Supplementary File 5 - eTables

E1 Retrieved reports for each review

Database	Reviews 1 and 5 RCTS			Review 2 UK Studies			Review 3 Qualitative Studies			Review 4 Economic Evaluations		
	June 2016	April 2017	Total	June 2016	April 2017	Total	June 2016	April 2017	Total	June 2016	April 2017	Total
Medline/ Embase	525	50	**575**	2875	257	**3132**	2374	376	**2750**	2722	199	**2921**
PsycINFO	84	36	**120**	2213	218	**2431**	1130	97	**1227**			
CINAHL	343	29	**372**				1434	139	**1573**			
SCI	855	115	**970**									
SCI and SSCI							2587	369	**2956**			
CENTRAL	2686	325	**3011**									
CAB							800	83	**883**			
NHS EED										22	0	**22**
HTA										50	0	
CEA Registry										24	1	**25**
RePeC										4	0	**4**
TOTAL	4493	555	**5048**	5088	475	**5563**	8325	964	**9289**	2822	200	**2972**
De-duplicated	2818	234	**3052**	2977	396	**3373**	4075	635	**4710**	2769	200	**2871**

E2 Details of the intervention delivery for the VLCD and dietary intervention versus dietary intervention

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Bliddal 2011[1]	Both groups: Dietitian	Control: 10 VLCD: 49	NA	Control: 2hr VLCD: 1.5hr	Control: NR VLCD: 8	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 12 months VLCD: 12 months
Moreno 2014[2]	Both groups: A specialist physician and expert dietitian	Control: 8 VLCD: 8	NA	NR	NR	Control: Yes VLCD: Yes	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: 12 months VLCD: 12 months
Ryttig 1997[3]	All groups: A specially trained nurse with medical expertise and a dietitian	Control: 38 VLCD+diet: 38 VLCD+diet+VLCD as MR: 38	Control: 3 VLCD+diet: 3 VLCD+diet+VLCD as MR: 3	NR	NR	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 24 months Intervention groups: 26 months
Torgerson 1997[4]	Both groups: A nurse, dietitian and physician	Control: 16 VLCD: 19	Control: 12 VLCD: 12	NR	Control: 1 VLCD: 1	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 20 months VLCD: 24 months
Wadden 1994[5]	Both groups: Doctoral-level clinical psychologist or psychology graduate student, and dietitian	Control: 52 VLCD: 52	Control: 13 VLCD: 13	Control: 1.5hr VLCD: 1.5hr	Control: 6-9 VLCD: 6-9	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 12 months VLCD: 12 months
Wing 1991a[6]	Control: A team of therapists VLCD: A team of therapists and project physician	Control: 22 VLCD: 26	Control: 1 VLCD: 1	NR	NR	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 20 weeks VLCD: 20 weeks

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Wing 1994[7]	Both groups: A behavioural therapist, a health educator, a nutritionist and a physician	Control: 55 VLCD: 55	NA	NR	Control: 15 VLCD: 15	Control: Yes VLCD: Yes	Control: No VLCD: No	Control: No VLCD: No	Control: 12 months VLCD: 12 months

NA = not applicable, NR = not reported, MR = meal replacement

E3 Details of the interventions for weight maintenance after VLCDs

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery /support available by phone	Remote delivery/ support available by internet	Duration of intervention
Agras 1996[8]	12 week VLCD followed by 4 maintenance conditions: refeeding with standard food or pre-packaged food (stimulus narrowing) depending on time and body weight.	Doctoral-level therapists	Time – regular food: 26 Weight – regular food: 26 Time – stimulus narrowing: 26 Weight – stimulus narrowing: 26	Time – regular food: 1 Weight – regular food: 1 Time – stimulus narrowing: 1 Weight – stimulus narrowing: 1	NR	Time – regular food: 12 Weight – regular food: 12 Time – stimulus narrowing: 12 Weight – stimulus narrowing: 12	Time – regular food: Yes Weight – regular food: Yes Time – stimulus narrowing: Yes Weight – stimulus narrowing: Yes	Time – regular food: No Weight – regular food: No Time– stimulus narrowing: No Weight – stimulus narrowing: No	Time – regular food: No Weight – regular food: No Time – stimulus narrowing: No Weight – stimulus narrowing: No	Time – regular food: 9 months Weight – regular food: 9 months Time – stimulus narrowing: 9 months Weight – stimulus narrowing: 9 months
Christensen 2013[9]	8 weeks of 810 kcal/day or 415 kcal/day then 8 weeks of 1200 kcal/day. Randomised to weight maintenance diet, knee exercise (KE) or control.	Dietitian	Usual care: 16 KE: 68 Diet: 68	NA	Usual care: 1.5hr KE: 1.5hr Diet: 1.5hr	NR	Usual care: Yes KE: Yes Diet: Yes	Usual care: No KE: No Diet: No	Usual care: No KE: No Diet: No	All groups: 12 months
Delbridge 2009[10]	High protein (HP) versus a high CHO (HC) diet for weight maintenance, following 12 week VLCD.	Dietitian	HP: 12 HC: 12	NA	NR	NR	HP: Yes HC: Yes	HP: No HC: No	HP: No HC: No	Both groups: 12 months

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery /support available by phone	Remote delivery/ support available by internet	Duration of intervention
Lantz 2003[11]	Intermittent versus on-demand VLCD following an initial 16 week VLCD.	Physician, dietitian and study nurse	Intermittent: 42 On-demand: 42	Intermittent: 25 On-demand: 25	NR	Intermittent: 1 On-demand: 1	Intermittent: Yes On-demand: Yes	Intermittent: No On-demand: No	Intermittent: No On-demand: No	Both groups: 24 months
Pekkarinen 2015[12]	Participants were randomised to a 17 week weight-loss program followed by a one-year maintenance program, or to a weight loss program without a subsequent maintenance intervention.	A nutritionist, trained nurse and interventionist	No maintenance (control): 18 1-year maintenance programme: 26	No maintenance (control): 2 1-year maintenance programme: 5	No maintenance (control): 1.5hr 1-year maintenance programme: 1.5hr	No maintenance (control): 15 1-year maintenance programme: 15	No maintenance (control): Yes 1-year maintenance programme: Yes	No maintenance (control): No 1-year maintenance programme: No	No maintenance (control): No 1-year maintenance programme: No	No maintenance (control): 17 weeks 1-year maintenance programme: 69 weeks (17+52)
Richelsen 2007[13]	Orlistat and lifestyle counselling versus lifestyle counselling and placebo following 8 week VLCD.	Dietitian	Placebo: 12 Orlistat: 12	Placebo: 6 Orlistat: 6	NR	Placebo: 1 Orlistat: 1	Placebo: Yes Orlistat: Yes	Placebo: No Orlistat: No	Placebo: No Orlistat: No	Both groups: 3 years
Ryttig 1995[14]	1600 kcal/day diet versus 1600 kcal/day with VLCD sachets as meal	Specially trained nurse, physician, Dietitian and physiotherapist	Hypocaloric diet only: 15 Hypocaloric diet and MR: 15	Hypocaloric diet only: 2 Hypocaloric diet and MR: 2	NR	NR	Hypocaloric diet only: Yes	Hypocaloric diet only: No Hypocaloric diet and MR: No	Hypocaloric diet only: No Hypocaloric diet and MR: No	Both groups: 12 months

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery /support available by phone	Remote delivery/ support available by internet	Duration of intervention
	replacements (MR), after 12 week VLCD.						Hypocaloric diet and MR: Yes			
Ryttig 1997[3]	Diet versus diet with VLCD sachets as meal replacements (MR), after 8 week VLCD.	Specially trained nurse with medical expertise and a dietitian	Diet: 38 Meal replacement: 38	Hypocaloric diet: 3 Hypocaloric diet and MR : 3	NR	NR	Hypocaloric diet: Yes Hypocaloric diet and MR: Yes	Hypocaloric diet: Yes Hypocaloric diet and MR: Yes	Hypocaloric diet: No Hypocaloric diet and MR: No	Hypocaloric diet: 26 months Hypocaloric diet and MR: 26 months

VLCD = Very low calorie diet; NR = Not reported; MR = Meal replacement

E4 Details of the intervention for the bariatric surgery RCTs

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Courcoulas 2014[15]	WMP: Endocrinologist and study physician RYGB: Same as control plus surgeon LAGB: Same as control plus surgeon	WMP: 54 RYGB: 8 LAGB: 10	All groups: 1	All groups: NR	All groups: 1	All: Yes	All groups: Yes	All: No	All groups: 12 months
Cummings 2016[16]	WMP: Exercise physiologist and a dietitian RYGB: Health educator and surgical team	WMP: 318 RYGB: 8	Both groups: NA	Both groups: NR	Both groups: NR	Both groups: Yes	Both groups: Yes	Both groups: No	WMP: 12 months RYGB: 11 months
Ding 2015[17]	WMP: Endocrinologist, dietitian, exercise physiologist, mental health provider and diabetes nurse educator LAGB: Surgical team	WMP: 20 LAGB: 15	Both groups: NA	WMP: 2 hrs LAGB: NR	WMP: 10-15 LAGB: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Dixon 2008[18]	WMP: General physician, dietitian, nurse, diabetes educator, diabetologist LAGB: Same as control group plus surgeon	WMP: 9 LAGB: 23	WMP: 9 LAGB: 22	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Dixon 2012[19]	WMP: Bariatric physician, sleep physician, and dietitian LAGB: Same as control group plus surgeon	WMP: 13 LAGB: 14	Both groups: 13	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 months
Halperin 2014[20]	WMP: Endocrinologist, dietitian, exercise physiologist, mental health provider and diabetes nurse educator RYGB: Surgical team	WMP: 20 RYGB: 3	Both groups: 1	WMP: 2 hrs RYGB: NR	WMP: 10-15 LAGB: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
MacLaughlin 2014[21]	WMP: Experienced renal dietitian and physiotherapist, with support from a nephrologist and renal pharmacist as needed Sleeve: Surgeon	WMP: 14 Sleeve: 9	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Mingrone 2002[22]	WMP:NR BPD: Surgeon	Both groups: 2	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Mingrone 2012[23]	WMP: Diabetologist, dietitian and a nurse RYGB: Same as control plus a team of bariatric surgeons BPD: Same as control plus a team of bariatric surgeons	WMP: 6 RYGB: 7 BPD: 7	All groups: 0.25	All groups: NR	All groups: 1	All groups: Yes	All groups: No	All groups: No	All groups: 24 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Reis 2010[24]	Control: General multidisciplinary team RYGB: a nutritionist, physical educator, psychologist and surgeon	Control: 2 RYGB: 55	Control: 1 RYGB: 12	NR	Control: 1 RYGB: NR	Control: Yes RYGB: Yes	Control: No RYGB: No	Control: No RYGB: No	Control: 24 months RYGB: 24 months
Schauer 2012[25]	WMP: A diabetes educator and psychologist RYGB: Same as control plus a surgeon Sleeve: Same as control plus a surgeon	WMP: 14 RYGB: 15 Sleeve: 15	All groups: 2	All groups: NR	All groups: NR	All groups: Yes	All groups: No	All groups: No	All groups: 12 months

