Extending breastfeeding duration through primary care: a systematic review of prenatal and postnatal interventions

de Oliveira M I, Camacho L A, Tedstone A E

Authors' objectives
To review the available evidence on primary care interventions to improve breast-feeding duration so that a programme of effective breast-feeding promotion, protection and support can be defined.

Searching
An earlier systematic infant-feeding review that focused on the developed world was used as the starting point for this review (see Other Publications of Related Interest). MEDLINE, POPLINE, HealthSTAR, CAB Health, the Cochrane Library, CINAHL and LILACS were searched using the following keywords: 'promotion', 'intervention', 'assessment', 'programme', 'community', 'education', 'effect', 'impact' and 'evaluation' (linked to breast-feeding). Key researchers in the field were also approached for unpublished material or narrowly disseminated reports. Studies published between 1980 and 1999 only were included.

Study selection
Study designs of evaluations included in the review
Studies with experimental or quasi-experimental designs were included. Those with observational designs were excluded. Studies with methodological problems were included in the review text with comments on their validity.

Specific interventions included in the review
The inclusion criteria were primary care interventions designed to extend the duration of breast-feeding (exclusive, full or any kind of breast-feeding) during the prenatal and/or postnatal period. Those that took place during the delivery period only were excluded. The interventions applicable to the primary care setting were defined as being of low complexity, not demanding hospitalisation and were related to the general health care of the population. The included interventions took place in women's homes (34%), primary health care units (29%), hospital clinics (29%) and the community (8%).

Participants included in the review
The participants were expectant or breast-feeding mothers. Interventions targeting high-risk groups (not defined) were excluded.

Outcomes assessed in the review
The outcome assessed was the duration of breast-feeding. The outcomes of most of the included studies were the extension of exclusive, full or any kind of breast-feeding at points in time varying from 4 weeks to 6 months. The proportion of mothers breast-feeding at or until a specified point in time was the main outcome measure used. Some studies reported the median or mean breast-feeding duration. Studies that only reported the effect of an intervention on the mother's knowledge of breast-feeding, infant-feeding decision or breast-feeding initiation, rather than breast-feeding duration, were excluded.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The studies were separated into those which were internally valid and those which were methodologically flawed. The internally valid studies were defined as trials following formal or nonformal randomisation procedures or quasi experiments (with a prospective comparable non-randomised control group) whose findings were unlikely to be explained by bias, with adequate control of confounding factors and an attrition rate of no more than 25% (excluding...
losses to follow-up due to stillbirths or infant death). Flawed studies were of an experimental or quasi-experimental design whose findings could be explained by bias or other methodological problems, such as the use of historical controls, limited control for confounding and attrition rates above 25% or unstated. The internally valid studies were assessed using a 3-item quality scale evaluating the approach to covariate imbalance in the intervention and control groups, independence of the outcome assessment, methods of statistical analysis and presentation of the results. The quality scores ranged from 3 out of 3 (good), to 2 out of 3 (moderate), to one or zero out of 3 (poor).

The authors do not state how the papers were assessed for quality, or how many of the reviewers performed the quality assessment.

**Data extraction**

The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The data presented in the text of the report included the setting, type of support staff, strategies and procedures, and effectiveness. The tabulated data included the country, study design, sample size, quality score, strategy and duration of study. The intervention effects were presented as the percentage breast-feeding among the intervention and control groups and as an attributable fraction at different points in time. The attributable fraction was defined as the proportion of the outcome rate due to the intervention.

**Methods of synthesis**

*How were the studies combined?*

The studies were combined narratively.

*How were differences between studies investigated?*

The interventions were analysed separately for the following: the prenatal phase; the postnatal phase; the pre- and postnatal phases; the hospital and postnatal phases; and the prenatal, hospital and postnatal phases. Internally valid and methodologically flawed studies were discussed separately within each section.

**Results of the review**

Thirty-three experimental and 31 quasi-experimental studies were included. Twenty-seven of these had methodological problems. The remaining 37 (20,253 participants) were considered to be internally valid studies. Of these, 27 were randomised controlled trials (RCTs) with 7,892 participants and 10 were quasi-experimental studies with 12,361 participants (one trial provided 10,128 participants).

