Feeding Infants

A Guide for Use in the Child Nutrition Programs

United States Department of Agriculture
Food and Nutrition Service
FNS-258

NOTE TO THE READER ON USING THIS GUIDE

This guide is intended primarily for use by those who care for and feed infants under 12 months of age and participate in the Child and Adult Care Food Program (CACFP). This information will also be useful to those in facilities that participate in the U.S. Department of Agriculture's (USDA) other Child Nutrition Programs serving infants, i.e., National School Lunch Program (NSLP), School Breakfast Program (SBP), and Summer Food Service Program (SFSP). The guide presents information on infant development, nutrition for infants, breastfeeding and formula feeding, safe food handling and food preparation, choking prevention, and some of the Infant Meal Pattern requirements to help caregivers meet the challenge of nurturing and feeding the infants under their care.

This guide is designed to provide nutrition guidance and is not inclusive of all current Food and Nutrition Service (FNS) policy memoranda, FNS Instructions, or program regulations relating to infants in Child Nutrition Programs. Providers and staff should contact their State agency for the most up-to-date policies and Infant Meal Pattern. The Infant Meal Pattern is used by caregivers and the term "caregiver" refers collectively to the different types of facilities—including schools, residential child care institutions, child care centers, family day care homes, and homeless shelters—that provide meal services to infants in the Child Nutrition Programs. The word "parent" is used to refer to an infant's parent or guardian.

Be aware that State agencies may establish policies that differ from the Federal requirements presented in this guide. Always check with your State agency if you have questions.

The figures found throughout the text are in black and white so that they can be easily reproduced and used as handouts. We encourage use of these handouts as part of training sessions. They can also be distributed to child care providers, parents, or others who are responsible for feeding infants.

Every effort has been made to ensure the accuracy of the information in this guide. The recommendations and guidelines in this publication are not designed to serve as an exclusive nutrition care plan or program for all infants. It is highly recommended that caregivers obtain written instructions related to feeding an infant from the parent and, if available, from the infant's doctor, and that this information be kept on file. It is the caregiver's responsibility to evaluate the appropriateness of the recommendations and guidelines in this guide given the information received from each infant's parents and doctor. If caregivers have questions regarding the appropriateness of any recommendations or guidelines for a particular infant, they should consult with the parents, who can consult with the infant's doctor.

We are interested in your comments on this guide. Please help us by completing the Reader Response Form on the next page.

READER RESPONSE

Feeding Infants: A Guide for Use in the Child Nutrition Programs

Dear Reader: Please take a few minutes to complete this form, tear it out, fold, seal it with tape, and mail it. Although not mandatory, your response will help us evaluate the usefulness of this guide. Thank you!

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2: Infant Development			
3: Feeding Breastfed Infant			
4: Feeding Infant Formula			
5: How to Feed Using A Bottle			
6: Preventing Tooth Decay			
7: Feeding Solid Foods			
8: Drinking From A Cup			
9: Choking Prevention			
10: Sanitary Food Preparation			
11: Commercial Baby Food			
12: Home-Prepared Baby Food			
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___ As a resource in talking with parents about feeding babies
___ As a resource in planning training sessions for caregivers
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1 Introduction

Good nutrition is essential to the rapid growth and development that occurs during a baby's first year. Providing babies with the right foods will promote good health and give them the opportunity to enjoy new tastes and textures as they establish good eating habits. Also, feeding can help babies establish warm relationships with their parents and caregivers. Positive and supportive feeding techniques are essential in allowing babies to eat well and to develop healthy attitudes toward themselves and others.

During the first year, babies' mouths develop from being able only to suck and swallow to being able to chew. Their digestive tracts mature from being able to take in only liquids, such as breastmilk or formula, to being able to receive a wide variety of foods. And at the same time, they progress from needing to be fed toward feeding themselves. As babies continually mature, their food and feeding patterns must continue to change.

This guide will help you appropriately feed the babies in your care as they change and develop. It answers some of the common questions on infant development, nutrition for babies, feeding practices, food preparation, safe food handling, and choking prevention.

The parents will also give you important information to help you in feeding their babies. **You should communicate frequently with them so that you can coordinate what the babies are being fed at home with what you feed them while in your care.** In this way you can assure the best care for the babies.

2 Infant Development & Feeding Skills

A baby's developmental readiness determines which foods should be fed, what texture the foods should be, and which feeding styles to use. All babies develop at their own rate. Although age and size often correspond with developmental readiness, these should not be used as sole considerations for deciding what and how to feed babies. It is important to be aware of babies rapidly developing mouth patterns and hand and body control so that you know the appropriate food and texture to serve them and the appropriate feeding style to use at each stage of their development, as shown in Figures 1 and 2.

Figure 1 summarizes the development of a baby's mouth patterns and hand and body control and how these affect both the baby's ability to eat foods of different textures and how the food is fed. The ability of newborn babies to only suck and swallow liquids is due to their limited level of development and the way their mouths are designed. As babies mature, they are able to begin learning to eat infant cereals and strained solid foods from a spoon. Eventually they are able to feed themselves small pieces of food by hand and later by spoon.

The rate at which each baby progresses to each new food texture and feeding style is determined by the baby's own skills and attitudes. Some babies are cautious, others venturesome. Babies always do better if they are supported in progressing at their own rate. As shown in Figure 1, there is an overlap of ages to allow for differences in development.

Figure 1 describes different reflexes involved in feeding and eating. Some of these reflexes are defined as follows:

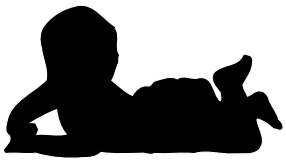
- **Rooting reflex**—When a baby's mouth, lips, cheek, or chin are touched by an object, the head and mouth turn towards the object and the baby opens its mouth. This reflex allows a baby to seek out and grasp a nipple.
- **Suck/swallow reflex**—After opening the mouth when baby's lips and mouth area are touched, suckling or sucking movements begin. As liquid moves into the mouth, the tongue moves it to the back of the mouth for swallowing.
- **Tongue thrust reflex**—When the lips are touched, the baby's tongue moves out of the mouth. This reflex allows for feeding from the breast or bottle but not from a spoon or cup.
- **Gag reflex**—When an object, such as a spoon or solid food, is placed way back in the mouth, the object is quickly moved back out of the mouth on the tongue. This reflex is one reason for waiting until a baby is 4 to 6 months old to feed solid foods.

These reflexes may be stronger or weaker, or last longer than normal, in babies who are delayed in their development.

Figure 1

Sequence of Infant Development and Feeding Skills in Normal, Healthy Full-Term Infants*

DEVELOPMENTAL SKILLS

Baby's Approx. Age	Mouth Patterns	Hand and Body Skills	Feeding Skills or Abilities
Birth through 5 months	• Suck/swallow reflex • Tongue thrust reflex • Rooting reflex • Gag reflex	• Poor control of head, neck, trunk • Brings hands to mouth around 3 months	• Swallows liquids but pushes most solid objects from the mouth
4 months through 6 months 	• Draws in upper or lower lip as spoon is removed from mouth • Up-and-down munching movement • Can transfer food from front to back of tongue to swallow • Tongue thrust and rooting reflexes begin to disappear • Gag reflex diminishes • Opens mouth when sees spoon approaching	• Sits with support • Good head control • Uses whole hand to grasp objects (palmer grasp)	• Takes in a spoonful of pureed or strained food and swallows it without choking • Drinks small amounts from cup when held by another person, with spilling
5 months through 9 months	• Begins to control the position of food in the mouth • Up-and-down munching movement • Positions food between jaws for chewing	• Begins to sit alone unsupported • Follows food with eyes • Begins to use thumb and index finger to pick up objects (pincer grasp)	• Begins to eat mashed foods • Eats from a spoon easily • Drinks from a cup with some spilling • Begins to feed self with hands
8 months through 11 months	• Moves food from side-to-side in mouth • Begins to curve lips around rim of cup • Begins to chew in rotary pattern (diagonal movement of the jaw as food is moved to the side or center of the mouth)	• Sits alone easily • Transfers objects from hand to mouth	• Begins to eat ground or finely chopped food and small pieces of soft food • Begins to experiment with spoon but prefers to feed self with hands • Drinks from a cup with less spilling
10 months through 12 months	• Rotary chewing (diagonal movement of the jaw as food is moved to the side or center of the mouth)	• Begins to put spoon in mouth • Begins to hold cup • Good eye-hand-mouth coordination	• Eats chopped food and small pieces of soft, cooked table food • Begins self-spoon feeding with help

**Developmental stages may vary with individual babies. See the Bibliography, page 93, for references used to develop this chart.*

Figure 2

Feeding the Baby For the First Year

Babies grow quickly during the first year of life and make many changes in the types of foods and textures of foods they are able to eat. As babies grow and develop, watch for the following signs which will tell you when they are ready for a new food.