NA = not applicable; NR = not reported; RYGB = Roux-en-Y gastric bypass

E5 Details of the intervention delivery for the RYGB RCTs

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Courcoulas 2014[15]	WMP: Endocrinologist and study physician RYGB: Same as control plus surgeon	WMP: 54 RYGB: 8	WMP: 1 RYGB: 1	NR	WMP: 1 RYGB: 1	WMP: Yes RYGB: Yes	WMP: Yes RYGB: Yes	WMP: No RYGB: No	WMP: 12 months RYGB: 12 months
Cummings 2016[16 161616]	WMP: Exercise physiologist and a dietitian RYGB: Health educator and surgical team	WMP: 318 RYGB: 8	WMP: NA RYGB: NA	NR	NR	WMP: Yes RYGB: Yes	WMP: Yes RYGB: Yes	WMP: No RYGB: No	WMP: 12 months RYGB: 11 months
Halperin 2014[20]	WMP: Endocrinologist, dietitian, exercise physiologist, mental health provider and diabetes nurse educator RYGB: Surgical team	IMWM: 20 RYGB: 3	Both groups: 1	IMWM: 2 hrs RYGB: NR	IMWM: 10-15 LAGB: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Mingrone 2012[23]	WMP: Diabetologist, dietitian and a nurse RYGB: Same as control plus a team of bariatric surgeons	WMP: 6 RYGB: 7	WMP: 0.25 RYGB: 0.25	NR	WMP: 1 RYGB: 1	WMP: Yes RYGB: Yes	WMP: No RYGB: No	WMP: No RYGB: No	WMP: 24 months RYGB: 24 months
Reis 2010[24]	Control: General multidisciplinary team RYGB: A nutritionist, physical educator, psychologist and surgeon	Control: 2 RYGB: 55	Control: 1 RYGB: 12	NR	Control: 1 RYGB: NR	Control: Yes RYGB: Yes	Control: No RYGB: No	Control: No RYGB: No	Control: 24 months RYGB: 24 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Schauer 2012[25]	WMP: A diabetes educator and psychologist RYGB: Same as control plus a surgeon	WMP: 14 RYGB: 15	WMP: 2 RYGB: 2	NR	NR	WMP: Yes RYGB: Yes	WMP: No RYGB: No	WMP: No RYGB: No	WMP: 12 months RYGB: 12 months

RYGB = Roux-en-Y gastric bypass; NR = not reported

E6 Brief description of the low CHO (≤40 g CHO/day) versus low fat diets

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Bazzano 2014[26]	CHO <40 g/day CHO versus low fat diet (<30% fat). Both groups received regular dietary counselling. Both groups had no energy goals.	Low fat: dietitian Low CHO: dietitian	Low fat: 24 Low CHO: 24	Low fat: NA CHO: NA	Low fat: 1 hr Low CHO: 1 hr	Low fat: NR Low CHO: NR	Both groups: Yes	Low fat: No Low CHO: No	Low fat: No Low CHO: No	Low fat: 12 months Low CHO: 12 months
Davis 2009[27]	CHO <40 g/day (no energy goal) versus low fat diet (fat gram goal based on 25% of energy requirements). Both groups received booklets with dietary and self-monitoring instructions.	Low fat: dietitian Low CHO: Dietitian	Low fat: 27 Low CHO: 27	Low fat: NA CHO: NA	Low fat: 3 hrs 45 mins Low CHO: 3 hrs 45 mins	Low fat: 1 Low CHO: 1	Both groups: Yes	Low fat: No Low CHO: No	Low fat: No Low CHO: No	Low fat: 12 months Low CHO: 12 months
Foster 2010[28]	CHO 20 g/day (no energy goal) versus low fat diet (1200-1800 kcal/day, with ≤30% calories from fat). Both groups also received behavioural treatment.	Low fat: dietitian or psychologist Low CHO: dietitian or psychologist	Low fat: 33 Low CHO: 33	Low fat: 12 CHO: 12	Low fat: 75–90 mins Low CHO: 75-90 mins	Low fat: NR Low CHO: NR	Both groups: Yes	Low fat: No Low CHO: No	Low fat: No Low CHO: No	Low fat 24 months Low CHO: 24 months

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Iqbal 2010[29]	CHO <30 g/day versus low fat (≤30% calories from fat with a 500 kcal/day deficit). Both groups received regular nutrition education sessions.	Low fat: dietitian Low CHO: dietitian	Low fat: 15 Low CHO: 15	Low fat: 12 Low CHO: 12	Low fat: 2 hrs Low CHO: 2 hrs	Low fat: 10 Low CHO: 10	Both groups: Yes	Low fat: No Low CHO: No	Low fat: No Low CHO: No	Low fat: 24 months Low CHO: 24 months
Stern 2004[30]	CHO <30 g/day versus low fat (<30% calories from fat with a 500 kcal/day deficit). Both groups received regular counselling sessions.	Low fat: nutritional counselling expert Low CHO: nutritional counselling expert	Low fat: 18 Low CHO: 18	Low fat: NA Low CHO: NA	Low fat: NR Low CHO: NR	Low fat: NR Low CHO: NR	Both groups: Yes	Low fat: No Low CHO: No	Low fat: No Low CHO: No	Low fat: 6 months Low CHO: 6 months

E7 Brief description of higher versus lower protein RCTs

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Dalle Grave 2013[31]	Both groups: physicians, dietitians, psychologists, physical trainers	Both groups: 55	Both groups: NA	Both groups: Unclear for stage 1, 45 mins for stage 2	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Delbridge 2009[10]	Both groups: dietitian	Both groups: 12	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Flechtner Mors 2010[32]	Both groups: nutritionist and dietitian	Both groups: 15	Both groups: NA	Both groups: NR	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Pedersen 2014[33]	Both groups: NR	Both groups: 16	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Krebs 2012[34]	Both groups: dietitian	Both groups: 74	Both groups: 1	Both groups: 1 hr	Both groups: 75	Both groups: Yes	Both groups: Yes	Both groups: No	Both groups: 24 months
Soenen 2012[35]	All groups: dietitian	All groups: 19	All groups: NA	All groups: NR	All groups: NR	All groups: Yes	All groups: No	All groups: No	All groups: 12 months

E8 Brief description of meal replacements for weight loss and weight maintenance RCTs

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Weight loss									
Cheskin 2008[36]	Both groups: dietitian or nutritionist	Both groups: 30	Both groups: 6	Both groups: NR	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 86 weeks
Flechtner-Mors 2010[32]	Both groups: nutritionist and dietitian	Both groups: 15	Both groups: NA	Both groups: NR	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Reichard 2015[37]	Both groups: registered dietitian and an exercise physiologist	Both groups: 12	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Shikany 2013[38]	Standard diet: NR Meal replacement: dietitians and trainers	Both groups: 13	Both groups: NA	Both groups: NR	Both groups: 1	Both groups: No	Both groups: Yes	Standard diet: No Meal replacement: Yes	Both groups: 12 months
Weight maintenance									
Agras 1996[8]	All groups: doctoral-level therapist	All groups: 26	All groups: 1	All groups: NR	All groups: 12	All groups: Yes	All groups: No	All groups: No	All groups: 9 months
Lowe 2014[39]	All groups: weight control specialists	All groups: 25	All groups: 1	All groups: 15 mins	All groups: 1	All groups: No	All groups: Yes	All groups: No	All groups 12 months
Ryttig 1995[14]	Both groups: specially trained nurse supported by a physician, a dietitian and a physiotherapist at occasional sessions	Both groups: 15	Both groups: 2	Both groups: NR	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Ryttig 1997[3]	All groups: specially trained nurse with medical expertise and dietitian	All groups: 38	All groups: 3	All groups: NR	All groups: NR	All groups: Yes	All groups: No	All groups: No	Standard diet: 24 months Both VLCD diets: 26 months

VLCD very low calorie diet, NR not reported, NA not applicable

E9 Brief details of interventions for the comparison of group versus individual programmes

