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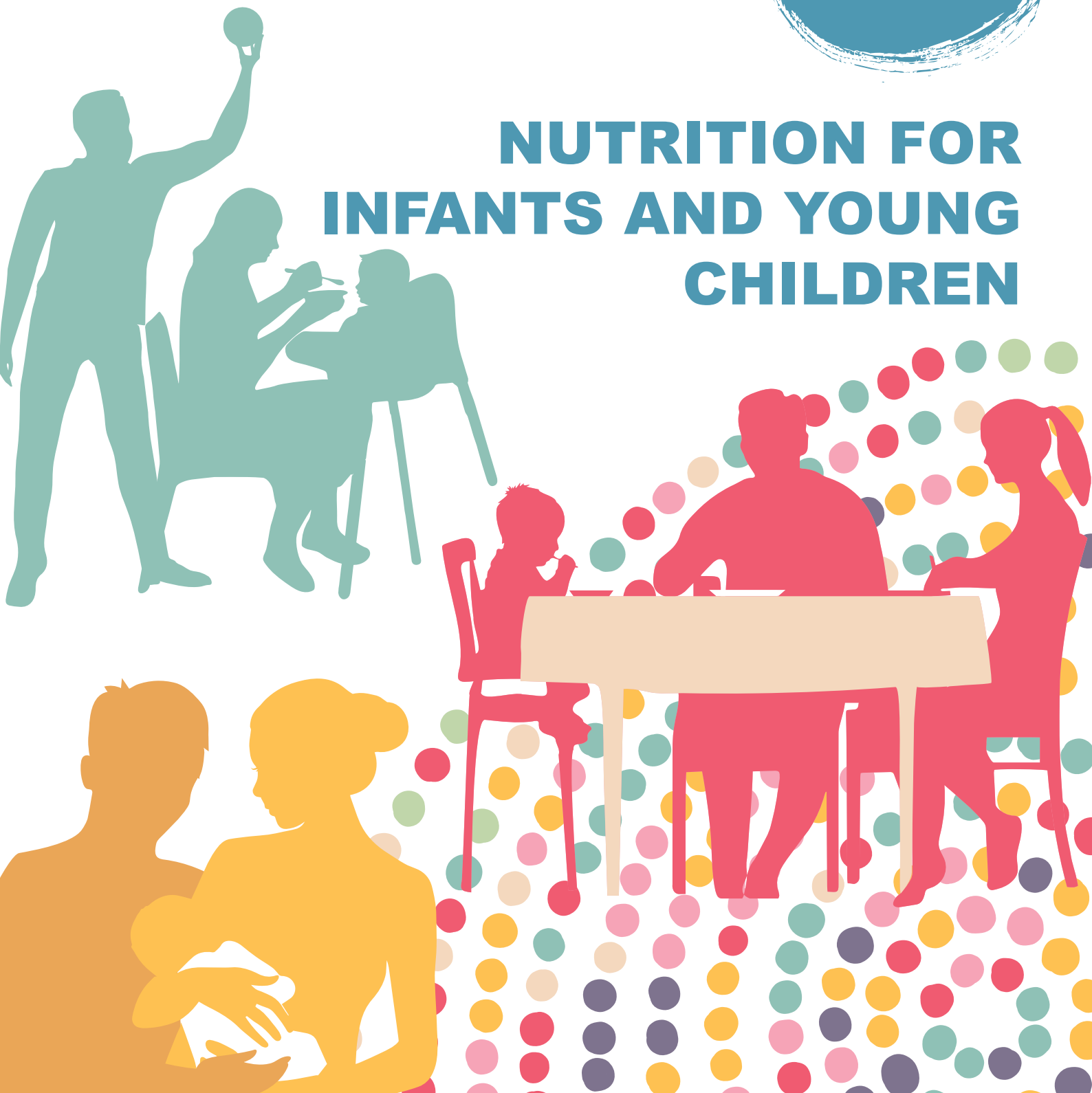
SUPPORTING FAMILIES FOR **NURTURING CARE**

MODULE 3

NUTRITION FOR INFANTS AND YOUNG CHILDREN



The Module 3 ‘Nutrition for Infants and Young Children’ is intended to support home visitors and other health professionals in providing advice and support to parents and families on infant and young child nutrition. It includes three modules:

Module 3a ‘Breastfeeding’

Module 3b ‘Introducing Complementary Foods’

Module 3c ‘Nutrition of Children Aged 2-6 Years’

MODULE 3b.

INTRODUCING COMPLEMENTARY FOODS

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KEY TAKEAWAYS - why is this topic important?

Complementary feeding, defined as the process of providing foods in addition to milk when breast milk or milk formula alone are no longer adequate to meet nutritional requirements, generally starts at age 6 months and continues until 23 months of age, although breastfeeding may continue beyond this period. This is a developmental period when it is critical for children to learn to accept healthy foods and beverages and establish long-term dietary patterns. It also coincides with the peak period for risk of growth faltering and nutrient deficiencies.

The immediate consequences of malnutrition during these formative years – as well as in utero and the first 6 months of life – include impaired growth, significant morbidity and mortality, and delayed motor, cognitive, and socio-emotional development. It can later lead to increased risk of noncommunicable diseases (NCDs). In the long term, undernutrition in early childhood leads to reduced work capacity and earnings and, among girls, reduced reproductive capacity. Inappropriate complementary feeding can result in overweight, type 2 diabetes and disability in adulthood. The first two years of life are also a critical period for brain development, the acquisition of language and sensory pathways for vision and hearing, and the development of higher cognitive functions.

WHO Complementary Feeding Guidelines for children 6–23months of age updated in 2023
What's new?

- Animal milk acceptable for non-breastfed infants 6–11 months of age
- Consumption of starchy cereals is discouraged
- Foods high in sugar, salt or trans fat should not be consumed
- Non-sugar sweeteners should not be consumed
- Consumption of 100% fruit juice should be limited

LEARNING OUTCOMES

After completing this module, you should be able to:

- understand the importance of timely and adequate introduction of complementary foods for infants and young children;
- advise parents on when and how to introduce complementary foods;
- make recommendations to parents on the choice of foods, preparation of meals and feeding the child;
- help parents to overcome the most common hurdles;
- support nutrition of infants from families with a lower socioeconomic status and living in poor housing conditions;
- self-assess your knowledge and skills on this topic;
- make connections between the information on the introduction of complementary food and other modules for visiting nurses;
- find additional information on introducing complementary foods to infants.

DEFINITIONS USED IN THE TEXT

Exclusive breastfeeding. Feeding the infant only with mother's milk (either on the breast or with expressed milk from their own mother) without other foods or water, with the exception of vitamins, minerals and medicines.

Complementary feeding – The process of providing foods in addition to milk when breast feeding milk or milk formula alone are no longer adequate to meet nutritional requirements.

Supplementary feeding – additional liquids and foods given to the infant before the age of 6 months, (the recommended length of exclusive breastfeeding); additional liquids refer to donor human milk, infant formula or other substitute for mother's milk (e.g., glucose solution).

Combination feeding – solid or semisolid food given to the infant in addition to breast milk, when mother's milk is no longer sufficient to meet nutritional needs.

Neonate – a child between the first and 28th day of life.

Infant – a child aged 29 days to one year.

Baby – for the purposes of this text, a baby is a child from birth to one year old.

This module focuses on nutrition of healthy children. For recommendations and advice on the nutrition of children with food allergies or intolerance, chronic diseases, neurological disorders or congenital anomalies that impair feeding, please contact the appropriate specialists.

Exclusive breastfeeding for 6 months has many benefits for the infant and mother. Chief among these is protection against gastrointestinal infections which is observed not only in developing but also industrialized countries. Early initiation of breastfeeding, within 1 hour of birth, protects the newborn from acquiring infections and reduces newborn mortality. The risk of mortality due to diarrhoea and other infections can increase in infants who are either partially breastfed or not breastfed at all.

Breast-milk is also an important source of energy and nutrients in children aged 6–23 months. It can provide half or more of a child's energy needs between the ages of 6 and 12 months, and one third of energy needs between 12 and 24 months.

In young children, continued breastfeeding in the second year compared to no breastfeeding during this period is associated with a reduced risk of acute gastroenteritis and respiratory tract infections.

Children and adolescents who were breastfed as babies are less likely to be overweight or obese. Additionally, they perform better on intelligence tests and have higher school attendance. Breastfeeding is associated with higher income in adult life. Improving child development and reducing health costs results in economic gains for individual families as well as at the national level.

Longer durations of breastfeeding also contribute to the health and well-being of mothers: it reduces the risk of ovarian and breast cancer and helps space pregnancies–exclusive breastfeeding of babies under 6 months has a hormonal effect which often induces a lack of menstruation. This is a natural (though not fail-safe) method of birth control known as the Lactation Amenorrhoea Method.

Mothers and families need to be supported for their children to be optimally breastfed.

