JOINT STATEMENT ON BREASTFEEDING AND OPTIMAL MILK FEEDING FOR INFANTS AND YOUNG CHILDREN

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1. Purpose

In this statement, the Academy of Medicine, College of Obstetricians & Gynaecologists, College of Paediatrics & Child Health, Chapter of Family Medicine Physicians, College of Public Health & Occupational Physicians, Association of Breastfeeding Advocacy (Singapore), Obstetrical & Gynaecological Society of Singapore, Singapore Paediatric Society, Perinatal Society of Singapore, and Singapore Nutrition and Dietetics Association, set out to provide clarity on breastfeeding, and optimal feeding practices for infants and young children, and the important role of healthcare professionals in the promotion, protection and support of breastfeeding. Nutrition in early life has been shown to impact later health outcomes[1] and hence, it is imperative that infants are provided with the best start in life through ensuring optimal feeding practices. Given the significant and longitudinal impact of breastfeeding on maternal, child and societal health[2], doctors and medical professionals who look after mothers and babies have a responsibility to educate and equip themselves with skills and adopt practices to support and assist mothers and babies in their breastfeeding journey.

2. Definitions

For the purposes of this statement, "breastfeeding" is defined as the mother/child act of human milk transference, while "exclusive breastfeeding" means that no other liquid or solid food is fed to the infant, with the exception of medicines. "Breast-milk substitutes", including "formula milk", refers to any food[3] marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose. "Infant formula" refers only to breast milk substitutes scientifically formulated to satisfy the nutritional requirements of infants up to six months of age[4]. "Complementary Foods" refers to any food suitable as a complement to breastmilk or to infant formula, when either become insufficient to satisfy the nutritional requirements of the infant[5].

3. Breastfeeding

3.1. Importance of breastfeeding

The World Health Organization (WHO) and the United Nations International Children's Fund (UNICEF) emphasise the importance of breastfeeding for the optimal health of infants, young children and their mothers[5]. Breastfeeding is recognised as an effective measure to decrease infant morbidity and mortality in both developing and industrialised countries, and its established health benefits for infants, mothers, families and society (Annex 1) are manifold

[1] Agostoni C. *et al*, 'Early nutrition patterns and diseases of adulthood: a plausible link?', *European Journal of Internal Medicine*, 24:5-10 (2013)
[2] American Academy of Paediatrics, Section on Breastfeeding. Breastfeeding and the use of human milk. *Paediatrics* 2005; 115(2): 496
[3] Including special formula products available over the counter
[4] This definition is in accordance with the Sale of Infant Foods Ethics Committee Singapore (SIFECS) Code of Ethics
[5] WHO, 'Infant and young child nutrition: Global strategy on infant and young child feeding', 55th World Health Assembly, 2002

and extensively cited by international authorities such as the WHO, UNICEF, American Academy of Paediatrics and many others. Breastfeeding should be universally encouraged for all mothers and infants except in very few specific medical situations.

3.2. Implications of the early cessation of breastfeeding

Multiple studies have shown that breastfed infants are 22% less likely to be obese[6] compared to infants who were never breastfed or who were formula milk-fed. This could be due to the bioactive components of breastmilk as compared to formula milk[7] or the positive impact of breastfeeding on the dietary practices[8], preference[9] and habits of infants. Breastfed infants have been shown to have better appetite regulation [10] compared to formula milk-fed infants. Compared to breast milk-fed babies, formula milk-fed babies also appear to have faster weight gain[11], which has been associated with increased risk of obesity[12,13] and other adverse health outcomes later in life[14]. In addition, formula milk-fed children are at higher risk of developing dental caries[15] and infections[16,17.] Recent studies[18,19] have also shown an increased risk of childhood obesity as a result of the early introduction (before 4 months of age) of complementary foods to formula milk-fed infants, but not in breastfed infants. This highlights the importance of the type of milk fed (breastmilk vs infant/formula milk) in early life[20] and its impact on later health outcomes,

3.3. Breastfeeding rates in Singapore

In Singapore, the National Breastfeeding Survey (NBFS, 2011) showed that more mothers are starting and continuing breastfeeding. Comparing between 2001 and 2011, exclusive

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[6] Bernardo L Horta and Cesar G Victora, 'Long-term effects of breastfeeding: A Systematic Review', *World Health Organization Publications* (2013)

[7] Bernardo L Horta and Cesar G Victora, 'Long-term effects of breastfeeding: A Systematic Review', *World Health Organization Publications* (2013)

