

# Recommended Practices and Counseling Messages to Address Infant and Young Child Feeding Problems in the First Two Years of Life in Egypt: An Update for Health Care Providers

The SMART project was implemented in Egypt under the Maternal and Child Health Integrated Program (MCHIP), a global flagship program of the United States Agency for International Development (USAID) to reduce maternal, newborn, and child mortality by implementing interventions to address the underlying causes of mortality, including malnutrition. The SMART project was implemented in Lower and Upper Egypt to improve nutritional status and newborn health through community-based strategies delivered through private sector community development associations (CDAs). Through learnings from a study on stunting implemented in Lower and Upper Egypt through the MCHIP/SMART project, this brief was developed to give health care providers additional information and suggestions on how to improve infant and young child feeding (IYCF) practices. Health care providers have an important role in educating mothers and the community on IYCF, specifically by providing information on breastfeeding and introduction and feeding of foods. Counseling on IYCF should involve mothers and other family members, such as grandmothers and fathers, who provide advice and support mothers' IYCF practices.

## Introduction

Across populations, all children have the same potential for growth in height. High prevalence of stunting is not due to genetic differences<sup>1</sup>. During the first 2 years of life to ensure healthy growth and development, optimal IYCF practices include: exclusive breastfeeding\* up to 6 months of age, introduction of foods to complement the nutrients in breast milk at 6 months of age, and continuation of breastfeeding for 2 years<sup>2</sup>.

Poor growth in height occurs when a child is not growing according to his/her potential, which can lead to stunting<sup>1</sup>. Stunting is a process that is caused by inadequate food intake and infections that begin in utero and continue through the child's first 2 years of life, also known as "the window of opportunity to prevent malnutrition"<sup>3, 4</sup>. During this period of rapid growth, interventions in the early part of a child's life will have the most impact on preventing stunting. Poor growth in height is difficult to reverse after this period<sup>5</sup>. Stunting contributes to impaired cognitive development and increased risk of illness and death in young children<sup>6-9</sup>.

Stunted children are likely to be stunted adults<sup>10</sup>. Stunting negatively impacts work capacity and productivity, increases the risk of obesity and related non-communicable diseases, such as hypertension and diabetes, as well as poor delivery and birth outcomes in women who are stunted adults<sup>5,11,12</sup>. Stunting reduces lifetime earnings by 10% and Gross Domestic Product

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\* Exclusive breastfeeding is defined as the infant consuming nothing but breast milk and no other foods or liquids including water during the first 6 months of life.

(GDP) by 2–3% in low and middle income countries<sup>12</sup>. In Egypt, stunted children are more likely to repeat a grade and drop out of school, and stunted adults lost 857 million working hours in 2009 alone<sup>13</sup>. The total economic cost of child under-nutrition is estimated to cost 20.3 billion Egyptian pounds (\$US 3.7 billion), or 1.9% of the GDP, largely due to loss in potential productivity due to stunting.<sup>13</sup>

Since 2005, Egypt has faced increased levels of food insecurity, combined with rising poverty rates, food prices, and successive crises, including the avian influenza epidemic (2006), and food, fuel, and financial crises (2007–2009), resulting in reduced household access to food and purchasing power<sup>13,14</sup>.

One of every three Egyptian children under 5 years old is stunted, ranking Egypt among the 34 countries with the highest burden of malnutrition—where 90% of the world’s stunted children reside<sup>15</sup>. Egypt is one of many countries also experiencing “the double burden of malnutrition” with static and high rates of stunting and rising levels of overweight and obesity in adults and children<sup>16</sup>. Twenty percent of Egyptian children under the age of 5 are overweight or obese<sup>16,17</sup> and nearly 75% of adult women are overweight<sup>18</sup>.

In Egypt, losses due to chronic diseases associated with obesity (i.e., hypertension, cardiovascular disease, and diabetes) are estimated to be \$US 1.3 billion by 2015<sup>19</sup>. Studies have shown that obesity and stunting in children is associated with a decreased intake of fruits, vegetables, and high-fiber foods and an increased consumption of “junk foods” (i.e., non-nutritive processed foods, sugary drinks)<sup>16,20</sup>. These junk foods replace nutritious foods, leading to nutrient deficiencies and malnutrition<sup>16,20</sup>. Parents may also lack knowledge on the variety and amounts of foods young children should be fed to support healthy growth and development.