I INTRODUCTION OF COMPLEMENTARY FOODS

1. WHY IS THIS PHASE IN THE DEVELOPMENT OF THE CHILD IMPORTANT?

Complementary feeding – defined as the process of providing foods when breast milk or milk formula alone are no longer adequate to meet nutritional requirements – generally starts at age 6 months and continues until age 23 months, although breastfeeding may continue beyond this period. This is a developmental period when it is critical for children to learn to accept healthy foods and beverages and establish long-term dietary patterns. It also coincides with the peak period for risk of growth faltering and nutrient deficiencies. The time of food introduction is a period of rapid growth and development. Babies double their birth weight by 5-6 months and triple it by their first birthday; they grow an average of 20–25 cm in the first year. Because of the rapid growth and maturation of the brain, the head also grows rapidly. At the same time, a child's immune and nervous systems are also experiencing intensive growth, which is why, in addition to sufficient amounts of food, an optimal nutritional composition is equally essential. Infants are prone to anaemia and iron deficiency, especially pre-term babies, twins, babies with low birthweight, and babies of mothers with short interbirth intervals.

The introduction of complementary foods has a direct impact not only on growth and development in the first year of life, but also long-term effects on health later in life.

In the prevention of obesity in children under the age of two, the most promising interventions are those related to the choice of foods and responsive feeding, primarily those that teach parents how to read hunger and fullness cues and that advise them to not use food as a reward or punishment.

Children who do not adopt healthy eating habits early in life and do not accept different types of food, will tend to eat only certain types of foods later on in life, which can have adverse consequences for health (insufficient vegetables, deficit of vitamins, oligoelements, antioxidants; empty calories, risk of obesity and chronic diseases, such as cardiovascular diseases, hypertension, and diabetes).

These recommendations apply to healthy children; preterm babies and infants with chronic diseases should be fed according to special recommendations.

2. INTERNATIONAL GUIDELINES AND WHO RECOMMENDATIONS

Every child has the right to adequate nutrition. Proper nutrition is also an investment into the future of the child and the entire nation. Healthy nutrition supports the child's growth, promotes brain development, strengthens the potential for learning, improves productivity at an adult age and paves the way for a more prosperous society.

There is convincing evidence that healthy maternal nutrition, exclusive breastfeeding, and optimal infant and young child nutrition are critical for appropriate growth and development, as well as reducing the risk of developing noncommunicable diseases, for both mothers and children. Sustainable Development Goals (SDG) aim to reduce premature mortality from non-communicable diseases by one third by 2030 (Target 3.4.).

THE FOLLOWING ARE THE WHO COMPLEMENTARY FEEDING GUIDELINES 2023

Recommendation 1: Continued breastfeeding

Breastfeeding should continue up to 2 years or beyond.

WHO and UNICEF have long recommended continued breastfeeding, along with complementary foods, for 2 years or beyond. Breast milk contributes to macro- and micronutrient needs through the second year of life, particularly with respect to energy, protein and essential fatty acids, as well as vitamin A, calcium, and riboflavin. In young children, continued breastfeeding in the second year compared to no breastfeeding during this period was associated with a reduced risk of acute gastroenteritis and respiratory tract infections.

To carry out this recommendation, all breastfeeding women will require an enabling environment and supportive services. For example:

- Women who work outside the home need services such as onsite daycare, workplace breastfeeding rooms, and flexible work schedules.
- All women need access to breastfeeding counselling services to address questions and challenges that arise when breastfeeding.
- Pregnant women, mothers, families, and health care workers need to be protected from exploitative marketing from manufacturers and distributors of breast-milk substitutes.
- Health care providers must be knowledgeable and skilled in supporting breastfeeding mothers with evidence-based care.

Recommendation 2: Milks for children fed milks other than breast milk

For a variety of reasons, which may include lack of a supportive environment, maternal choice or, more rarely, a medical condition, not all infants and young children are breastfed between 6 and 23 months of age. Some breastfed children also receive other milks. Milk or another source of dairy are necessary for all children 6–23 months of age. For children who are breastfed the milk they receive is breast milk, though other dairy foods could also be part of a diverse diet. For children who are not breastfed, milk or another source of dairy is necessary and even more important if they are not getting other animal-source foods.

a. Milks 6–11 months: for infants 6–11 months of age who are fed milks other than breast milk, either milk formula or animal milk can be fed;

b. Milks 12–23 months: for young children 12–23 months of age who are fed milks other than breast milk, animal milk should be fed. Follow-up formulas are not recommended.

- Dairy products, including liquid animal milks are part of a diverse diet and can contribute to nutritional adequacy. They are particularly important for non-breastfed children when other animal source foods are not available.
- Types of animal milks that could be used include pasteurized animal milk, reconstituted evaporated (but not condensed) milk, fermented milk, or yogurt.
- Flavoured or sweetened milks should not be used.
- If infants 6–11 months of age are fed animal milks, full fat milk should be used.
- Safe storage and handling practices of animal milks should be followed.

Recommendation 3: Age of introduction of complementary foods

According to the recommendations of the World Health Organization, infants should be introduced to complementary foods at 6 months (180 days) while continuing to breastfeed up to 2 years or beyond.

The age of introduction of complementary feeding, when foods are introduced to complement a milk-based diet, is of critical importance to the nutrition and health of the growing infant. Various reviews have been conducted and most conclude that, while there were harms related to the introduction of complementary foods prior to 4 months, there were generally no harms of introducing complementary foods at around 6 months.

Concerns about introduction of complementary foods before 6 months of age have primarily focused on four overall potential risks: increased morbidity because of gastrointestinal diseases (such as diarrhoeal diseases) in settings where food and water hygiene is a concern, inferior nutritional quality of complementary foods compared to breast milk in low-resource settings, inadequate developmental readiness to consume foods, and risk of obesity.

Concern about late introduction of complementary foods has primarily focused on the inadequacy in breast milk of key nutrients, particularly iron, needed for continued growth and development and the potential increased risk of some food allergies. There are also concerns that delaying the introduction of complementary foods could affect the acceptance of new flavours and textures. In addition, accumulating evidence suggests that delaying the introduction of some nuts, such as peanuts, may promote rather than prevent food allergies. This may also be the case for other allergenic foods, such as milk.

The WHO and UNICEF recommend that breastfed infants should start with complementary feeding at 6 months of age.

Around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary foods are necessary to meet those needs. An infant of this age is also developmentally ready for other foods. If complementary foods are not introduced around the age of 6 months, or if they are given inappropriately, an infant's growth may falter. Guiding principles for appropriate complementary feeding are:

- continue frequent, on-demand breastfeeding until 2 years of age or beyond;
- practise responsive feeding (for example, feed infants directly and assist older children while eating. Feed slowly and patiently, encourage them to eat but do not force them, talk to the child and maintain eye contact);
- practise good hygiene and proper food handling;
- start at 6 months with small amounts of food and increase gradually as the child gets older;
- gradually increase food consistency and variety;
- increase the number of times that the child is fed: 2–3 meals per day for infants 6–8 months of age and 3–4 meals per day for infants 9–23 months of age, with 1–2 additional snacks as required;
- during illness, increase fluid intake including more breastfeeding, and offer soft, favourite foods.

Feeding in exceptionally difficult circumstances

Families and children in difficult circumstances require special attention and practical support. Wherever possible, mothers and babies should remain together and get the support they need to exercise the most appropriate feeding option available. Breastfeeding remains the preferred mode of infant feeding in almost all difficult situations, for instance:

- low-birth-weight or premature infants;
- mothers living with HIV in settings where mortality due to diarrhoea, pneumonia and malnutrition remains prevalent;
- adolescent mothers;
- infants and young children who are malnourished; and
- families suffering the consequences of complex emergencies.

According to the recommendation of the European Society for Paediatric Hepatology, Gastroenterology and Nutrition (ESPHGAN), babies should start "trying out" other foods at 5 months, (they should be given 1-2 teaspoons of the new food before breastfeeding, in the morning). Only at 6 months, the child should get solid foods every day, with two solid meals and one milk-based porridge. ESPHGAN recommends a personalized approach to every child: Exclusive breast feeding in the first six months applies to healthy children and women; some children will need additional calorie or iron intake before the 24th week.

Recommendation 4: Dietary Diversity - Infants and young children 6–23 months of age should consume a diverse diet.

c. Animal source foods, including meat, fish, or eggs, should be consumed daily;
d. Fruits and vegetables should be consumed daily and
e. Pulses, nuts and seeds should be consumed frequently, particularly when meat, fish, or eggs and vegetables are limited in the diet.

Infants and young children need to consume a variety of foods to ensure their nutritional needs are met and to support healthy growth and development. A diet lacking in diversity increases the risk of nutrient deficiencies, many of which cannot be satisfied through nutrient supplements or fortified food products because they contain only a subset of the essential nutrients and bioactive substances found in food. Different combinations of foods consumed at the same time also can create synergies that facilitate absorption of important nutrients. For example, vitamin C-rich foods facilitate the absorption of non-heme iron. Consuming a diverse diet is important for reasons beyond meeting nutritional requirements; young children who receive a diverse diet are exposed to different food tastes and textures.

WHO and UNICEF have defined eight key food groups for children, which include: 1) breast milk; 2) flesh foods (meat, fish, poultry, and liver/organ meats; 3) dairy (milk, yogurts, cheese); 4) eggs; 5) legumes and nuts; 6) vitamin-A rich fruits and vegetables; 7) other fruits and vegetables; and 8) grains, roots, and tubers. They have defined minimum dietary diversity (MDD) as consumption of five out of the eight groups.

Key message for parents

- Animal-source foods, fruits and vegetables, and nuts, pulses and seeds should be key components of energy intake because of their overall higher nutrient density compared to cereal grains.
- Starchy staple foods should be minimized. They commonly comprise a large component of complementary feeding diets, particularly in low resource settings, and do not provide proteins of the same quality as those found in animal source foods and are not good sources of critical nutrients such as iron, zinc and Vitamin B12. Many also include anti-nutrients that reduce nutrient absorption.

