

Lessons for the UK on implementation and evaluation of breastfeeding support: evidence syntheses and stakeholder engagement

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Scientific summary

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Scientific summary

Background

Breastfeeding impacts positively on multiple health outcomes across the lifespan. Global and UK infant recommendations are that infants should receive breastmilk exclusively for 6 months and as part of a mixed diet until 2 years. However, fewer than half of UK women are breastfeeding at 6–8 weeks, with a marked social gradient.

Objectives

This study aimed to synthesise global and UK evidence in order to co-create with stakeholders a framework to guide the implementation and evaluation of cost-effective breastfeeding support interventions in the NHS:

1. Update the Cochrane review 'Support for healthy breastfeeding mothers with healthy term babies' (McFadden A, Gavine A, Renfrew MJ, Wade A, Buchanan P, Taylor JL, *et al.* Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database Syst Rev* 2017;2:CD001141).
2. Synthesise process evaluations of breastfeeding support interventions.
3. Conduct an economic evaluation of interventions to enable women to breastfeed.
4. Conduct a systematic review of breastfeeding support interventions for women with long-term conditions (LTCs).
5. Synthesise evidence of barriers to and facilitators of breastfeeding support for women with LTCs.
6. Conduct a systematic review of economic evaluations of breastfeeding support interventions.
7. Co-create a NHS-tailored implementation and evaluation strategy framework to increase breastfeeding rates in the UK.
8. Contribute to methodological development on involving stakeholders in systematic reviews.

Design

The study comprised two meta-analyses of breastfeeding support interventions, two mixed-methods evidence syntheses and two economic evaluations with embedded stakeholder engagement, including parents' panels, stakeholder working groups, focus groups and workshops. Stakeholders interpreted and adapted the international evidence to ensure its relevance to UK settings and co-produced the toolkit.

Review methods

Review 1: update of Cochrane review 'Support for healthy breastfeeding mothers with healthy term babies'

The Cochrane Pregnancy and Childbirth Group's Trials Register was searched in May 2021. Healthy women and babies were those who did not require additional medical care. Interventions could be delivered as standalone breastfeeding support interventions ('breastfeeding only') or as part of a wider maternal and newborn health intervention ('breastfeeding plus') where additional services (e.g. vaccination, intrapartum care) are provided. Primary outcomes were stopping any or exclusive breastfeeding at 6 months and 4–6 weeks postpartum. We used standard Cochrane methods for data extraction, risk-of-bias assessment and statistical analysis. We used meta-regression to investigate statistical heterogeneity.

Review 2: mixed-methods review of process evaluations linked to effective breastfeeding support interventions

Six electronic databases were searched in March 2022. Eligible studies reported the views and experiences of delivering or receiving effective breastfeeding support interventions. Qualitative and quantitative findings were synthesised separately and then integrated into a theoretically informed cross-study synthesis.

Review 3: economic evaluation review

This review, with searches conducted in February 2021, considered value for money by appraising and synthesising the evidence of incremental costs and cost-effectiveness in comparison with a control. The eligibility criteria were the same as those of review 1, with the addition of relevant economic outcomes such as incremental cost-effectiveness ratios (ICERs). Quality assessment followed National Institute for Health and Care Excellence (NICE) guidance. Consistency between studies in evidence of cost-effectiveness was reviewed.

Review 4: effectiveness of breastfeeding support for women with long-term conditions

Searches were conducted in August 2022. Included studies involved women with a long-term physical or mental health condition. Primary outcomes were stopping any or exclusive breastfeeding at 4–8 weeks and 6 months. We used standard Cochrane methods for data extraction, risk-of-bias assessment and statistical analysis.

Review 5: mixed-methods review of experiences of breastfeeding support for women with long-term conditions

Searches were conducted in October 2022. Included studies reported primary research on the views and experiences of breastfeeding women with LTCs and/or support providers. Qualitative and quantitative findings were synthesised separately and then integrated into a theoretically informed cross-study synthesis.

Review 6: review of economic evidence for breastfeeding support for women with long-term conditions

The search strategy for review 3 was used for this review, with modification of the inclusion criteria for women with LTCs. Searches were conducted in August 2022. Quality assessment followed the NICE guidance.

Stakeholder engagement

Stakeholder engagement and toolkit development comprised online discussions, a modified Delphi study, face-to-face focus groups and four workshops. Participants were 23 stakeholders (health service providers and representatives of third-sector organisations), 16 parents in the parents' panels and 15 women from a deprived and diverse locality in the focus group discussions.