To understand current IYCF practices in Egypt, the use of optimal practices, and the potential contribution of sub-optimal practices (including provision of junk foods) to malnutrition, the MCHIP/SMART project conducted a study on IYCF in two districts in Lower and Upper Egypt. This study sought to understand not only current IYCF practices but the knowledge, cultural beliefs, and perceptions that influence these practices<sup>21</sup>. The study used the “Trials for Improved Practices” (TIPs)<sup>22</sup> methodology to identify gaps in IYCF, motivations for feeding, and opportunities for improvement, to determine whether mothers could make small, feasible changes in feeding their children. After working together with mothers to agree on alternative solution(s) to feeding problems identified in this study, mothers were able to carry out culturally tailored IYCF practices<sup>21</sup>. Health care providers were also interviewed to receive their insight on stunting and optimal IYCF practices.

### **What were the feeding problems that mothers faced?**

Mothers are committed to the care and feeding of young children however, face a lack of knowledge and/or feasible solutions to challenges in IYCF. It is common for mothers to give prelacteal feeds and introduce foods and liquids prior to 6 months of age due to perceptions of insufficient breast milk, which are detrimental to immediate and exclusive breastfeeding practices. Junk food is often fed in the first 2 years of life. Rather than giving solid foods, mothers also have an overall dependence on liquids and rely heavily on juices, herbal teas, and black tea—which suppress appetite. The frequency of meals is low, small amounts of food are given, and the quality of the diet is poor and lacking in variety.

### **How did the mothers respond to recommendations for changing feeding practices?**

Mothers were able to substitute foods with low nutrients for available and affordable nutritious foods. Mothers were motivated by the cost savings, as well as their observations of their children’s improved health and increased appetites. Despite poor feeding practices, available

and affordable foods can be fed to children. *Seasamina*<sup>†</sup> is a promising recipe to adapt and modify as a local complementary food that is both accessible and affordable and provides a sustainable option to improve children’s dietary intake<sup>21</sup>.

Study findings were used to develop educational messages on IYCF<sup>21</sup> for the SMART project and an IYCF counseling guide for health care providers<sup>23</sup>, which includes detailed recommended practices to address feeding problems for children 0–23 months of age by age groups that represent feeding milestones<sup>2,24,25</sup>. Major feeding problems identified in this study and some of the counseling messages are presented in this brief, according to age group. Health care providers are encouraged to read the counseling guide developed from this study<sup>23</sup>.

## Breastfeeding Practices

### Ideal breastfeeding practices 0–23 months of age<sup>2,24,25</sup>

- Initiate breastfeeding within 1 hour after birth, give colostrum, and do not give pre-lacteal feeds.
- Practice exclusive breastfeeding from birth; breast milk without any other liquids or foods, on demand (whenever the child wants to) for the first 6 months of life.
- Mother should breastfeed 10 to 14 times for newborns and 8 or more times for older babies, day and night.
- Use both breasts and empty them at each breastfeeding session.
- Mothers should continue to breastfeed for 2 years.

### Study findings: breastfeeding problems in the first 6 months of life

Overall the study found that breastfeeding initiation is delayed and exclusive breastfeeding is compromised due to prelacteal feeding and perceptions of insufficient milk. Although mothers generally understand the benefits of breastfeeding, most mothers gave prelacteal liquids immediately after birth, which delayed initiation of breastfeeding. Locally produced, pre-packaged, commercial herbal drinks and home-made herbal teas (e.g., anise, fenugreek, caraway) are believed to soothe and calm a crying or “colicky” baby after birth until mothers start to breastfeed or until a mother’s milk “comes in”. Immediately after birth in health facilities, mothers and babies are routinely separated, which is a barrier to skin-to-skin contact and immediate and exclusive breastfeeding. Some doctors prescribe herbal drinks and teas as mothers recover from childbirth, delaying breastfeeding initiation for up to 8 hours after birth.