Key considerations

- Animal-source foods, fruits and vegetables, and nuts, pulses and seeds are more nutrient dense than cereal grains.
- Starchy staple foods should be minimized.
- Increased amounts of starchy foods lead to inadequate intake of calcium, potassium, zinc, thiamine, riboflavin, choline, and vitamin B6
- Whole cereal grains should be prioritized.
- Care must be provided to prevent choking with pulses, nuts and seeds

Reflection and discussion

Advice for parents – Good sources of essential nutrients

Calcium	milk, yogurt, cheese, spinach, beans, peas, sardines, sesame seeds
Proteins	meat, cheese, eggs, plant foods (beans, lentils, cereals).
Fibres	fruit, vegetables, whole grain products
Antioxidants	brightly coloured fruit and vegetables (spinach, carrot, tomato)
Iron	the best sources of iron are foods of animal origin (meat, egg yolk); other sources: green leafy vegetables, peas, beans, lentils (bioavailability is lower, it is better absorbed in combination with vitamin C rich foods
Omega-3 fatty acids	sea fish

Animal Source Foods

Benefits:

- Improved growth outcomes
- Reduced risk of anaemia and increased Hgb concentrations

Diets that include beef, lamb, game, liver, or small fish are more likely to meet nutrient needs for iron, zinc & vitamin B12. Animal source foods provide proteins, vitamins and minerals and essential fatty acids.

Meat, fish, and eggs

Meat should be introduced into the infant's diet at the end of 6 months of life. Meat is an important source of protein, primarily iron, zinc and group B vitamins. The child must satisfy 90 percent of its iron requirements from solid food, and iron from animal-source foods is absorbed much better. It is best to start with turkey and lamb meet, as they carry the lowest risk of allergic reactions. Subsequently, introduce chicken and veal. Pork is not recommended in the first year. A meat-based soup can be used to regulate the thickness of the meal, but the soup itself cannot be a replacement for eating meat.

To make it easier to swallow, meat should initially be given with vegetables, first puréed, then mashed and eventually chopped.

Egg can be introduced, at 6 months of age, gradually like any other new food. It is recommended that the egg be served hard boiled and mashed or scrambled, and combined with vegetables or cereals, 2-3 times a week.

Fish is an allergenic food, but delaying its introduction has not been proven to be a successful strategy in preventing allergies. Fish is a source of protein, and especially Omega-3 unsaturated fatty acids. You should make sure that your child eats fish at least 1-2 times a week (this is also an opportunity for the whole family to review and improve their dietary habits). Start with white fish (hake, trout), subsequently introduce other types of fish (mackerel, salmon, sea bass).

Milk and dairy products

- Breast milk (or formula) remains the primary source of nutrition throughout an infant's first year of life.
- Milk or another source of dairy are necessary for all children 6–23 months of age. For children who are breastfed the milk they receive is breast milk, though other dairy foods could also be part of a diverse diet. For children who are not breastfed, milk or another source of dairy is necessary and even more important if they are not getting other animal-source foods. (Refer to Recommendation 2 for details related to children 6-11months and 12-23months of age)
- Dairy products (yogurt, sour milk, young cheese) are an excellent source of protein and calcium and can be given from 7-8 months of age. Exceptional care should be taken to safely store dairy, because they spoil easily and usually have a short shelf life.
- Plant-based drinks (soy, rice or almond milk) are not recommended as the primary milk for infants because they do not meet their nutritional needs.

Fats

The infant also needs to take in high-quality fats. These are, primarily, vegetable oils (corn, olive, soybean or rapeseed oil). Oil is usually added to vegetable purées, vegetable and grain purées and meat purées at the end of preparation to preserve high-quality fatty acids. One tablespoon of oil (8-10 g.) is added to a meal of 150-200g.

Fats should provide about a third of the infant's energy needs; cholesterol is essential for growth and development, especially of the brain.

Fruits and Vegetables

Benefits:

- Fruit consumption has been shown to reduce anaemia
- When fruits and vegetables are consumed by infants and young children, it is more likely the child will eat these foods in adolescence and adulthood

Vegetable consumption can improve iron intake by contributing to the absorption of non-haem and haem iron. If vegetables are excluded from the diet, nutrient needs for iron, calcium, potassium & zinc cannot be met.

Vegetables are a source of essential minerals and vitamins for growth and development. It is recommended that you first introduce mild-tasting vegetables, such as potatoes and carrots, followed by pumpkin, peas, cauliflower, kohlrabi, chard, spinach, and broccoli. Some experts advise that vegetables be introduced before fruits, as children are more averse to accepting vegetables due to their innate affinity for sweet-tasting foods.

If you introduce vegetables at an early stage and offer a variety of vegetables, the child will accept them more readily. When offering a new vegetable, mix it with the food the child is already accustomed to (mother's milk or formula, cereals).

Children have a harder time accepting green leafy vegetables, so, offer these in combination with vegetables that the child is already used to (potatoes, carrots).

Fruits are introduced in the form of apple, peach or pear purées. Bananas are extremely healthy and are easy to prepare (simply mash them), but many experts do not recommend introducing them at the very start of weaning because the child will be more averse to accepting other fruits and vegetables. Berry fruits (strawberries, raspberries, blackberries) and citruses (lemon, orange, tangerine, grapefruit) are not recommended in the first year of life due to high allergenicity.

Fruit juices cannot replace eating fruits and WHO does not recommend infants and young children consume fruit juices.

Pulses, nuts, seeds

Nuts, pulses, and seeds also provide an array of proteins, vitamins and minerals, and essential fatty acids as well as energy. Caution must be taken when feeding children nuts and seeds to prevent choking.

Grains, roots and tubers

Starchy staple foods should be minimized. They commonly comprise a large component of complementary feeding diets, particularly in low resource settings, and do not provide proteins of the same quality as those found in animal source foods and are not good sources of critical nutrients such as iron, zinc and Vitamin B12. Many also include anti-nutrients that reduce nutrient absorption.

Recommendation 5: Unhealthy foods and beverages

a. Foods high in sugar, salt and trans fats should not be consumed;
b. Sugar-sweetened beverages should not be consumed;
c. Non-sugar sweeteners should not be consumed;
d. Consumption of 100% fruit juice should be limited.

Infants and young children are consuming increasing amounts of unhealthy foods and beverages, often referred to as highly processed or ultra-processed, that contain high amounts of free sugars, salt, and unhealthy fats such as saturated fats and trans fats. They are also generally high in energy and low in nutrients. Their consumption is due to several factors, primarily palatability, convenience, often low cost compared to more nutritious foods, ubiquity, and aggressive promotion. While some of these foods and beverages are developed and targeted to young children, the vast majority are developed and marketed to the general population and included in complementary feeding diets.

While fruit juice provides vitamins, there are concerns about its consumption as it is high in free sugars and because consumption could displace other foods needed to meet nutrient requirements.

Accumulating evidence shows that unhealthy snack foods and beverages may have negative effects on young child health, displace healthier foods, and may be associated with undernutrition, overweight, and adverse cardiometabolic outcomes.

The WHO Guideline for sugars intake for adults and children recommends a reduced intake of free sugars throughout the life course and reducing the intake of free sugars to less than 10% of total energy intake

throughout the life course, and if possible, a further reduction to below 5% of total energy intake (20). The recently published WHO guidance on Use of non-sugar sweeteners suggests that they not be used as a means of achieving weight control or reducing the risk of NCDs.

To support these recommendations,

- Broad policy actions will be needed to support the implementation of these recommendations, including, but not limited to agricultural policies that take into consideration the nutritional requirements of young children, policies regarding front-of package labelling and marketing practices, among others.
- Counselling caregivers about the short- and long-term harms of foods high in sugar, salt and trans fats, sugar sweetened beverages (SSBs), and non-sugar sweeteners is needed.

Recommendation 6: Nutrient supplements and fortified food products

In some contexts where nutrient requirements cannot be met with unfortified foods alone, children 6–23 months of age may benefit from nutrient supplements or fortified food products.

- Fortified cereal grain-based complementary foods are available commercially
- A wide variety of fortified milks are commercially available and marketed globally as a way to fill nutrient gaps in the diets of young children

Recommendation 7: Responsive Feeding

Children 6–23 months of age should be responsively fed, defined as "feeding practices that encourage the child to eat autonomously and in response to physiological and developmental needs, which may encourage self-regulation in eating and support cognitive, emotional and social development"

It is increasingly recognized that, in addition to what a child eats, how a child is fed is an important component of infant and young child feeding. Responsive feeding involves reciprocity between the child and caregiver during the feeding process. Responsive feeding is grounded on the following three steps: 1) the child signals hunger and satiety through motor actions, facial expressions, or vocalizations; 2) the caregiver recognizes the cues and responds promptly in a manner that is emotionally supportive, contingent on the signal, and developmentally appropriate; and, 3) the child experiences a predictable response to signals. Responsive feeding has been shown to promote healthy growth and development and to encourage children's self-regulation, which is important to prevent both under- and overfeeding. It is considered as a core element of nurturing care.