**Prenatal phase** (8 internally valid studies of varying design and quality score).

Seven studies included group education sessions. The interventions largely focused on the advantages, techniques and problems in breast-feeding and encouraged active participation. Six studies were effective at extending breast-feeding duration, although the effects reported varied from the extension of full breast-feeding until 6 months to the extension of any kind of breast-feeding until 4 weeks. Five further studies were deemed to have methodological problems that prevented a reliable analysis of the results.

**Postnatal phase** (9 internally valid studies of varying quality scores: 8 RCTs and 1 quasi-experimental study).

The interventions were largely focused on home visits and/or telephone support. Three interventions showed no effect on breast-feeding duration, 2 indicated a marginal effect and 4 were effective but had a wide range of outcomes making interpretation difficult. Three further studies were deemed to have methodological problems that prevented a reliable analysis of the results.

**Pre- and postnatal phases** (9 internally valid studies of varying design and quality score).

Most of the interventions included home visits (5 out of 9) and were effective (7 out of 9). Their effects ranged from
the extension of full breast-feeding until 3 months to the extension of exclusive breast-feeding until 5 months. Eleven further studies had methodological problems that prevented a reliable analysis of the results.

Hospital and postnatal phases (7 internally valid studies of varying quality scores: 6 RCTS and 1 quasi-experimental study).

Five studies presented significant effects varying from the extension of exclusive breast-feeding from 2 to 4 months, to the extension of any kind of breast-feeding from 20 weeks to 6 months. Two studies showed no effect. Three further studies had methodological problems that prevented a reliable analysis of the results.

Prenatal, hospital and postnatal phases (4 internally valid studies of varying quality scores: 3 RCTs and 1 quasi-experimental study).

The interventions involved multiple activities during the prenatal, hospital and postnatal phases. All 4 were effective. Five further studies had methodological problems that prevented a reliable analysis of the results.

Authors’ conclusions
The outcomes reported varied widely. Furthermore, a combination of procedures was often used; this prevented an evaluation of the effects of individual components and their interaction. Some procedures were used almost universally whereas others were used less frequently, often due to the cultural context. Certain procedures occurred consistently in successful interventions, suggesting that they represented effective components.

The most effective interventions generally combined face-to-face information, guidance and support and were long-term and intensive. With the exception of one study, interventions spanning the prenatal period or both periods were generally more effective than those conducted only during the postnatal phase. The most effective strategies were group sessions during the prenatal phase, home visits during the postnatal phase or in both periods, and the combination of group sessions, home visits and individual sessions in interventions spanning both periods. Individual sessions carried out during the postnatal phase or in both periods were also effective.

The effectiveness of the interventions did not appear to be related to the staff involved. The impact of interventions on breast-feeding duration was negligible when practices contradicted messages, such as programmes advising mothers to breast-feed while providing formula to infants. Small-scale short interventions, brief breast-feeding messages given amongst other topics and isolated use of printed matter all showed no effect. Most strategies with no or brief face-to-face interaction failed to produce significant results.

CRD commentary
This review had a clear objective with defined inclusion criteria for the study design, participants, intervention and outcome. The search was comprehensive using a range of databases. Attempts were made to find international literature and unpublished material. The studies were separated into those which were internally valid and those which were methodologically flawed, and discussed separately. The internally valid studies were assessed using a 3-item quality scale. It is unclear whether more than one reviewer was involved in the selection of studies, quality assessment and data extraction processes. If this was not the case then bias may have been introduced into these procedures. The studies were combined narratively, which was appropriate given the varied interventions and outcomes. However, there was no weighting on sample size or study design.

The reviewers’ conclusions appear justified and are based on the more robust (although not necessarily high quality) research evidence. However, given the international nature of the evidence, general conclusions about the effectiveness may be moderated by the local context.

Implications of the review for practice and research
Practice: The authors stated that primary health care units should inform, encourage and support pregnant women in breast-feeding. Maternity hospitals should allow women to bond with their babies and help them to establish breast-feeding, and the primary health care units should be able to guide, reinforce and support this practice continuously.
Research: The authors stated that there is a need for broad-based, well-designed studies testing the effect of the combination of procedures described in this review, preferably encompassing both the pre- and postnatal periods.

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Other publications of related interest

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.