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Weight loss									
Damschroder 2014[40]	Usual care (group): interdisciplinary team (nurses, dietitians, health psychologists and therapists) ASPIRE group: non-expert lifestyle coaches ASPIRE phone (Individual): non-expert lifestyle coaches	Usual care: 33 ASPIRE group: 31 ASPIRE phone: 31	NA	Usual care: 60-90 mins ASPIRE group: 60-90 mins ASPIRE phone: 20-30 mins	Usual care: NR ASPIRE group: NR ASPIRE phone: 1	Usual care: Yes ASPIRE group: Yes ASPIRE phone: No	Usual care: No ASPIRE group: No ASPIRE phone: Yes	Usual care: No ASPIRE group: No ASPIRE phone: No	Usual care: 12 months ASPIRE group: 12 months ASPIRE phone: 12 months
Nilsen 2011[41]	Individual: physician Group: dietitian, physiotherapist, ergonomist, nurse and physician	Individual: 2 Group: 10	Individual: 1 Group: 1	Individual: 5 hrs Group: NR	Individual: 1 Group: 10	Individual: Yes Group: Yes	Individual: No Group: No	Individual: No Group: No	Individual: 16 weeks Group: 16 weeks
Wadden 1997[42]	Individual: physician Group: nutritionist	Individual: 10 Group: 70	Individual: NA Group: NA	Individual: 15-20 mins Group: 75 mins	Individual: 1 Group: 7	Individual: Yes Group: Yes	Individual: No Group: No	Individual: No Group: No	Individual: 12 months Group: 12 months
Weinstock 2013[43]	Individual: health educator and dietitian Group: health educator and dietitian	Individual: 31 Group: 31	Individual: 13 Group: 13	Individual: NR Group: NR	Individual: 1 Group: NR	Individual: No Group: No	Individual: Yes Group: Yes	Individual: No Group: No	Individual: 24 months Group: 24 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Weight maintenance									
Kumanyika 2005[44]	Usual care: physician Individual: nutrition, exercise and behaviour change specialists Group: nutrition, exercise and behaviour change specialists	Usual care: 1 Individual: 12 Group: 15	Usual care: 1 Individual: 6 Individual: 6	All groups: 1hr	Usual care: 1 Individual: 1 Group: NR	Usual care: Yes Individual: No Group: Yes	Usual care: No Individual: Yes Group: No	All groups: No	All groups: 21 months
Latner 2013[45]	Both groups: psychologist and psychology graduate student	Individual: 23 Group: 62	Individual: 1 Group: 60	Both groups: 2 hrs	Individual: 1 Group: 15	Both groups: Yes	Both groups: No	Both groups: No	Individual: 6 months Group: 24 months

E10 Brief details of interventions for the comparison of in-person delivery with additional phone or internet support versus in-person delivery

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Dennison 1996[46]	In-person only: certified health educator, dietitian and exercise technician Additional support: as in-person group	In-person only: 1 Additional support: 10	In-person only: NA Additional support: NA	In-person only: NR Additional support: NR	In-person only: NR Additional support: NR	In-person only: Yes Additional support: Yes	In-person only: No Additional support: No	In-person only: No Additional support: Yes	In-person only: 8 weeks Additional support: 8 weeks
Eaton 2016[47]	In-person only: primary care physician, lifestyle counsellor Additional support: primary care physician, lifestyle counsellor and dietitian	In-person only: 6 Additional support: 79	In-person only: 7 Additional support: 29	In-person only: 90 mins Additional support: 90 mins	In-person only: 1 Additional support: 1	In-person only: Yes Additional support: Yes	In-person only: No Additional support: Yes	In-person only: No Additional support: No	In-person only: Additional support:
Spring 2013[48]	In-person only: dietitian, psychologist, physicians or hospital staff Additional support: as in-person group plus coaches	In-person only: 24 Additional support: 37	In-person only: NA Additional support: NA	In-person only: 90 mins Additional support: 90 mins	In-person only: NR Additional support: NR	In-person only: Yes Additional support: Yes	In-person only: No Additional support: Yes	In-person only: No Additional support: Yes	In-person only: 12 months Additional support: 12 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Wylie-Rosett 2001[49]	In-person only (workbook only): NR Additional support (workbook, computer): NR Additional support (workbook, computer, staff): dietitian and/or cognitive behavioural therapist	In-person only: 2 Additional support (workbook, computer): 23 Additional support (workbook, computer, staff): 47	In-person only: NA Additional support (workbook, computer): NA Additional support (workbook, computer, staff): NA	In-person only: NR Additional support (workbook, computer): 20-30 mins Additional support (workbook, computer, staff):NR	In-person only: 1 Additional support (workbook, computer): 1 Additional support (workbook, computer, staff): NR	In-person only: No Additional support (workbook, computer): No Additional support (workbook, computer, staff): Yes	In-person only: No Additional support (workbook, computer): No Additional support (workbook, computer, staff): Yes	In-person only: No Additional support (workbook, computer): Yes Additional support (workbook, computer, staff): Yes	In-person only: 12 months Additional support (workbook, computer): 12 months Additional support (workbook, computer, staff): 12 months

NA Not applicable, NR Not reported

E11 Brief details of interventions for the comparison of in-person delivery versus phone/internet only delivery of an intervention

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Weight loss									
Appel 2011[50]	Self-directed: individual participants accessed general weight loss brochures/websites Remote support: trained coaches In-person: trained coaches	Self-directed: Remote support: 88 In-person support: 94	Self-directed: 1 Remote support: 77 In-person support: 89	Self-directed: NA Remote support: 20 mins In-person support: 20 mins individual sessions, 90 mins group sessions	Self-directed: NA Remote support: 1 In-person support: NR	Self-directed: No Remote support: No In-person support: Yes	Self-directed: No Remote support: Yes In-person support: Yes	Self-directed: No Remote support: Yes In-person support: Yes	Self-directed: NA Remote support: 24 months In-person support: 24 months
Azar 2013[51]	Usual care: NR Remote: dietitian In-person: dietitian and exercise physiologist	Usual care: 3 Remote: 33 In-person: 48	Usual care: 1 Remote: 7 In-person: 4	Usual care: NR Both remote and in-person: 90-120 mins	All groups: NR	Usual care: Yes Remote: No In-person: Yes	All groups: No	Usual care: No Remote: Yes In-person: Yes	Usual care: NR Both remote and in-person: 12 weeks
Damschroder 2014[40]	Usual care (group): interdisciplinary team (nurses, dietitians, health psychologists and therapists) Remote: non-expert lifestyle coaches In-person: non-expert lifestyle coaches	Usual care: 33 Remote: 31 In-person: 31	NA	Usual care and in-person: 60-90 mins Remote: 20-30 mins	Usual care and in-person: NR Remote: 1	Usual care and in-person: Yes Remote: No	Usual care and in-person: No Remote: Yes	All groups: No	All groups: 12 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Little 2017[52]	Nurse follow-up: nurse/health care assistant POWeR+remote: nurse/health care assistant POWeR+face-to-face: nurse/health care assistant	Nurse follow-up: 3 POWeR+remote: 27 POWeR+face-to-face: 34	All groups: NA	All groups: NR	All groups: 1	Nurse follow-up: Yes POWeR+remote: No POWeR+face-to-face: Yes	Nurse follow-up: No POWeR+remote: Yes POWeR+face-to-face: No	Nurse follow-up: No POWeR+remote: Yes POWeR+face-to-face: Yes	Nurse follow-up: 12 months POWeR+remote: 6 months POWeR+face-to-face: 6 months
Weight maintenance									
Perri 2008[53]	All groups: home economists or individuals with bachelor's or master's degrees in nutrition, exercise science, or psychology	All groups: 28	All groups: 1	Education control: NR Remote: 15-20 mins In-person: 1 hr	Education control: 1 Remote: 1 In-person: 14	Education control: No Remote: No In-person: Yes	Education control: No Remote: Yes In-person: No	All groups: No	All groups: 18 months

NA Not Applicable, NR Not reported, POWeR Positive Online Weight Reduction

E12 Brief description of intervention delivery for the comparison of initial inpatient session versus none

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Hakala 1993[54]	Community: physician Inpatient: nutritionist, physiotherapist, occupational therapist and physician	Community: 16 Inpatient: 45	Community: 6 Inpatient: 15	Community: 20 mins Inpatient: NR	Community: 1 Inpatient: 10	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 months
Hakala 1994[55]	Community: public health nurses, GP, psychologist, physiotherapist Inpatient: nutritionist, dietitian, occupational therapist, physician	Community: 24 Inpatient: 35	Both groups: 3	Community: 1 hr Inpatient: NR	Both groups: 10	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 months
Torgerson 1999[56]	All groups: dietitians, physician and nurses	All groups: NR	All groups: NR	All groups: NR	All groups: 1	All groups: Yes	All groups: No	All groups: No	All groups: 12 months

E13 Brief description of the standard and cognitive behavioural therapy interventions

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/support available by internet	Duration of intervention
Linde 2011[57]	Standard behavioural therapy: experienced weight loss counsellors CBT: clinical psychologist with weight loss training	Both groups: 29	Both groups: 1	Standard behavioural therapy: 1.5 hrs CBT: 2 hrs	Both groups: NR	Standard behavioural therapy: Yes CBT: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Manzoni 2016[58]	Standard behavioural therapy: therapist CBT: clinical psychologist and psychotherapists CBT+VR: clinical psychologist and psychotherapists	Standard behavioural therapy: 9 CBT: 24 CBT+VR: 39	All groups: NA	All groups: NA	Standard behavioural therapy: 1 CBT: NR CBT+VR: 1	Standard behavioural therapy: Yes CBT: Yes CBT+VR: Yes	All groups: No	Standard behavioural therapy: No CBT: No CBT+VR: Yes	Standard behavioural therapy: 6 weeks CBT: 6 months CBT+VR: 6 months

NR Not reported, cognitive behavioural therapy (CBT), virtual reality enhanced CBT (CBT+VR)

E14 Description of the family and social support interventions

Study ID	Brief description of intervention	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/support available by internet	Duration of intervention
Kumanyika 2009[59]	Lifestyle counselling with minimal social support (family/friend and individual) Lifestyle counselling with high social support (family/friend and individual)	Both groups: All interventionists were nutrition or exercise science graduates	Both groups: 46	Both groups: 18	Both groups: 1.5 hrs	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 months
Wing 1991b[60]	Attended a behavioural weight loss programme alone Attended a behavioural weight loss programme with spousal support	Both groups: Provided by an interdisciplinary team	Both groups: 20	Both groups: 3	Both groups: 1 hr	Both groups: 8-10	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 20 weeks

E15 Brief description of weight loss and weight neutral interventions

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/support available by phone	Remote delivery/ support available by internet	Duration of intervention
Bacon 2002[61]	Weight neutral: counsellor Weight loss: dietitian	Both groups: 34	Both groups: NA	Both groups: 1.5 hr	Both groups: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 24 weeks
Rapoport 2000[62]	Both groups: dietitian, health psychologist clinical psychologist and an exercise scientist.	Both groups: 14	Both groups: 1	Both groups: 2 hr	Both groups: 10	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 12 months
Mensinger 2016[63]	Weight neutral: psychotherapist and fitness professional Weight loss: dietitian	Both groups: 26	Both groups: 1	Both groups: 1.5 hr	Weight neutral: 20 Weight loss: NR	Both groups: Yes	Both groups: No	Both groups: No	Both groups: 6 months

