Blueprint for halving obesity: rapid review
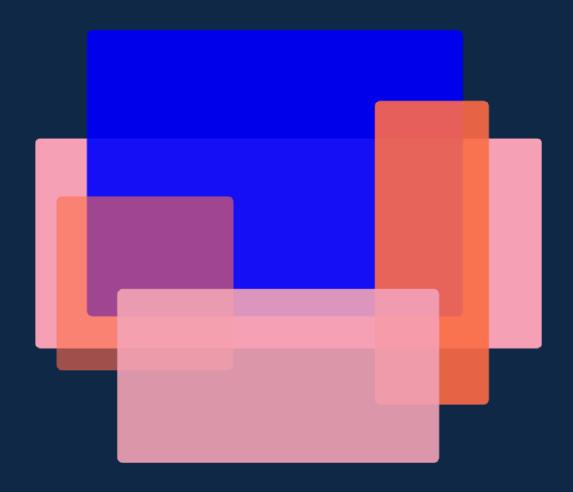
Universal breastfeeding information provision

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Summary table

Title	[Effect of breastfeeding promotion interventions on child growth: a systematic review and meta-analysis](#)
Author and year	Giugliani et al. (2015)
Type of study	Systematic review and meta-analysis
Outcome variable	BMI z-score
Treatment	Breastfeeding promotion interventions alone or in combination with other strategies during the perinatal period (includes pregnancy and up to one year after birth)
Control	No treatment or usual care
Magnitude of effect (Adults)	n/a
Magnitude of effect (Children)	BMI z-score mean difference for high-income countries = -0.18 (95% confidence interval: -0.31;-0.04)

Rapid umbrella review

Background

Observational studies consistently show an association between [formula feeding](#) and increased risk of obesity in childhood and [adulthood](#). UNICEF estimates that breastfeeding [reduces the chance of obesity by as much as 25%](#). Of concern is that the UK has [lower rates of breastfeeding than comparable countries worldwide](#). This rapid review focuses on interventions involving the delivery of information to expectant and new mothers about advantages and practical guidance for breastfeeding. This is a common approach to help increase the uptake and continuation of breastfeeding in infancy and is recommended under NICE guidelines for [antenatal](#) and [postnatal](#) care in the UK.

Objective

To summarise the best available evidence of the impact of breastfeeding information provision on BMI or obesity status and/or breastfeeding outcomes.

Method

We aimed to identify and synthesise reviews that include quantitative research synthesis of the effectiveness of information provision interventions on outcomes related to breastfeeding behaviour itself and/or on weight change and obesity or adiposity in children. If more than one review was identified that answered our research question, we aimed to identify the review that was reflective of the best evidence, based on (a) suitability to research question, (b) year published and (c) quality of review (judged by JBI checklist).

Eligibility criteria

Types of review. To be eligible for inclusion, articles were required to use systematic review methodology (ie, use of systematic search and inclusion strategy to identify all available studies) and include quantitative data synthesis (ie, meta-analysis) of

multiple studies that examined the effect of breastfeeding information provision on outcomes relevant to food consumption behaviours, BMI, or obesity status.

If the search did not identify any studies where a meta-analysis had been conducted due to heterogeneity of outcomes, we included reviews with narrative synthesis. We did not set inclusion criteria on the number or type of databases searched.

Participants. We included reviews which included adults, and if available, adolescents and children. We did not restrict our search by geography.

Intervention. Reviews should synthesise studies which examine the effect of breastfeeding interventions on breastfeeding behaviour, calorie consumption or obesity and body-weight outcomes in children. We included studies of both online and real-world settings.

Outcomes. To be eligible for inclusion, reviews should include BMI, weight, body composition, breastfeeding or food intake as an outcome.

Information sources and article selection

The search strategy was designed to identify syntheses of research evidence such as systematic reviews between the year 2010 and the date of search. Initial keywords were identified via a scoping review of relevant papers and reports as well as via MEDLINE using the MeSH function. A search was performed in MEDLINE and the Cochrane Database of Systematic Reviews. We searched grey literature on the Cochrane Database, INFORMAS, Google Scholar, Google, and World Cancer Research Fund International's NOURISHING policy database to identify relevant reports.