Mothers did not breastfeed their children frequently enough and the duration of breastfeeding at each feed was short. Only one-quarter of mothers exclusively breastfed their infants. Some mothers introduce liquids, such as infant formula and/or “light” foods, including yogurt, sugary biscuits, and potatoes, due to the belief their breast milk is not sufficient in quantity (“not enough”) or quality (“*too thin*,” “*weak*” or “*light*”). Family members (e.g., grandmothers) reinforced this belief. Food is introduced as early as 1 month of age or more commonly at 3–5 months of age because mothers do not know babies should be exclusively breastfed for 6 months and/or they think their breast milk alone is not enough to satisfy babies’ hunger. Mothers also are not aware that these poor breastfeeding practices can result in fussy babies who cry after breastfeeding. To transition babies from breast milk, foods are often introduced early through “licking” (“*talhees*”).<sup>‡</sup> During TIPs, when mothers were advised to stop feeding their child any

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<sup>†</sup> Moussa W. Development of protein rich food mixtures suitable for feeding infants and young children. PhD. Thesis for National Nutrition Institute, Cairo 1973. *Seasamina* is a lentil- and flour-based complementary food, developed by the National Nutrition Institute of Egypt, and modified for use in the study. The *seasamina* recipe is explained in the TIPs counseling guide.

<sup>‡</sup> A process during which the mother dips her finger in the food and has the child lick food, to adapt the child to different tastes, textures and assess “readiness” to eat, ability to swallow, as well as the child’s likes and dislikes for particular foods.

other liquids aside from breast milk and breastfeed for longer duration, mothers stated their children were “satiated,” “stopped crying,” and “no longer had diarrhea” after they tried these practices for 1 week.

### **Study findings: feeding problems after the first 6 months of life**

Generally, continued breastfeeding until 2 years of age is not practiced. Mothers weaned their infants prior to 2 years of age, and all children were weaned at 18–23 months of age. One reason mothers stop breastfeeding is because they feared breast milk is “poisonous” or “harmful” if a mother becomes pregnant with another child while breastfeeding her current child. In addition, mothers believe that by 18–23 months of age, “a child needs to eat solid food more than breastfeeding at this age.” Some mothers also believe that “breastfeeding too long will affect the child’s intelligence.”

#### **Key counseling messages for breastfeeding practices**

- Breast milk has enough fluid and nutrients for babies and no other liquids or foods are needed, not even store-bought herbal drinks, herbal teas or water and food.
- The more frequently and the longer a woman breastfeeds, the more breast milk she will produce to overcome the belief that women do not having enough milk and need to supplement breastfeeding with formula, light foods (potatoes, yogurt), or other liquids (tea, juice).
- Optimal breastfeeding practices ensure a mother has enough breast milk at each stage of her child’s growth. These practices include frequent, on-demand breastfeeding during the day and night (10–14 times for newborns and at least 8 times for other babies) from both breasts at each breastfeed, and until soft and empty. This ensures babies receive the vitamins and mineral, fat and energy-rich breast milk (“hind milk”) that comes later in feeding.
- Children are not “ready” for food until 6 months of age, “licking”/tasting and giving foods and liquids prior to 6 months increases risk of illness including diarrhea and decreases breast milk production and the benefits of breastfeeding.
- Continue to breastfeed your child for 2 years, along with feeding foods that complement the nutrients in breast milk starting from 6 months of age.

### **Complementary Feeding Practices**

Breast milk alone is not enough to support growth. Along with breastfeeding, starting at 6 months of age up through 2 years, children should also receive food of adequate quality, quantity and frequency.<sup>23–25</sup> To achieve dietary quality, children need dietary diversity, which includes eating foods from 4 or more of the 7 food groups, including: 1) grains, roots and tubers; 2) legumes and nuts; 3) dairy products (milk, yogurt, cheese); 4) flesh foods (meat, fish poultry, liver/organ meats); 5) eggs; 6) vitamin A rich fruits<sup>§</sup> and vegetables; and 7) other fruits and vegetables<sup>25</sup>. To achieve the recommended “minimum acceptable diet” children, should have a minimum number of meals and amounts of food according to their age (see “Ideal feeding practices” by age group below)<sup>25</sup>.

<sup>§</sup>Includes pumpkin, red or yellow yams or squash, carrots, red sweet potatoes, mangoes, cantaloupe, and dark green leafy vegetables.