Responsive feeding helps children develop self regulation over food intake and facilitates their transition to eating independently. Social interactions between caregiver and child (such as speaking to the child, singing, and encouraging him/her) also stimulate connections in the child's brain and promote cognitive development. Several studies have shown a positive association between responsive feeding and improved child nutrition. Responsive feeding practices, where caregivers interact with the child and respond to his or her hunger and satiety cues, have been found to improve children's acceptance of food and adequate food intake.

In summary; feeding in response to the needs of the child, in other words "on demand" (*active or responsive feeding*), is a reciprocal process that involves:

- the child sending cues of hunger and fullness,
- the parent reading these cues, interpreting them correctly and responding to them adequately,
- the child seeing that the parents are receptive to the cues, and that their response is predictable.

This creates a foundation of mutual trust that supports the child's development and helps to create routines.[16]

Reflection and discussion

ADVICE FOR PARENTS - RESPONSIVE FEEDING

Time and patience are required for the child to master new skills. Watch your toddler and respond to their cues. Some children would rather eat new food after they are breastfed, when they are not too hungry. Feed your child slowly and patiently, at the child's own pace. Try out different combinations of foods, tastes and textures to encourage your child to eat the meal. Wait until the child stops eating before offering more food.

Stop feeding the child when he or she shows they have had enough to eat (they will eat at a slower pace, push the food away, will not open their mouth, will shake their head).

During the mealtime do not focus exclusively on the amount of food the child eats; this is also the time for interacting with your child. The child needs smiles, eye contact and encouraging words.

Encourage your child to eat with their hands. Sharing meals with the family will give the child the opportunity to try the food everyone else is eating and observe their eating skills. Minimize distractions (TV, other activities around the child) because children are quickly distracted from food. Be with your child throughout the mealtime and make sure the child is safe.

Make mealtimes enjoyable and pleasant!

MEALTIME - A TIME FOR LEARNING AND LOVE

What will children learn if they are fed according to these recommendations?

- In the initial stages of introducing complementary foods (6–9 months), the baby learns to roll food with the tongue and swallow it, discovers the taste and textures of food, practices hand-eye coordination, and learns to use cutlery.
- When, at mealtime, you show patience, you smile, encourage and respond to the child's cues, you will embolden your child to learn and acquire skills.
- If, when feeding the child, the parent quickly spoons the food into the child's mouth until the bowl is empty and fails to respond to the child's cues, the child will learn an entirely different lesson.

Long-term positive effects on health

- In the prevention of obesity in children under the age of two, the most promising interventions are those related to the choice of foods and responsive feeding, primarily those that teach parents how to read hunger and fullness cues and that advise them not use food as a reward or punishment.
- If children do not acquire healthy eating behaviours or accept diverse types of foods early on, later on they will be more likely to eat just one type of food, which can affect their health, for instance, not enough vegetables, lack of vitamins, oligoelements and antioxidants, excessive intake of empty calories, risk of obesity and chronic non-infectious diseases.

Self-assessment

Mistakes to avoid

Authoritarian or controlling feeding style. Parents decide when and how much the child eats, which sometimes leads to force feeding. Children are forced to eat even when they are not hungry and must "clean the plate". They ignore their own satiety regulating mechanisms; regulation is shifted to a whole new level, so that the child expects to have a full stomach at all times. Infants who gain weight rapidly are at higher risk of life-long obesity. Without additional interventions, an obese infant is highly likely to remain obese throughout their childhood, adolescence and adulthood.

The child's cues are misinterpreted, and food is perceived as a solution. An example of this would be a mother who thinks she does not have enough milk because the baby cries soon after breastfeeding. The baby is likely crying for other reasons not related to hunger, but the mother thinks it's hunger related and feeds the infant, which can lead to over feeding.

The child is left to eat alone. Parents believe that children will eat only when they are hungry; sometimes they believe that children will stop eating when they have had enough, even though they have eaten very little.

For additional information on responsive feeding and the role of the father, please refer to Module 16.

II

WHEN, WHAT AND HOW TO INTRODUCE COMPLEMENTARY FOODS TO INFANTS

1. WHEN TO INTRODUCE COMPLEMENTARY FOODS

Reflection and discussion

WHEN AND HOW CHILDREN SHOULD EAT

Timely introduction of 'first foods' *starting at **6 months***	**Age-appropriate meal frequency** *2 or 3 times a day*	**Age-appropriate amounts** *2 to 3 spoonfuls* *Transition to 1/2 cup* *3/4 cup* *1 cup*	**Age-appropriate food consistency**
Safe preparation, storage and use	**Responsive feeding and caregiving**	**Feeding during and after illness**	

ADVICE FOR PARENTS

How will you know when the baby is ready for the introduction of complementary foods?

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The speed at which children grow and mature varies.

The following signs clearly indicate that the baby is ready for its first solid foods (and usually the baby clearly manifests these signs at around six months of age): the infant is sitting up independently, holding its head upright, can pick things up and put it in its mouth (good eye, hands and mouth coordination), swallows food rather than spit it back out.

Children proactively show they are ready for other food: the breaks between meals are shorter, the child frequently wakes up at night, shows interest in the food that members of the household eat.

2. RECOMMENDATIONS ON THE INTRODUCTION OF COMPLEMENTARY FOODS

When introducing new foods into the infant's diet, stick to the following principles:

- **You should always introduce only one new food every three days**, preferably in the mornings, because it is more likely that you will notice a potential food allergy thus enabling quick response with adequate therapy, should the need arise. Foods that were previously introduced can be combined with a new one. When several new foods are introduced at the same time, in the event of an allergic reaction, you will not be able to identify the food that caused the allergy, and as a result you could deprive the child of some of the foods essential for its growth and development in the following 6-12 months.
- I**nitially, new foods should be given in smaller amounts, a few teaspoons.**
- **Start by giving the baby food with a thinner consistency**, then gradually transition to a "thicker" consistency, so that the baby gets used to it easily.
- **At first, foods should be given separately to get the child used to new flavours.**

III

CHOICE OF FOODS, MEALS

1. IN WHAT ORDER SHOULD FOODS BE INTRODUCED?

The order in which foods are introduced is not important. It does not matter whether the infant will first get fruits, vegetables or grains; the choice often depends on the family's habits, background, ethnicity, as well as the availability of foods. It is important to introduce as many foods as possible into the diet by the 8th month of life because it appears that the late introduction of certain foods increases the risk of developing an allergy to them.

Reflection and discussion

ADVICE FOR PARENTS

What should you give your baby for the first time?

The baby's first semi-solid food could be an animal source food such as meat, fish, chicken, egg, a fruit, vegetable or grain purée, depending on the family's habits and circumstances. The latest WHO recommendation for the types of foods to given to infants and young children emphasizes the importance of animal source foods, vegetables and fruits and legumes that are of an appropriate consistency for the child's age. The WHO recommends minimizing cereal foods made from staples.

Some experts recommend that vegetables be introduced first, because children usually have a harder time accepting them, unlike fruits, whose sweet taste they prefer. Both the first vegetables and the first fruits should have a neutral taste (potatoes, carrots, zucchini; apples, pears).

When first starting on solid foods, it is not so important how much the infant eats (milk is still his/her basic food), what matters is that the child get accustomed to new tastes and feeding methods. At first, offer the child tiny amounts of food (1-2 teaspoons) so that she gets used to the taste, texture and feeling of food in the mouth.

At the age of 7-8 months, the child should be given a variety of foods from at least five of the eight food groups every day (fruits, vegetables, meat, milk and dairy products, legumes, nuts and seeds, whole grain cereals).

2. NUMBER OF MEALS PER DAY

Age-appropriate meal frequency:

Caregivers should increase the number of meals fed to children throughout the day as they get older. The appropriate number of feedings depends on the energy density of the food and the quantities consumed at each feeding. WHO recommends the following minimum meal frequency for an average healthy child:

- Two meals a day of solid, semi-solid or soft foods for breastfed infants aged 6–8 months;
- Three meals a day of solid, semi-solid or soft foods for breastfed children aged 9–23 months;
- Four meals a day of solid, semi-solid or soft foods (or milk feeds) for non-breastfed children aged 6–23 months, of which at least one meal must include solid, semi-solid or soft food.

Age-appropriate amounts:

Caregivers should introduce children to small amounts of food at first and increase the quantity of each meal gradually as the child gets older. The recommended age-appropriate amounts per meal for breastfed and non-breastfed children are as follows:

- Begin with 2–3 teaspoons of food and transition to about ½ cup per meal for children aged 6–8 months.

- Provide ½ cup per meal to children aged 9–11 months.
- Provide ¾ cup to 1 cup per meal to children aged 12–23 months.
- Provide ½ cup per meal to children aged 9–11 months.
- Provide ¾ cup to 1 cup per meal to children aged 12–23 months.

NOTE: 1 cup = 250ml

Age-appropriate food consistency:

The consistency of food should gradually evolve (from soft to semi-solid to solid) with age, according to the child's requirements and abilities. Young children move from eating mashed foods, to finger foods, to family foods by the time they reach their first year. Inappropriate consistency can compromise nutrient intake, as children may only be able to consume a trivial amount.