Results

We found considerably more interventions designed for healthy women (review 1) than aimed at women with LTCs (review 2). 'Breastfeeding only' interventions probably have a small effect in reducing the number of healthy women stopping breastfeeding. However, 'breastfeeding plus' and interventions for women with LTCs probably have little or no effect on breastfeeding outcomes. In both reviews, approximately half of the studies were targeted at groups at higher risk of poor breastfeeding outcomes, and it is possible that the impact of support is different in these populations. Despite this, studies from review 2 found that women perceived the provision of support as positive, important and needed. Studies from review 5 echoed participants' suggestions of potential strategies to improve breastfeeding support, the most widely reported being the need to involve wider sources of support (e.g. partners, family, friends, peers, external professionals, web-based resources) in supporting women with LTCs to

breastfeed. In reviews 3 and 6, there was uncertainty in the cost-effectiveness of breastfeeding support interventions due to the limited number of studies and lack of good-quality evidence.

More specific findings from each review are presented below.

Review 1

This updated review includes 125 interventions reported in 116 trials with more than 98,816 mother–infant pairs. Ninety-one interventions were ‘breastfeeding only’ and 34 were ‘breastfeeding plus’.

The overall risk of bias of trials included in the review was mixed. Blinding of participants and personnel is not feasible in such interventions, and, as studies used self-report breastfeeding data, there is also a risk of bias in outcome assessment.

Moderate-certainty evidence indicated that ‘breastfeeding only’ support probably reduced the number of women stopping breastfeeding for all primary outcomes: stopping any breastfeeding at 6 months [relative risk (RR) 0.93, 95% confidence interval (CI) 0.89 to 0.97]; stopping exclusive breastfeeding at 6 months (RR 0.90, 95% CI 0.88 to 0.93); stopping any breastfeeding at 4–6 weeks (RR 0.88, 95% CI 0.79 to 0.97); and stopping exclusive breastfeeding at 4–6 weeks (RR 0.83, 95% CI 0.76 to 0.90).

The evidence for ‘breastfeeding plus’ was less consistent. Interventions may have a beneficial effect on reducing the number of women stopping exclusive breastfeeding at 4–6 weeks (RR 0.73, 95% CI 0.57 to 0.95, *very uncertain evidence*) and 6 months (RR 0.79, 95% CI 0.70 to 0.90, *moderate-certainty evidence*). However, ‘breastfeeding plus’ support probably results in little to no difference in other breastfeeding outcomes.

We conducted meta-regression to explore substantial heterogeneity for the primary outcomes. Minimal differential effects were found except for a schedule of four to eight visits possibly associated with more beneficial effects. There was a lack of evidence for UK effective interventions.

Review 2

We included 16 studies linked to 10 effective interventions. The quality of the included studies was mixed, but all studies’ findings were judged to be at least fairly well supported by data. The synthesis identified 18 factors affecting implementation of interventions and data-driven analytical themes. Mapping to the Consolidated Framework for Implementation Research resulted in three overarching themes: (1) assessing the needs of those delivering and receiving breastfeeding support interventions, (2) assessing the context and optimising delivery and engagement with breastfeeding support interventions and (3) reflecting and evaluating the success of implementing and providing breastfeeding support. Included studies identified implementation challenges relating to the needs, preferences and priorities of intervention providers and recipients. Overall, breastfeeding women perceived support as positive, important and needed. Breastfeeding supporter training enabled implementation teams to address breastfeeding supporters’ needs. Studies reported contextual factors (e.g. alignment with local policies) affecting the implementation and delivery of breastfeeding support interventions as well as tailoring strategies (e.g. community involvement, use of lay language, responsive support content/information) to address contextual factors. Reports about implementation success focused on key implementation outcomes such as satisfaction, fidelity or usefulness.

Review 3

We included 39 economic evaluations, nine of which were deemed directly or partially applicable to the UK system. For ‘breastfeeding only’ support, evidence from one study suggested that the intervention was unlikely to be cost-effective [£56,074.98 per quality-adjusted life-year gained at 2022 Great British pounds (GBP) prices]. There was evidence for the incremental cost per additional woman breastfeeding (any or exclusive), with ICERs ranging from £67 to £112 from 2 weeks up to 8 weeks postpartum, and from £2446 to £4226 up to 6 months postpartum. Without willingness-to-pay thresholds, value for

money is unclear. Evidence for 'breastfeeding plus' support suggests that this is not cost-effective; however, there was a lack of good-quality evaluations, with inconsistency in results. Where evidence of sensitivity analysis was reported for handling uncertainty, ICERs were upheld. Scenario analyses from the base case did show changes in costing the intervention, which suggested that costs were sensitive. Eight studies were deemed to have potentially very serious limitations due to short time horizons and a lack of extrapolation beyond within-trial data. These limitations affect conclusions about cost-effectiveness.

Review 4

Twenty-two studies of 23 interventions were included. The meta-analyses included 5048 mother–infant pairs. The most common condition, in nine studies, was overweight and obesity. A further three studies were of women with gestational diabetes mellitus. Five studies included women with human immunodeficiency virus (HIV). Two studies were of women with substance misuse problems, and one was of women with anxiety and depression. Interventions varied in whether they provided breastfeeding support only or if they also provided support for the LTC.