BABIES AGE:	WHEN BABIES CAN:	SERVE:
Birth through 3 Months	• Only suck and swallow	**LIQUIDS ONLY** • Breastmilk • Infant formula with iron
4 months through 7 months	• Draw in upper or lower lip as spoon is removed from mouth • Move tongue up and down • Sit up with support • Swallow semisolid foods without choking • Open the mouth when they see food • Drink from a cup with help, with spilling	**ADD SEMISOLID FOODS** • Infant cereal with iron • Strained vegetables* • Strained fruit* **may be started later in the age range*
8 months through 11 months	• Move tongue from side to side • Begin spoon feeding themselves with help • Begin to chew and have some teeth • Begin to hold food and use their fingers to feed themselves • Drink from a cup with help, with less spilling	**ADD MODIFIED TABLE FOODS** • Mashed or diced soft fruit • Mashed or soft cooked vegetables • Mashed egg yolk • Strained meat/poultry • Mashed cooked beans or peas • Cottage cheese, yogurt, or cheese strips • Pieces of soft bread • Crackers • Breastmilk, iron-fortified formula, or fruit juice in a cup

3 Feeding the Breastfed Baby

Breastmilk is the best food for babies. It is the only food a baby needs during the first 4 to 6 months of life, and it continues to be an important source of nutrients for the first year. Breastmilk contains the right balance of nutrients to meet the baby's needs and changes over time. Breastmilk is easy to digest and contains natural substances that help protect babies from infection and food allergies. Babies fed breastmilk tend to have fewer illnesses. Breastfeeding also benefits the mother by:

—helping her body recover from pregnancy and get back into shape more quickly,
—saving her time and money, and
—possibly protecting her against breast cancer.

By causing certain hormones to be released into the mother's body, breastfeeding brings feelings of relaxation and well-being to the mother. Breastfeeding also builds a special closeness between a mother and her baby.

Consult with your State agency for more information on reimbursement for meals containing breastmilk. For more information on how to help breastfeeding mothers with babies in child care, refer to FNS' "Breastfed Babies Welcome Here" packet. This packet includes an attractive poster, a guide for child care providers, and a mother's guide. This packet is available, at a small cost, from:

NFSMI
University of Mississippi
Attn: Sales Department
P.O. Drawer 188
University, MS 38677-0188
Phone: 1-800-321-3054
Website: http://www.olemiss.edu/depts/nfsmi

Supporting Breastfeeding Mothers

Encourage breastfeeding mothers to continue breastfeeding when returning to work or school. Babies in child care who are breastfed may be:

- breastfed by their mothers during visits to the facility,
- bottle-fed their mother's expressed breastmilk by the caregiver, and/or

- bottle-fed the type of infant formula prescribed by the baby's doctor while at child care (caregivers should feed formula **only** if the mother requests its use with her baby).

To help the mother breastfeed successfully:

- If she wishes to breastfeed her baby when she comes to the facility, offer or provide her a:
  - —Quiet, comfortable, and private place to breastfeed (this helps her milk to letdown),
  - —Place to wash her hands,
  - —Pillow to support her baby on her lap while nursing,
  - —Nursing stool or stepstool for her feet so she doesn't have to strain her back while nursing, and
  - —Glass of water or other liquid to help her to get enough fluid for nursing.
- Encourage her to get the baby used to being fed her expressed breastmilk by another person before the baby starts in child care.
- Discuss with her the baby's usual feeding schedule and whether she wants you to time the baby's last feeding so that the baby is hungry and ready to breastfeed when she arrives. Ask her to leave her schedule with you and ask her to call if she is planning to miss a feeding or is going to be late.
- Encourage her to provide a back-up supply of frozen or refrigerated expressed breastmilk in case the baby needs to eat more often than usual or her visit is delayed.
- Share with her information about other places in the community that can answer her questions and concerns about breastfeeding.
- Give her a copy of the "Mother's Guide" from the "Breastfed Babies Welcome Here" packet and discuss it with her.

Use of Breastmilk for Babies Over 12 Months of Age

Some parents may request that the caregiver continue feeding their babies breastmilk after 12 months of age. Continue to serve babies their mother's milk as long as the mother is able and wishes to provide it. Mothers who wish to continue providing breastmilk for their babies older than 12 months of age can do so without having to submit a medical statement. Breastmilk is a substitute for cow's milk in the meal pattern for children.

Guidelines on Storing, Handling, and Feeding Breastmilk

Breastmilk needs to be stored and handled safely to keep it from spoiling. Follow the specific health and safety regulations that are required by your State and local authorities for safe food handling. General tips for handling breastmilk follow.

Handling of Breastmilk Before Arriving at the Facility

Ask mothers to:

- Store their breastmilk in the refrigerator or freezer right after they express it and label the bottles with:
  - —the baby's name, and
  - —the date and time the breastmilk was collected.
- Store the milk in hard plastic bottles if possible because these are unbreakable.
- Fill the bottles with the amount of breastmilk the baby usually drinks at one feeding. Some babies may consume less than 4 ounces at a feeding. The mother can freeze some bottles with 1 to 2 ounces of breastmilk for times when the baby wants some extra breastmilk.
- Carry bottles of fresh or frozen breastmilk to the facility in a cooler with an ice pack to keep the milk at a cold temperature.

Handling and Storing Breastmilk at the Facility

- Breastmilk from a mother is designed specially to meet the needs of her baby. If more than one baby or child is drinking from bottles, make sure that each bottle is clearly labeled with the respective baby's or child's name and never accept an unlabeled bottle from a parent. Do not use unlabeled bottles that have been accidentally accepted.
- Refrigerate bottles immediately when they arrive and until ready to use.
- Use bottles of breastmilk only for the baby for whom they are intended.
- To prevent spoiling, do not allow bottles of breastmilk to stand at room temperature.

- Use refrigerated bottles of fresh breastmilk, kept at 40° Fahrenheit or below, within 48 hours from the time they were collected. Throw out unused breastmilk if not used within 48 hours. Although some suggest that fresh breastmilk can be stored for longer than 48 hours, the 48-hour period assures safety.
- Breastmilk can be stored in a freezer (with a separate door from the refrigerator), for up to 3 months from when it was collected. Freezer temperature should be 0° Fahrenheit or below. If the freezer is not working or if there is a power failure, frozen milk may thaw out and become spoiled before 3 months. See page 74 on checking the temperature of your freezer.
- Rotate frozen breastmilk, using the oldest milk first.
- Protect breastmilk in an air-tight container (hard plastic bottles are recommended) while in the freezer. Once the breastmilk is removed from the freezer and thawed, refrigerate it at 40° Fahrenheit or below and use it within 24 hours; do not refreeze it.
- Do not save and reuse breastmilk leftover from bottles.
- Wash skin on which breastmilk has spilled with soap and water immediately.

Preparing and Using Stored Breastmilk for Feeding

- Wash your hands, as described on page 71.
- Thaw a bottle of frozen breastmilk in the refrigerator or hold it under running cold water. Thaw only as much frozen breastmilk as you think a baby will need for a feeding.
- Do not thaw frozen breastmilk at room temperature, by heating on a stove, or in a microwave. Liquid may become very hot when microwaved even though the bottle feels cool. The hot liquid could seriously burn babies. Also, heating damages special substances in breastmilk that protect baby's health.
- If breastmilk has a bad odor after thawing, it may have spoiled and should be thrown out.
- Once thawed, do not refreeze breastmilk.
- For those babies who prefer a warm bottle, hold the bottle under running warm (not hot) water immediately before

feeding the baby. Warm only as much breastmilk as you think a baby will need for a feeding. Feed breastmilk immediately after warming.

- Shake the bottle of breastmilk before feeding the baby because breastmilk separates into two layers when it is stored.
- After a feeding, throw out any unused breastmilk left in a bottle and wash the bottle with soap and hot water immediately.
- Follow the baby's lead in the amount of breastmilk to feed. Feed the baby until he or she is no longer hungry.

Cleaning Bottles

- Clean and sanitize bottles and their parts before reusing or filling with new expressed breastmilk as shown in Figure 4a, Steps 1-4 on page 29 in Chapter 4 on Preparing Formula. Throw out disposable nursing bags, if used, after each use.

See Figure 3 on how to store, handle, and feed breastmilk, on pages 20-21.

Figure 3

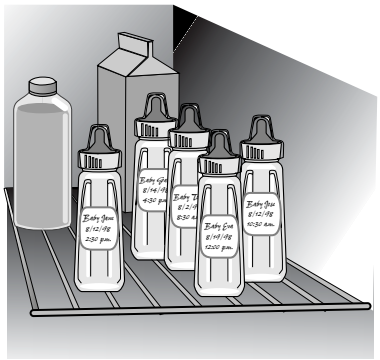
How to Store, Handle, and Feed Breastmilk

Breastmilk needs to be stored and handled safely to keep it from spoiling. Follow health and safety regulations required by your State and local authorities for safe food handling. Here are general tips for handling breastmilk:

Handling of Breastmilk Before Arriving at the Facility

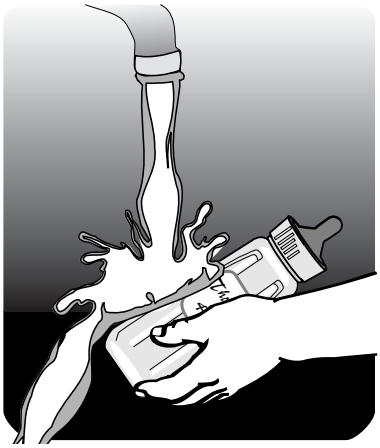
Ask mothers to:

- Store their breastmilk in the refrigerator or freezer right after they collect it and label the bottles with:
  —the baby's name, and
  —the date and time the breastmilk was collected.
- Store the milk in hard plastic bottles if possible because they do not break.
- Fill the bottles with the amount of breastmilk the baby usually drinks at one feeding. The mother can freeze some bottles with 1 to 2 ounces of breastmilk for times when the baby wants some extra breastmilk.
- Carry bottles of fresh or frozen breastmilk to the facility in a cooler with an ice pack to keep the milk at a cold temperature.