## Ideal feeding practices for children 6–8 months of age <sup>2,24, 25</sup>

- Continue breastfeeding on demand, six to eight times per day (and night).
- Gradually introduce nutritious, mashed and semi-solid complementary foods at 6 months.
- Feed at least two meals per day for the breastfed child; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day. Feed a variety of energy and nutrient dense foods (vegetables and fruits, sources of vitamin A, and foods prepared with fat) to ensure dietary diversity, feed foods from at least 4 food groups.
- Add an animal-source food or beans (groundnuts, peas, soybeans).
- Increase the amount of food gradually, feeding the child about eight tablespoons (½ cup or 120 ml) of food per meal by 8 months.
- Total calories required from complementary foods is 202 kcal, with average breast milk intake (required intake for non-breastfed infants is 615 kcal).
- Practice responsive, patient feeding. Feed infants directly and encourage eating.

## Study findings: feeding problems in children 6–8 months of age



Mothers restricted the diets of children, 6–8 months of age to small quantities of “light” foods, such as yogurt and potatoes. Some mothers also fed dilute *belila* (wheat boiled with milk and sugar), *mhlabia* (thick rice pudding made of rice boiled with milk and sugar) or diluted wheat or rice-based infant cereal made with water or milk. A limited number of foods were given, which meant diets were not diverse. Few vegetables and fruits were given. Most mothers did not feed foods cooked with fat (i.e., oil or butter) or chicken meat/liver, fish, or red meat because they thought these foods caused indigestion. Feeding part of the egg,

primarily the egg yolk, was common, as mothers fear difficulty swallowing, and/or allergies. Because mothers feed little food, they relied on herbal teas and junk food, such as sugary biscuits, potato chips, and a popular commercial sponge cake with cream filling—high in sugar and fat and low in nutritive value\*\*—to satiate their child’s hunger. During TIPs, when mothers followed advice on diversifying food intake (e.g., giving the child fruits and vegetables at least once per day), mothers remarked this “improved the child’s health.”

## Ideal feeding practices for children 9–11 months of age<sup>2,24,25</sup>

During this age, children should begin the transition to solid family foods:

- Continue frequent breastfeeding on demand, day and night (at least 6 times). Feed nutritious meals with a variety of foods.
- Feed at least three meals per day for the breastfed child; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day.
- Feed a variety of energy and nutrient dense foods (vegetables and fruits, sources of vitamin A, and foods prepared with fat). To ensure dietary diversity, feed foods from at least 4 food groups.

\*\* Small store-bought sponge-cakes, handheld, given to young children during mealtimes or as snacks



- Feed an animal-source food or beans, groundnuts, peas, or soybeans daily. Serve about 8 tablespoons (½ cup or 120 ml) to 12 tablespoons (¾ cup or 180 ml) per day when a child is approaching 1 year of age.
- Total calories required from complementary foods is 307 kcal, with average breast milk intake (required calorie intake for non-breastfed infants is 686 kcal).
- Practice responsive feeding, encouraging children to learn to eat.
- Feed infants directly and assist older children to eat from their own plate.

### Study findings: feeding problems in children 9–11 months of age

As with children 6–8 months of age, quantity, quality, and frequency of intake were not optimal. At this age, mothers do not prepare foods especially for children and continue to rely on pre-packaged yogurt or junk foods for ease in feeding children. Sugary biscuits and store-bought small sponge cakes are seen as an easy way to feed infants as they become older. Junk foods are viewed as convenient, easy to digest, and used to encourage children who refuse food, since mothers perceive children “like” these foods. Mothers also tend to sweeten juice drinks/yogurt/teas with sugar or honey prior to giving them to children, so they become accustomed to sweetened foods and drinks at an early age.

Some mothers practice optimal feeding by introducing more variety at 9–11 months of age, giving nutritious foods, including lentils or fava beans (i.e., *foul* or *tamaiya*), vegetables, and eggs, and family foods such as mashed cooked vegetables in tomato sauce with a little oil or *ghee*/butter and a little meat (chicken or red meat). Others limit the types of food children should eat, delaying introduction of “heavy” foods to one year of age out of fear of illness. Meats are also restricted to a certain extent at this stage, though small pieces of chicken, chicken liver and “light” meat (i.e., chicken), are considered acceptable by most mothers. During TIPs, when mothers increased diversity and quantities of food, mothers relayed that children were “actually eating,” “accepted food,” and it “helped him/her to grow.”

