DURATION OF EXCLUSIVE BREASTFEEDING AND AGE OF INTRODUCTION OF COMPLEMENTARY FOODS

A. Guideline: Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed.

B. Scientific rationale: In May, 2001 the 54th World Health Assembly urged Member States to promote exclusive breastfeeding for six months as a global public health recommendation (World Health Assembly, 2001). This recommendation followed a report by a WHO Expert Consultation on the Optimal Duration of Exclusive Breastfeeding (WHO, 2001), which considered the results of a systematic review of the evidence (Kramer and Kakuma, 2002) and concluded that exclusive breastfeeding for six months confers several benefits on the infant and the mother. Chief among these is the protective effect against infant gastrointestinal infections, which is observed not only in developing country settings but also in industrialized countries (Kramer et al., 2001). There is some evidence that motor development is enhanced by exclusive breastfeeding for six months (Dewey et al., 2001), but more research is needed to confirm this. For the mother, exclusive breastfeeding for six months prolongs the duration of lactational amenorrhea and accelerates weight loss (Dewey et al., 2001). A longer duration of amenorrhea is generally considered an advantage, and for overweight women, weight loss is also beneficial. Weight loss may be a disadvantage for underweight women, but could be avoided by ensuring that such women have access to an adequate diet.

The Expert Consultation observed that, on a population basis, there is no adverse effect of exclusive breastfeeding for six months on infant growth. The nutrient needs of full-term, normal birth weight infants typically can be met by human milk alone for the first 6 months if the mother is well nourished (WHO/UNICEF, 1998). However, in certain circumstances, some of the micronutrients may become limiting before 6 months. In the case of iron, the infant’s reserves at birth play a major role in determining the risk for anemia during infancy because the iron concentration of human milk is low. Normal birth weight infants whose mothers had good prenatal iron status usually have adequate liver iron reserves, and thus the risk of iron deficiency before six months is low. Low birth weight infants are at much greater risk for iron deficiency, and for that reason it is advised that they receive medicinal iron drops beginning at 2 or 3 months of age (UNICEF/UNU/WHO/MI Technical Workshop, 1999). Infants of mothers with prenatal iron deficiency may also be at risk, even if their birth weight is normal. For prevention of iron deficiency among infants at risk prior to six months, complementary foods are not likely to be as effective as medicinal iron drops (Dewey et al., 1998; Domellof et al., 2001).

Other nutrients that may become limiting before 6 months include zinc and certain vitamins. The zinc concentration of human milk is relatively low, although its bioavailability is high. Low liver reserves of zinc at birth may predispose some infants to zinc deficiency (Zlotkin et al., 1988), similar to the situation for iron. To date there is little evidence that zinc deficiency limits growth of exclusively breastfed infants prior to 6 months of age (though it may do so after 6
months; Brown et al 2002), but recent findings of reduced infectious disease mortality among
term, small-for-gestational infants in India given zinc supplements from 1 to 9 months of age
(Sazawal et al., 2001) suggest that zinc nutriture in early infancy may be inadequate under cer-
tain conditions. As mentioned above for iron, however, medicinal zinc supplements may be
more effective than complementary foods at preventing zinc deficiency in young infants.

Vitamin deficiencies are generally rare in exclusively breastfed infants, but when the mothers’
diets are deficient, their infants may have low intakes of certain vitamins (such as vitamin A,
riboflavin, vitamin B6, and vitamin B12). In these situations, improving the mother’s diet or giv-
ing her supplements is the recommended treatment, rather than providing complementary
foods to the infant. Vitamin D deficiency may occur among infants who do not receive much
exposure to sunlight, but giving vitamin D drops directly to the infant generally prevents this.

Given that growth is generally not improved by complementary feeding before six months even
under optimal conditions (i.e., nutritious, microbiologically safe foods) and that complementa-
ry foods introduced before six months tend to displace breast milk (Cohen et al., 1994; Dewey
et al., 1999), the Expert Consultation concluded that the potential health benefits of waiting
until six months to introduce other foods outweigh any potential risks. After six months of age,
however, it becomes increasingly difficult for breastfed infants to meet their nutrient needs from
human milk alone (WHO/UNICEF, 1998). Furthermore, most infants are developmentally ready
for other foods at about six months (Naylor and Morrow, 2001). In environments where envi-
ronmental sanitation is very poor, waiting until even later than 6 months to introduce comple-
mentary foods might reduce exposure to food-borne pathogens. However, because infants are
beginning to actively explore their environment at this age, they will be exposed to microbial
contaminants through soil, etc. even if they are not given complementary foods. Thus, the con-
sensus is that six months is the appropriate age at which to introduce complementary foods.

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