Handling and Storing Breastmilk at the Facility

- Breastmilk from a mother is designed specially to meet the needs of her baby. Make sure that each bottle is clearly labeled with the correct baby's or child's name. Never accept an unlabeled bottle from a parent.
- Refrigerate bottles immediately when they arrive and until ready to use.
- Use bottles of breastmilk only for the baby for whom they are intended.
- To prevent spoiling, do not allow bottles of breastmilk to stand at room temperature.
- Use refrigerated bottles of fresh breastmilk, kept at 40° Fahrenheit or below, within 48 hours from the time they were collected. Throw out unused breastmilk if not used within 48 hours.
- Breastmilk can be stored in a freezer (with a separate door from the refrigerator), for up to 3 months from when it was collected. Freezer temperature should be 0° Fahrenheit or below. If the freezer is not working or if there is a power failure, frozen milk may thaw out and become spoiled before 3 months. Rotate frozen breastmilk, using the oldest milk first.
- Protect breastmilk in an air-tight container (hard plastic bottle) while in the freezer. Once the breastmilk is removed from the freezer and thawed, refrigerate it at 40° Fahrenheit or below and use it within 24 hours; do not refreeze it.
- Do not save and reuse breastmilk leftover from bottles.
- Wash skin on which breastmilk has spilled with soap and water immediately.



Preparing and Using Stored Breastmilk for Feeding

- Wash your hands well (see Figure 10 on "Hand Washing Tips").
- Thaw a bottle of frozen breastmilk in the refrigerator or hold it under running cold water. Thaw only as much frozen breastmilk as you think a baby will need for a feeding.
- Do not thaw frozen breastmilk at room temperature, by heating on a stove, or in a microwave. Liquid may become very hot when microwaved even though the bottle feels cool. The hot liquid could seriously burn babies. Also, heating damages special substances in breastmilk that protect baby's health.

Figure 3 (continued)

How to Store, Handle, and Feed Breastmilk

- If breastmilk has a bad odor after thawing, it may have spoiled and should be thrown out.
- Once thawed, do not refreeze breastmilk.
- For those babies who prefer a warm bottle, hold the bottle under running warm (not hot) water immediately before feeding the baby. Warm only as much breastmilk as you think a baby will need for a feeding. Feed breastmilk immediately after warming.
- Shake the bottle of breastmilk before feeding because breastmilk separates into two layers when it is stored.
- Follow the baby's lead in the amount of breastmilk to feed. Feed the baby until he or she is no longer hungry.
- After a feeding, throw out any unused breastmilk left in a bottle and wash the bottle with soap and hot water immediately.
- Clean and sanitize bottles and their parts before reusing or filling with new expressed breastmilk (See Figure 4a, Steps 1-4 for more information). Throw out disposable nursing bags, if used, after each use.

IMPORTANT STEPS TO PREVENT BABIES OR CHILDREN FROM DRINKING ANOTHER CHILD'S BOTTLE OF EXPRESSED BREASTMILK:

- Make sure that parents clearly label each child's bottle of breastmilk with the child's name and date and time expressed. Only use a bottle labeled for the correct child.
- Never accept an unlabeled bottle from a parent.
- Do not use any unlabeled bottles that have been accidentally accepted.
- Do not leave any bottles of expressed breastmilk sitting around so that other babies or children could accidentally drink them.
- After a feeding, throw out any unused breastmilk left in a bottle and wash the bottle with soap and hot water immediately. Do not leave the bottle anywhere where other children can reach it.
- Do not let babies or children carry around bottles (or cups) of expressed breastmilk. If a child drops a bottle, pick it up immediately, place it out of reach of other children, and clean up any spilled breastmilk with soap and water.
- At the end of the day, send all bottles that contained expressed breastmilk home with the parent who brought the bottles. Never leave used bottles sitting around.
- If a child has been mistakenly fed or has drunk from another child's bottle of expressed breastmilk, follow the newest guidance from the Centers for Disease Control and Prevention (CDC) for steps to take (check CDC's web site at http://www.cdc.gov).

Recent guidance from CDC on safe handling of breastmilk is in: "*The ABCs of Safe and Healthy Child Care: A Handbook for Child Care Providers*," Department of Health and Human Services, U.S. Public Health Service, Centers for Disease Control and Prevention, 1996. This publication can be downloaded through the above web site or obtained by writing to:

Office of Health Communication
National Center for Infectious Diseases
Centers for Disease Control and Prevention
Mailstop C-14
1600 Clifton Road
Atlanta, GA 30333

4 Feeding Infant Formula

The decision about which infant formula to feed a baby is one for the baby's doctor and parents to make together. Thus, consult with parents on the brand of formula prescribed by the baby's doctor for each baby in your care. Caregivers must offer an iron-fortified infant formula in order to obtain reimbursement unless breastmilk is provided. The baby's parent can decide to decline the infant formula offered and bring formula from home. A caregiver should ask the parent what kind of formula is being sent to the facility in home-prepared bottles and make sure the bottles are labeled with the baby's name, and the date and time the formula was prepared.

Iron-fortified infant formula is required to meet the meal pattern. In choosing iron-fortified formula, make sure the formula label says "with iron" or "iron-fortified." Soy-based, lactose-free milk-based, and specialized formulas are prescribed for a baby by a doctor and are used specifically for a medical problem. When one of these formulas has been prescribed, only that type of formula should be fed to the baby. If a baby's doctor indicates that a baby should be fed a special formula or a low-iron formula, a written statement from a doctor or other recognized medical authority must be on file at the facility in order for the formula to be reimbursable. The statement should specify the medical or other special dietary need that requires a different formula, the formula to be omitted, and the formula that may be substituted. See below for information on different types of formula.

Iron-Fortified Infant Formulas

Iron-fortified infant formula is the best food for the baby when he or she is not being breastfed or when a supplement to breastfeeding is needed. Iron-fortified infant formula is specially formulated to have the right balance of nutrients and to be easily digested by the baby. Iron is a very important nutrient during the baby's first year and serving iron-fortified infant formula is the easiest way to ensure adequate intake of iron. Some people may avoid iron-fortified formula because they think that the iron causes stomach aches and intestinal problems, but studies show that iron-fortified formula does not cause these symptoms.

Low-Iron Infant Formulas

Formula labels that say "low iron" do not meet the meal pattern. These formulas may be served only as a dietary substitution if an infant is unable to consume iron-fortified infant formula because of medical or other special dietary needs. These substitutions can be made only when supported by a statement from a recognized medical authority that indicates the recommended infant formula.

Follow-up Formulas

Follow-up formulas are designed for older babies and toddlers who are consuming solid foods and are not intended for dietary use as a sole source of food for babies. A statement from a recognized medical authority may be required under certain circumstances in order to serve these formulas to infants.

Exempt Infant Formulas

Exempt infant formulas are special infant formulas that are intended for use by babies who have an inborn error of metabolism or low birth weight or who otherwise have an unusual medical or dietary problem. Many of these formulas are iron-fortified, but still require a statement from a recognized medical authority for meals to be reimbursed.

Contact the State agency if you have questions about the types of infant formula that are approved or need a medical statement to be served in the Infant Meal Pattern.

Other Milks

The following milks are **not** recommended for babies less than 12 months of age and are **not** reimbursable in the Infant Meal Pattern:

- cow's milk,
- evaporated cow's milk or home-prepared evaporated cow's milk formula,
- sweetened condensed milk,
- goat's milk,
- soy milk (usually called soy beverage), or
- imitation milks, including those made from rice or nuts (such as almonds) or nondairy creamer.

These milks do not contain the right amounts of all the nutrients that babies need and can harm a baby's health. Breastmilk is the most ideal for a baby and iron-fortified infant formula is the best substitute for breastmilk.

Water Used to Mix Concentrated or Powdered Infant Formula

If concentrated or powdered infant formula is prepared by the caregiver, he or she must ensure that the water used to mix the formula is from a source approved by the local health department. If there is doubt, the local health department should be asked to test the water to see if it is safe and does not contain anything that might harm a baby or child, such as lead, bacteria, nitrate, pesticides, or other chemicals. If the water is not safe for a baby to drink, the local health department should recommend a safe source of water to use or ready-to-feed formula can be used. Always sterilize the water used to mix with concentrated or powdered formula by bringing cold water to a very bubbly boil, boiling it for 1 to 2 minutes, and then allowing it to cool. Excessive boiling (over 5 minutes) is not recommended because it can concentrate lead and nitrate in the water. If tap water is used, collect only cold tap water for boiling by letting the cold tap run for 2 minutes and then collect the water; this procedure tends to reduce the amount of lead in the water should the pipes contain lead.