Safe preparation, storage and use:

Complementary foods should be hygienically prepared, stored and fed with clean hands, dishes and utensils. Caregivers should wash their hands with soap and practice good hygiene (including safe disposal of child's faeces) and proper food handling (including separating raw and cooked food). Food will spoil quickly after contact with germs; thus children should be fed from a separate serving dish, with any leftovers discarded. Exposure to unsafe food and water increases the risk of microbial contamination and leads to diarrhoea and nutrient loss. To avoid food spoilage and contamination from insects, animals and bacteria:

- Food should be covered; .
- Cooked food should not be left at room temperature for more than two hours;
- Food should be stored at low temperature (below 5°C) and preferably refrigerated;
- Raw and cooked food should be stored separately;
- Raw fruits and vegetables should be washed with clean water and stored in a cool place.

3. NUTRITIONAL VALUE OF MEALS

Nutrient density: Young children have limited stomach capacity and must therefore eat small, nutrient-rich meals to maximize the nutrition in each bite. Examples of nutrient-dense local foods include meat, eggs and other animal-source foods and legumes, such as groundnuts. Cereals or plant-based porridges may appease hunger, but alone they do not provide sufficient energy, protein and micronutrients to fill the gap between breastmilk and the child's nutrient requirements. The quality of fat in children's diets is important: Long-chain-polyunsaturated fatty acids – especially omega 3 fatty acids, which are found in fish (such as trout, mackerel and sardines), seafood, nuts, seeds, soy bean and plant oils – promote cognitive and motor development in children. Trans fats, often found in processed foods, should be avoided given their link to inflammation in children and chronic diseases in adults. Nutrient-rich and energy-rich foods should be fed in age-appropriate and not excessive portions.

Avoidance of foods and beverages of low nutrient value: Caregivers should avoid providing drinks or foods with low nutritional value, such as sugar-sweetened beverages, candy, chips and other foods high in sugar, salt and trans fats. These 'junk' foods contribute little more than energy, while displacing breastmilk and decreasing the child's appetite for more nutritious foods. The consumption of sugar-sweetened beverages by young children is associated with increased weight gain, body mass index (BMI) and risk of overweight and obesity. Fruit juices, especially processed ones, should also be consumed in moderation as they are often rich in added sugars. Commercial complementary foods tend to have the same (sweet) taste and texture, and when consumed regularly, can make children less interested in trying family foods and experiencing new tastes and textures.

Avoidance of added sugars: In many contexts, caregivers add sugar to foods and beverages prepared at home to improve the taste. Sugar can contribute to excess energy intake and cause dental caries. The consumption of sweet foods also contributes to a preference for such foods, with the potential to set lifelong taste preferences for sugar.

Every day, parents are tasked with providing meals for their infant and making sure that the infant's growth and development needs are adequately met. Additional concerns are caused by children who are fussy eaters and who, to the dismay of their parents, will not even taste the carefully planned, prepared and balanced meals offered by their parents.

Children accept sweet fruit purées readily, which is not the case with vegetables, so combining vegetables with cereals is a clever way to overcome this problem. In situations when it is important for the child to take in as many different nutrients as possible in one meal, mixing and combining different foods is very convenient. Often, this is a way to improve the flavour and texture of the meal, so the baby will be more likely to eat it.

4. THE "MULTIMIX" PRINCIPLE OF PREPARING A MEAL FOR THE INFANT

This method teaches us how to combine foods from different food groups to create nutritionally balanced meals.

When more foods are introduced into the baby's diet, the knowledge, patience, will, and imagination of the parents will determine how they plan a daily menu. The multimix principle is a guideline for combining the best foods, and it is useful for parents to accept at least the underlying elements of the multimix principle in combining two, three or four different non-milk foods.

These are the basic rules of the multimix principle:

1. In each combination, there must be at least one source of protein, either of animal or vegetable origin (legumes).
2. Vegetables are added to the mix of proteins and unprocessed cereals.

The multimix principle is divided into three individual categories: Mix 2, Mix 3 and Mix 4

MIX 2 is a combination of two types of foods: a) grains or potatoes and b) foods of animal origin or legumes. Mix 2 is recommended at the beginning of weaning when the child is becoming accustomed to new foods.

MIX 3 is a meal consisting of three food types: 1) grains or potatoes, 2) dark green or orange vegetables and c) foods of animal origin or legumes.

MIX 4 is the best quality combination of four foods from the following food groups: grains or potatoes, dark green vegetables, orange vegetables and animal-source foods (meat, eggs, fish) or legumes.

While it is definitely a good idea to adhere to the multimix principle as much as possible, the infant's diet must also be adjusted to the family's possibilities, both in terms of affordability and availability of fresh foods (seasonal, and available foods in the refrigerator).

How can these recommendations be applied in practice?

Parents should not be burdened with too much information and numbers. Offering them a balanced menu appropriate based on the child's age, the climate and season, is much more effective and user-friendly. Information about substitution for foods that are either unavailable or that the child persistently refuses, will also be valuable to the parents.

Self-assessment

What advice should you give to parents about healthy food choices for infants?

1. Why is seasonal food recommended?
2. Why is locally produced food recommended?
3. What are the benefits of home-made baby food?
4. Single foods or combinations of foods?
5. What kind of food combinations are recommended?
6. How many food groups should be in one meal?
7. Is any particular food absolutely essential for my child?

Recommended answers

1. Supermarkets and farmers' markets offer an ever-increasing supply of food from different parts of the world. There is a vast selection of seasonal fruits and vegetables that were previously only available in this region at a particular time of the year that are now grown artificially and are available all year round. Parents are ready to spend a significant amount of money for these fruits and vegetables, so that their child gets a high-quality, varied diet. When fruit is transported from distant countries, there is a risk of contamination, also, it contains various chemical substances that keep it fresh or speed up ripening. The further the country of origin of the fresh fruits or vegetables, the more unwanted substances. The longer it takes from picking to consuming, the greater the loss of valuable nutrients in foods.
2. For many generations, our bodies have adapted to the food eaten by our ancestors in this region. This does not mean we should not try new foods and introduce them into our diet (e.g., quinoa), but food that is not locally sourced should not be the first food that the child gets, nor should it be the predominant food in a child's menu.
3. Food prepared at home is the best choice for the infant; when you prepare food from fresh ingredients, you know exactly what you are giving your child. Industrial baby food jars are practical for feeding the baby outside the home, but often contain an excess of water, starch and sugar.
4. Each new food should be given to the child for three days in a row to ascertain whether the child enjoys it and whether any allergic reactions may occur. You can combine the new food with other foods that the child is already accustomed to.
5. When a few basic foods are introduced into the infant's diet, you may start combining them - milk and cereal, fruit and cereal, and meat and vegetable purées.
6. Avoid giving your child more than three types of food in one meal so that she gets used to the individual tastes.
7. No single food item is essential to the child's diet if unavailable or if the child will not eat it, and if it can be replaced with another one from the same group.

5. FINGER FOOD

Usually, infants show they are keen to feed themselves, and their independence should be encouraged from the beginning. Already starting at 7-8 months, the child should be allowed to pick up pieces of a banana, a ripe fruit, boiled apples or steamed vegetables (carrots, broccoli, pumpkin, cauliflower) at meals.

Between 9 and 12 months, toddlers can eat pieces of bread with butter or cheese, pieces of cooked pasta by themselves.

Take care of your child's safety!

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6. A VEGETERIAN DIET*

A vegetarian diet is a diet that consists of grains, fruits, vegetables, legumes, nuts, and seeds, and excludes foods of animal origin. There are several types of vegetarian foods and diets, depending on the foods included: lacto-vegetarian, lacto-ovo-vegetarian, vegan.

Breastfeeding is considered the best food for newborns and infants; breast milk provides all the essential nutrients that an infant needs in the first 6 months of life. The breast milk of vegetarian mothers contains everything the infant needs for optimal growth and development, provided that the mother is well-nourished. Vitamin B12, which is absent in a vegetarian diet, passes into breast milk if the mother takes yeast or supplements of this vitamin.

If the mother is not breastfeeding, soy-based infant formulas are the alternative choice for feeding infants in the first year of life for vegetarian families. These formulas contain vitamin D. It is recommended that iron be added to them unless they are already fortified with iron. Pure soy or rice milk cannot replace infant formulas or breastfeeding in this period because they do not contain the required amount of protein, fat and carbohydrates, nor do they have sufficient vitamins and minerals which are essential for the child in the first year of life.

A vegetarian diet requires very careful planning,19 in other words, the food must include all essential nutrients (proteins, calcium, iron, omega-3 fatty acids, vitamin B12,20 zinc) that children on a regular diet regime receive from foods of animal origin. The same principles of healthy eating apply to children on a vegetarian diet - they should get nutrients from all five food groups (protein, grains, fruits, vegetables and milk/dairy products or their substitutes).

Parents of children who are on a vegetarian diet should consult a paedriatrician/nutritionist to check whether the child needs iron, vitamin B12 or other supplements and in what form and quantity.[21]

A poorly planned vegetarian diet can have long-term consequences on growth and development.

** Additional information on vegetarian diets in children: Module on the nutrition of children aged 2-6 years, Annex 8*

7. THE DEVELOPMENT OF TASTE AND FOOD PREFERENCES

Infants have an innate preference for sweet (especially!) and salty foods, acquired through evolution. Rejection of bitter foods is also an innate response, which makes it difficult to introduce green leafy vegetables. *These predispositions can be modified through early introduction of different foods.* Parents play a key role in establishing healthy eating behaviours! Getting used to different foods starts while the baby is still nursing, and even before birth - the food the mother eats affects the taste and smell of amniotic fluid and breast milk.[14]

AMNIOTIC FLUID	BREAST MILK	COMPLEMENTARY FOODS
IN UTERO	EARLY INFANCY	OLDER INFACY

Think and consider

FREQUENTLY ASKED QUESTIONS	POSSIBLE ANSWERS
My child will not eat green vegetables. What should I do?	Infants have an innate aversion to bitter-tasting foods, which is why they often refuse to eat green vegetables. If the child does not immediately accept a new food, do not give it up.

