	Data regarding screening uptake for the individual study groups were not reported. Baseline and baseline comparability data were not reported
Myers, 1994,[92] USA	±	±	100%	NA	+	+	NA	
Navarro, 1998,[317] USA	±	±	70.5% overall; 73% I; 68% C	–	+	–	+	Analysis was performed twice, using individuals or groups as the units of analysis
Nichols, 1986,[158] UK	±	±	67%	–	±	+	NA	25,852 people were randomised, but only 17,824 were offered the test and included in the analysis. The researcher may have acted as a facilitator
Pye, 1988,[207] UK	±	±	±	±	±	+	–	
Reynolds, 1990,[200] USA	±	±	72%	–	±	–	+	Analysed using both the individual and the group as the unit of analysis
Richardson, 1996,[205] USA	–	±	72%	–	+	–	NA	Allocation by alternation
Rimer, 1999,[122] USA	±	±	67%	–	±	–	NA	
Selby-Harrington, 1995,[112] USA	±	±	100%	+	±	+	+	Analysed by family

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 37 contd *Education studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Seow, 1998,[194] Singapore	+	+	100% I1; 85.6% I2; 100% C	–	+	+	NA	The homes of only 428 women in the additional visit group were visited. However, 500 women were randomised to this interview group. The authors state that intention-to-treat was used, but only 428/500 were included in the analysis
Sharp, 1996,[72] UK	+	+	97%	–	±	+	NA	
Simpson, 1998,[129] UK	+	±	86%	–	+	+	NA	
Sorenson, 1997,[193] USA	±	±	34% families overall; 40% I; 28% C	–	±	+	+	Eligibility and willingness to participate in the study were assessed after randomisation, which led to a large number of drop-outs after randomisation. Data were analysed using family as the unit of analysis. The intraclass correlation coefficient was calculated
Straton, 1995,[180] Australia	–	±	±	–	–	–	–	Controlled trial. According to the sample-size calculations carried out by the authors, both the control and education samples were too small. Differences between groups were not taken into account in the analyses
Sung, 1997,[203] USA	±	±	100%	+	+	–	NA	Losses to follow-up (39%) were included in the analyses
Taylor, 1997,[192] USA	±	±	95% I1 and I2	–	+	+	NA	
Thompson, 1986,[100] USA	±	±	±	±	±	+	NA	
Thornton, 1995,[128] UK	+	±	±	±	+	±	NA	
Turnbull, 1992,[202] Australia	±	±	NA	NA	–	–	–	Differences between groups were not taken into account in the analyses
Weinrich, 1993,[102] USA	±	±	±	±	±	+	–	
Weinrich, 1998,[77] USA	–	±	100%	NA	±	+	NA	Controlled trial
Yancey, 1995,[201] USA	–	±	NA	NA	+	+	–	Allocation by weeks

+, Adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 38 *Message studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Kendall, 1993,[106] USA	–	±	54% I1; 42% I2; 38% C	–	+	+	NA	Controlled trial. Ineligible participants excluded from analysis
Lerman, 1992,[213] USA	±	±	±	±	±	–	NA	89 women refused to take part in the follow-up survey and were excluded from the analysis
Myers, 1991,[110] USA	±	±	±	±	+	+	NA	
Roberts, 1983,[175] USA	±	±	95.5% (study1), 100% (study 2)	–	+	+	NA	
Rothman, 1993,[95] USA	–	±	74%	–	+	–	NA	Intervention groups randomly assigned to times

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 39 *Risk factor assessment and management studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Campbell, 1997,[133] Australia	–	±	20%	–	+	+	NA	Allocation by days of the week. Only analysed those women who were underscreened (20% of those randomised)
Curry, 1993,[216] USA	±	±	80%	–	±	+	NA	Exclusions after randomisation (20%) resulted in differences between groups
Hutchison, 1998,[215] Canada	±	±	46% I; 47% C	–	–	+	+	6722 participants were randomised However, only 5686 received either intervention. The intraclass correlation coefficient was calculated. Differences between groups were not taken into account in the analyses
Kreuter, 1996,[214] USA	±	±	51%	–	+	–	NA	Drop-outs were not considered in the final analysis
Lee, 1990,[217] USA	±	±	±	±	±	+	NA	
Pye, 1988,[207] UK	±	±	±	±	±	+	–	

