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International compliance with WHO infant feeding guidelines – is the confusion cause for concern?

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To the Editors

In an age of globalisation, provision of clear and consistent infant feeding guidelines is of growing international importance. Early life nutrition, particularly during the first 1000 days has an important influence in long term health and suboptimal infant feeding practices may not only result in impaired growth and development but also increase the risk of non-communicable diseases including food allergy and obesity¹. Clear and consistent infant feeding guidelines are therefore of paramount importance for ensuring that young children are introduced to appropriate solid foods at the correct stage of life to decrease these potential risks and to reduce confusion amongst parents.

While the World Health Organisation (WHO) infant feeding guidelines² state that infants should be exclusively breastfed for 6 months and breastfeeding should continue for up to two years of age or beyond, infant feeding guidelines from peak organisations vary worldwide³⁻⁵. We recently reviewed consumer infant feeding advice finding disparity between Australian states⁶. We now aim to expand this review to examine infant feeding guidelines around the world and compare international consistency with WHO infant feeding recommendations.

Guidelines from 187 countries were reviewed and categorised using the methodology and pre-determined criteria outlined in the online repository. Of the 187 countries investigated, 41.7% used the exact wording of the WHO infant feeding guidelines across both categories investigated (duration of breastfeeding and timing of complementary foods). 41.0% of countries studied had guidelines that partially followed the WHO guidelines, while 17.3% did not follow the guidelines at all or lacked readily accessible infant feeding guidelines (Supplementary Tables 1 and 2).

Surprisingly, with regards to length of exclusive breastfeeding, the most important of the WHO infant feeding recommendations, only 56.3% fully complied with WHO wording. When comparing compliance of guideline wording by countries' socioeconomic status, those

guidelines from low income nations were more likely to be consistent with WHO. Of low and lower middle income countries, 67.3% and 80.6% fully followed the WHO guidelines respectively compared to just 34.9% of high income countries (Figure 1).

Regarding timing of introduction to complementary foods, guidelines from 52.3% of countries surveyed matched the wording of the WHO with introduction at or from 6 months of age (Figure 2). Most (57.7%) were nations of low or lower middle income, while 42.3% were from high or upper middle income. Nations with high or upper middle income were more likely to have guidelines varying from the WHO (78.7%) compared to nations with low or lower middle income (21.3%).

These results show a high inconsistency in compliance with the WHO guidelines, with less than half of countries fully following the WHO guidelines.

Infant feeding guidelines specific to food allergy prevention also vary in compliance with the WHO guidelines (Supplementary Table 3). In 2016, Australia achieved national consensus on infant feeding guidelines to reduce food allergy risks and ensure clear consumer advice⁷. This consensus was achieved across state and federal health care agencies, consumers, and experts in allergy, infant feeding, and population health.

A strength of this report is the systematic method used to identify and review the global guidelines for infant feeding. Guidelines written in languages other than English were translated to enable inclusion in this review. A potential limitation includes interpretation of guidelines with ambiguous wording such as 'up to 6 months' or 'around 6 months'. Other limitations included lack of centralised repositories for healthcare policy and geopolitical issues impacting accessibility of infant feeding guidelines.

To our knowledge, no one has previously investigated consistency of infant feeding guidelines worldwide with the WHO infant feeding guidelines. However, we recently found a huge diversity of recommendations in the Australian healthcare system likely due to the fact there are so many infant feeding advisory bodies for parents both locally and at the government level⁶. A less recent study in Europe found a similar diversity of recommendations in infant feeding⁸.

Available data on breastfeeding indicators (including early initiation, length of exclusive breastfeeding and time of any breastfeeding) varies in quality between countries, and is not available for many high income countries⁸. The 2016 Lancet Breastfeeding series reports that except for early initiation, rates of all breastfeeding indicators decreased with increasing national wealth⁸.

Differences in national population health priorities may be one reason contributing to differences in wording of the infant feeding guidelines between low and upper income countries compared with the WHO guidelines. In low and middle income countries, a key focus of infant feeding guidelines is to prevent growth faltering caused by delayed complementary feeding or inadequate feeding practices. This contrasts with high income countries where malnutrition caused by improper feeding behaviour and poor food choices may present as both under- or over- nutrition, and infant feeding guidelines include advice related to prevention of non-communicable disease⁹.