NR Not Reported, NA Not applicable

E16 Brief description of intensive versus less intensive weight loss programmes

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/support available by internet	Duration of intervention
Kumanyika 2012[64]	Basic (less intensive: primary care provider Basic Plus (intensive): primary care provider and lifestyle coach	Basic: 41 Basic Plus: 18	Basic: 12 Basic Plus: 18	Both groups: 15 mins	Both groups: 1	Both groups: Yes	Both groups: Yes	Both groups: No	Both groups: 24 months
Mayer-Davis 2004[65]	All groups: nutritionist	Usual care: 5 Reimbursable (less intensive): 8 Intensive: 30	All groups: NA	Usual care: NR Reimbursable: 1hr Intensive: 1hr	Usual care: 1 Reimbursable: NR Intensive: NR	All groups: Yes	All groups: No	All groups: No	All groups: 12 months
Perri 2014[66]	All groups: Cooperative Extension Service Family and Consumer Sciences Agents or individuals with bachelors or master's degrees in nutrition, exercise science, or psychology	Education (control): 23 Low intensity: 23 Moderate intensity: 44 High intensity: 65	All groups: 1	All groups: NR	All groups: 15	All groups: Yes	All groups: Yes	All groups: No	Education (control): 16 weeks Low intensity: 16 weeks Moderate intensity: 32 weeks High intensity: 48 weeks
Wadden 2011[67]	Control: primary care provider Brief (less intensive): primary care provider and medical assistant/lifestyle coach Enhanced (intensive): primary care provider and medical assistant/lifestyle coach	Control: 7 Brief (less intensive): 9 Enhanced (intensive): 10	Control: 6 Brief (less intensive): 12 Enhanced (intensive): 12	Control: 15 mins Brief (less intensive): 30 mins Enhanced (intensive): 30 mins	All groups: 1	All groups: Yes	Control: No Brief (less intensive): Yes Enhanced (intensive): Yes	All groups: No	All groups: 24 months

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/support available by internet	Duration of intervention
Keranen 2009[68]	Short-term (less intensive): specialist nurse, medical doctor, psychiatrist and physiatrist Intensive: clinical nutritionist, specialist nurse, medical doctor, psychiatrist and physiatrist	Short-term (less intensive): 3 Intensive: 11	Both groups: 1	Both groups: NR	Short-term: 1 Intensive: NR	Both groups: NR	Both groups: No	Both groups: No	Short-term: 4 weeks Intensive: 20 weeks

NR: Not Reported

E17 Brief description of diet and exercise versus diet only interventions for weight loss

Study ID	Intervention provider	Number of contacts in the first year	Average number of contacts after the first year	Duration of session	Number of participants per session	Face-to-face delivery	Remote delivery/ support available by phone	Remote delivery/ support available by internet	Duration of intervention
Villareal 2011[69]	Control: NR Diet only: dietitian Exercise only: physical therapist Diet + Exercise: dietitian and physical therapist	Control: 15 Diet only: 107 Exercise only: 159 Diet + Exercise: 263	All groups: NA	Control: NR Diet only: 1 hr 15 mins to 1.5 hr Exercise only: 1.5 hr Diet + Exercise: 1 hr 15 mins to 1.5 hr	Control: NR Diet only: 10 Exercise only: NR Diet + Exercise: 10	All groups: Yes	All groups: No	All groups: No	All groups: 12 months
Wadden 1998[70]	All groups: clinical psychologist	Diet only: 38 Diet + aerobic: 160 Diet + strength: 160 Diet + aerobic + strength: 160	All groups: 4	All groups: 1.5 hr	All groups: NR	All groups: Yes	All groups: No	All groups: No	All groups: 48 weeks
Wing 1998[71]	Control: NR Diet and exercise groups: multidisciplinary team of therapists, including a behaviour therapist and a registered dietitian	Control: Diet and exercise groups: 42	Control: 1 Diet and exercise groups: 3	All groups: NR	Control: NR Diet and exercise groups: 20	Control: No Diet and exercise groups: Yes	All groups: No	All groups: No	All groups: 24 months

NR: Not Reported

E18 Characteristics of UK studies

Study ID	Participants	Interventions	Outcomes
Community setting			
Hunt 2014[72]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
NHS primary care - WMPs delivered in person			
Jackson 2007[73]	**Location:** Primary care health centre, West Yorkshire, England **Period of study:** 1 January 2003 - 31 December 2004 **Inclusion criteria**: BMI >30 kg/m^2 at risk of associated long term conditions (e.g. diabetes mellitus, osteoarthritis, hypertension) **Exclusion criteria**: NR **Baseline age (years)**: 55.8 (13.8) **Baseline BMI (kg/m^2):** 37.4 (5.9) **Baseline weight (kg):** 103.2 (16.9)	**Description of interventions:** Specialist health visitor gave information about healthy eating, physical activity and other factors contributing to weight loss. Participants were referred to the clinic by GPs and encouraged to share their knowledge and experiences with health visitor and used these as reflective, learning opportunities **Duration of active intervention**: NR **Number allocated:** 89 **Completed:** 29 **% dropout:** Unclear	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Total cholesterol; Systolic BP; Diastolic BP; Fasting plasma glucose
Read 2004[74]	**Location:** 3 health centres in Nottingham City Primary Care Trust, England **Period of study:** October 2000 - July 2002 **Inclusion criteria**: Aged 18-65 years, BMI >30 kg/m^2, CHD risk factors e.g. hypertension, coronary heart disease, type 2 diabetes, or family history of coronary heart disease **Exclusion criteria:** Current use of obesity medication, insulin treatment of diabetes, pregnancy, attendance at a hospital obesity clinic **Baseline age (years):** 50.4 (12.4)	**Description of interventions:** Participants were recruited through targeted letter, or through advertising. Seven 2 hr education and support group sessions with dietitian at 2 week intervals **Duration of active intervention:** Fortnightly sessions for first 14 weeks, review sessions at 4, 6, 9, 12 months **Number allocated:** 216 **Completed:** 73 **% dropout:** 66.2%	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Waist circumference; Total cholesterol; LDL cholesterol; HDL cholesterol; Triglycerides; Systolic BP; Diastolic BP; HbA_{1c}%

	Baseline BMI (kg/m^2): 39.7 (6.9) **Baseline weight (kg):** 108 (20.0)		
McRobbie 2016[75]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
Rapoport 2000[62]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
Counterweight 2008[76]	**Location:** 56 GP practices, UK **Period of study:** 1 January 2001 - 31 December 2004 **Inclusion criteria:** Aged 18-75 years, BMI $\geq$30 kg/m^2 (or $\geq$28 kg/m^2 with obesity-related comorbidities), at contemplative/action stages of change of behaviour change transtheoretical model **Exclusion criteria:** NR **Baseline age (years):** 49.4 (13.5) **Baseline BMI (kg/m^2):** 37.1 (6.0) **Baseline weight (kg):** 101.1 (NR)	**Description of interventions:** Recruited from general practices. Practice nurses/healthcare assistants delivered education, transfer of behaviour change skills and strategies. As participants progressed, emphasis placed on weight maintenance and regain prevention. $\geq$500 kcal/day energy deficit aim. **Duration of active intervention:** 9 sessions first three months, review sessions at 3, 6, 9, 12, 24 months **Number allocated:** 1906 **Completed:** 825 reached 24 months, data available for 357 **% dropout:** 24 months 56.7%	**Length of follow-up (months):** 24 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Total cholesterol; LDL cholesterol; HDL cholesterol; Systolic BP; Diastolic BP; HbA_{1c}%; Fasting plasma glucose

Counterweight 2012[77]	**Location:** 184 general practices, 16 pharmacies, 1 centralised community-based service in 13 Health Boards, Scotland **Period of study:** 2006-2008 **Inclusion criteria:** BMI >30 kg/m^2 (or ≥28 kg/m^2 with obesity-related comorbidities) **Exclusion criteria:** NR **Baseline age (years):** 53 (10.4) **Baseline BMI (kg/m^2):** 37.0 (6.2) **Baseline weight (kg):** NR	**Description of interventions:** Participants recruited from general practices. Nine appointments in 12 months (fortnightly first 3, then quarterly). 18 education booklets complemented education provided at appointments. Annual weight monitoring encouraged to coincide with chronic disease management annual reviews at GP surgery. **Duration of active intervention:** 12 months **Number allocated:** 6715 **Completed:** Total: 1880 **% dropout:** 72%	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight
NHS primary care - Internet-based weight-management programme			
Little 2017[52]	*For details of this study see Chapter 3.*	*For details of this study see Chapter 3.*	*For details of this study see Chapter 3.*
NHS primary care - VLCDs			
Molokhia 1998[78]	**Location:** General practices, South Croydon, England **Period of study:** August 1994 - July 1996 **Inclusion criteria:** Aged 16-75 years, BMI>30 kg/m^2, attending GP in South Croydon **Exclusion criteria:** Myocardial infarction or unstable angina in past six months, history of ventricular tachycardia, cerebrovascular accident in past three months, history of appetite disorders, congestive cardiac failure, pregnancy/lactation, insulin dependent diabetes, renal/hepatic impairment, active carcinoma, epilepsy, major surgery, trauma, or general anaesthetic in past 12 months **Baseline age (years):** 46.6 (NR) **Baseline BMI (kg/m^2):** 38.7 (6.6) **Baseline weight (kg):** 102.9 (19.1)	**Description of interventions:** Participants recruited from general practices. The VLCD (Lipotrim) taken three times daily. Once the target weight, equivalent to BMI 25 kg/m^2, was achieved, the VLCD was stopped and eating patterns resumed based on a healthy diet. Practice nurses weighed participants weekly, checked compliance with diet checked and provided education and exercise advice. Reviewed monthly by general practitioner **Duration of active intervention:** 12 months **Number allocated:** 26 **Completed:**25 **% dropout:** 3.8%	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; BMI kg/m^2