The overall risk of bias of trials was generally high. Blinding of participants and personnel is not feasible in such interventions. About half of the studies were rated as being at high or unclear risk of allocation concealment and incomplete outcome data. All studies were rated as being at high or unclear risk of selective outcome reporting.

There was little to no difference between intervention and control for any of the primary outcomes. We judged these outcomes to be of low and moderate certainty.

Review 5

We included 24 studies. The health conditions covered were HIV, obesity and overweight, substance use, diabetes in pregnancy, disabilities and a rare genetic disorder. The overall quality of included studies was mixed. Four key themes were identified: (1) additional breastfeeding support needs for women with LTCs; (2) variable or insufficient availability of breastfeeding support for mothers with LTCs; (3) experiences of breastfeeding support of mothers with LTCs suggesting complex breastfeeding journeys; and (4) suggestions from participants of potential strategies to improve breastfeeding support.

Review 6

We included five economic evaluations. The conditions assessed were HIV, obesity, prenatal opioid use and medically high risk (maternal hypertension and diabetes prior to birth). Each intervention assessed in full economic evaluations was deemed cost-effective for the base case. However, each study failed to meet one or more applicability criteria, which is likely to change the conclusions about cost-effectiveness.

Embedded stakeholder engagement and patient and public involvement

Two stakeholder working groups with 23 members and two parents' panels with 16 members met virtually several times throughout. The main study stakeholder group and parents' panel discussed the realities of breastfeeding, ranked intervention transferability criteria, highlighted barriers to accessing and providing breastfeeding support and prioritised implementation strategies to overcome barriers. Six focus group discussions involving 23 participants from an area of high socioeconomic disadvantage represented the perspectives of communities who are less likely to breastfeed. The other stakeholder working group and parents' panel provided first-hand accounts of breastfeeding, and of providing breastfeeding support for women with multimorbidities. They discussed adapting interventions identified in the main study to meet the needs of women with LTCs. The views and suggestions of all stakeholders and parents guided all stages of the project and directly influenced the co-production workshops.

Four workshops across the UK were attended by 87 participants representing parents and third-sector organisations, healthcare practitioners, service managers and commissioners, policy-makers and

academics. The workshop output was a toolkit for implementing breastfeeding support interventions in the UK. The toolkit comprises evidence-based recommendations for breastfeeding support services, prioritised criteria for adapting the evidence-based recommendations to local services, and guidance on implementing new breastfeeding support services, planning the implementation strategy and evaluating the breastfeeding support services. A discrete choice experiment showed that participants valued additional breastfeeding support and were willing to pay £89.91 per woman to achieve a 1% reduction in the number of women stopping any breastfeeding at 6 weeks, and £105.04 for a 1% reduction in stopping exclusive breastfeeding.

Conclusions

'Breastfeeding only' support can increase the duration and exclusivity of breastfeeding in healthy women. For 'breastfeeding plus' and interventions for women with LTCs the evidence is less certain and there is probably little effect on breastfeeding outcomes. As the mixed-methods synthesis and stakeholder work identified that women with LTCs face additional challenges when breastfeeding, more research is needed to develop effective and cost-effective support. Evidence for the effectiveness and cost-effectiveness of breastfeeding support interventions in the UK is lacking.

Implications for health care

Decision-makers and frontline practitioners can use the toolkit to inform implementation efforts, to overcome barriers specific to their settings and to tailor evidence-based interventions to their populations. Key to success will be addressing health system barriers and enhancing the skills, knowledge and confidence of practitioners. Regarding women with LTCs, stakeholder engagement suggested health services could integrate infant-feeding specialists with the multidisciplinary team to give infant feeding a higher profile in obstetric and medical care.

Recommendations for research (numbered in priority order):

1. Development and evaluation of breastfeeding support interventions for women with LTCs and multimorbidities, particularly mental health conditions, overweight/obesity and gestational diabetes.
2. Focus on understanding the components of breastfeeding support interventions that make them effective, including which components would be more effective in populations at risk of poorer breastfeeding outcomes (e.g. areas of high socioeconomic deprivation), and understanding why 'breastfeeding plus' interventions are less effective.
3. Implementing and evaluating effective breastfeeding support in the UK for all women. This could evaluate the prototype intervention proposed in this report tailored to local contexts via implementation and effectiveness and cost-effectiveness studies or using quality improvement methodology.

Study registration

This study is registered as PROSPERO CRD42022337239, CRD42021229769 and CRD42022374509. The reviews of economic evidence were not registered; however, the review protocol can be accessed via the repository held by Queen's University Belfast Research Portal (<https://pure.qub.ac.uk/>).

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