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Commentary: concerns for complementary feeding of infants in Brazil

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The article in this issue of *Jornal de Pediatria* by Caetano et al. reports some disturbing practices of complementary feeding from a recent survey of 179 infants in three different municipalities in Brazil.¹ As in the USA,² the vast majority of

infants are introduced to complementary feeding (including breast milk substitutes) by 4 months of age. However, in Brazil many infants are introduced to whole cow milk before 6 months of age and 80% are receiving whole milk by the end

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No conflicts of interest declared concerning the publication of this editorial.

Suggested citation: Greer FR. Commentary: concerns for complementary feeding of infants in Brazil. *J Pediatr (Rio J)*. 2010;86(3):169-170. doi:10.2223/JPED.2007

of the first year of life. This is unlike the USA where whole milk does not replace infant formula until 12 months of age in accordance with the recommendations of the American Academy of Pediatrics.^{2,3} Even more unsettling in this dietary survey of infant feeding practices in Brazil, is the fact that both whole cow's milk and infant formula are often modified by the addition of sugar and/or chocolate even in infants less than 6 months of age. Admittedly, over 50% of infants born in the USA currently receive infant formula at no cost through a US government supplemental food program for mothers, infants, and children.^{4,5} The relatively high cost of infant formula for Brazilian infants may explain its use in only 12% of infants under the age of 6 months and in only 6.7% of infants greater than 6 months of age. It may also explain the high percentage of inappropriately diluted or inappropriately concentrated (with other additives including sugar and chocolate) feedings of infant formula.

The paper by Caetano et al. would support the World Health Organization (WHO) recommendations for exclusive breastfeeding through 6 months of age given the inadequacies of the breast milk substitutes currently utilized in Brazil. Oddly enough, the present feeding pattern of infants in Brazil in the first year of life resembles that seen in the USA prior to 1972, when similar inappropriate feeding practices with breast milk substitutes, including whole milk with attendant nutrient deficiencies, were observed.⁵ This resulted in the creation of the US government's Special Supplemental Nutrition Program for Women, Infants, and Children (often called the WIC program) in 1972-1974.⁵ Though the nutritional deficiencies were largely eliminated, this program had a very negative impact on breastfeeding in this population which has only recently been addressed.⁵

The authors of the Brazilian study also point out the specific nutrient deficiencies associated with complementary feeding in the infants surveyed during the first year of life. Most notably these are zinc, iron, and vitamin A (vitamin D intake was not assessed). Iron deficiency is the most worrisome given its potential for long-term negative impact on neuro-developmental outcome. As pointed out by the authors, the deficiency of iron maybe largely due to the use of whole milk as a complementary food. On the contrary, the intake of "meat" (see Table 3) was relatively high in these children, though we are not told whether or not this was red meat, which would be a good source of iron and zinc. It is also not clear in this paper whether or not the cereals fed to infants were iron fortified as in the USA. Intake of processed foods such as cookies and fruit drinks is also very high in Brazil, which would be poor sources of these nutrients. The high content of fat and sugar in these foods is also of concern. In a recent report from the USA,

findings for intakes of processed foods were similar during the second 6 months of life, and infants were noted to frequently have eaten fast foods or carryout foods by 10 months of age.⁶

Finally the authors express concern that these unhealthy feeding practices in Brazilian infants in the first year of life may "potentiate the risk of developing diseases such as cardiovascular disorders."¹ This of course cannot be demonstrated in this cross-sectional observational study in which no anthropometric data is provided for these infants. There has been much hype in the pediatric literature regarding dietary intake in infants and future "metabolic programming." It has long been known that infants can regulate their dietary intake as complementary foods begin to replace breast milk or formula. A number of studies have shown previously that complementary foods introduced in the first year of life have limited impact on overall infant growth during this period of time.⁷⁻⁹ The impact of the type and amounts of complementary foods introduced in the first year of life on obesity and cardiovascular diseases later in life will need further prospective, longitudinal studies. In the mean time, renewed emphasis on the exclusive breastfeeding of infants in Brazil for the first 6 months of life seems very appropriate, given the introduction of inappropriate complementary foods.

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