TABLE 40 *Counselling studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Champion, 1994,[197] USA	±	±	93%	–	±	–	NA	
Crane, 1998,[81] USA	±	±	61%	–	–	–	–	The unit of allocation was household. Only those who responded after 6 months were approached for the 2-year follow-up. Baseline differences were taken into account in the subsequent analyses
Davis, 1997,[218] USA	±	±	100%	+	±	+	NA	Drop-outs (10%) were included in the analysis
King, 1994,[188] USA	±	±	59% (study 1), 95% (study 2)	–	+	+	NA	Two separate RCTs
Marcus, 1993,[88] USA	–	+	87%	–	+	–	–	Allocated by weeks of the year. There were differences in intervention between sites
Margolis, 1996,[173] USA	–	±	±	±	–	+	NA	Partially randomised. There were different practice styles between nurses. Differences between groups were not taken into account in the analyses
Miedzybrodzka, 1995,[219] UK	±	–	100%	NA	+	+	NA	
Rimer, 1999,[122] USA	±	±	67%	–	±	–	NA	
Simpson, 1998,[129] UK	+	±	86%	–	+	+	NA	
Vietri, 1997,[220] USA	±	±	99%	–	±	–	NA	
Ward, 1991,[221] Australia	±	±	96% I1; 86% I2	–	±	+	NA	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 41 *Procedures, service provision and opportunistic testing studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Bekker, 1993,[29] UK	+	±	93%	–	±	±	NA	Partially randomised (letter intervention). The numbers in each group varied considerably. Additional information about the randomisation process was received from the author
Berry, 1997,[228] UK	±	±	100%	NA	+	+	–	Participants were randomised by household groups
Bowman, 1995,[115] Australia	±	±	74% I1; 75% I2; 74% I3; 71% C	–	+	+	NA	
Davies, 1991,[226] UK	+	±	99%	–	±	+	NA	
Del Mar, 1995,[239] Australia	±	±	±	±	±	+	–	Not all women received the intervention
Elwood, 1978,[212] USA	±	±	±	±	±	+	NA	
Elwood, 1995,[224] USA	+	±	Colposcopy: 93% Sigmoidoscopy: 99%	–	±	+	NA	
Freedman, 1994,[230] USA	–	±	100%	+	+	+	NA	Allocation by days of the week
Hackett, 1996,[179] USA	±	±	±	±	±	+	NA	PhD thesis
Herman, 1995,[209] USA	±	±	96%	–	–	+	–	Differences between groups were not taken into account in the analyses
Hicks, 1997,[234] UK	±	±	±	±	±	±	NA	Pilot study
King, 1992,[177] Australia	–	±	100%	+	±	+	NA	Controlled trial. Losses to follow-up (5%) were included in the analysis
Lancaster, 1992,[225] UK	±	±	80%	–	+	+	NA	20% of participants were excluded after randomisation
Mandelblatt, 1993,[223] USA	–	–	NA	NA	±	+	–	Controlled trial. The analysis was based on pre-test, post-test cross-sectional surveys

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 41 contd *Procedures, service provision and opportunistic testing studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Mant, 1992,[238] UK	±	±	±	–	±	+	NA	Exclusions after randomisation
Margolis, 1998,[89] USA	–	–	67–90%	–	–	+	NA	Allocation was by medical record number. Differences between groups were taken into account in the analyses
McCarthy, 1997,[237] USA	–	±	±	±	+	+	–	Controlled trial. The analysis was based on pre-test, post-test cross-sectional surveys
Myers, 1991,[110] USA	±	±	±	±	+	+	NA	
Nichols, 1986,[158] UK	±	±	69%	–	±	+	NA	25,852 people were randomised, but only 17,824 were offered the test and included in the analysis. The researcher may have acted as a facilitator
Park, 1993,[231] USA	–	±	100%	NA	±	+	NA	Allocation by social security number
Robinson, 1993,[232] UK	±	±	100%	NA	±	+	–	It is not stated whether those who did not attend were followed-up
Robinson, 1994,[229] UK	±	±	100%	NA	+	+	NA	
Robson, 1989,[236] UK	+	±	±	±	±	+	NA	
Senore, 1996,[96] Italy	±	±	99%	–	±	+	NA	It is not stated which intervention groups the 16 individuals who were excluded from the analysis belonged to
Straton, 1995,[180] Australia	–	±	±	–	–	–	–	Controlled trial. According to the sample-size calculations carried out by the authors, both the control and education samples were too small. Differences between groups were not taken into account in the analyses
Tambor, 1994,[120] USA	–	±	90% I1; 24% I2	–	–	+	–	Controlled trial. Differences between groups were taken into account in the analyses
Thomas, 1990,[227] UK	±	±	100%	NA	±	+	–	Participants were randomised by household and analysed by individuals
Verne, 1993,[233] UK	±	±	±	±	±	+	–	Participants were randomised by household and analysed by individuals