Lean 2013[79]	**Location:** Practices delivering Counterweight, predominately rural/small town settings, Scotland **Period of study:** Prior to February 2013 **Inclusion criteria:** Aged 20–60 years, BMI >40 kg/m^2 **Exclusion criteria:** Pregnancy or lactation, diabetes, taking insulin or sulphonylureas, myocardial infarction within 6 months, cancers, chronic pancreatitis, alcohol dependence, psychiatric illness, learning disability **Baseline age (years):** 45.7 (10.7) **Baseline BMI (kg/m^2):** 48.0 (7.6) **Baseline weight (kg):** 131.1 (25.2)	**Description of interventions:** Practices already delivering Counterweight were included. 3 stages: 1) LELD stage (12 weeks), participants chose 810 kcal/day homemade LELD or 833 kcal/day Cambridge Weight Plan liquid diet. Could step down calorie content from 1200 kcal/day, 1000 kcal/day, 810 kcal/day over first fortnight. Weekly appointment, then fortnightly thereafter or until 20 kg weight loss. 2) Food-reintroduction stage, (6–8 weeks) participants consumed 360–400 kcal meal introduced fortnightly as liquid calories reduced. 120 mg orlistat introduced as meals were introduced (optional). 3) Weight-loss maintenance stage (34 weeks), all nutrition from food, 500–600 calorie deficit with approximately 30% energy from fat; upper limit 2500 kcal/day,120 mg orlistat (optional) **Duration of active intervention:** 12 months **Number allocated:** 91 **Completed:** 68 **% dropout:** Total: 25.3%	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; Weight change (%)
Delivering a training programme to general practice teams			
Moore 2003[80]	**Location:** 44 GP practices in Yorkshire and Northern England **Period of study:** Prior to November 2003 **Inclusion criteria:** BMI $\geq$30 kg/m^2, aged 16-64 years, English speaker/accompanied by English speaker **Exclusion criteria:** NR **Baseline age (years):** a:48.4 (10.9); b:48.8 (12.2) **Baseline BMI (kg/m^2):** a:37 (5.7); b:36.9 (5.8) **Baseline weight (kg):** a:100.8 (18.1); b:100.2 (17.4)	**Description of interventions:** GP practices randomly assigned to control or intervention group: a) Nutrition training intervention: Phase 1 (three 90 min sessions) held in central venues, launched by a local clinical opinion leader. Phase 2 (two 90 min sessions) delivered on practices premises, focussed on practicing skills b) Control practices provided usual care **Duration of active intervention:** a: 6 months; b:NR	**Length of follow-up (months):** 18 **Quantitative outcomes reported:** Weight; BMI kg/m^2

		Number allocated: Total: 843; a:415; b:428 **Completed:** Total: 531; a:256; b:275 **% dropout**: Total: 37.0%; a:38.3%; b:35.8%	
NHS primary and secondary care (orlistat prescription)			
Broom 2002[81]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
Broom 2002b[82]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
Finer 2000[83]	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*	*For details of this study see Chapter 3*
NHS secondary care			
MacLaughlin 2012[84]	**Location: T**ertiary hospital outpatient setting, London, England **Period of study:** January 2005 - March 2011 **Inclusion criteria:** Aged 18–80 years, chronic kidney disease, under care of nephrologist, BMI >30 kg/m^2, or >28 kg/m^2 with at least one comorbidity (hypertension, diabetes, dyslipidemia), referred to renal WMP between January 2005 - December 2008 **Exclusion criteria:** NR **Baseline age (years):** 52.3 (12.9) **Baseline BMI (kg/m^2):** 36.4 (5.6) **Baseline weight (kg):** 103.6 (21.0)	**Description of interventions:** Participants were referred to a renal WMP. Low-fat, energy-reduced renal diet, increased physical activity, use of behaviour therapy techniques, and orlistat 120 mg three times daily (Xenical; Roche Products, Basel, Switzerland). **Duration of active intervention:** 12 months **Number allocated:** 185 **Completed:** 100 **% dropout:** 26.5%	**Length of follow-up (months):** 15 **Quantitative outcomes reported:** Weight change (%); BMI kg/m^2; Total cholesterol; Triglycerides; Systolic BP; Diastolic BP
Dhindsa 2003[85]	**Location:** Diabetes outpatient clinic, Derby, England **Period of study:** Prior to April 2003 **Inclusion criteria:** Obesity with hyperglycaemic symptoms and poorly controlled type 2 diabetes **Exclusion criteria:** **Baseline age (years):** 52 (NR) **Baseline BMI (kg/m^2):** 40 (9.4) **Baseline weight (kg):** 115 (15)	**Description of interventions:** Participants recruited from general practices VLCD (SlimFast) with dietitian visits at 2, 4, 8 weeks (and telephone access between visits). Allowed one bowl of low-calorie vegetable soup, one bowl of vegetables/salad, two portions fresh fruit, 300 ml of skimmed milk for drinks (approximately 750 calories and 50 g of protein/day). Weeks 8-52, bi-monthly visits, participants followed a standard	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Total cholesterol; Systolic BP; Diastolic BP

		low-calorie weight maintenance diet with exercise advice **Duration of active intervention:** 12 months **Number allocated:** 44 **Completed:** 40 **% dropout:** 9%	
Paisey 2002[86]	**Location:** Secondary care, Torquay, England **Period of study:** Begun in 1994 **Inclusion criteria:** BMI >30 kg/m^2, type 2 diabetes **Exclusion criteria:** **Baseline age (years): a:**52.9 (5.5); b:55.0 (7.3); c:50.6(12.2) **Baseline BMI (kg/m^2):** a:37.70 (9.9); b:35.90 (5.4); c:NR **Baseline weight (kg):** a:NR; b:NR; c:105.0 (21)	**Description of interventions:** Participants recruited from hospital clinics and general practice. a) Weekly group sessions with nurse, counsellor and initially a doctor to initiate complete VLCD nutritional replacement (450 kcal/day for women, 650 kcal/day men) for at least 6 weeks. Low fat, low refined carbohydrate foods introduced over 6 week period as transferred from VLCD to normal eating patterns. b) Conventional diet and exercise programme: weekly 2hr sessions with two dietitians using a healthy eating programme. 5-day food record diaries discussed at individual review and recommendations for change made. c) Noncompliers **Duration of active intervention**: a:5 years; b:5 years **Number allocated:** Total: 30; a:15; b:15 **Completed:** Total: 25, a:13, b:12 **% dropout:** overall 16.7%, a:13.3%, b:20%	**Length of follow-up (months):** 60 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Waist circumference; Total cholesterol; LDL cholesterol; HDL cholesterol; Triglycerides; Systolic BP; Diastolic BP; Fasting plasma glucose
Rowe 2005[87]	**Location:** Wythenshawe Hospital, Manchester, England **Period of study:** May 2000 - May 2003 **Inclusion criteria:** Diabetes, BMI >28 kg/m^2 **Exclusion criteria:** NR **Baseline age (years):** 54.7 (11.2)	**Description of interventions:** Participants enrolled into structured weight management clinic, treated with orlistat and behavioural diet and exercise interventions, attended dietitian-led group session on how to estimate fat intake, advised to restrict to less than 50 g/day and build exercise up to 30 mins, 5 times/week	**Length of follow-up (months):** 24 **Quantitative outcomes reported:** Weight; Weight change (%)

	Baseline BMI (kg/m^2):39.5 (6.5) **Baseline weight (kg):** 110.7 (25.0)	**Duration of active intervention:** NR **Number allocated:** 100 **Completed:** 23 **% dropout:** Unclear	
Secondary care - Specialist weight management clinics			
Barrett 1999[88]	**Location**: Specialist NHS Obesity Clinic, The Luton and Dunstable Hospital, England **Period of study:** Prior to April 1999 **Inclusion criteria:** GP referral to Specialist NHS Obesity Clinic **Exclusion criteria:** Returned questionnaires suggesting either significant lack of motivation or `readiness' for lifestyle change or significant eating disorder, directed back to GP (rare event - 2-3 cases/year) **Baseline age (years):** 42 (NR) **Baseline BMI (kg/m^2):** 43.9 (7.5) **Baseline weight (kg):** 119.8 (23.2)	**Description of interventions:** Participants were referred to the clinic. First 6 weeks consumed liquid diet, based on semi-skimmed milk supplemented by vitamins, iron and fibre, focused on practical changes to reduce overeating. Problem-solving approach adopted in individual and group meetings. Then solid food re-introduced, gradually increasing proportion of calorie intake from starch, protein, vegetables, fruit and fat. Behavioural and cognitive components of programme continued and intensified. **Duration of active intervention**: 12 weeks **Number allocated:** 115 **Completed:** 9 **% dropout:** Unclear	**Length of follow-up (months):** 18 **Quantitative outcomes reported:** Weight; Weight change (%)
Cartwright 2014[89]	**Location**: Specialist Weight Management Service, Heart of England NHS Foundation Trust (HEFT), Birmingham. **Period of study:** 2008 - 2012 **Inclusion criteria:** GP referral to Specialist NHS Obesity Clinic **Exclusion criteria:** NR **Baseline age (years):** 43.1 (11.8) **Baseline BMI (kg/m^2):** 47 (7.9) **Baseline weight (kg):** 132.1 (24.7)	**Description of interventions:** Participants attending a weight management service. Participants attended initial 2-3 hr individual appointment, with physician, dietitian and psychologist; then appointments every 2-3 months for 12 months, or longer **Duration of active intervention:** 12 months **Number allocated:** 262 **Completed:** 22 **% dropout:** 67.9% at 12 months, 88.2% at 18 months and 91.6% at 24 months	**Length of follow-up (months):** 24 **Quantitative outcomes reported:** Weight; Weight change (%), BMI kg/m^2