[8] Lim et al, '*Food Sources of Energy and Macronutrient intakes among infants from 6 to 12 months of age: The Growing Up in Singapore Towards Healthy Outcomes (GUSTO) Study'*, International Journal of Environmental Research and Public Health, 15;488 (2018)

[9] J A Menella and G K Beauchamp, 'Flavour experiences during formula feeding are related to preferences during childhood', *Early Human Development,* (2002), pp71-82

[10] Li et al, 'Do infants fed from bottles lack self-regulation of milk intake compared with directly breastfed infants' *Pediatrics,* 125(6), (2010)

[11] Baird et al, 'Being big or growing fast: systematic review of size and growth in infancy and later obesity', *The British Medical Journal*, 331 (2005)

[12] A Hornell *et al*, 'Breastfeeding, introduction of other foods and effects on health: a systematic literature review for the 5th Nordic Nutrition Recommendations', *Food and Nutrition Research,* 57 (2013); J Yan *et al*, 'The association between breastfeeding and childhood obesity: a meta-analysis', *BMC Public Health,* 14:1267 (2014)

[13] Dewey et al. 'Growth of breast-fed and formula-fed infants from 0 to 18 months: The DARLING Study', *Pediatrics,* 89; (1992), pp1035-41

[14] MS Kramer and R Kakuma, 'Optimal duration of exclusive breastfeeding: A Systematic Review', *Cochrane Database Systematic Review,* (2002); Stanley Ip et al, 'Breastfeeding and maternal and infant health outcomes in developed countries [Review]', Evidence Reports/Technology Assessments, 153 (2007)

[15] The American Academy of Pediatric Dentistry, '*Policy on Dietary Recommendations for Infants, Children and Adolescents'*, (2012)

[16] Melinda McNiel et al, 'What are the Risks Associated with Formula Feeding? A Re-Analysis and Review', *Birth Issues in Perinatal Care*, 37 (2010)

[17] KM Silvers et al, 'Breastfeeding protects against adverse respiratory outcomes at 15 months of age', *Maternal & Child Nutrition,* 5; (2009), pp243-250

[18] Huh, S.Y *et al*. 'Timing of solid food introduction and risk of obesity in preschool-aged children', *Pediatrics,* 127 (2011)

[19] S Robinson and C Fall, 'Infant Nutrition and later health: A review of current Evidence', *Nutrients,* 4; (2012), pp859-874

[20] J Pearce and SC Langley-Evans, 'The types of food introduced during complementary feeding and risk of childhood obesity: a systematic review', *International Journal of Obesity,* 37 (2013), pp477-485

breastfeeding rates at discharge from hospital increased from 28% to 50%, while breastfeeding initiation rates immediately after birth is nearly 100%. However, whilst the proportion of mothers practising breastfeeding at six months post-delivery doubled from 21% to 40%, exclusive breastfeeding at six months' post-delivery is very low at 1%, falling significantly behind developed countries like Australia[21] (18%), South Korea[22] (11%) and Taiwan[23] (50%). This is of concern, given the long-term health benefits of breastfeeding. Hence, more needs to be done in Singapore to increase and prolong breastfeeding rates.

4. Guidelines on optimal infant and young child feeding

Recommendations for optimal infant feeding are outlined below.

4.1. For infants 0 to 12 months

Exclusive breastfeeding is recommended for infants until six months of age, with continued breastfeeding along with appropriate complementary foods. This is in line with the recommendation of the WHO, to ensure the optimal growth, development and health of infants and young children[24]. Other professional bodies, such as the American Academy of Paediatrics[25] and the Academy of Nutrition & Dietetics[26], also recommend "breastfeeding with complementary foods from six months until at least 12 months of age as the ideal feeding pattern for infants." For those who are unable or choose not to breastfeed, infant formula can be a viable alternative. Donor breastmilk from a milk bank is an alternative choice for premature babies in hospitals. All infant formulas sold in Singapore regardless of brand or product meets international standards on the nutritional composition necessary for the healthy growth of babies[27]. Although there are differences in the nutritional composition of different formula milk brands and products for healthy babies, these differences are largely negligible. To meet their evolving nutritional requirements, infants should also receive nutritionally adequate and safe complementary foods no later than six months (or 26 weeks) but not before four months (or 17 weeks)[28].