### Key counseling messages for mothers of children 6–11 months of age

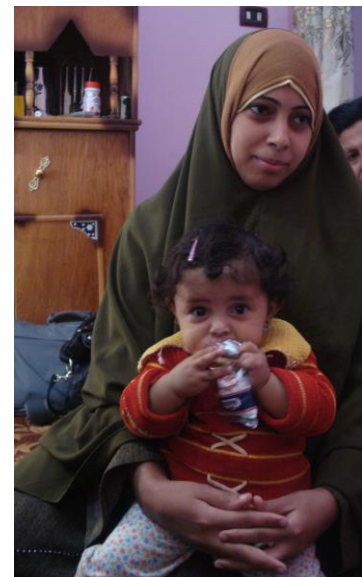
Messages should center on increasing the dietary quality, quantity, and frequency of foods because children have a high requirement for nutrient-rich foods during this period of rapid growth, while maintaining breastfeeding for sufficient amount of time and frequency.

- Continue to maintain breastfeeding at least 6 times, day and night, feeding from both breasts and extending feeding times until both breasts are empty.
- Stop giving your child liquids, such as juices, herbal teas/black teas. Feed fruits instead of juices and teas, which are not as nutritious as fruit and reduce the appetite of the child for solid food.
- Feed your child nutritious snacks such as oranges, sweet potato, carrot, *belila* with carrots and orange instead of sugary biscuits, store-bought small sponge cakes or potato chips. These foods are not nutritious and expensive and have preservatives, coloring, and food additives that are harmful to your child’s health and growth. Sweetened foods and candies can cause obesity and teeth caries, and suppress the baby’s appetite, so he/she will refuse other foods.
- For children 6–8 months of age: Feed at least two meals per day for breastfed children; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day.
- For children 9–11 months of age: Feed at least three meals per day for breastfed children; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day.

- Increase the amount of nutritious food you feed your child by 1–2 tablespoons to up to ½ cup (8 tablespoons) and feed your child more often. Give food on a separate plate to see the quantities. Your child will be happier, will eat more and have a good appetite.
- To ensure dietary diversity, mothers should eat foods from at least 4 food groups.
- Increase the variety of foods you give your child. Yogurt and white cheese are good foods but not enough for your child to grow well. Your child is ready to digest other foods and will have an appetite to eat more food.
- Feed different types of soft, mashed foods, including available fruits and vegetables, which are considered family foods (including spinach, zucchini, okra, carrot), or fresh tomato or cucumber, at least once per day.
- Give ground chicken meat or liver, mixed mashed vegetables and rice and a small amount of oil/ghee daily. If not available, mashed beans or lentils with bread can be eaten.
- Prepare eggs in different ways by frying, boiling, or scrambling eggs and feed once per day, as eggs help growth.
- Prepare and feed seasamina, a soft local complementary food. Consider adding fruits/vegetables or lentils/beans to help your child have enough nutritious food.

### Ideal feeding practices for children 12 to 23 months of age <sup>2,24,25</sup>

- Continue frequent breastfeeding on demand, day and night.
- Feed family foods with an adequate texture for age.
- Feed at least three meals per day for the breastfed child; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day.
- Feed children a variety of energy- and nutrient-dense foods (vegetables and fruits, sources of vitamin A, and foods prepared with fat).
- To ensure dietary diversity, children should be fed foods from at least 4 food groups.
- Feed children meat, poultry, fish, or eggs daily (or beans, groundnuts, peas, soybeans).
- Serve children about 1 cup (16 tablespoons or 240 ml) of food per meal.
- Total calories required from complementary foods is 550, with average breast milk intake (required intake for non-breastfed infants is 900 kcal).
- Practice patient, responsive feeding, encouraging children to eat.
- Feed infants directly and assist older children to eat from their own plate.



