Effects of strategies for infant and young child feeding (IYCF) promotion and support strategies on optimal IYCF practices, nutrition, growth and health: a systematic review

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Title of the review

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Background

According to the World Health Organization, undernutrition is associated with 2.7 million child deaths worldwide (Rollins, 2016). This accounts for 45% of infant deaths globally, with low- and middle-income countries (LMICs) bearing the greatest burden (Rollins, 2016; UNICEF, 2017). In LMICs, an estimated 250 million children under 5 years are at risk of suboptimal development and stunting, or low height-for-age (Rollins, 2016). Poor breastfeeding and complementary feeding practices are major causes of global child malnutrition (UNICEF, 2011), with only 40% of infants 0-5 months exclusively breastfed and two-thirds introduced to appropriate solid foods in a timely manner (Rollins, 2016). These data reinforce the need for effective strategies to improve infant and young child feeding (IYCF) practices in LMICs. According to the 2013 Lancet series on maternal and child nutrition, implementing optimal IYCF practices can prevent an estimated 1.4 million deaths annually among children under 5 years of age (Black, 2013; UNICEF, 2011).

Various interventions promote proper IYCF practices in LMICs. While there are existing reviews examining the effects of specific interventions promoting optimal breastfeeding and complementary feeding practices, there is need for an overview of the evidence for these interventions to assess which are most effective. Good rationale

This review aims to synthesize the existing evidence on a variety of intervention programs promoting proper breastfeeding and complementary feeding practices and will also include findings from rigorous evaluations of existing programmes. This approach will enable a comprehensive assessment of the effectiveness of such interventions for improving child health and nutrition outcomes. This evidence will be critical to inform policy and programmatic decision-making in LMICs.

Objectives

1. What is the effectiveness of strategies to promote exclusive breastfeeding on child health and nutritional status?
2. What is the effectiveness of strategies to promote continued breastfeeding on child health and nutritional status?

3. What is the effectiveness of regulatory strategies (legislation, marketing control) for infant and young child feeding on child health and nutritional status?
4. What is the effectiveness of interventions to promote dietary diversification and appropriate
   complementary feeding during infancy and childhood on child health and nutritional status?
5. What is the effectiveness of growth monitoring and promotion strategies during infancy and childhood on child health and nutritional status?

Existing reviews

Objectives 1 & 2: Exclusive and continued breastfeeding

Lumbiganon P, Martis R, Laopaiboon M, Festin MR, Ho JJ, Hakimi M. Antenatal breastfeeding education for increasing breastfeeding duration. Cochrane Database Syst Rev 2016, Issue 12. Art. No: CD006425.

Haroon S, Das JK, Salam RA, Bhutta ZA. Breastfeeding promotion interventions and breastfeeding practices: a systematic review. BMC Public Health 2013;13(3):S20.

Patnode CD, Henninger ML, Senger CA, Perdue LA, Whitlock EP. Primary Care Interventions to Support Breastfeeding: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA 2016;316(16):1694-1705. Erratum in: JAMA 2016; 316(20):2155.

Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martines JC, Piwoz EG, Richter LM, Victora CG, Lancet Breastfeeding Series Group. Why invest, and what it will take to improve breastfeeding practices? Lancet 2016; 387(10017):491-504.

Shakya P, Kunieda MK, Koyama M, Rai SS, Miyaguchi M, Dhakal S, et al. Effectiveness of community-based peer support for mothers to improve their breastfeeding practices: A systematic review and meta-analysis. PLoS One, 2017;12(5), e0177434.

Sondaal SF, Browne JL, Amoakoh-Coleman M, Borgstein A, Miltenburg AS, Verwijs M, et al. Assessing the Effect of mHealth Interventions in Improving Maternal and Neonatal Care in Low- and Middle-Income Countries: A Systematic Review. PLoS One. 2016;11(5):e0154664.

Abdulwadud OA, Snow ME. Interventions in the workplace to support breastfeeding for women in employment. Cochrane Database Syst Rev, 2012; 10, CD006177.

Balogun OO, O'Sullivan EJ, McFadden A, Ota E, Gavine A, Garner C D, et al. Interventions for promoting the initiation of breastfeeding. Cochrane Database Syst Rev. 2016; 11, CD001688.

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.

Objective 3: Legislation and marketing control

WHO. UNICEF. IBFAN. Marketing of Breast-milk Substitutes: National Implementation of the International Code. Status Report 2016. Geneva: World Health Organization; 2016.