TABLE 42 *Economic studies*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Cheng, 1997,[182] USA	–	±	±	±	+	+	NA	Children were allocated by day of the week to one of five groups
Elwood, 1978,[212] USA	±	±	±	±	±	+	NA	
Freedman, 1994,[230] USA	–	±	100%	+	+	+	NA	Allocation by days of the week
German, 1995,[82] USA	±	±	74% overall; 75% I; 73% C	–	–	–	NA	Differences between groups were not taken into account in the analyses
Kiefe, 1994,[117] USA	+	±	90.7%	–	–	+	NA	Differences between groups were taken into account in the analyses
Malotte, 1998,[68] USA	±	±	100%	+	+	+	NA	
Marcus, 1992,[152] USA	–	±	48% I1; 81% I2; 95% I3	–	±	+	–	Allocated by month of Pap smear
Mayer, 1989,[240] USA	±	±	100%	NA	–	+	NA	Differences between groups were not taken into account in the analyses
Mayer, 1994,[153] USA	±	±	±	±	±	±	NA	It is not clear how many of those randomised were included in analysis
Miller, 1993,[241] USA	±	+	100%	NA	±	+	NA	
Owen, 1990,[137] Australia	±	±	100%	NA	±	+	NA	
Plaskon, 1995,[242] USA	+	+	±	±	±	–	NA	
Skaer, 1996,[113] USA	–	±	100%	NA	+	±	NA	Allocated by alternation.
Stoner, 1998,[243] USA	±	±	80.6%	–	+	–	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 43 *Community studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Brown, 1996,[248] Australia	–	±	NA	NA	±	+	–	Controlled trial. Used estimates to calculate uptake (observed rates vs expected rates) and adjusted for 20% estimated hysterectomy rate
Clover, 1996,[250] Australia	±	+	±	±	–	+	–	Women not on the electoral register were excluded from the analysis of uptake rates. Baseline difference not taken into account in subsequent analyses. Outcome data obtained from screeing unit
Fletcher, 1993,[135] USA	–	±	NA	NA	–	–	–	Controlled trial. Analysis based on pre-test and post-test cross-sectional surveys. Baseline differences were taken into account in the subsequent analyses (logistic regression)
Flynn, 1997,[134] USA	–	±	NA	NA	–	–	–	Controlled trial. Analysis based on post-test cross-sectional surveys. Differences between groups were not taken into account in the analyses. Measurement of outcome from mammography vans and self-report
Fox, 1998,[249] USA	–	±	NA	NA	–	–	–	Controlled trial. Analysis based on pre-test and post-test cross-sectional surveys. Differences between groups were taken into account in the analyses
Heath, 1995,[251] USA	–	±	NA	NA	+	–	–	The analysis was based on cross-sectional surveys. Logistic regression was used to control for confounders
Jenkins, 1999,[252] USA	–	±	NA	NA	–	–	+	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Baseline differences were taken into account in the subsequent analyses (logistic regression)