Use of Infant Formula for Babies Over 12 Months of Age

Some parents may request that the caregiver continue feeding their babies infant formula after 12 months of age. A transition time of 1 month (from the date an infant turns 12 months to 13 months of age) is permitted during which a medical statement is not required. If a parent requests that the caregiver continue to serve infant formula beyond the age of 13 months, a statement from a recognized medical authority needs to be on file.

Purchasing, Storage, Sanitary Preparation, and Handling of Infant Formula

Infant formula needs to be purchased, stored, prepared, and handled properly in order to be safe for a baby. Follow the specific health and safety regulations that are required by your State and local authorities for safe food handling. General tips for use of infant formula follow. See Figures 4a, 4b, and 4c for preparation checklists on how to prepare standard ready-to-feed, liquid concentrate, and powdered iron-fortified infant formula using sanitary methods.

Purchasing Cans of Formula

- Ready-to-feed formula is the most convenient and sanitary.
- If you are preparing liquid concentrate or dry powdered formula, it must be mixed very carefully according to directions on the container (Figures 4a, 4b, and 4c include preparation checklists for these standard, not special or exempt, infant formulas).

Adding too little water to formula puts a burden on the baby's kidneys and digestive system and may lead to dehydration. Adding too much water to formula may interfere with the baby's proper growth because it does not contain adequate calories and nutrients and can cause water intoxication.

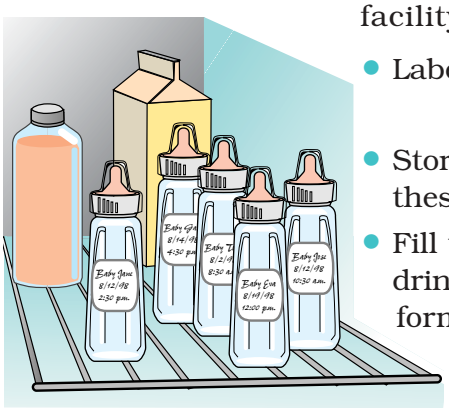
- Instructions on using special formulas should be provided by the baby's doctor.
- Make sure the label says "with iron" or "iron-fortified."
- Do not purchase cans of infant formula that have dents, bulges, pinched tops or bottoms, puffed ends, leaks, or rust spots. The formula in such cans may be unsafe.
- Check the formula's expiration date on the lid or label to make sure the product is not too old. If the expiration date has passed, the nutrient quality of the formula may have deteriorated and you should not select the can.

Storing Cans of Formula

- Before using stored formula, check the expiration date on the lid or label to make sure the product is not too old. If the expiration date has passed, throw out the can.
- Store unopened cans of infant formula in a cool, dry indoor place—not in a refrigerator or in vehicles, garages, or outdoors (in these places, the cans are exposed to water and temperature extremes which can rust the can or affect the quality of the formula).

Handling of Formula Prepared By Parents

If parents prepare formula themselves and bring it to the facility, ask them to:



- Label the bottles with:
  - –the baby's name
  - –the date and time the formula was prepared.
- Store the formula in hard plastic bottles if possible because these are unbreakable.
- Fill the bottles with the amount of formula the baby usually drinks at one feeding. Some bottles with 1 to 2 ounces of formula can be prepared for times when the baby wants some extra formula during the day.
- Carry bottles of formula to the facility in a cooler with an ice pack to keep it at a cold temperature.

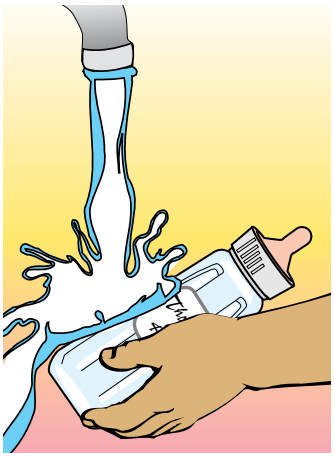
Preparing Formula

- Clean and sanitize your workspace (see page 73).
- Wash your hands with soap and warm water (see page 71).

- Wash all equipment (nipples, bottles, rings, and caps) in hot soapy water and scrub, using bottle and nipple brushes.
- Rinse all equipment well in hot water.
- Disinfect nipples, bottles, rings, and caps by boiling for 5 minutes in a pot with enough water to cover, then remove with sanitized tongs, let cool, and air dry.
- If disposable plastic bottle liners are used:
  - —Throw out the bag after one use; and
  - —Clean and sterilize the nipples, rings, and caps, as described above.
- Before opening a formula can, wash can lid with soap and clean water and rinse to remove dirt that could contaminate the formula. Before using, wash the can opener with soap and hot water.
- Prepare the formula properly according to directions on the formula container. See Figures 4a, 4b, and 4c for a checklist of instructions for preparing standard ready-to-feed, liquid concentrated, or powdered iron-fortified infant formula.
- Put a clean nipple right side up on each bottle and cover with a nipple cap.
- Do not put cereal or other food in a bottle because this interferes with the baby's natural ability to obtain the right amount of calories, forces the baby to eat cereal, and may cause the baby to choke. Feeding cereal does not affect baby's ability to sleep.

Storing Bottles of Formula

- Make sure the bottles are labeled with the baby's name and the date and time the formula was prepared. Use bottles of formula only for the baby for which they are intended.
- Refrigerate prepared bottles until ready to use and use them within 48 hours from the time they were prepared. Store in the back of the refrigerator (colder area).
- To prevent spoiling, do not allow prepared bottles of formula to stand at room temperature. Do not feed a baby a bottle left out of the refrigerator for 1 hour or longer. Throw out prepared formula not used within 48 hours.
- Opened cans of formula should be covered, refrigerated, and used within 48 hours. Throw out formula that is not used within 48 hours.
- Do not freeze infant formula.
- Throw out any unused formula left in a bottle after a feeding and rinse the bottle in cool water to remove formula. Do not reuse a bottle containing formula after the baby has fed from it.



The mixture of formula with baby's saliva promotes the growth of disease-causing germs.

- Clean and sanitize bottles and their parts before reusing them, as described in *figures* 4a, 4b, and 4c.

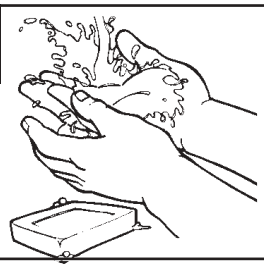
Warming Infant Formula

- For babies who prefer a warm bottle, warm the bottle immediately before feeding by holding it under running warm water. Warm only as much formula as you think the baby will need for a feeding.
- Always test the temperature of the liquid before feeding to make sure it is not too hot or cold. Shake the bottle well and test the temperature by squirting a couple of drops of the liquid onto your wrist or back of your hand. The temperature is correct when it feels neither warm nor cold.
- **Never use a microwave oven to heat the bottles—This is dangerous.** Liquid may become very hot when microwaved even though the bottle feels cool. The hot liquid could seriously burn babies. Covered bottles, especially vacuum-sealed, metal-capped bottles of ready-to-feed formula, can explode when heated in a microwave.

Figure 4a

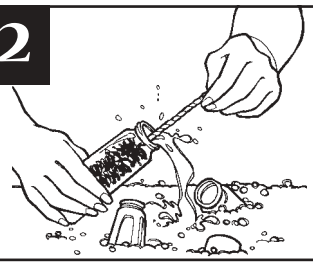
Preparation Checklist for Standard Ready-to-Feed Iron-fortified Infant Formula (using glass or hard plastic bottles)

1



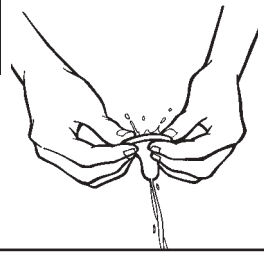
Wash your hands, arms, and under your nails, very well with soap and warm water. Rinse thoroughly. Clean and sanitize your workspace.

2



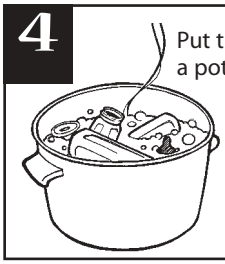
Wash bottles and nipples, using bottle and nipple brushes, and caps, rings, and preparation utensils in hot soapy water before using. Rinse thoroughly.

3



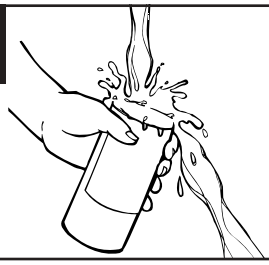
Squeeze clean water through nipple holes to be sure they are open.

4



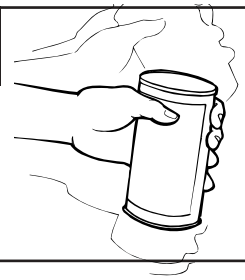
Put the bottles, nipples, caps, and rings in a pot and cover with water. Put the pot over heat, bring to a boil, and boil for 5 minutes. Remove with sanitized tongs, allow the items to cool, and air dry.

5



Wash the top of the can with soap and water and rinse well to remove dirt. Wash the can opener with soap and hot water.

6



SHAKE CAN WELL and then open the can.