[21] Australian Health Survey: Health Service Usage and Health Related Actions (2011-12)
[22] Bae et al, 'Trends of Breastfeeding Rate in Korea (1994-2012): Comparison with OECD and other countries', *Journal of Korean Medical Science* (2013)
[23] Extracted from Taiwan's Health Promotion Administration, Ministry of Health and Welfare website: http://www.hpa.gov.tw/English/ClassShow.aspx?No=201401270002
[24] WHO | The World Health Organization's infant feeding recommendation
[25] American Academy of Pediatrics, 'Policy Statement: Breastfeeding and the use of human milk'. *Pediatrics*, 129 (2012); pp827-41
[26] Lessen R, et al. 'Position of the academy of nutrition and dietetics: promoting and supporting breastfeeding', *Journal of the Academy of Nutrition and Dietetics*, (2015); 115(3):444-9.
[27] Codex Alimentarius. Codex Standard 72 on infant formula, (1987); 1-7, (http://www.fao.org/fao-who-codexalimentarius/sh-proxy/fr/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCODEX%2BSTAN%2B72-1981%252FCXS_072e.pdf) [Extracted from Article 'All formula milk tested meets food safety standards: AVA (2017, December 10)]
[28] M Fewtrell *et al*, 'Complementary Feeding: A Position Paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) Committee on Nutrition', *Journal of Paediatric Gastroenterology and Nutrition*, 64(1) (2017); pp119-132

4.2. For toddlers 12 months and above

Mothers are encouraged to continue breastfeeding for up to 2 years or beyond. If no longer breastfeeding, toddlers can switch to full cream milk after 12 months. This should be complemented by a good variety of solid foods from the four main food groups (fruits, vegetables, grains and meat and alternatives). This is in alignment with the recommendations of the Departments of Health in Australia[29], Hong Kong[30], the United Kingdom[31] and the United States of America[32]. If eating and growing well, toddlers above the age of 2 years can switch to low fat milk.

5. Role of healthcare professionals

Given the extensive health and social benefits of breastfeeding for mothers, children, families and society, healthcare professionals caring for infants and their mothers should recognise its importance and actively support and promote the practice of breastfeeding through the following:

- Support and encourage mothers to breastfeed exclusively for at least 4 months (or 17 weeks), exclusive or predominant breastfeeding for six months and to continue supplementing with breastfeeding up to two years of age or beyond
- Be educated and updated in skills and practices to protect, promote and support the practice of breastfeeding
- Understand and support the principles of the Baby Friendly Hospital Initiative (Annex 2)
- Be aware of and support the Sale of Infant Food Ethics Committee Singapore (SIFECS) and the WHO *International Code of Marketing of Breast-milk Substitutes*
- Work with relevant healthcare professionals and involve lactation consultants in clinical care to facilitate and optimise success in breastfeeding

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[29] National Health and Medical Research Council, '*Eat for Health: Infant Feeding Guidelines, Information for Health Workers*', Australian Government Department of Health & Ageing (2012)

[30] Hong Kong Department of Health, '*Recommendations on Milk Intake for Young Children – Information for Health Professionals'*, HK DOH, (2012)

[31] UK Scientific Advisory Committee on Nutrition (SACN), '*Feeding in the First Year of Life Report'* (2017)

[32] US Department of Agriculture and US Department of Health and Human Services, '*Dietary Guidelines for Americans'*, US Government Printing Office; Washington DC, 7th ed. (2010)

Annex 1 – Evidence for Breastfeeding

In infancy, breastfeeding significantly decreases the risk of morbidity and mortality from multiple infectious diseases[33], including respiratory tract infections and diarrhoea[34]. It has also been associated with a decreased incidence of sudden infant death syndrome[35] and better developmental outcomes[36], especially in premature infants. There are also long term benefits of breastfeeding for the infant, which has been associated with a lower risk of high blood pressure and cholesterol, obesity, type 1 and 2 diabetes, and cancers in later life[37].

The benefits of breastfeeding also extend to mothers, where it is associated with a decrease in the incidence of both breast and ovarian cancers, type 2 diabetes, hypertension and cardiovascular disease[38]. Further, breastfeeding improves the health of both infants and mothers, by reducing emotional stress on the family and preventing loss of productivity at work commonly associated with illness[39], indicating further savings to society, as well as ensuring the emotional wellbeing of the family.