Objective 4: Dietary diversification and appropriate complementary feeding

Arikpo D, Edet ES, Chibuzor MT, Odey F, Caldwell DM. Educational interventions for improving complementary feeding practices. Cochrane Database Syst Rev 2015, Issue 6. Art. No: CD011768.

Lassi ZS, Das JK, Zahid G, Imdad A, Bhutta ZA. Impact of education and provision of complementary feeding on growth and morbidity in children less than 2 years of age in developing countries: a systematic review. BMC Public Health 2013;13(3):S13.

Sguassero Y, de Onis M, Bonotti AM, Carroli G. Community-based supplementary feeding for promoting the growth of children under five years of age in low and middle income countries. Cochrane Database Syst Rev 2012 Jun 13;(6):CD005039.

Hodder RK, Stacey FG, Wyse RJ, O'Brien KM, Clinton-McHarg T, Tzelepis F, et al. Interventions for increasing fruit and vegetable consumption in children aged five years and under. Cochrane Database Syst Rev. 2017;9:CD008552.

Kristjansson E, Francis DK, Liberato S, Benkhalti Jandu M, Welch V, Batal M, et al. Food supplementation for improving the physical and psychosocial health of socio-economically disadvantaged children aged three months to five years. Cochrane Database Syst Rev. 2015;(3):CD009924.

Graziose MM, Downs SM, O'Brien Q, Fanzo J. Systematic review of the design, implementation and effectiveness of mass media and nutrition education interventions for infant and young child feeding. Public Health Nutr. 2017;1-15.

Objective 5: Growth monitoring and promotion

Ashworth A, Shrimpton R, Jamil K. Growth monitoring and promotion: review of evidence of impact. Matern Child Nutr 2008;4:86–117.

Intervention

The following interventions targeting mothers/caretakers of children under five years of age will be included:

- Interventions to promote exclusive breastfeeding
- Interventions to promote continued breastfeeding (Up to what age?)
- Legislation and marketing control for infant and young child feeding products
- Interventions to promote dietary diversification and appropriate complementary feeding
- Interventions for growth monitoring and promotion

Interventions implemented by health workers, community health workers, peer educators and through mobile technology platforms will be assessed. Interventions will be compared against no intervention or standard of care (whatever is applicable in the setting the study was conducted).

Population

The target population is mothers/caretakers of children under 5 years of age, regardless of health status, living in low- and middle-income countries as defined by the World Bank.

Outcomes

Primary outcomes:

- Exclusive breastfeeding (at 3 and 6 months)
- Continued breastfeeding
- Complementary feeding practices
- Infant growth (weight gain, height gain, Z-scores for height-for-age, weight-for-height, and weight-for-age)
- Psychosocial health (psychomotor development, cognitive development, attention, memory, language)

Secondary outcomes:

- Neonatal sepsis
- Acute respiratory infections
- Diarrhoea
- Long-term economic development and productivity outcomes
- Environmental benefits gained from interventions promoting breast milk over infant formula and from dietary diversification in complementary foods

Study designs

We will include primary studies, including large-scale programme evaluations, that assess the efficacy and/or effectiveness of interventions using experimental and quasi-experimental study designs that allow for causal inference:

1. Studies where participants were randomly assigned, individually or in clusters, to intervention and comparison groups.

2. Studies where non-random assignment to intervention and comparison groups is based on other known allocation rules, including a threshold on a continuous variable (regression discontinuity designs) or exogenous geographical variation in the treatment allocation (natural experiments).

3. Controlled before-after studies in which allocation to intervention and control groups was not made by study investigators, and outcomes were measured in both intervention and control groups at baseline, and appropriate methods were used to control for selection bias and confounding, such as statistical matching (e.g., propensity score matching, or covariate matching) or regression adjustment (e.g., difference-in-differences, instrumental variables).

4. Interrupted time series studies in which outcomes were measured in the intervention group at least three time points before the intervention was implemented and at least three time points after.

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UNICEF, WHO, World Bank Group. (2017). *Levels and Trends in Child Malnutrition - Joint Child Malnutrition Estimates: Key findings of the 2017 edition*. [New York]: UNICEF; [Geneva]: WHO; [Washington DC]: World Bank. www.who.int/nutgrowthdb/jme_brochoure2017.pdf.

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Potential conflicts of interest

The authors are not aware of any conflicts of interest arising from financial or researcher interests.

Preliminary timeframe

- Date you plan to submit a draft protocol: February 15, 2018
- Date you plan to submit a draft review: June 30, 2018