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 43 contd *Community studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
King, 1998,[85] USA	±	±	NA	NA	–	–	–	The analysis was based on pre-test and post-test cross-sectional surveys. Baseline differences were taken into account in the subsequent analyses (logistic regression)
Mitchell, 1991,[156] Australia	+	+	±	–	±	+	–	Ineligible participants were excluded from the analysis. Logistic regression was used to control for confounders. Pre- and post-test values were based on estimates
Shelley, 1991,[247] Australia	–	+	NA	NA	±	+	+	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Baseline differences were taken into account in the subsequent analyses (logistic regression)
Suarez, 1997,[246] USA	–	±	NA	NA	–	–	–	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Differences in baseline characteristics were taken into account in the subsequent analyses (logistic regression)
Taylor, 1996,[253] USA	–	±	NA	NA	–	+	–	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Differences between groups were taken into account in the analyses
Urban, 1995,[245] USA	–	±	NA	NA	±	–	–	Controlled trial. The analyses was based on pre-test and post-test cross-sectional surveys. Logistic regression was used to control for confounders
Zapka, 1993,[244] USA	–	±	NA	NA	–	–	–	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Differences between groups were taken into account in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 44 *'Other intervention' studies*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs
Gottheil, 1993,[254] USA	±	±	100%	NA	±	+	NA

+, adequate; ±, unknown or partial; NA, not applicable

TABLE 45 *Combined intervention studies aimed at individuals*

Study	Allocation	Blinding of assessors	% analysed	Intention to intervene	Baseline comp.	Outcome	Analysis of cluster RCTs	Notes
Champion, 1994,[197] USA	±	±	93%	–	±	–	NA	
Janz, 1997,[67] USA	±	±	71% I; 74%C	–	±	+	NA	
Lantz, 1995,[255] USA	–	±	90%	+	+	+	NA	Allocation by medical record number
Malotte, 1998,[68] USA	±	±	100%	+	+	+	NA	
Marcus, 1992,[152] USA	–	±	48% I1; 81% I2; 95% I3	–	±	+	–	Allocated by month of Pap smear
Mayer, 1993,[69] USA	–	±	64% I; 72% C	–	–	–	–	Controlled trial. Differences between groups were taken into account in the analyses
Myers, 1991,[110] USA	±	±	±	±	+	+	NA	
Nattinger, 1988,[111] USA	–	±	±	±	+	±	–	Controlled trial
Nattinger, 1989,[256] USA	–	±	100%	+	+	+	–	Controlled trial
Nichols, 1986,[158] UK	±	±	69%	–	±	+	NA	25,852 people were randomised, but only 17,824 were offered the test and included in the analysis. The researcher may have acted as a facilitator
Rimer, 1992,[257] USA	±	±	54.8%	–	–	–	–	Differences between groups were taken into account in the analyses
Simpson, 1998,[129] UK	+	±	86%	–	+	+	NA	
Taplin, 1994,[75] USA	±	±	88%	–	+	+	NA	Exclusions after randomisation
Thompson, 1986,[100] USA	±	±	±	±	±	+	NA	
Weber, 1997,[258] USA	±	±	100%	+	–	+	NA	Losses to follow-up were included in the analysis (37%). Differences between groups were taken into account in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 46 *Physician and other healthcare workers studies*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Atri, 1997,[259] UK	+	±	100%	+	+	+	–	The analysis included losses to follow-up
Binstock, 1997,[138] USA	±	±	100%	NA	±	+	NA	
Boissel, 1995,[260] France	±	±	100%	+	±	+	+	Only 43% of the intervention group received the intervention
Burack, 1996,[61] USA	±	±	66% I1; 66% I2; 62% I3; 64% C	–	+	+	NA	Exclusions after randomisation were due to ineligibility (35%), discontinuation of HMO enrolment (16%) or (for physician intervention) no visit (31%)
Burack, 1998,[80] USA	±	±	66%	–	+	+	NA	Over 20% of study participants were excluded after randomisation. Ineligible participants and non-attenders were excluded from the analysis. Randomised in two stages. Methodology unclear
Byles, 1994,[140] Australia	±	±	71%	–	±	–	–	Partially randomised. The analysis compared intervention groups with a non-randomised control group
Cargill, 1991,[261] USA	–	±	100%	NA	+	+	NA	Allocation by social security number
Cecchini, 1989,[62] Italy	–	±	±	–	±	±	–	Controlled trial
Chambers, 1989,[262] USA	+	±	32%	–	+	+	NA	Ineligible participants and those that did not visit the physician were excluded from the analysis (68%)
Cheney, 1987,[263] USA	±	±	±	±	±	+	+	Physician compliance was assessed from a sample of 200 medical records
Clover, 1996,[250] Australia	±	+	±	±	–	+	–	Women not on the electoral register were excluded from the analysis of uptake rates. Baseline difference was not taken into account in the subsequent analyses. Outcome data obtained from screening unit
Cohen, 1982,[264] USA	±	±	±	±	±	+	–	