7

Pour the amount of ready-to-feed formula for one feeding into a clean bottle. Do not add water or any other liquid.

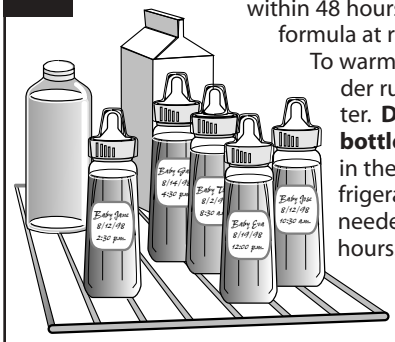
8

Attach nipple and cap and SHAKE WELL. Feed prepared formula immediately.

9

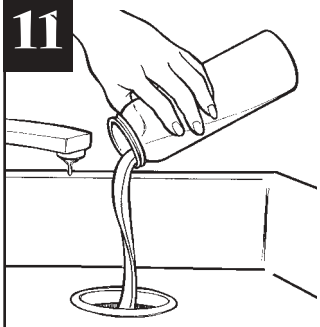
If more than one bottle is prepared, put a clean nipple right side up on each bottle and cover with a nipple cap. Label each bottle with the baby's name and the date and time that it was prepared.

10



Refrigerate until feeding time. Use within 48 hours. Do not leave formula at room temperature. To warm bottle, hold under running warm water. **Do not microwave bottles**. If formula is left in the can, cover and refrigerate open can until needed. Use within 48 hours.

11

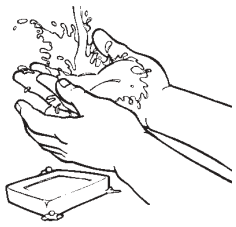


Throw out unused formula left in bottle after feeding or which has been unrefrigerated for 1 hour or more. Store unopened cans in a cool, dry indoor pantry shelf. Use before the expiration date.

Figure 4b

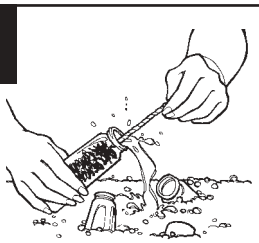
Preparation Checklist for Standard Liquid Concentrated Iron-fortified Infant Formula (using glass or hard plastic bottles)

1



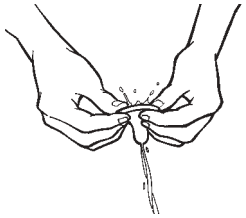
Wash your hands, arms, and under your nails, very well with soap and warm water. Rinse thoroughly. Clean and sanitize your workspace.

2



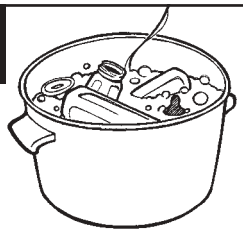
Wash bottles and nipples, using bottle and nipple brushes, and caps, rings, and preparation utensils in hot soapy water before using. Rinse thoroughly.

3



Squeeze clean water through nipple holes to be sure they are open.

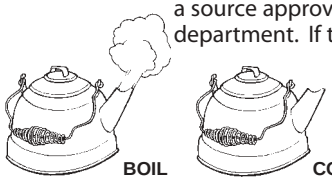
4



Put the bottles, nipples, caps, and rings in a pot and cover with water. Put the pot over heat, bring to a boil, and boil for 5 minutes. Remove with sanitized tongs, allow the items to cool, and air dry.

5

For formula, bring water to a very bubbly boil. Keep boiling it for a minute or two, then let it cool. Use this water to mix the formula. Use water from a source approved by the local health department. If tap water is used for boiling, collect only cold tap water allowed to run for 2 minutes first.



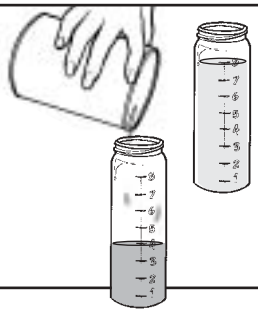
6

Wash the top of the can with soap and water and rinse well to remove dirt. Wash the can opener with soap and hot water.

7

SHAKE CAN WELL and then open the can.

8



Pour needed amount of formula into a clean bottle using ounce markings to measure formula and add an equal amount of cooled boiled water. Thus, if 4 oz. of formula is poured into the bottle, 4 ounces of water should also be added.

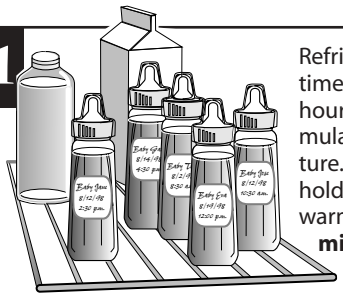
9

Attach nipple and ring to the bottle and SHAKE WELL. Feed prepared formula immediately. If formula is left in the can, cover and refrigerate can until needed. Use within 48 hours.

10

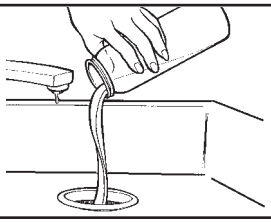
If more than one bottle is prepared, put a clean nipple right side up on each bottle and cover with a nipple cap. Label each bottle with the baby's name and the date and time that it was prepared.

11



Refrigerate until feeding time. Use within 48 hours. Do not leave formula at room temperature. To warm bottle, hold under running warm water. **Do not microwave bottles.**

12

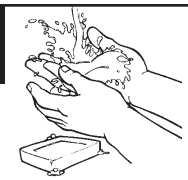


Throw out unused formula left in bottle after feeding or which has been unrefrigerated for 1 hour or more. Store unopened cans in a cool, dry indoor pantry shelf. Use before the expiration date.

Figure 4c

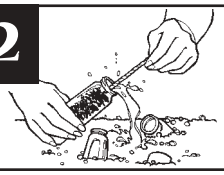
Preparation Checklist for Standard Powdered Iron-fortified Infant Formula (using glass or hard plastic bottles)

1



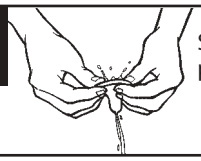
Wash your hands, arms, and under your nails, very well with soap and warm water. Rinse thoroughly. Clean and sanitize your workspace.

2



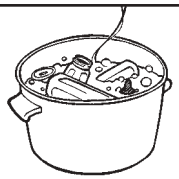
Wash bottles and nipples, using bottle and nipple brushes, and caps, rings, and preparation utensils in hot soapy water before using. Rinse thoroughly.

3



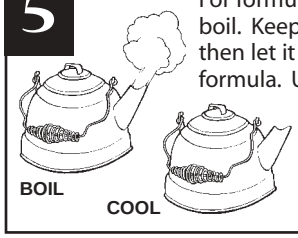
Squeeze clean water through nipple holes to be sure they are open.

4



Put the bottles, nipples, caps, and rings in a pot and cover with water. Put the pot over heat, bring to a boil, and boil for 5 minutes. Remove with sanitized tongs, allow the items to cool, and air dry.

5

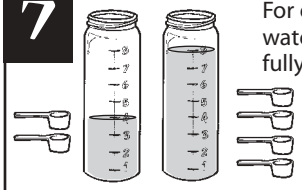


For formula, bring water to a very bubbly boil. Keep it boiling for a minute or two, then let it cool. Use this water to mix the formula. Use water from a source approved by the local health department. If tap water is used for boiling, collect only cold tap water allowed to run for 2 minutes first.

6

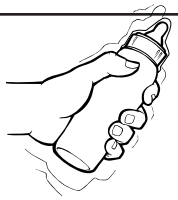
Remove plastic lid; wash lid with soap and clean water and dry it. Write date on outside of plastic lid. Wash the top of the can with soap and water, rinse well, and dry. Wash the can opener with soap and hot water. Open the can and remove scoop. Make sure that the scoop is totally dry before scooping out powdered formula. Only use the scoop that comes with the formula can.

7



For each 2 ounces of cooled boiled water added to a clean bottle, carefully add 1 level scoop of powdered formula. Thus, if 8 ounces of water is poured into the bottle, 4 level scoops of formula should be added.

8



Attach nipple and ring to the bottle and SHAKE WELL. Feed prepared formula immediately.

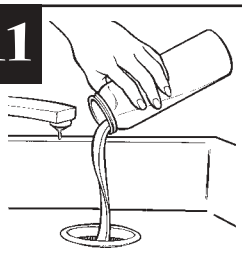
9

If more than one bottle is prepared, put a clean nipple right side up on each bottle and cover with a nipple cap. Label each bottle with the baby's name and the date and time that it was prepared.

10

Refrigerate until feeding time. Use within 48 hours. Do not leave formula at room temperature. To warm bottle, hold under running warm water. **Do not microwave bottles.**

11



Throw out unused formula left in bottle after feeding or which has been unrefrigerated for 1 hour or more.

12

Make sure that no water or other liquid gets into the can of powder. Cover opened can tightly and store in a cool dry place (not in the refrigerator). Use within 4 weeks after opening to assure freshness.

13

To be used again, the scoop should be washed with soap and hot water, rinsed thoroughly, and allowed to air dry. When making formula again, the scoop should be totally dry before using it to scoop powder out of the can. Store unopened cans in a cool, dry indoor pantry shelf. Use before the expiration date.