Rolland 2009[90]	**Location:** Specialist Obesity Clinic, Aberdeen, Scotland **Period of study:** Prior to 20th April 2009 **Inclusion criteria:** Aged >18 years, BMI ≥35 kg/m^2 **Exclusion criteria:** History of hepatic/renal disease, eating disorders, cancer, pregnant or lactating, on antidepressants or anti-obesity medication **Baseline age (years):** Total: NR; a:NR; b:42.70 (13.1); c:39.90 (10.4) **Baseline BMI (kg/m^2):** Total: NR; a:NR; b:NR; c:NR **Baseline weight (kg):** Total: NR; a:NR; b:NR; c:NR	**Description of interventions:** Participants referred to a Specialist Obesity Clinic**.** 3-month screening period: all followed 600 kcal-deficit and lifestyle management. Those losing >5% of their body weight maintained on this approach, if not, randomly allocated to low-CHO, high protein diet (LCHP) or Lighter Life diet (LL) for an additional 9 months. a) 600 kcal deficient diet b) LCHP: <40 g carbohydrate/day, 800-1500 kcal/day (800 kcal diet; 20% carbohydrate, 40% protein, 40% fat) c) LL: soups, shakes, bars to replace conventional food, daily average of 550 kcal (36% carbohydrate, 36% protein, 28% fat, 100% of recommended vitamins and minerals) **Duration of active intervention:** 12 months **Number allocated:** Total: 120; a:NR; b:NR; c:NR **Completed:** Total: 90; a:10; b:20; c:14 **% dropout:** Total: a:unclear; b:unclear; c:unclear	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; Total cholesterol; LDL cholesterol; HDL cholesterol
Packianathan 2005[91]	**Location:** Specialist weight management, England **Period of study:** Prior to July 2005 **Inclusion criteria:** Women aged 35-65 years, BMI 30–45 kg/m^2 **Exclusion criteria:** Currently dieting, secondary cause of obesity, taking drugs known to affect energy balance, history of eating disorder, lactose intolerance, significant comorbidity (uncontrolled hypertension, recent myocardial infarction/ coronary artery bypass graft, diabetes requiring insulin, gallstones, chronic illness, malignancy)	**Description of interventions:** Participants attending a weight management service. Phase 1: 900 kcal/day diet of two SlimFast meal replacements (MR) each providing 200 kcal, one low-fat meal 300 kcal, three servings of fruit, two of vegetables. Biweekly 1-hr dietetic and CBT sessions with skilled dietitian. Phase 2: Group dietetic behavioural modification and lifestyle therapy. Dietary advice modified to allow use of at least 10 SlimFast MR (two/day permitted for relapse) **Number allocated:** 150 **Completed:** 46 **% dropout:** 69.3%	**Length of follow-up (months):** 15 **Quantitative outcomes reported:** Weight; BMI kg/m^2; Waist circumference; Total cholesterol; LDL cholesterol; HDL cholesterol; Triglycerides; Systolic BP; Diastolic BP; Fasting plasma glucose

	Baseline age (years): 48.5 (8.2) **Baseline BMI (kg/m^2):** 36.1 (5.6) **Baseline weight (kg):** 95.1 (13.2)		
Jennings 2014[92]	**Location:** Tier 3 weight management service, Fakenham medical practice, England **Period of study:** August 2011 - August 2012 **Inclusion criteria:** Aged >18 years, BMI ≥40 kg/m^2, or ≥30 kg/m^2 with obesity-related comorbidity and/or waist circumference ≥102cm (men) or ≥88cm (women) **Exclusion criteria:** Pregnancy, severe eating disorder, poor motivation identified by motivational questionnaire or failure to respond to invitation to contact the service **Baseline age (years):** 52.7 (13.6) **Baseline BMI (kg/m^2):** 44.1 (7.8) **Baseline weight (kg):** 124.4 (27.3)	**Description of interventions:** Participants attending a Tier 3 weight management service. Individual monthly appointments with obesity specialist nurses using structured educational programme and dietary diary to agree specific changes. Pharmacotherapy, LELDs, psychological therapies or bariatric surgery if clinically appropriate. **Duration of active intervention:** 12 months **Number allocated:** 230 **Completed:** 117 **% dropout:** 12 months 49%, 18 months 63%, 24 months 65%	**Length of follow-up (months):** 24 **Quantitative outcomes reported:** Weight; Weight change (%); Waist circumference
Logue 2014[93]	**Location:** Glasgow and Clyde Weight Management service, NHS Greater Glasgow and Clyde, Scotland **Period of study:** 1 October 2008 - 30 September **Inclusion criteria:** Aged ≥18 years, BMI ≥35 kg/m^2 or ≥30 kg/m^2 with obesity-related comorbidities, referred by GP/hospital doctor **Exclusion criteria:** NR **Baseline age (years):** 49.10 (13.5) **Baseline BMI (kg/m^2):** a:43.26 (NR) **Baseline weight (kg):** a:118.10 (NR)	**Description of interventions:** Participants attending a weight management service. 16 week educational lifestyle programme with cognitive behavioural therapy techniques, 600 kcal deficit diet and exercise advice. Then choose to enter phase 2, three 1-hr sessions delivered at monthly intervals including further lifestyle advice, prescribed low-calorie diet or pharmacotherapy (orlistat). At the end of phase 2, or directly from end of phase 1, enter WMP (phase 3) of 12 sessions delivered at monthly intervals. If fail to achieve target weight loss can choose to repeat phase 2 again and then phase 3, if fail to lose 5 kg, can opt for bariatric surgery **Duration of active intervention:** NR	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight

		Number allocated: 1838 **Completed:** 208 **% dropout:** 78.3%	
Wallace 2015[94]	**Location:** General practice, Derbyshire, England **Period of study:** April 2010 - 30 April 2013 **Inclusion criteria:** BMI ≥35 kg/m^2 with related comorbidities (cardiovascular disease, osteoarthritis, diabetes, obstructive sleep apnoea, severe hypertension, dyslipidaemia, polycystic ovarian syndrome, metabolic syndrome) or BMI >40 kg/m^2 with no comorbidities, registration with GP in Derbyshire **Exclusion criteria:** NR **Baseline age (years):** 45.7 (13.3) **Baseline BMI (kg/m^2):** 50 (7.9) **Baseline weight (kg):** 139.4 (28.6)	**Description of interventions:** Participants attending a weight management service. Participants had initial target weight loss goal of 5%. Invited to attend weekly/fortnightly support worker-led clinic appointments during first 12 weeks, activity and nutrition diaries introduced from Week 1. Lifestyle change goals based on participant choice and preference, informed by evidence and best practice. Support workers provided ongoing appointments throughout programme. **Duration of active intervention:** Data used represent an open cohort and cover the time period from when the service first started operating in April 2010 until 30 April 2013 **Number allocated:** 551 **Completed:** 20 **% dropout:** Unclear	**Length of follow-up (months):** 24 **Quantitative outcomes reported:** Weight; BMI kg/m^2
Commercial setting			
Rolland 2014[95]	**Location:** LighterLife Total and subsequent management programmes in community- based setting, UK **Period of study:** 2007- 2010 **Inclusion criteria:** BMI >30 kg/m^2	**Description of interventions:** Participants were self-referred. LighterLife Total VLCD (average 550 kcal, 50 g protein, 50 g carbohydrate, 17 g fats) with group support and behavioural therapy. Following weight loss phase (several weeks-	**Length of follow-up (months):** 12 **Quantitative outcomes reported:** Weight; Weight change (%)

	Exclusion criteria: Type 1 diabetes, porphyria, total lactose intolerance, major cardiovascular/cerebrovascular disease, history of renal disorder/hepatic disease, active cancer, epilepsy, seizures, convulsions, major depressive disorder, psychotic episodes, schizophrenia, bipolar disorders, delusional disorders; current anorexia, bulimia or treatment for eating disorder, pregnant, breastfeeding or miscarriage in last 3 months **Baseline age (years):** 45.6 (10.2) **Baseline BMI (kg/m^2):** 36.3 (5.1) **Baseline weight (kg)**: 99.1 (16.6)	months) individuals can enter the WMP to encourage long term behavioural modification and weight management. **Duration of active intervention:** NR **Number allocated:** 5695 **Completed:**580 **% dropout:** Unclear	

Abbreviations: kg=kilogram; SD=Standard Deviation; cm=centimetres; mmHg= millimetre of mercury.

E19 Summary of study characteristics

Study	Country	Setting	Population	Description of intervention	Description of control	Primary treatment effectiveness source [A]
Ackroyd 2006[96]	Germany, France, UK	Secondary care	General population with severe obesity and T2DM.	Patients underwent GB or GBP.	One year of medical treatment, presumed with dieting, followed by either as annual follow-up for 4 years.	Not specified.
Anselmino 2009[97]	Austria, Italy, Spain	Secondary care	General population with severe obesity and T2DM.	Patients underwent GB or GBP.	One year of medical treatment, presumed with dieting, followed by annual follow-up for 4 years.	Not specified.
Borisenko 2015[98]	Sweden	Secondary care	General population with mean BMI=42.8 kg/m^2	Patients underwent either GBP, SG or GB.	Control group in the SOS study[99]	Intervention treatment effect was based on the SOS study.[99]
Campbell 2010[100]	USA	Secondary care	General population with morbid obesity	Patients underwent either laparoscopic GB or laparoscopic RYGB	No treatment, assumed to have a stable BMI.	Angrisani 2007[101]
Castilla 2014[102]	Spain	Secondary care	General population with severe obesity.	Patients underwent GBP.	Assumed to have a stable BMI.	Mar 2013[103]
Chang 2011[104]	USA	Secondary care	General population with mean BMI=46.4 kg/m^2	Surgery search terms used for identifying relevant studies included bariatric surgery, weight loss surgery, gastric banding or RYGB	Control groups within the identified studies from their systematic review, assumed to have stable BMI	Meta-analysis of weight-loss including 53 studies published 2003-10.
Clegg 2002[105]	UK	Secondary care	General population with obesity	Patients underwent RYGB, VBG or adjustable silicone gastric banding.	Assumed the control group remained at 135 kg (BMI=45 kg/ m^2). One year of VLCD in sensitivity analysis.	Evidence from their clinical effectiveness was tested in cost-effectiveness scenario analyses.
Craig 2002[106]	USA	Secondary care	Population with morbid obesity (BMI between 40-50 kg/m^2)	Patients underwent GBP, and followed-up 3 times per year for 3 years if had a successful surgery.	Stable BMI, no treatment.	Pories 1995[107]