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 46 contd *Physician and other healthcare workers studies*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Cowan, 1992,[265] USA	–	+	100%	NA	+	+	+	Analysed twice using patient or physician as unit of analysis
Dietrich, 1992,[266] USA	±	±	NA	NA	+	±	+	Analyses based on pre-test and post-test cross-sectional surveys
Dietrich, 1998,[267] USA	±	±	NA	NA	+	+	+	Uptake based on cross-sectional surveys
Gonzalez, 1989,[268] USA	–	–	±	–	±	+	–	
Grady, 1997,[66] USA	+	±	> 90%	–	±	+	+	
Kinsinger, 1998,[269] USA	±	±	94%	–	+	+	+	
Landis, 1992,[150] USA	±	±	100%	NA	–	+	–	Differences between groups were not taken into account in the analyses
Litzelman, 1993,[270] USA	–	±	±	±	+	+	+	Allocation by clinic sessions
McDonald, 1984,[271] USA	±	±	100%	NA	+	+	+	
McDowell, 1989,[154] Canada	±	±	72% I1; 74% I2; 73% I3; 73% C	–	+	+	NA	Ineligible participants were excluded from the analysis
McDowell, 1989,[155] Canada	±	±	65% I1; 86% I2	–	+	+	–	Ineligible participants were excluded from the analysis
McPhee, 1989,[272] USA	±	±	100%	NA	±	+	+	Uptake was evaluated from a random sample of patients. Multiple regression analyses were used to control for residents' pre-intervention scores
McPhee, 1991,[273] USA	±	±	100% I; 95% C	–	+	+	+	
Modell, 1998,[274] UK	+	±	100% of practices	NA	±	+	–	
Nattinger, 1988,[111] USA	–	±	±	±	+	±	–	Controlled trial
Nattinger, 1989,[256] USA	–	±	100%	+	+	+	–	Controlled trial

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 46 contd *Physician and other healthcare workers studies*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Ornstein, 1991,[160] USA	±	–	64%	–	–	±	–	Baseline differences in uptake. Those not receiving the physician intervention were excluded from the analysis. Differences between groups were not taken into account in the analyses
Pierce, 1989,[161] UK	±	±	86% I1; 82% I2; 94% C	–	±	±	NA	Groups were followed-up for different lengths of time
Pritchard, 1995,[103] Australia	+	±	100%	+	+	±	NA	Drop-outs (2%) were included in the analyses
Robie, 1988,[281] USA	–	±	100%	NA	+	+	–	Allocation by clinic day
Stevens, 1997,[280] Australia	–	±	±	–	+	+	–	Allocation by tossing a coin
Tape, 1993,[275] USA	–	+	100%	NA	±	+	–	
Tierney, 1986,[276] USA	–	±	±	±	±	+	+	Allocation by clinic session
Williams, 1998,[277] USA	±	±	97% I; 97% C	–	±	+	+	Controlled trial
Winickoff, 1984,[278] USA	±	–	100% (physicians)	NA	+	+	–	The crossover design led to contamination of the study groups during the second 6-month period as the control group had already been exposed to the intervention and prompted to improve compliance