With recent research highlighting a potential link between infant breastfeeding and obesity and IQ⁸ and timing of introduction to solids with food allergies^{7, 10}, consistent and coherent information regarding infant feeding guidelines is of growing importance to ensure that adequate healthcare is given to infants worldwide. Consistent wording of infant feeding guidelines would ensure clarity for parents seeking advice on breastfeeding and appropriate introduction to solid foods. Where there is a clear need for country-specific guidelines the reasons for this should be clearly communicated.

Different recommendations related to the length of exclusive breastfeeding and timing of introduction to solid foods in infant feeding guidelines globally has left parents and health professionals uncertain of what is best practice for infant feeding. Widespread debate over the discrepancy in wording of infant feeding guidelines results in lack of clarity for healthcare providers which in turn is likely to result in confusion for parents themselves concise answers to parents on the exact time-frame for infant breastfeeding and the introduction to solids. The wide variation in wording of infant feeding guidelines is likely to

add to confusion by experts and parents alike as they attempt to navigate the optimal way to feed infants.

Statement of author contribution

KA and JK devised the study. JA and NE gathered and analysed the data. MN, JK and KA reviewed and interpreted the data. JA drafted the manuscript. All authors reviewed and approved the final manuscript.

Conflict of interest statement

MN has received a speaker's honorarium from Nestle. KA is on the Before Brands and Aravax Medical Advisory Boards. There are no conflicts of interests for any of the other authors pertaining to this work.

References

1. Michaelsen KF, Grummer-Strawn L, Begin F. Emerging issues in complementary feeding: Global aspects. *Matern Child Nutr* 2017; 13 Suppl 2.
2. UNICEF W. Global strategy for infant and young child feeding. Geneva, World Health Organization, 2003. . Geneva: World Health Organization; 2003.
3. Fewtrell M, Bronsky J, Campoy C, Domellof M, Embleton N, Fidler Mis N, et al. Complementary Feeding: A Position Paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) Committee on Nutrition. *J Pediatr Gastroenterol Nutr* 2017; 64:119-32.
4. American Academy of Pediatrics Committee on Nutrition. *Pediatric Nutrition*. 7 ed. Elk Grove Village, IL: American Academy of Pediatrics; 2014.
5. NHMRC. *Infant Feeding Guidelines: Information for Health Workers*. Canberra: National Health and Medical Research Council; 2012.
6. Netting MJ, Allen KJ. Advice about infant feeding for allergy prevention: A confusing picture for Australian consumers? *Journal of Paediatrics and Child Health* 2017; 53:870-5.
7. Netting MJ, Campbell DE, Koplin JJ, Beck KM, McWilliam V, Dharmage SC, et al. An Australian Consensus on Infant Feeding Guidelines to Prevent Food Allergy: Outcomes From the Australian Infant Feeding Summit. *J Allergy Clin Immunol Pract* 2017; 5:870-5.

8. Victoria CG, Bahle R, Barros AJD, Franca VA, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet* 2016; 387:475-90.
9. Netting MJ, Makrides M. Complementary Foods: Guidelines and Practices. *Nestle Nutr Inst Workshop Ser* 2017; 87:1-12.
10. Fleischer DM, Sicherer S, Greenhawt M, Campbell D, Chan E, Muraro A, et al. Consensus communication on early peanut introduction and the prevention of peanut allergy in high-risk infants. *Journal of Allergy and Clinical Immunology* 2015; 136:258-61.

Figure legends:

Figure 1: Degree to which nations (n=199) follow WHO infant feeding guidelines for **duration of breastfeeding according** to country income band (NB: WHO recommends exclusively breastfeeding “for 6 months”)

Figure 2: Percentage of nations using specific phrasing indicating time frame for **introduction to solids by socio-economic status** (NB: WHO guidelines specify introduction to solids “from 6 months”)

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