Screening

Due to the rapid nature of the reviews, a single reviewer screened titles and abstracts and discussed any uncertainty with a second reviewer. For relevant titles/abstracts, the full text was retrieved for full text review. One reviewer reviewed full texts and discussed uncertainties with the project lead (who is an expert in evidence synthesis and obesity research).

Assessment of methodological quality

All relevant reviews were critically appraised by two reviewers individually using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses. We selected the highest quality and up-to-date review for data extraction.

Article selection

If the search identified more than one review that included a meta-analysis with a pooled effect size, we selected the single review that best represented our research question. If there was equal suitability to the research question across the reviews, we then made a selection based on the JBI quality rating taking year of publication into consideration (with more up-to-date reviews being seen as more favourable due to the probable inclusion of more studies). If the search did not identify any reviews that included a meta-analysis/pooled effect size we intended to use one of the following:

- a published evaluation of a policy reported on the NOURISHING database
- an impact assessment that had been published by a UK (or devolved) government that had been conducted in partnership with an academic institution
- the highest quality evidence from individual studies reported in a narrative synthesis.

We made the decision based on what we considered to be the most appropriate and robust evidence to answer the research question.

Data extraction

The JBI Data Extraction Form for Review for Systematic Reviews and Research Syntheses was used for data extraction for the final included review. Extracted characteristics included:

- Review characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest, date range of included studies, detailed description of the included studies (number/type/country of origin), appraisal instrument and rating, type of review/method of analyses and outcomes.

● Results: findings of the review and comments.

Results

Giugliani et al. (2015) is a systematic review and meta-analysis examining the impact of breastfeeding promotion on BMI and body weight. This review was an update of a prior review with the same aim. The review includes the studies from the previous review in the meta-analysis reported here, but details for those earlier studies were not reported in this paper. Importantly 'Breastfeeding promotion' was not defined in this paper and the review lacks reporting specificity on the nature of the included interventions defined as 'promoting' breastfeeding. Some, but not all of the included interventions promoted breastfeeding via information provision.

What studies did the review include?

The authors included studies that met the following criteria:

● They evaluated breastfeeding promotion interventions, alone or in combination with other strategies, on weight, length or height and weight/height or BMI. 'Promotion' was not defined.
● They included any type of intervention or study design, quality of evidence, geographical setting and type of population.
● Studies were published in English, Spanish or Portuguese.
● Studies were published between January 2006 and December 2014.

The review authors were comprehensive in their search for studies and engaged in methods to minimise errors in the process of screening articles for inclusion and in data extraction. Screening was conducted by two independent team members. We rated the review methods as having a moderate risk of bias (using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses). A particular limitation is the risk of heterogeneity in the interventions making the meta-analysis prone to bias in this case.

What did the review find?

This is a non-exhaustive summary of the review findings. Please see the original article for more detail missing here. The authors included 16 new publications. Most were

randomised control trials (RCTs) (13/16) of which six were cluster RCTs. Additionally there was one non-randomised trial, one quasi-experimental and another combined a cluster-RCT with a quasi-experiment design. For meta-analysis, these were combined with the 19 studies selected from a previous review ([Bhutta et al., 2008](#)). Quality of evidence was rated as high in only four studies. In total, there were 35 studies that evaluated the impact of interventions promoting breastfeeding on child growth and could be considered for meta-analysis. The studies were distributed across a wide geographic area, incorporating findings for low, medium and high income countries. This distinction is important because in low and middle income countries, often the long-term objective was to reduce child malnutrition and therefore weight gain was considered a successful outcome.

Of these 35 studies, 12 studies were suitable for assessing the impact of breastfeeding promotion on BMI. This sample included 29,063 participants. The result of the meta-analysis, using a random effects model, indicated a small but significant reduction in BMI associated with breastfeeding promotion interventions [pooled effect: z score mean difference: 0.06 (95% confidence interval: 0.12; 0.00)]. However, the effects on zBMI occurred in low [-0.11 (0.20; 0.02)] and high income [-0.18 (0.31; 0.04)] countries only, with no significant impact on BMI in middle income countries.

These significant effects of breastfeeding interventions on BMI were also limited to smaller relative to larger studies (36.3%).

There was no significant impact of breastfeeding promotion interventions on either height [pooled z score mean difference: 0.03 (95% confidence interval: 0.02; 0.08)] or weight [pooled z score mean difference effect: 0.03 (95% confidence interval: 0.06; 0.12)]. No tests of publication bias or study heterogeneity were reported.