### Study findings: feeding problems in children 12 to 23 months of age

Nearly half of Egyptian children are weaned in this age group. A greater variety of foods is given and more frequently, as mothers begin to feed family foods, including cooked vegetables, rice, pasta, lentils/fava beans. However, given some mothers have stopped breastfeeding and increasingly rely on low-nutrient foods, the range of foods is limited and children are not given enough fruits

and vegetables, meats/eggs, and dairy products. Meat is only eaten once a week. Some mothers feed chicken liver and/or eggs, but not with enough frequency and/or quantity; other mothers withhold meat altogether. There is a heavy reliance on liquids such as herbal teas, juices, and black tea. Liquids can suppress appetite for solid foods and cause loose stools and dental caries. Tea can interfere with absorption of iron and calcium, since mothers often add milk to tea. A few studies in the U.S. have linked excessive intake of juice with short stature, obesity, and failure of children to thrive.<sup>26, 27</sup>

As children become older, some mothers compensate the limited intake of foods, as well as children's refusal to eat, with feeding junk food and non-nutritive liquids like soda. Junk food consumption is pervasive in the second year of life in both Upper and Lower Egypt, though mothers in Lower Egypt tended to feed junk food more often. Some mothers perceive junk foods to be easy to give to children, and essential complementary foods, which is also fueled by mothers' desire to give their children foods they "like." If a child refuses food, some mothers feel they need to encourage eating by feeding the child food they like but instead of trying other nutritious foods, they resort to giving junk foods. Junk food is an integral part of children's daily meals. During TIPs, mothers wanted to "avoid harm" to their children, and were motivated "to stop giving any food with any kind of preservatives."

### **Key counseling messages for mothers of children 12–23 months of age:**

- Continue to breastfeed your child until 2 years of age, which will help your child to grow and develop her/his intelligence.
- Stop giving junk foods which are not nutritious, do not help your child to grow, and are expensive. Preservatives, coloring, and food additives can be harmful for your child's health and growth. Sweets and candies can cause obesity and teeth caries, and suppress the baby's appetite, so he/she will refuse other foods. Instead, give your child more affordable and nutritious food, like a piece of fruit, sweet potato, or pear as a snack.
- Stop giving your child black tea, which can prevent iron absorption, leading to anemia, and can cause insomnia, preventing your child from sleeping well. Herbal teas and juices reduce your child's appetite for solid foods.
- Increase the variety of foods you give your child to help your child grow well, in good health, and increase his/her appetite.
- Feed different types of available fruits and vegetables, like family foods, at least once per day to prevent your child from illness.
- Give dairy products and ground chicken meat, red meat, fish or liver, once per day. If not available, mashed beans or lentils with bread can be eaten. These foods make your child strong.
- Prepare eggs in different ways by frying, boiling, or scrambling eggs and feed once per day. Eggs help growth.
- Feed at least three meals per day for the breastfed child; the non-breastfed child should receive 1–2 cups of milk and 1–2 extra meals per day.
- To ensure dietary diversity, children should be fed foods from at least 4 food groups.
- Increase amount of what you feed your child by adding 1–2 tablespoons at each meal to gradually reach 1 cup (16 tablespoons) per meal and feed your child more meals per day up to 3–4 meals with additional snacks as needed. Give food on a separate plate, to see the quantities. Your child will be happier, will eat more and will have a good appetite.



- Increase how often you feed your child meals at fixed times of the day, so your child will eat more and have a good appetite to grow well.

#### Key Policy and Program Recommendations for Complementary Feeding Practices

- Community-level strategies should prioritize educational messages that target mothers, fathers, grandmothers, and health care providers to not feed junk foods to children less than 2 years of age, including sugary, salty foods, and soft drinks, while recognizing junk food consumption affects the family at the household level. Families should be advised that junk food is detrimental to the growth of children less than 2 years of age and the entire family's health and well-being.
- Messages on complementary feeding, to improve quantity of food, dietary diversity, and frequency of meals could be expanded through community health workers and health care providers.
- Teach mothers about local complementary foods. Sesamina is a promising and nutritious local complementary food that is affordable and available. Teach variations of the recipe, considering mothers' concerns regarding lack of time, as well as child's tastes and perceptions of color and texture.
- A national policy that junk food should not be given to children less than 2 years of age should be developed and reinforced by health care providers, to counsel on alternative, nutritious solutions, as developed in this study. Junk foods should not be marketed to young children.<sup>28</sup>
- Junk foods should have a warning on the package that they should not be given (are harmful to children less than two years of age and should be given on a limited basis (once a month) to older children.

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