5 How to Feed a Baby Using a Bottle

Ensure that bottle feeding is sanitary. See Chapter 3, Feeding the Breastfed Baby, on the storage, handling, and feeding of breastmilk, and Chapter 4, Feeding Infant Formula, on the purchasing, storage, sanitary preparation, and handling of infant formula. Basic principles on feeding a baby using a bottle follow below and in Figure 5, page 38.

Preparing for Feeding

These steps are recommended when preparing for feeding:

- Wash your hands well with soap and warm water before feeding (see page 71 on hand washing).
- Gently and slowly calm and position the baby to get ready for feeding.
- Feed in a smooth and continuous fashion following the baby's lead on when to feed, how long to feed, and how much to feed. Avoid disrupting the feeding with unnecessary burping, wiping, juggling, and arranging.
- Make sure that if you hold the bottle upside down, falling drops from the nipple hole follow each other closely but do not make a stream (a stream means the nipple hole is too big). Also, adjust the nipple ring so that some air can get into the bottle to avoid a collapsing nipple.

Signs of Hunger

Feed a baby when he or she seems to be hungry, unless the parent provides written instructions indicating that the baby should be on a feeding schedule for medical reasons. A baby who is hungry may:

- wake and toss,
- suck on a fist,
- cry or fuss, or
- look like he or she is going to cry.

Respond to the early signs of hunger. Do not wait until the baby is upset and crying hard from hunger.

Signs of Fullness

Continue to feed a baby until he or she indicates fullness. Signs of fullness include:

- Sealing the lips together,
- A decrease in sucking,
- Spitting out the nipple,

- Turning away from the bottle, or
- Pushing the bottle away.

Some babies may eat less than the portions offered if they are not hungry. Never force a baby to finish what is in the bottle. Babies are the best judge of how much they need. Babies may want to eat less if they are not feeling well and more if they are going through a growth spurt.

How to Feed With a Bottle

When feeding a bottle, remember to:

- Hold the baby during feedings in the cradle of your arm, partially upright. This makes baby feel secure, helps you to read baby's cues, and helps to prevent the baby from choking during feeding. When the baby's head is a little higher than the rest of the body this prevents milk from backing up in the inner ear and causing an ear infection. Tip the bottle so that milk fills the nipple and air does not get in.
- Hold the bottle during feeding. Do not prop bottles for a baby. Propping means a young baby is given a bottle to drink by itself and the bottle is propped up (with a pillow, for example) so that it can flow into the baby's mouth. Propping a bottle can:
  - — cause choking and suffocation,
  - — possibly cause ear infections and baby bottle tooth decay, and
  - — deprive the baby of important cuddling and human contact.

Older babies may be fed a bottle while sitting up in a high chair. Always hold babies who cannot sit while bottle feeding.

Do not allow a baby to carry a bottle around. Babies who carry around a bottle can develop tooth decay, may drink too much liquid, and may share their bottles with other babies. The liquid in a bottle carried around for a long time can spoil. Carrying of glass bottles can be dangerous if the baby drops the bottle and it breaks.

Feed While Awake, Not Napping or Sleeping

Feed a baby while he or she is awake. Do not offer the bottle in bed at nap or sleep time. Allowing a baby to sleep

in a crib with a bottle can lead to choking, ear infections, tooth decay or other dental problems, and problems with speech later on.

Burping

Wait for the baby to stop drinking before burping. Burp by gently patting or rubbing the baby's back while the baby is resting on your shoulder or sitting on your lap. Do not be surprised if the baby brings up some milk along with the swallowed air or if the baby does not burp.

Drinking From a Cup

- You can start by offering breastmilk or infant formula from a cup when a baby reaches about 8 months of age. Babies usually consume less breastmilk or formula as their eating of solid foods and drinking from a cup increases.
- It is recommended to wean the baby off the bottle and onto a cup by about 12 to 14 months of age. See page 61 on weaning and on tips on drinking from a cup.

Sleeping or Resting Position Before or After Feeding

Ask the parents if the baby's doctor recommends that the baby be placed in a certain position after feeding. Doctors usually recommend placing babies on their backs to rest or sleep, unless there is some medical reason not to. Doctors and nurses believe that fewer babies will die of Sudden Infant Death Syndrome (SIDS) if most babies sleep on their back. However, especially if a baby was born with a birth defect, often spits up after eating, or has a breathing, lung, or heart problem, it is very important for the parent to check with the doctor about the best sleeping position.

The Back to Sleep Campaign recommends these tips that parents and caregivers can take to help lower the risk of SIDS:

- **Place a baby on his or her back to sleep, at nighttime and naptime.**
  This is the best way to reduce the risk of SIDS.
- **Place a baby on a firm mattress, such as in a safety-approved crib.**
  Don't put babies to sleep on soft mattresses, sofas, sofa cushions, waterbeds, sheepskins, or other soft surfaces.
- **Remove all fluffy and loose bedding from the sleep area.**
  Make sure you take all pillows, quilts, stuffed toys, and other soft items out of the crib.
- **Make sure the baby's face and head stay uncovered during sleep.**
  Keep the baby's mouth and nose clear of blankets and other coverings during sleep. Use sleep clothing with no other covering over the baby. If you do use a blanket or another covering, make sure the baby is "feet-to-foot" in the crib. Feet-to-foot means that the baby's feet are at the bottom of the crib, the blanket is no higher than the baby's chest, and the blanket is tucked in around the crib mattress.
- **Don't smoke before or after the birth of the baby.**
  Create a smoke-free zone around the baby. Make sure no one smokes around the baby.
- **Don't let the baby overheat during sleep.**
  Keep the baby warm during sleep, but not too warm. The baby's room should be at a temperature that is comfortable for an adult. Too many layers of clothing or blankets can overheat a baby.

The Back to Sleep Campaign is sponsored by the National Institute of Child Health and Human Development, the Maternal and Child Health Bureau, the American Academy of Pediatrics, the SIDS Alliance, and the Association of SIDS and Infant Mortality Programs. For more information about the Back to Sleep campaign, call toll-free 1-800-505-2742. Or write to: Back to Sleep/NICHD, 31 Center Drive, Room 2A32, Bethesda, MD, 20892-2425. The website is http://www.nichd.nih.gov/sids.

The U.S. Consumer Product Safety Commission (CPSC), an independent Federal agency, recommends that parents and caregivers take these precautions to prevent deaths or injuries to children in playpens:

- Before using a playpen, make sure it has not been recalled. Contact CPSC at 1-800-638-2772 or check the recalls section of CPSC's web site.
- Always put a baby down to sleep on his or her back in a playpen or crib with no soft bedding, such as quilts, comforters and pillows. This can help reduce the risk of SIDS and prevent suffocation.
- Use only the mattress provided by the manufacturer. Do not add additional mattresses in playpens. Children can suffocate in the spaces formed between mattresses or from ill-fitting mattresses.
- Check that the playpen is in good shape. Using a modified or improperly repaired unit can create hazards.
- Make sure the top rails of the units lock into place automatically. More than 1 million older playpens with top rails that had to be manually rotated into a locked position have been recalled.
- Do not use playpens with catch points, such as protruding hardware. More than 9 million older units with protruding hardware have been recalled.
- If using a mesh-sided playpen, make sure the mesh is less than 1/4 inch in size and that it is attached securely. This will help prevent strangulation.

For more information on playpen safety, visit the publications section (Children's Furniture) of CPSC's web site, http://www.cpsc.gov, or call (800) 638-2772. You can get free copies of CPSC's brochures and posters in English and Spanish, related to their "Sleep Safe/Play Safe" campaign, through the website or by writing to CPSC, Washington, DC 20207.

Figure 5

Tips on Feeding with a Bottle

Preparing and Storing Bottles:

- Ensure that bottlefeeding is clean and sanitary.
- Do not allow bottles of breastmilk or formula to stand at room temperature to prevent spoilage. Refrigerate prepared bottles until ready to use.
- For those babies who prefer a warm bottle, hold the bottle under running warm (not hot) water immediately before feeding.
- Shake a bottle of breastmilk before feeding because breastmilk separates when it is stored.

- **Never use a microwave oven to heat the bottles** because they may explode or the milk may get too hot. Since the liquid heats unevenly, it can be much hotter than it feels. Microwave heating can destroy special substances in breastmilk.
- Do not put cereal or other food in a bottle since this forces the baby to eat food this way.
- Throw out unused breastmilk or formula left in a bottle and wash the bottle with soap and hot water immediately. Clean and sterilize bottles before reusing them.