Is there an easier way to introduce vegetables?	If offered a variety of vegetables early on, the child will accept them more readily. When offering a new vegetable, mix it with the food the child is already accustomed to (mother's milk or formula, cereals).
How to get kids to eat spinach?	Children have a harder time accepting green leafy vegetables, so, initially mix them with vegetables that the child is already accustomed to (potatoes, carrots).
How many times should I offer a food that the child does not like before I definitely give up?	Arm yourself with patience; sometimes it takes up to ten offerings of a certain food in order for them to get used to its smell and taste.
What else can help a child to accept new foods more readily?	Getting used to different foods starts while the baby is still nursing, and even before birth - the food the mother eats affects the taste and smell of amniotic fluid and breast milk!

8. ALLERGENIC FOODS

Some foods cause allergies more often than others (fish, egg whites, peanuts and other nuts, etc.). There have been attempts to overcome this increasingly frequent problem in children by delaying the introduction of these foods, but this strategy has not proven to be successful either. The same with gluten, the cause of celiac disease.

Self-assessment

Please answer the following true/false questions:

1. The introduction of foods containing gluten should be delayed until the end of the first year of life.
2. Fish, peanut butter and other nuts should not be given to the child in the first year of life.
3. An infant can eat eggs from 6 months of age.
4. Honey should not be given to children in the first year of life.
5. It is recommended that the introduction of allergenic foods be delayed in children with a positive family history of atopic diseases.

Answers:

1. FALSE - Gluten (one of the ingredients in wheat, rye and barley flour) should be introduced at the start of weaning, anywhere between 6 and 12 months. Avoid giving the baby substantial amounts of gluten foods in the first weeks when you start to introduce solid foods (wheat porridge). Earlier recommendations by the ESPHGAN association for the early introduction of gluten in breastfed children to protect them from the onset of allergies have not been confirmed in practice.
2. FALSE - Delaying the introduction of fish, peanut butter and other nuts is not recommended; the recommendations are the same as for other foods.
3. TRUE – Eggs can be introduced to infants from the age of 6months
4. TRUE - Honey should not be given in the first year of life because of the risk of botulism.
5. FALSE - There are no special recommendations for children with a positive family history of atopic diseases (eczema, allergic rhinitis, asthma); recommendations for the introduction of solid foods are the same as for all other children.

9. DO NOT FORGET WATER

Fully breastfed babies do not need any water until they start on solid foods. Water needs depend on the child's age, the number of meals, the amount and type of solid food, initially 60-120 ml per day, by the end of the first year 240 ml per day (one cup). Offer your child water frequently, you should not wait until he/she is thirsty!

Sweetened drinks, teas and diluted juices are not recommended.

Fruit juices SHOULD NOT BE GIVEN in the first 6 months and WHO does not recommend children drink fruit juices because they often contain significant amounts of sugar. Children with a higher intake of juices and other sweetened beverages sometimes do not eat enough quality food or consume too much of the so-called empty calories.

Teas can prevent the absorption of iron, which is especially important for the child at this age.

10. ADVICE FOR HEALTHY TEETH

Regular oral and dental care begins with the eruption of the first tooth. Teething coincides with the introduction of solid foods, so it is time to start thinking about dental health.

A "goodnight" bottle of milk or tea should not be used to help with baby sleep or settling.

The infant should start learning to use a cup from 8 months and should get rid of the nipple bottle as soon as possible (if the child is used to it).

Additional resources
Annex 1: Planning the infant's meals

Video clip

Is your baby ready to start eating foods?
https://www.youtube.com/watch?v=OTjmKmTVF6U&index=1&t=0s&list=PLNEN4w93BoO3zAE0xADCe8ij03N7ewPel

What is a good first food for your baby?
https://www.youtube.com/watch?v=DpucN2eNG8s&index=c1&list=PLNEN4w93BoO3zAE0xADCe8ij03N7ewPel

IV MEAL PREPARATION

1. ADVICE ON MEAL PREPARATION

Advice on the preparation of meals - recommendations for parents

Advice on the preparation of meals - recommendations for parents

Creating healthy habits	Salt and sugar SHOULD NOT BE ADDED to children's food in the first year of life, not only because of the short-term effect on health, but also because of the impact on the formation of a sweet and salty taste threshold later in life.
Preparation of fruits and vegetables	Always rinse and peel fruits and vegetables and remove seeds; pay special attention to washing fruits and vegetables that grow low, close to the ground.
How do we preserve vitamins in fruits and vegetables?	Boil fruits and vegetables briefly, in as little water as possible; use fresh fruits and vegetables immediately after peeling and chopping.
For how long can prepared food keep fresh?	Give babies freshly prepared food (prepared food can be kept in the refrigerator for up to 24 hours, and in the freezer for up to 2-3 weeks).
If you give your baby ready-made food...	Read the labels, check whether it is age and composition appropriate, whether it contains additives, artificial colours, flavours and sweeteners.
Can an infant have canned food?	Canned food is not recommended.

2. SAFE PREPARATION AND STORAGE OF FOOD

Additional resources
Annex 2: Safe preparation and storage of food

Reflection and discussion

Advice for families raising children in poor socio-economic and housing conditions*

The minimum that should be provided to the baby is porridge fortified with mashed cooked vegetables and a small amount of fat or oil.

Vitamin A protects the baby from infections and has a positive impact on the development of eyesight. It is found in mother's milk, in dark green leafy vegetables (add a few chard or spinach leaves to the porridge that the child receives), in orange and yellow fruits and in vegetables, eggs, and dairy products. It can also be given as a supplement, if necessary.

Mashed beans or an egg can replace the meat.

Children need iron-rich foods to improve their physical and mental abilities and to prevent anaemia. The best sources of iron are foods of animal origin - eggs, meat, liver and fish. You can ensure sufficient iron intake by giving the child iron-fortified foods (cereals or milk formulas for children that receive supplementation or formula), or through iron supplementation.

The child should be given freshly prepared cooked food at least once or twice a day, and the rest of the meals can be light, no-cook meals - fruit, bread, bananas.

Mother's milk is also the perfect, clean, "quick" meal.

** Facts for Life. Produced by UNICEF, WHO, UNESCO, UNFPA, UNDP, UNAIDS, WFP and the World Bank.*

As the child's food and fluid intake increases, the risk of diarrhoea also increases significantly. Bacterial contamination of food is the most common cause of diarrhoea and other diseases that cause loss of nutrients and energy essential for growth and development. Good hygiene, clean water and proper preparation and storage of food (and utensils) are crucial factors of disease prevention.

When sick, the child should be given extra fluids and encouraged to eat regularly, while breastfed children should be breastfed more frequently. After an illness, the child needs more food than usual to compensate for the losses.

Most families are willing to do everything they can for their children, but for change to happen, it is not enough to tell a parent what to do. It is especially important to discuss with the parents the specific situation at home and the resources available to the family. If you listen to the family and get all the information you need from them, you will be in a better position to offer suggestions that the family may try to implement (see Module 16 for more on this).

Additional resources
Annex 3: What to do when the child is not making sufficient progress?

3. THE INFANT'S INDEPENDENCE

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As children grow, they gradually develop the skills they need to feed themselves and it is important that their parents/caregivers support them in this process. Feeding is a learning process and also about building the child's self-confidence.

Learning to eat independently is an important milestone in the development of the child for several reasons. Children will start eating independently, which is a skill they will need later when they start kindergarten and school. By touching, kneading or throwing food they develop fine motor skills and learn to use a spoon, they get the opportunity to learn more about the taste, texture, smell and temperature of food (for example, they will learn picking up a piece of fruit is easier than picking up yogurt or spaghetti).

When they start getting solid food, children will try to grasp the spoon or take food from the plate by themselves. It is normal for children to want to eat by themselves and they should be encouraged to do so, despite the huge mess that they leave after a meal.[18]

Reflection and discussion

ADVICE FOR PARENTS

The use of the spoon

Most children will not be able to feed themselves with a spoon until around 18 months of age. Regardless, you should allow your child to start using a spoon much earlier; most children will show they are ready by constantly trying to grab the spoon.

Advice: Feed your baby with one spoon while she holds the other. It is best if the baby uses plastic cutlery in the beginning.

The use of the cup

At 6 months, the baby is ready to start drinking from a cup. Just like when they learn to eat, this can be a long and messy process.

- Give the child a small cup made of unbreakable plastic that is easy to grasp and hold.
- Let the child just play with the cup at first, to get used to the feeling of the cup in their hands.
- The first few times, help the child by holding the cup while they bring it to the mouth.
- Pour only a small amount of liquid at first.
- When sharing a meal, drink from the cup and show the child how to do it; children like to imitate adults.

How to deal with the mess

The period in which the child starts learning to self-feed may be stressful for the parents, this is why parents need to be patient and make time for the meal.

- Give the child a small cup made of unbreakable plastic that is easy to grasp and hold.
- Put a bib on your toddler.
- Place a plastic mat or newspapers under the feeding chair.
- Cut food into pieces that the child can easily pick up.
- Allow your child to eat with their hands.