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 47 *Studies aimed at both physicians and individuals*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Bejes, 1992,[286] USA	±	±	72%	–	±	±	–	The intention-to-intervene analysis only included those women (15/166) who were lost to follow-up
Burack, 1994,[285] USA	±	±	62%	–	+	+	NA	Non-attenders (38%) were excluded from the analysis. The intention-to-intervene analysis only included those women who were randomised and attended the intervention site during the study year
Burack, 1996,[61] USA	±	±	66% I1; 66% I2; 62% I3; 64% C	–	+	+	NA	Exclusions after randomisation were due to ineligibility (35%), discontinuation of HMO enrolment (16%) or (for physician intervention) no visit (31%)
Burack, 1997,[60] USA	±	±	43–62%	–	+	+	NA	Ineligible participants and non-attenders excluded from analysis. Intention-to-intervene analysis only included those women who were randomised amd atended intervention site during the study year
Burack, 1998, [80] USA	±	±	66%	–	+	+	NA	Over 20% of study participants were excluded after randomisation. Ineligible participants and non-attenders were excluded from the analysis. Randomised in two stages. Methodology unclear
Gimotty, 1996,[65] USA	±	±	±	±	+	±	–	Abstract only
Landis, 1992,[150] USA	±	±	100%	NA	–	+	–	Differences between groups were not taken into account in the analyses
Manfredi, 1998,[284] USA	±	±	NA	NA	+	+	+	Uptake was measured by means of a random sample of patient charts
McPhee, 1989,[272] USA	±	±	100%	NA	±	+	+	Uptake was evaluated from a random sample of patients. Multiple regression analyses were used to control for residents' pre-intervention scores

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

continued

TABLE 47 contd *Studies aimed at both physicians and individuals*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Morrissey, 1995,[282] USA	±	+	NA	NA	+	+	NA	Numbers included in the final analysis for the intervention and control groups were not stated. Absolute numbers of participants in each individual screening test were not reported, only percentages were given
Ornstein, 1991,[160] USA	±	–	64%	–	–	±	–	There were baseline differences in uptake. Those not receiving the physician intervention were excluded from the analysis. Differences between groups were not taken into account in the analyses
Somkin, 1997,[165] USA	±	±	±	±	+	+	NA	
Trock, 1993,[283] USA	–	±	NA	NA	–	–	–	Controlled trial. The analysis was based on pre-test and post-test cross-sectional surveys. Differences between groups were taken into account in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

TABLE 48 *Studies comparing interventions aimed at physicians and those aimed at individuals*

Study	Allocation	Blinding assessors	% analysed	Intention to intervene	Baseline comparability	Outcome	Analysis of cluster RCTs	Notes
Binstock, 1997,[138] USA	±	±	100%	NA	±	+	NA	
Burack, 1996,[61] USA	±	±	66% I1; 66% I2; 62% I3; 64% C	–	+	+	NA	Exclusions after randomisation were due to ineligibility (35%), discontinuation of HMO enrolment (16%) or (for physician intervention) no visit (31%)
Burack, 1998,[80] USA	±	±	66%	–	+	+	NA	Over 20% of study participants were excluded after randomisation. Ineligible participants and non-attenders were excluded from the analysis. Randomised in two stages. Methodology unclear
Landis, 1992,[150] USA	±	±	100%	NA	–	+	–	Differences between groups were not taken into account in the analyses
McDowell, 1989,[154] Canada	±	±	72% I1; 74% I2; 73% I3; 73% C	–	+	+	NA	Ineligible participants were excluded from the analysis
McDowell, 1989,[155] Canada	±	±	65% I1; 86% I2	–	+	+	–	Ineligible participants were excluded from the analysis
Nattinger, 1988,[111] USA	–	±	±	±	+	±	–	Controlled trial
Nattinger, 1989,[256] USA	–	±	100%	+	+	+	–	Controlled trial
Ornstein, 1991,[160] USA	±	–	64%	–	–	±	–	There were baseline differences in uptake. Those not receiving the physician intervention were excluded from the analysis. Differences between groups were not taken into account in the analyses
Pierce, 1989,[161] UK	±	±	86% I1; 82% I2; 94% C	–	±	±	NA	Groups were followed-up for different lengths of time
Pritchard, 1995,[103] Australia	+	±	100%	+	+	±	NA	Drop-outs (2%) were included in the analyses

+, adequate; ±, unknown or partial; –, inadequate; NA, not applicable; I1, intervention 1; I2, intervention 2, etc.; C, control

Feedback

The HTA programme and the authors would like to know your views about this report.

The Correspondence Page on the HTA website (http://www.ncchta.org) is a convenient way to publish your comments. If you prefer, you can send your comments to the address below, telling us whether you would like us to transfer them to the website.

We look forward to hearing from you.

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