Feeding the Baby:

- Feed when the baby indicates hunger. Respond to the early signs of hunger. Do not wait until the baby is upset or crying from hunger.
- Gently and slowly calm and position the baby to get ready for feeding.
- Feed in a smooth and continuous fashion following the baby's lead on when to feed, how long to feed and how much to feed. Avoid disrupting the feeding with unnecessary burping, wiping, juggling and arranging.
- Always hold the baby during feedings. Tip the bottle so that milk fills the nipple and air does not get in. Propping a bottle can cause ear infections and choking, and it deprives the baby of important cuddling and human contact.
- Hold the baby's head a little higher than the rest of the body to prevent milk from backing up in the ear and causing an ear infection.
- Do not offer the bottle at nap time or let a baby carry a bottle around. Allowing a baby to go to sleep with a bottle may lead to tooth decay.
- Wait for the baby to stop eating before burping. Burp by gently patting or rubbing the baby's back while the baby is resting on your shoulder or sitting on your lap.
- Continue to feed until the baby indicates he or she is full. Signs of fullness include sealing the lips, decrease in sucking, spitting out the nipple, and turning from bottle or pushing bottle away.
- Never force a baby to finish what is in the bottle. Babies are the best judge of how much they need.
- Older babies may be fed a bottle while sitting up in a high chair.

Examples of Healthy Teeth and Early Childhood Caries (or Baby Bottle Tooth Decay)

Photograph of healthy teeth

Photographs below show teeth with mild to severe cases of early childhood caries

Photographs courtesy of: Dr. Norman Tinanoff, DDS, MS, Professor, University of Connecticut Health Center, School of Dental Medicine, Department of Pediatric Dentistry, Farmington, Connecticut

6 Preventing Tooth Decay

Baby bottle tooth decay, or early childhood caries, can occur when:

- Babies with teeth are regularly allowed to fall asleep with a bottle in their mouths. Less saliva is made in the mouth when a baby falls asleep, and liquid from the bottle can pool around the teeth.
- Babies are allowed to drink from a bottle (containing juice, sweet liquids, or formula) for long periods.

The sugar in juice, sweet liquids, and formula are used by bacteria in the mouth to produce acids which can cause serious tooth decay. See the photographs on the opposite page of healthy teeth and teeth with baby bottle tooth decay. To prevent tooth decay in babies:

- Feed only breastmilk or formula from a bottle.
- Do not feed juice from a bottle.
- Offer the bottle only at feeding time, not at nap time. If a baby falls asleep during feeding, move the baby around a bit to stimulate swallowing before putting the baby down to sleep.
- Do not leave a bottle in a baby's crib or playpen or prop bottles.
- Only give a baby a plain clean pacifier. Never give a baby a pacifier dipped in honey, syrup, sugar, or other sweet substance.
- Do not put water sweetened with honey, sugar, or corn syrup; soda pop; sweetened iced tea; sports drinks; sweetened gelatin water; juice drinks; or other sweetened drinks in the bottle or cup.
- Do not use a bottle of cold juice to soothe a teething baby's gums. Instead, offer a clean favorite rattle or teething ring that has been cooled in the refrigerator (not the freezer).
- Provide juice only in a cup (do not feed more than 4 ounces of fruit juice per day).
- Do not let a baby carry around and continuously drink from a bottle or sippy cup.
- Do not feed a baby sweetened foods, such as lollipops, sweet candies, candy bars, cookies, cakes, or sweetened cereals, or sticky sweet foods such as dried fruit.
- Gradually begin shifting bottle feedings to cup feedings any time between 6 and 12 months of age as the baby consumes more solid foods and drinks liquids from a cup. It is best to wean babies from a bottle to a cup by about 12 to 14 months of age.

Discuss the topic of cleaning the baby's gums and teeth with each baby's parents; they can consult with the baby's doctor about this subject.

7 Feeding Solid Foods

By age 4 to 6 months, most babies reach a point in their development when they can benefit from having foods other than breastmilk or infant formula added to their diets. This chapter reviews information on readiness for solid foods. communication with parents, food allergies and intolerances, and when and what foods to introduce.

Readiness for Solid Foods

During the first 4 to 6 months, a baby requires only breastmilk or iron-fortified infant formula. Babies' swallowing and digestive systems are not developmentally ready to handle solid foods until they are between 4 to 6 months of age. During this period the baby's tongue no longer pushes most solid objects out of the mouth. A baby's weight or age alone does not determine his or her readiness for solid foods. Each baby develops at a different rate. Babies begin to show their desire for food by opening their mouths and leaning forward.

Babies are mature enough to begin learning to eat from a spoon when they can:

- hold their necks steady and sit with support,
- draw in their lower lips as a spoon is removed from their mouths, and
- keep food in their mouths and swallow it rather than push it back out on their chins.

Babies show disinterest or fullness by:

- leaning back,
- turning away,
- pushing the food out of their mouths,
- sealing their lips together,
- playing with the food, and
- pushing the bottle or spoon away.

Solid Foods and the Infant Meal Pattern

When a baby is developmentally ready to accept them, solid foods must be served to make a reimbursable meal in the Child Nutrition Programs. Figure 8 shows how the Infant Meal Pattern corresponds with changes in food texture and feeding style during a baby's first year. Young babies, under 6 months of age, do not follow rigid schedules and may need to eat every $1^1/_2$ to 3 hours. Some older babies also will need to eat more frequently

and larger quantities than the specified feedings. **Babies should be fed when they are hungry and not restricted to a rigid schedule.** Meals in the Infant Meal Pattern are specified as a guideline only. It is important to avoid feeding solid foods before a baby is developmentally ready for them and before the parent, in consultation with the baby's doctor, has indicated to begin serving them. A caregiver can be reimbursed for a meal offered to a baby as long as he/she offers the baby the minimum serving size of the required meal components in the meal. The food offered does not have to be totally consumed by the baby for the meal to be reimbursable. Also, a meal is reimbursable as long as the required meal components in the respective meal are offered to the baby during the course of the day while the baby is in child care. Thus, for example, if a baby is not hungry for a meal component required at lunch, it can be offered as a snack when baby is hungry. Babies younger than 4 months of age should not be fed solid foods unless the baby's doctor authorizes them.

Communication With Parents About Baby's Eating

Good communication between the caregiver and the parents is essential for successful feeding in general, including when introducing solid foods. The decision to feed specific foods should be made in consultation with the parents. It is recommended that the caregiver be given written instructions on the introduction and feeding of foods from the parents and baby's doctor. Caregivers can use or develop a take home sheet for parents in which the caregiver records the food consumed, bowel movements and number of wet diapers, sleep patterns, and other important notes on the baby, each day. Continue to consult with each baby's parents concerning which foods they have introduced and are feeding. Then, the caregiver can follow that schedule of introducing new foods and more easily identify possible food allergies or intolerances. Let parents know what and how much their babies eat each day. Consistency between home and the child care setting is essential during the period of rapid change when babies are learning to eat solid foods.

In order to accommodate the needs of babies of parents from different cultures, it is important to learn about those cultures, including the foods they usually feed their babies. Thus, gather information from the parents on how and what they feed their babies and families. Resource publications on this subject include:

- "Cross-Cultural Counseling: A Guide for Nutrition and Health Counselors," FNS-250, 1986; available for loan from the Food and Nutrition Information Center, National Agricultural Library, USDA, phone: (301) 504-5719; e-mail address: fnic@nal.usda.gov.

- "Celebrating Diversity: Approaching Families Through Their Food," 1998; available for purchase from the National Maternal Child Health Clearinghouse, toll free phone 1-888-434-4MCH, web site: http://www.nmchc.org.

Food Allergy or Intolerance

Ask parents for a list of foods, if any, that each baby has reactions to or which should not be fed to the baby. To make it easier to identify a possible food allergy or intolerance when introducing new foods, it is recommended to follow and coordinate these steps with the parents:

- Introduce foods to a baby that have been previously introduced, with no problems, by the baby's parents;
- Introduce new foods one at a time;
- Introduce new foods gradually, for example, wait at least 1 week (7 days) between each new food;
- Introduce a small amount (e.g., about 1 to 2 teaspoons) of a new food at first (this allows a baby to adapt to a food's flavor and texture);
- Use single-ingredient foods at first to easily see how the baby reacts to each new food. Caregivers who are preparing foods at home for a baby and older children should separate the baby's portion before adding other ingredients; and
- Observe the baby closely for reactions after feeding a new food (see below on the types of reactions that babies can have). If there is a reaction, stop feeding the food and discuss this with the parents. Consult with the parents, who should contact their baby's doctor, before introducing that food in the future.

By following the above steps, a baby will have time to become acquainted with each new food. Also, it will be easier to identify foods that a baby has a reaction to, has trouble digesting, or refuses to eat.

A baby having an allergic or other reaction to food may have any one of these symptoms: diarrhea, vomiting, coughing and wheezing, congestion or stuffiness, ear infection, stomach pain, hives, skin rash, extreme irritability; or more severe reactions, like shock or difficulty breathing. If a baby has a severe reaction to a food, contact the rescue squad or Emergency Medical Service and his or her parents immediately.

Babies with Delayed Development

Babies' development does not always match their actual age. Babies may be developmentally delayed in their feeding skills due to:

- prematurity,

- multiple hospitalizations,
- low birth weight,
- failure to thrive,
- cleft lip or cleft palate,
- a medical condition, like Down's syndrome or cerebral palsy,
- neuromuscular delay,
- abuse or neglect, or
- not having eaten by mouth (i.e., fed only from a tube in the stomach or inserted in a vein) for a long time.