Faria 2013[108]	Europe	Secondary care	Population with morbid obesity (mean BMI=49.6 kg/ m^2).	Patients underwent GBP or GB	Best medical management (no further details given).	Study population followed distribution by Chang 2011.[104]
Finkelstein 2014 (see Chapters 3 and 4).[109]	USA	Weight loss clinic/home-setting	General population with obesity (mean BMI~35 kg/m^2)[B]	WMPs: Weight Watchers (WMP with weekly in-person or online group meetings), Vtrim (WMP with online group support). WMP with low-calorie meal replacements called Jenny Craig. Drug therapies: 120 mg orlistat taken 3 times daily (plus a calorie reduction; most orlistat studies included in their systematic review reported reduction of ~500-900 kcal/day), and Qsymia 7.5 mg phentermine and 45 mg topiramite combination taken once-daily (plus a calorie reduction 500 kcal/day, LEARN manual and monthly visits).	The control arm was a combination of all the control arms of the RCTs included in the systematic review. For WMPs it was usual care, provision of a self-help booklet, or using eDiets (online support of eating habits). For orlistat it was placebo plus the same diet as the intervention group.	Meta-analysis of 24 studies:[81, 83, 110-130]
Hertzman 2005 [131](see Davidson 1999, Finer 2000, Hauptman 2000, Sjöström 1998 in Chapter 3)[118,83,121,126]	Sweden	Clinics	General population with obesity (mean BMI of 36 kg/m^2)	120 mg orlistat (up to 3 times/day) in addition to a low fat diet with calorie reduction for 12 months	Placebo plus a low fat diet with calorie reduction.	Refer to Chapter 3.[83, 118, 121, 126]
Hoerger 2010 [132]	USA	Secondary care	General population with T2DM and severe obesity (BMI≥35 kg/ m^2).	Patients underwent GB or GBP.	Usual diabetes care which included monitoring glycaemic levels similarly to the monitoring provided in the	Treatment effect (diabetes remission rates was based on Buchwald 2009).[133]

					UK Prospective Diabetes Study 1998.	
Hollenbeak 2016[134] (see Weinstock 2013 in Chapter 3)[43]	USA	Refer to Chapter 3, Weinstock 2013.[43]	Refer to Chapter 3, Weinstock 2013.[43]	Refer to Chapter 3, Weinstock 2013.[43] WMP based on Diabetes Prevention Programme with conference phone calls.	Refer to Chapter 3, Weinstock 2013.[43] WMP based on Diabetes Prevention Programme with individual phone calls.	Refer to Chapter 3.[43]
Hunt 2014 (see Chapter 3 and 4)[72]	UK	Refer to Chapter 3 and 4, Hunt 2014.[72]	Wyke 2015[135] (see Chapters 3 and 4).	FFIT Group: The FFIT had pitch-side physical activity sessions led by club community coaching staff and an incremental pedometer-based walking programme. The dietary component of FFIT was designed to deliver a 600 kcal/day deficit.	Given a booklet on losing weight. Waiting list (could do the programme 12 months later).	Refer to Chapter 3 and 4, Hunt 2014.[72]
Ikramuddin 2009[136]	USA	Secondary care	Patients with obesity meeting the criteria for bariatric surgery under practice guidelines: BMI 40 kg/m^2+ (35+ if patient has major comorbidities e.g. T2DM after failure of 1 year of well conducted medical treatment.	Patients underwent RYGB	The CORE diabetes model simulated changes in the control group from medical management of T2DM using standard algorithms defined in Palmer 2004.[137]	Unpublished data are from the University of Minnesota Medical Center, Minneapolis.
James 2017[138]	Australia	Secondary care.	General population with obesity	RYGB, GB or SG	Usual care consisting of pharmacotherapy, diet, and exercise management; this included periodic outpatient visits to dietitians/nutritionists, an exercise physiologist, and a psychologist.	Meta-analysis by Chang et al. 2014.[139]
Jensen 2005[140]	USA	Secondary care	General population with morbid obesity (BMI≥40 kg/ m^2) and with T2DM.	The SOS study, where patients underwent GBP.	Weight Watchers followed for 2 years, with hr long weekly meetings.	Data for the control arm came from Heshka 2003[111] and for the intervention arm Sjöström 2000.[141]

Keating 2009[142] (see Dixon 2008[18] in Chapter 3)	Australia	Secondary care	Refer to Dixon 2008[18]	GB. Refer to Dixon 2008[18]	Refer to Dixon 2008[18].[18] Best medical practice including WMP with possibility of drug therapy and VLCDs.	Refer to Dixon 2008[18]
Keating 2009b[143] (extrapolation of costs and outcomes from the trial reported in Keating 2009)[142]	Australia	Secondary care	Refer to Dixon 2008[18]	Refer to Dixon 2008[18]	Refer to Dixon 2008[18]	Refer to Dixon 2008[18]
Klebanoff 2017[144]	USA	Secondary care	Population with BMI 35-39.9 kg/m^2 and BMI>40 kg/m^2, with non-alcoholic steatohepatitis	RYGB	The no-treatment arm had no treatment and followed natural history probabilities. The intensive WMP was based on Look AHEAD for 4y[145] (see Chapters 3 and 7) and Vilar- Gomez 2015,[146] where the intensive WMP comprised of a 750 kcal/day deficit low fat diet combined with exercise advice.	Treatment efficacy was measured as the probability of NASH remission. Data for surgery came from Mathurin 2009,[147] Sjöström 2014[148] and Arterburn 2013.[149] Data for intensive WMP came from Gregg 2012[150] and Vilar-Gomez 2015.[146]

Krukowski 2011[151]	USA	Clinical centres (Burlington, Vermont and Little Rock, Arkansas)	General population with obesity (mean BMI 35.7 kg/m^2 (for internet delivered intervention) and 36 kg/m^2 (for in-person delivered intervention)).	Weekly one hr online meetings via a synchronous chat group. Calorie restricted diet and dietary fat goal <25% of calories from fat. Graded exercise goals. Internet condition met weekly in small groups of 15 to 20 individuals in a secure online chat room. Online database to help monitor calorie intake (Calorie King, Family Health Network, Costa Mesa, CA).	Same WMP and weekly one hr face-to-face groups for 6 months.	Harvey-Berino 2010[152]
Lacey 2005[153]	Ireland	Weight loss clinics.	General population with severe obesity (BMI 36 kg/m^2 for intervention and BMI 36.2 kg/ m^2 for control)	Orlistat and low fat calorie reduced diet	Placebo and low fat calorie reduced diet	Finer 2000,[83] Davidson 1999,[118] Sjöström 1998,[126] Rössner 2000,[154] Hill 1999.[155]
Lee 2013[156]	Australia	Secondary care.	General population with severe obesity (BMI≥35 kg/ m^2)	Laparoscopic GB	Baseline cohort with trend applied for BMI changes over 20y.	Weight loss data based on Buchwald 2009[133] and baseline cohort characteristics were based on Begg 2007.[157]
Lewis 2014[158] (see Chapter 4).	England	Refer to Chapter 4.	Refer to Chapter 4.	LighterLife Total is a WMP with a very low calorie diet (600 kcal) component and participants are provided with meal replacements, subject to behavioural change therapy and group support.	No treatment, Counterweight, Weight Watchers, Slimming World, GB and GBP.	Rolland 2013 (LighterLife Total)[159]
Little 2017 (see Chapter 3 and 4)[52]	UK	Refer to Chapter 3 and 4.	Refer to Chapter 3 and 4.	E-learning (with and without face-to face support. Physical activity advice with low carbohydrate (<50 g/day) or deficit of 600 kcal/day.	Brief verbal and online healthy eating advice	Refer to Chapter 3 and 4.

Mäklin 2011[160]	Finland	Secondary care	General population with obesity (mean BMI=47 kg/ m^2)	GB, GBP or SG	A range of interventions from brief advice given by physicians to intensive conservative treatment.	Victorzon 2009[161] for baseline data (mean BMI for those undergoing surgery in Finland), and Buchwald 2009[133] (meta-analysis) for percentage excess weight loss.
McEwen 2010[162]	USA	Secondary care.	General population with obesity	Laparoscopic or open RYGB	Usual care. Costs and QALYs were projected in the scenario where no patients had surgery.	Survey data from 221 patients who were enrolled in a 200,000-member independent practice association model managed care organization and underwent bariatric surgery between May 1, 2001 and June 30, 2005.
McLawhorn 2016[163]	USA	Secondary care.	People with morbid obesity and end-stage knee osteoarthritis.	Bariatric surgery 2 years before the total knee arthroplasty.	Immediate total knee arthroplasty alone.	Severson 2012;[164] Parvizi 2000[165]
McRobbie 2016 (see Chapter 3 and 4)[75]	UK	Refer to Chapter 3 and 4.	Refer to Chapter 3 and 4.	Weight Action Programme with healthy eating and physical activity advice.	Four practice nurse sessions over 8 weeks, follow-up at 6 and 12 months.	Refer to Chapter 3 and 4.
Meads 2014[166]	UK	Primary care (referral by GP to attend commercial WMP (community setting)).	General population with obesity	Referral by a health professional in primary care to a commercial WMP group (Slimming World) for usually 12 weeks	Information provision either verbally or printed material only.	Madigan 2014[167]

Meenan 2016[168] (see Green 2015 in Chapter 3)[169]	USA	Refer to Chapter 3.	Refer to Chapter 3[169]	STRIDE programme:[169] diet DASH based (≤30% fat and ≤10% sat fat calories, for 4.5-6.8 kg weight loss) and exercise programme.	Usual care.	Refer to Chapter 3, Green 2015[169]
Michaud 2012[170]	USA	Secondary care.	General population with obesity	RYGB	No surgery in population cohort.	Not specified.
Miners 2012[171]	UK	Communication technology.	General population with obesity (BMI≥30 kg/ m^2)	The e-learning device (website) provided advice, tools and information to support behaviour change in terms of dietary and physical activity patterns, as required. Personalised motivational statements were provided, based on online questions (McConnon 2007).[172] E-mail reminders were sent if individuals had not been active on the website.	Individuals were given a small amount of printed information at baseline, reflecting primary care[172]	McConnon 2007[172]
Perri 2014 (see Chapter 3)[66]	USA	Refer to Chapter 3.	Refer to Chapter 3.	Intervention groups - Initial weekly sessions (8 for Low, 16 for Mod, and 24 for High), 1200-1800 kcal/day, physical activity advice.	Sixteen nutrition education sessions.	Refer to Chapter 3, Perri 2014.[66]
Picot 2009 (see Chapter 3)[173]	UK	Secondary care.	General population with obesity	Laparoscopic GBP or laparoscopic GB	Patients were monitored, did not receive weight loss treatment.	Refer to Chapter 3 Angrisani 2007,[101] Clegg 2002,[105] Dixon 2008,[18] Sjöström 2007[174]