It is normal for a child to throw food on the floor. If you react to that, the child could end up thinking it is a fun new game. One of the ways to handle this problem is to ignore the child and peacefully collect the food from the floor, without getting upset. Alternatively, you can leave the food on the floor and clean up after the meal.

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Tips for parents

Follow the recommendations on the time and method of introducing solid foods, as well as the basic recommendations on the choice of foods, the method of preparation, the recommended portion size and the method of feeding. Patiently overcome any obstacles; do not let child feeding become a source of concern and frustration and a “battlefield”.

4. CHILD SAFETY

Keeping children safe must be a top priority for all families! The introduction of solid foods brings new risks for the child. Draw the parents' attention to this aspect of feeding as well!

Counselling parents on safe child feeding practices

- Avoid berries such as grapes, cherries and raisins, crisps, raw carrots, salty snacks like Cheetos Peanut, peanuts and popcorn in the first year of life. All these foods can cause a child to choke!
- Take care of the temperature of food and drinks; do not heat baby food in the microwave as it may heat unevenly.
- Never leave a child unsupervised at mealtime

Self-assessment

What parents find confusing (traps to avoid)

Too much information	Parents really do not need detailed recommendations on daily intake of calories and nutrients, expert information on various nutrients and their role; such recommendations only increase their concerns about whether the child has a balanced diet.
Conflicting advice	Often conflicting advice on the recommended intake of milk, water, etc.
New recommendations	The "trend" of the early introduction of foods that are not grown locally but imported from other regions and cultures.
Inappropriate ads for children's food.	The WHO and other relevant international organizations highlight this as one of the major obstacles to the adequate introduction of solid foods.
Aggressive promotion of supplements	Parents are overwhelmed by ubiquitous commercial recommendations for supplements - vitamins, multivitamins, probiotics - by manufacturers or healthcare practitioners.

V LITERATURE AND ADDITIONAL RESOURCES

BASIC LITERATURE

1. WHO Guideline for complementary feeding of infants and young children 6-23 months of age
2. Global strategy for infant and young child feeding Publication date: 2003
3. Complementary feeding: A Position Paper by the ESPHGAN Committee on Nutrition, JPGN Volume 64, Number 1, January 2014.
4. WHO. Guidance on ending the inappropriate promotion of foods for infants and young children: Implementation manual Publication date: 2017
5. WHO. Global nutrition targets 2025: Infographic Policy Brief highlighting key messages and recommended activities related to: stunting, anaemia, low weight at birth, breastfeeding, overweight, wasting. https://www.who.int/publications/i/item/WHO-NMH-NHD-14.2
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7. UNICEF, SEE/CIS Region, Resources on early childhood development. http://www.unicef.org/ceecis/early_childhood_1467.html
8. First foods videos (Complementary feeding) / Available in English, French and other languages on UNICEF and Global and Health Media website https://www.unicef.org/nutrition/102823_The%20video%20series.html https://www.youtube.com/watch?v=MM380ou7rS4
9. E-learning course on IYCF 'Investing in Child Nutrition' - developed by Alive & Thrive in collaboration with UNICEF and other global experts - available in English and French www.iycfhub.org
10. Educational interventions for improving primary caregiver complementary feeding practices for children aged 24 months and under Arikpo D, Edet ES, Chibuzor MT, Odey F, Caldwell DM. Cochrane Database of Systematic Reviews. 2018; Issue 5. Art. No.: CD011768.
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5. Birch, L.L., & Doub, A.E. (2014). Learning to eat: Birth to age 2y. American Journal of Clinical Nutrition, 99(3), 7235-7285. doi: 10.3945/ajcn.113.069047

ADDITIONAL RESOURCES

1. UNICEF publications, brochures, posters https://www.unicef.org/serbia/materijali
2. Early childhood: a period of unlimited possibilities. Module for the training of home visiting nurses https://www.unicef.org/serbia/podrska-porodicama-za-podsticajnu-negu-dece-ranog-uzrasta
3. Leaflet on Infant Nutrition https://www.unicef.org/serbia/sites/unicef.org.serbia/files/2018-07/Ishrana_odojceta.pdf
4. Leaflet on the Introduction of complementary food https://www.unicef.org/serbia/sites/unicef.org.serbia/files/2018-07/Uvodjenje-nemlecne-ishrane.pdf
5. Advice flash cards: Nutrition of infants and small children https://www.unicef.org/serbia/sites/unicef.org.serbia/files/2018 07/Kartice_ishrana_odojcadi_i_male_dece.pdf
6. Poster https://www.unicef.org/serbia/sites/unicef.org.serbia/files/2018-07/10-koraka-do-odgovornog-hranjenja.pdf

ANNEXES

VI

ANNEX 1: PLANNING THE INFANT'S MEALS

PLANNING THE INFANT'S MEALS - ADVICE FOR PARENTS

BREASTFED INFANTS

6 months

From around 6 months of age, the infant will need complementary foods, besides mother's milk, for healthy growth and development. Breast milk is still the infant's basic food, along with two meals consisting of non-milk foods. At the beginning of the introduction of complementary foods, it is recommended that the baby be breastfed first (later on, milk will come after the solid food meal).

The baby's first solid food could be a fruit, vegetable or meat purée, depending on the family's habits and circumstances. Moreover, according to the latest recommendations, children who have been exclusively breastfed for six months should first receive meat or porridge fortified with iron and zinc, because at that age they are deficient in these minerals.

Some experts recommend that vegetables be introduced first, because children usually have a harder time accepting them, unlike fruits, whose sweet taste they prefer. Both the first vegetables and the first fruits should have a neutral taste (potatoes, carrots, zucchini; apple, pear). Although banana is often recommended as the first fruit, its sweet taste can make the subsequent introduction of other, salty foods more difficult.

When first starting on solid foods, it is not so important how much the infant will eat, what matters is to accustom the child to new tastes and feeding methods. At first, offer the child tiny amounts of food (1-2 teaspoons) to get them accustomed to the taste, texture and feeling of food in the mouth.

7–9 months

At the age of 7-9 months, the child should get a varied diet on a daily basis. It is important that the child receive iron-rich foods and avoid certain foods until the end of the first year.

At this age, mother's milk is still the most important food for an infant and provides half of the infant's energy needs. Solid food cannot replace milk in the infant's first year of life. At the beginning of the introduction of non-milk foods, it is advisable to breastfeed the baby first (later on, the child will be breastfed after the non-milk meal).

The child needs three additional meals. The general recommendation is for them to have animal source foods and vegetables at each meal.

The amount of food is gradually increased - at this age, a child is usually given 2-4 tablespoons, i.e., half a cup. These are just tentative recommendations; children's needs in terms of the food quantity they need differ and depend on the build, physical activity, growth spurts, and family habits. Children eat less when they are sick, when their teeth are growing, etc.

Food prepared at home is the best choice for an infant; when food is prepared from fresh ingredients, you know exactly what the child is getting, and salt and sugar intake is restricted. Industrial baby food jars are practical for feeding the baby outside the home, but often contain an excess of water, starch and sugar.

The baby's menu

The child should be offered a variety of foods for each meal. Throughout the day, the child should receive food from at least five basic food groups: meats, fish and eggs, vegetables, fruits, milk and dairy products, whole grain cereals and other foods rich in protein (e.g., legumes).

Special attention should be paid to foods containing iron: iron-fortified infant cereals, meat, fish, eggs and legumes (beans, peas, lentils). It is important that the child receive food of animal origin; for a child that was exclusively breastfed in the first 6 months, food of animal origin should be introduced as soon as possible and should be given to the child on a daily basis. Food of animal origin should be well cooked and finely chopped; children can eat eggs (yolks), meat and fish prepared in this way even before their teeth come out.

Infants have high energy and nutritional needs, but a limited stomach capacity. That is why it is important that the child eat nutrient-dense foods, so that even by eating tiny amounts, the child will get the proteins, high-quality fats, vitamins, minerals, micronutrients, such as iron and zinc, and fibres that they need. Food of thicker consistency is given priority over soups.

It is recommended that the child get at least one new food every week. You can combine the new food with other foods that the child is already accustomed to. You may combine milk with grain, fruit with grain, or meat with vegetables. Avoid more than three types of food in one meal so that the child gets used to the individual tastes.

10–12 months

At this age, mother's milk is still the most important food for an infant and provides half of the infant's energy needs. Solid food cannot replace milk in the infant's first year of life.

In addition to breast milk, at least twice a day, the child needs four additional meals: breakfast, lunch, dinner and 1-2 snacks. The recommended amount at the end of the first year is 4-6 tablespoons of fruit or vegetables, one quarter of a fruit, up to two tablespoons of meat or fish, half a cup of cereals or pasta. The recommendations do not mean that every child must eat that much food. Every child has unique needs, and the appetite varies when the child is sick, or when its teeth are coming out, etc.

As we already emphasized, food prepared at home is always the best choice for the infant. Although ready-made foods for infants are subject to strict rules and control, parents should always check the ingredients on labels and declarations if they opt for commercial food.

The baby's menu

By now, the baby has tried a variety of foods, so the parent's job is simple; parents should still stick to the daily meal offer that provides the baby with foods from all five basic food groups: grains, fruits, vegetables, milk and dairy products, meat, eggs, fish, and other foods rich in protein (e.g., legumes).