A Spanish study[40] showed that with each additional month of exclusive breastfeeding, hospital admissions as a result of infections may be reduced by as much as 30% in the first year of life. A meta-analysis of 33 studies[41] examining healthy infants in developed nations showed similar results, with formula milk-fed infants experiencing three times more severe respiratory illnesses compared with infants who had been exclusively breastfed for four months.

Breastmilk however, has lower vitamin D and iron levels, and breastfed infants are recommended[42] to be supplemented with 400IU of Vitamin D from 1 year of age and weaned with iron-rich complementary foods. Breastfeeding mums should also ensure adequate calcium intake of 1000mg per day.

[33] Heinig MJ. 'Host defense benefits of breastfeeding for the infant. Effect of breastfeeding duration and exclusivity'. *Pediatric Clinics of North America* 2001;**48**(1):105-23

[34] López-Alarcón M, Villalpando S, Fajardo A. 'Breast-feeding lowers the frequency and duration of acute respiratory infection and diarrhea in infants under six months of age'. *Journal of Nutrition* 1997;**127**(3):436-43

[35] Venneman MM, Bajanowski T, Brinkmann B, et al. 'Does breastfeeding reduce the risk of sudden infant death syndrome?' *Journal of Pediatrics* (2009):**123**(3):e406-10

[36] Ip S, Chung M, Raman G, *et al*. 'Breastfeeding and maternal and infant health outcomes in developed countries'. AHRQ publication number 07-E007. (2007)

[37] Stuebe A. 'The risks of not breastfeeding for mothers and infants'. *Reviews in Obstetrics & Gynecology* (2009) Fall;2(4):222-31

[38] Blincoe AJ 'The health benefits of breastfeeding for mothers' *British Journal of Midwifery* (2005); 13(6); pp398-401

[39] Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Journal of Pediatrics* (1999);**103**(4 Pt 2):870-6

[40] Paricio Talayero JM, Lizan-Garcia M, Otero Puime A, *et al.* 'Full breastfeeding and hospitalization as a result of infections in the first year of life'. *Journal of Pediatrics* , 118(1), (2006); e92-9

[41] Bachrach VR, Schwarz E, Bachrach LR. 'Breastfeeding and the risk of hospitalization for respiratory disease in infancy: A meta-analysis', *Archives of Pediatrics & Adolescent Medicine*, 157(3), (2003), pp237-43

[42] J Pupillo, 'Bone up on new vitamin D recommendations', *American Academy of Pediatrics*, 29(10), (2018)

Annex 2 – Principles of the Baby-Friendly Hospital Initiative (BFHI)

To be certified as "Baby-Friendly", hospitals must fulfil the criteria[43] of following the "*Ten Steps for Successful Breastfeeding*" and the "*International Code of Marketing of Breast-milk Substitutes*" as determined by UNICEF/WHO.

The Ten Steps to Successful Breastfeeding (revised 2018[44]) have been broadly classified into 2 main sections:

Critical Management Procedures

1. (a) Comply fully with the *International Code of Marketing of Breast-milk Substitutes* and relevant World Health Assembly resolutions.

   (b) Have a written infant feeding policy that is routinely communicated to staff and parents.

   (c) Establish ongoing monitoring and data-management systems.

2. Ensure that staff have sufficient knowledge, competence and skills to support breastfeeding.

Key Clinical Practices

3. Discuss the importance and management of breastfeeding with pregnant women and their families.

4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.

5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.

6. Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.

7. Enable mothers and their infants to remain together and to practise rooming-in 24 hours a day.

8. Support mothers to recognize and respond to their infants' cues for feeding.

9. Counsel mothers on the use and risks of feeding bottles, teats and pacifiers.

[43] UNICEF/WHO: Baby-Friendly Hospital Initiative: Revised, Updated and Expanded for Integrated Care – Section 1, Background and Implementation. http://apps.who.int/iris/bitstream/10665/43593/1/9789241594967_eng.pdf
[44] UNICEF/WHO: Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-Friendly Hospital Initiative (http://apps.who.int/iris/bitstream/handle/10665/259386/9789241550086-eng.pdf)

10. Coordinate discharge so that parents and their infants have timely access to ongoing support and care.

Under the International Code of Marketing of Breast-milk Substitutes, "Baby-Friendly" hospitals must not receive free gifts, non-scientific literature, materials or equipment, money, or support for in-service education or events from manufacturers or distributors of breast-milk substitutes, bottles, teats or pacifiers. The hospitals must also ensure that no pregnant women, mothers or their families are given marketing materials or samples or gift packs by these manufacturers or distributors.