Picot 2012 (see Chapter 3)[175]	UK	Secondary care.	General population with obesity. Outcome data was obtained from two RCTs - one of them focussing on the T2DM population.	Patients underwent laparoscopic GB	Two studies were included in the economic analysis. Dixon 2008: Best medical practice including WMP with possibility of drug therapy and VLCDs. A more intensive WMP was reported in O'Brien et al, which included behaviour therapy, very-low-calorie-diet, education therapy, and advice on eating and exercise.	Dixon 2008 (see Chapter 3)[18, 176, 177]
Pollock 2013[178]	UK	Secondary care	T2DM population. Mean BMI 37.1 kg/ $m^{2.}$	Refer to Dixon 2008.[18]	Refer to Chapter 3, Dixon 2008.[18] Best medical practice including WMP with possibility of drug therapy and VLCDs.	See Chapter 3, Dixon 2008.[18]
Ritzwoller 2013[179]	USA	Refer to Chapter 3, Bennett 2012.[180]	Refer to Chapter 3, Bennett 2012.[180]	Refer to Chapter 3, Bennett 2012.[180] Community healthy eHealth eating and physical activity advice WMP.	Refer to Chapter 3, Bennett 2012.[180] Self-help booklet.	Refer to Chapter 3, Bennett 2012.[180]
Salem 2008[181]	USA	Secondary care	General population (with starting BMI>40).	Laparoscopic GBP or GB	Non-surgical WMPs (assumed stable BMI).	Framingham heart study and National Health and Nutrition Examination Survey (NHANES) (Thompson 1999)[182]
Trueman 2010 (see Chapter 4)[183]	UK	GP practices in the UK	General population with obesity (mean BMI 37.1 kg/ m^2).	Counterweight Programme in primary care. Delivered by a practice nurse in groups or individual sessions (nine over 12 months). Patient chose either a goal-setting approach or was	No treatment; followed an expected trajectory (broadly representative of the UK population) without the Counterweight intervention.	The Counterweight Project Team 2008[76]

				prescribed a calorie deficit (≥500 kcal/day).		
Tsai 2005[184] (see Stern 2004 in Chapter 3)[30]	USA	Refer to Chapter 3.	Refer to Chapter 3.	<30 g/day of carbohydrate, no energy reduction goal given.	Low fat reducing diet with energy reduction goal.	Refer to Chapter 3. Stern, 2004[30]
Tsai 2013[185] (see Wadden, 2011in Chapter 3)[67]	USA	Refer to Chapter 3, Wadden 2011[67]	Refer to Chapter 3, Wadden 2011[67]	Refer to Chapter 3, Wadden 2011.[67] Brief Lifestyle Counselling on calorie restriction and physical activity advice (quarterly provider visits plus monthly weight loss counselling visits) or Enhanced Brief Lifestyle Counselling (as above plus choice of meal replacements or weight loss medication).	Refer to Chapter 3, Wadden 2011.[67] Usual Care (quarterly visits with their primary care provider);	Refer to Chapter 3, Wadden 2011[67]
Van Gemert 1999[186]	Netherlands	Secondary care	General population with mean BMI 47.2 kg/m^2	Patients underwent VBG. At year 2, 90% of patients were no longer followed-up medically.	Pre-operative measurements were used as the control group, no treatment.	Van Gemert 1997. [187]
Veerman 2011[188]	Australia	Primary care.	General population with obesity	15 mg orlistat 3 times daily for 12 months and (on average) 1.6 medication-related follow-up visits per person to the GP.	Australian reference population based on existing levels of morbidity and mortality for 2003	Meta-analysis by Li et al. 2005[189]
Wang 2014[190]	USA	Secondary care.	General population with obesity (looking at patients enrolled in Group Health, a non-profit healthcare organization).	Patients underwent open or laparoscopic RYGB, or laparoscopic GB.	The no surgery group accrued costs and outcomes derived from the natural history model.	Refer to Picot 2009 for treatment effectiveness.[173]

Wilson 2015[191]	USA	Community centre.	Low-socioeconomic-status Mexican-origin.	12 week community-based WMP (called Beyond Sabor) with a physical activity programme. Weekly 2 hr classes which included physical activity, and education (including cooking demonstration and group interaction) to promote a healthy diet.	Usual care, not clearly described	Not specified.

[A] Where primary treatment effectiveness sources is marked as "not specified", this means it was not possible to directly identify the source of treatment effectiveness (i.e. weight loss) data used for the economic evaluation. [B] Mean BMI not reported in paper. Calculated from supplementary table with mean BMI from each group in the 27 studies. [C] Note that the effectiveness data come from McCarron, 2007. This study would not have met the inclusion criteria for the review of trials as BMI<35 kg/m^2 but the economic evaluation models a subgroup cohort of the population with a starting BMI of 35 kg/m^2

E20 Input data

Risk factor data

1. Historical and current prevalence of BMI groups (healthy weight, overweight and obesity) by age, sex and income quintile (model cohort restricted to BMI≥35 kg/m^2 at time of intervention delivery)

Disease data

2. Most recent incidence, mortality and survival of the diseases of interest, by age and sex
3. Relative risk of acquiring the diseases of interest, by age, sex and BMI category, where available

Demographic data

4. UK population demographics, by age and sex, restricted to age 18 years and over with a BMI ≥35 kg/m^2
5. UK population mortality rates

Health economic data

6. Mean utility values for 12 obesity related diseases (see report Table 47), combined with disease and population mortality to calculate QALYs
7. NHS costs of delivering the different WMPs
8. Direct NHS costs associated with the obesity-related diseases of interest

E21 Scenarios and interventions

Scenarios	Intervention details
Baseline BMI scenario	No adjustment to population BMI trajectories predicted using HSE cohort data
Look AHEAD scenario	Look AHEAD WMP applied to population with a BMI ≥35 kg/m^2 over 9 years compared with a baseline BMI scenario
Very Low Calorie Diet (VLCD) scenario	A VLCD added to a dietary intervention (WMP1)[A] compared with the same dietary intervention (WMP1) alone compared with a baseline BMI scenario
Bariatric surgery scenario	Bariatric surgery, specifically RYGB compared with a lifestyle intervention (WMP2)[B] compared with a baseline BMI scenario

[A] WMP1: A weight management programme included in the VLCD comparison, focusing on dietary intervention, with only a limited support from healthcare professionals and follow-up
[B] WMP2: A more intensive lifestyle intervention than WMP1, modelled on shortened Look AHEAD study/Diabetes Prevention Programme

E22 UKHF model outputs (per 100,000 people with a BMI≥35 kg/m^2 over the simulation period)

Output	Description
Epidemiological outputs (per 100,000 of the 2016 population)	
Cumulative incidence	Total new cases of disease / population size in 2016 x 100,000. Represents total disease accumulated over the model time horizon.
Additional cumulative incidence [A]	The total number of additional incidence cases of disease in the population under each modelled scenario compared to baseline "no-change" scenario.
Additional prevalence cases of disease [A]	The additional prevalence cases of disease in each year of the simulation for each modelled scenario compared to baseline "no-change" scenario.
Economic outputs	
Additional direct healthcare costs	Annual and cumulative direct healthcare costs incurred over modelled time horizon, to treat each modelled obesity-related disease.
Cumulative quality of life-adjusted years (QALYs) gained	Total number of QALYs gained for each intervention accounting for QALY decrements due to obesity-related disease (compared to baseline).

[A] A positive value represents the number of additional cases of disease that are estimated to be prevented by the interventions.

E23 Sensitivity analysis for alternate BMI changes (kg/m^2) by scenario

	Look AHEAD scenario	Very Low Calorie Diet scenario		Bariatric surgery scenario
Time (yrs)	**Look AHEAD intervention**	**WMP1 [A]**	**VLCD added to WMP1 [A]**	**WMP2 [B]**
1	-2.679	-3.644	-2.389	-2.305
2	-1.857	-1.330	-1.440	-1.649
3	-1.411	-1.319	-1.312	-1.248
4	-1.270	-1.307	-1.184	-0.988
5	-1.256	-0.144	-0.646	-2.025
6	-1.241	0	-0.272	-1.277
7	-1.227	N/A	0	-1.155
8	-1.212	N/A	N/A	-1.033
9	-1.495	N/A	N/A	-0.911
10	-1.779	N/A	N/A	-0.788
11	-1.150	N/A	N/A	-0.666
12	-1.079	N/A	N/A	-0.544
13	-1.007	N/A	N/A	-0.422
14	-0.936	N/A	N/A	-0.300
15	-0.865	N/A	N/A	-0.178
16	-0.793	N/A	N/A	-0.056
17	-0.722	N/A	N/A	0
18	-0.650	N/A	N/A	N/A
19	-0.579	N/A	N/A	N/A
20	-0.508	N/A	N/A	N/A
21	-0.436	N/A	N/A	N/A
22	-0.365	N/A	N/A	N/A
23	-0.293	N/A	N/A	N/A
24	-0.222	N/A	N/A	N/A
25	-0.151	N/A	N/A	N/A
26	-0.079	N/A	N/A	N/A
27	-0.008	N/A	N/A	N/A
28	0	N/A	N/A	N/A
29	N/A	N/A	N/A	N/A
30	N/A	N/A	N/A	N/A

N/A: Not Applicable

[A] WMP1: A weight management programme included in the VLCD comparison, focusing on dietary intervention, with only a limited support from healthcare professionals and follow-up.

[B] WMP2: A more intensive lifestyle intervention than WMP1, modelled on shortened Look AHEAD/Diabetes Prevention Programme.

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