Food of animal origin should be well cooked and finely chopped; children can eat eggs (yolks), meat and fish prepared in this way even before their teeth come out.

You may give the child additional healthy snacks once or twice a day.

The "multimix" principle of preparing a meal for the infant.

This method teaches us how to combine foods from different food groups to ensure nutritional balance. Many parents feel more confident if they can rely on support in planning meals for their child. The multimix principle of meal preparation allows them to be confident in their choice of food, and at the same time to be creative in making meals that their baby will love.

When more foods are introduced into the baby's diet, the knowledge, patience, will, and imagination of the parents will determine how they plan a whole day's menu. The multimix principle is a guideline for combining the best foods, and it is useful for parents to accept at least the underlying elements of the multimix principle in combining two, three or four different complementary foods.

These are the basic rules of the multimix principle:

1. Carbohydrates are the basic building block and must be included in every combination.
2. In each combination, there must be at least one source of carbohydrates and proteins, either of animal or vegetable origin (legumes).
3. Vegetables are added to the combination of carbohydrates and proteins.

The multimix principle is divided into three individual categories: Mix 2, Mix 3 and Mix 4

MIX 2 is a combination of two types of foods: a) grains or potatoes and b) food of animal origin or legumes, for example:

- rice + fish
- potato + lentils
- potato + lentils
- corn + veal

Mix 2 is recommended when the infant is starting on solid foods and is getting accustomed to new foods.

MIX 3 is a meal consisting of three food types: 1) grains or potatoes, 2) dark green or orange vegetables and c) foods of animal origin or legumes, for example:

- rice + pumpkin + veal
- corn + spinach + egg yolk
- rice + carrot + beans
- potato + cauliflower + veal

MIX 4 is the best quality combination of four foods from the following food groups: grains or potatoes, dark green vegetables, orange vegetables and animal-source foods (meat, eggs, fish) or legumes, for instance:

- rice + spinach + carrot + egg yolk
- potato + peas + carrot + chicken
- rice + chard + carrot + fish
- potato + chard + pumpkin + fish

While it is definitely a good idea to adhere to the multimix principle as much as possible, the infant's diet must also be adjusted to the family's circumstances, both in terms of affordability and availability of fresh foods (depending on the season, and the food available in the refrigerator).

Finger foods

Already starting at 7-8 months, at mealtime the child should be allowed to pick up pieces of a banana, a ripe fruit, boiled apples or steamed vegetables (carrots, broccoli, pumpkin, cauliflower).

Between 9 and 12 months, toddlers can eat pieces of bread with butter or cheese, muffins, pieces of cooked pasta by themselves.

Foods to be avoided in the first year of life

- Honey should not be given in the first year of life due to the risk of botulism.
- In the first year of life, cow's milk (or goat's or sheep's milk) is not recommended, because its composition does not meet the needs of the infant and can contribute to the development of anaemia. A small amount of cow's milk can be used to prepare porridges.
- Citrus fruits (lemon, orange, tangerine) are also not recommended in the first year.
- Salt, sugar and spices should not be added to baby food.
- Always take care of your child's safety: children should not be given peanuts, popcorn, small fruits or whole grapes or pieces of solid food that they could choke on.

FORMULA-FED BABIES

Recommendations for the nutrition of formula-fed infants are similar to those for breastfed children in terms of food selection, meal preparation, feeding methods and respect for the child's needs. All babies older than six months need solid foods.

Formula-fed babies should start solids a little earlier, at around 5 months of age (but not before 17 weeks and not after 24 weeks of age). Infant formula no longer meets the nutritional needs of the infant, and the infant is starting to show interest in other food. From 5 months, the baby's gastrointestinal, renal, as well as motor functions are sufficiently developed to be able to eat semi-solid and solid foods.

Milk

Breastfed babies who receive supplementation and formula-fed babies continue with the appropriate milk formula for their age and need 400-500 ml of milk per day (two cups). Cow's milk is not recommended in the first year of life, because its composition does not correspond to the needs of the infant and can contribute to the development of anaemia.

Dairy products (yogurt, sour milk, young cheese) are an excellent source of protein and calcium and can be given starting from the 7th or 8th month. Exceptional care should be taken to safely store dairy products because they spoil easily and usually have a short shelf life.

Plant-based drinks (soy, rice or almond milk) are not recommended as a base milk for infants because they do not meet their nutritional needs.

6–8 months

Babies who are not breastfed need the same amount of food and snacks as babies who are breastfed, with the addition of one meal and two cups of milk each day.

After 6 months, give your baby 2-3 cups of water a day, especially when the weather is warm. Until one year of age, the infant should be given boiled and cooled water.

9–11 months

Babies who are not breastfed need the same amount of food and snacks as babies who are breastfed, with the addition of one meal and two cups of milk each day. Infants should be offered water frequently!

ANNEX 2: SAFE PREPARATION AND STORAGE OF FOOD*

HYGIENE

- Wash your hands before touching food and wash them frequently during food preparation.
- Wash your hands after going to the toilet, changing the baby's diapers or touching animals. Thoroughly wash all surfaces and utensils used to prepare or serve food.
- Protect your kitchen and food from insects, vermin and other animals.

SEPARATE RAW AND COOKED FOOD

- Separate raw meat, poultry and seafood from other foods.
- Use special utensils and accessories (e.g., knives and cutting boards) to cut raw food.
- Store food in closed containers to avoid contact between raw and prepared food.

COOK THE FOOD LONG ENOUGH

- Cook the food long enough, especially meat, poultry, eggs and seafood.
- Bring soups and stews to a boil. When cooking meat and poultry, ensure juices run clear, not pink.
- Reheat cooked food long enough. Heat it until boiling point or until it is too hot to touch. Stir the cooked food while reheating.

STORE FOOD AT SAFE TEMPERATURES

- Cooked food should not be left at room temperature more than 2 hours.
- Do not store food for too long, even in the refrigerator.
- Do not thaw frozen food at room temperature.
- Ideally, food for infants and young children should be prepared immediately before eating and not stored at all after cooking.
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WATER AND RAW INGREDIENTS SHOULD BE SAFE FOR USE

- Use clean water or treat it to make it safe to use.
- Choose fresh and healthy ingredients.
- Use pasteurized milk.
- Wash fruits and vegetables with clean water, especially if they are eaten raw.
- Do not use food after the expiration date.

** Adapted from the Food Safety Unit, WHO, Geneva 2001, WHO/SDE/PHE/FOS 01.1*

ANNEX 3: WHAT TO DO WHEN THE CHILD IS NOT MAKING SUFFICIENT PROGRESS?*

If the child is not making sufficient progress over a period of one or two months, they may need bigger meals, more nutritious foods, or more frequent meals. The child may be sick and in need of more attention and care or help with eating at mealtime. Parents and healthcare practitioners need to act quickly to identify the cause of the problem and take steps to solve it.

Here are some important questions you should ask to help identify growth and development issues:

- **Does the child eat often enough?** In addition to breastfeeding, a child aged 6-8 months needs 2-3 additional meals, and from 9 months 3-4 meals of other food. Additional nutritious snacks, e.g., a piece of fruit or bread with a healthy spread may be needed 1-2 times a day. Children with developmental delays or disabilities sometimes need extra help and feeding time.
- **Does the child get enough food?** A child aged 6-8 months needs 2-3 teaspoons of food initially, and the amount should be gradually increased to half a cup (of 250 ml) per meal at the age of 9-12 months.
- **Do the child's meals contain enough calories and nutrients?** Foods that promote growth include beans, nuts, meat, fish, eggs, dairy products, grains and legumes. It is essential that the child be given foods of animal origin every day. A small amount of oil can provide extra energy. High quality "growth food" is extremely important to ensure proper growth in weight and height. Foods such as highly processed fatty foods or sugary snacks are not rich in vitamins, minerals and other important nutrients and can lead to excessive weight gain without commensurate growth in height.
- **Does the child refuse to eat?** If the child does not like the taste of a certain food, they should be offered another food. New foods should be introduced gradually.
- **Is the child sick?** A sick child should be encouraged to eat small meals, more frequently. The child should be breastfed more frequently. After an illness, a child needs to eat more than usual to compensate for lost weight, energy and nutrients. If the child is often sick, seek the help of a doctor.
- **Does the child get enough foods containing vitamin A?** Breast milk is rich in vitamin A. Other sources of vitamin A are liver, eggs, dairy products, yellow and orange fruits and vegetables, and green leafy vegetables. If children do not get these foods in sufficient quantities, they should be given supplementation (tablets or syrup every 4-6 months).
- **Does the child receive formula from a bottle?** If the child is fed with formula, it is recommended that a clean cup be used instead of a nipple bottle.
- **Is the food stored in a clean and safe way?** If this is not the case, the child will often be sick. Clean water from a safe source should be used for washing and cooking raw food. Cooked food should be eaten immediately; leftovers should be stored carefully and reheated properly before eating.
- **Is clean water available?** Clean water is extremely important for children's health! Water should be obtained from a safe source and safely stored in closed containers that are clean inside and out.
- **After using the toilet, do you wash your hands with soap and water** or a substitute for soap (e.g., ash)?
- **Is the child often alone or left to the care of older children?** Adults should give the child more attention and interaction, especially during mealtimes.

** Facts for Life. Produced by UNICEF, WHO, UNESCO, UNFPA, UNDP, UNAIDS, WFP and the World Bank.*