Parents of babies who are developmentally delayed due to prematurity or any one of the above conditions should have instructions from their baby's doctor concerning proper feeding. For such babies, it is vital that the caregiver follow the feeding instructions from the baby's doctor. If any portion of the instructions is unclear, it is the caregiver's responsibility to seek clarification. For more information about the special dietary needs or developmental delay of a baby, ask the parents to obtain additional information for you from the baby's doctor.

Babies with Special Dietary Needs

USDA regulations require school food authorities and institutions to make substitutions or modifications for babies whose disabilities restrict their diets, at no additional charge to the baby's household. For more information, see FNS-Instruction 783-2, Meal Substitutions for Medical or Other Special Dietary Reasons, and the publication, "Accommodating Children With Special Dietary Needs in the School Nutrition Programs: Guidance for School Food Service Staff." Your State agency can also provide you with guidance on accommodating babies with special dietary needs.

Feeding Solid Foods Too Early

Feeding solid foods too early may increase the risk that babies will:

- choke on the food,
- develop food allergies or intolerances, or
- consume less breastmilk or formula and not get enough calories and other nutrients for proper growth and development.

Feeding solid foods before babies are ready will not help them sleep through the night or make them eat fewer times in a day.

Feeding Solid Foods Too Late

Delaying the introduction of solid foods beyond the time when a baby is developmentally ready for them increases the risk that babies will:

- not learn to eat solid foods properly,
- become malnourished,
- develop iron-deficiency anemia, and
- not grow normally.

Most babies are ready to eat solid foods between 4 to 6 months of age.

Introducing New Foods

This section reviews the different types of food that are commonly fed to babies. Babies can be fed commercially or home-prepared baby foods. See Chapter 11, Commercially Prepared Baby Food, and Chapter 12, Home-Prepared Baby Food. Depending on the cultural preferences of families, there may be some different foods eaten than those discussed below (see page 44 on meeting the needs of families from different cultures).

Iron-fortified Infant Cereal

Iron-fortified infant cereal is a good first solid food because it is easy to digest. To meet the Infant Meal Pattern, the cereal in meals must be iron-fortified dry infant cereal, as iron is an important nutrient for babies. Iron-fortified dry infant cereal is usually found in the baby food section of grocery stores labeled "Cereal for Baby." These cereals are enriched with a form of iron that may be easier for infants to absorb than other forms of iron found in other cereal products.

Type of Cereal to Feed

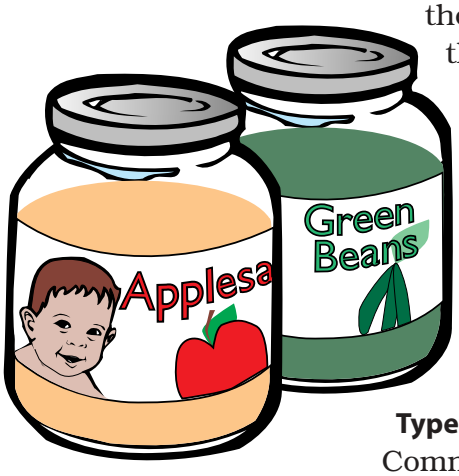
Consult with parents about which cereals are being introduced at home so that you can serve the same food at the same time. Iron-fortified infant rice cereal is usually the best choice for baby's first cereal because it:

- is easily digested,
- is least likely to cause an allergic reaction,
- contains important nutrients, and
- can be altered in consistency to meet a baby's developmental needs.

Dry infant cereal can be prepared with expressed breastmilk or infant formula to produce a smooth cereal that is not too thick and is easy for a young baby to swallow and digest. Water or fruit juice (for babies 6 months or older who have tried juice and had no reaction to it) can also be mixed with cereal. The consistency of all cereals can be thickened by adding less liquid as the baby matures. Measure the dry cereal before adding the liquid.

Remember these points about other cereals:

- **Oat and barley** infant cereal can be added at 1-week intervals after rice cereal.
- **Wait to serve wheat cereal** until babies are 8 months old because wheat is the grain most likely to cause a reaction in babies. The risk of intolerance decreases by age 8 to 9 months.
- Serve **mixed-grain** cereals only after the baby has been introduced to each grain separately.
- **These cereals are *not* reimbursable in the Infant Meal Pattern:**
  - — **Jarred "wet" infant cereals,**
  - — Iron-fortified dry **infant cereals containing fruit,**
  - — **Cereals designed for older children and adults.** These cereals are not recommended for babies because they:
    - ❑ often contain mixed grains,
    - ❑ are usually higher in salt and sugar than infant cereals,
    - ❑ may contain vitamins and minerals in forms or amounts not ideal for babies, and
    - ❑ may contain small hard pieces of food that could cause a baby to choke (e.g., raisins, dates, nuts, or uncooked whole grain flakes).
  - — Enriched farina, regular oatmeal, and corn grits; although these are not reimbursable as a substitute for infant cereal, they can be fed as additional foods.



Vegetables and Fruits

Vegetables and fruits may be introduced when the baby readily accepts 2 to 3 tablespoons of infant cereal at each meal. Consult with the parents about which vegetables and fruits are being introduced at home so that you can serve the same food at the same time. Babies often start on vegetables and fruits around 6 months of age.

Types of Vegetables and Fruits to Feed

Commercially or home-prepared vegetables or fruits can be fed to babies. Examples of vegetables and fruits to feed include:

- Commercially prepared baby food such as: green beans, green peas, squash, sweet potatoes, carrots, beets, spinach, applesauce, apricots, bananas, peaches, pears, and plums.
- Home-prepared vegetables (cooked and processed to the appropriate texture), such as: asparagus, broccoli, cabbage, cauliflower, green beans, green peas, kohlrabi, plantain,

potatoes, summer or winter squash, and sweet potatoes. Home-prepared collard greens, carrots, spinach, turnips and beets should only be fed to babies **6 months of age and older.** **(See page 50 for more information.)**

- Home-prepared fruits (which can be mashed after peeling if ripe and soft) such as: apricots, avocado, bananas, cantaloupe, mango, melon, nectarines, papaya, peaches, pears, and plums. Stewed pitted dried fruits can be pureed or mashed. Apples, pears, and dried fruits usually need to be cooked in order to be pureed or mashed easily.

Commercially prepared baby food vegetables and fruits are reimbursable in the Infant Meal Pattern if they:

- list vegetable or fruit as the **first** ingredient in the ingredient listing on the label, or
- list vegetable or fruit as the **first** ingredient and contain multiple vegetables or multiple fruits. Check with the parent that an infant has tried, and had no reaction to, all the vegetables or fruits in these mixed products before serving them.

These commercially prepared baby foods are **not** reimbursable in the Infant Meal Pattern (but can be served as additional foods):

- jarred cereals, desserts, or puddings that list a fruit as the first ingredient in their ingredient listing.
- commercially prepared baby food vegetable or fruit with a label stating that the first ingredient is water.

Make sure to carefully read the ingredient listing of commercially prepared baby food fruits and vegetables. Plain commercial baby food vegetables and fruits generally:

- contain more nutrients ounce for ounce,
- do not usually contain concentrated sweeteners (e.g., sugar) or salt, and
- may contain fewer ingredients that could possibly cause an allergic reaction.

Babies who cannot consume milk products because of milk allergies, lactose intolerance, or galactosemia should not be fed commercial baby food dinners, vegetables, or other products containing milk products such as milk, cheese, whole milk solids, yogurt, or nonfat dry milk (e.g., some creamed corn products, creamed spinach). Read food labels to check ingredients.

Watching for Reactions

A wide variety of vegetables and fruits can be introduced over time. However, the recommendations to introduce one new food at a time still apply. Wait at least 1 week between each new food

and watch the baby closely for reactions. Observe babies closely for reactions when introducing citrus fruits (e.g., orange, tangerine, grapefruit) because these foods may cause allergic reactions; these foods should not be introduced before 6 months of age.

Preparation of Vegetables and Fruits

Babies between 6 and 12 months of age may be served a **soft-cooked** vegetable or fruit as long as the texture of the food is appropriately modified. As a baby's mouth skills progress, gradually increase the thickness and lumpiness of vegetables and fruit. Use cooked, fresh, or frozen vegetables or fruits, and progress from pureed to ground to fork mashed and eventually to diced. Or you may purchase commercial baby foods that progress in texture. Ripe bananas do not need cooking but need to be mashed to the proper consistency. Avoid canned or frozen vegetables or fruit that are high in added sugar or salt. Also, do not add salt, sugar, fat, and other seasonings to vegetables and fruits. Remove baby's portion before preparing and seasoning vegetables and fruits for others.

Warning About Home-Prepared Vegetables High in Nitrates

The following **home-prepared** vegetables should only be fed to babies 6 months of age and older: beets, carrots, collard greens, spinach, and turnips. Those vegetables, when prepared at home, are high in nitrates. The naturally occurring nitrates in these vegetables can be converted to nitrites in very young babies. The nitrites bind the iron in the blood and make it difficult to carry oxygen. If the nitrites are high enough in a very young baby, this can result in a condition called methemoglobinemia in which a baby has blue skin and difficulty breathing. Commercially prepared baby food spinach, beets, and carrots contain only traces of nitrate and are not considered a risk to babies less than 6 months of age.

Warning About Vegetables and Fruits That May Cause Choking

Due to the risk of choking, do not feed babies the following vegetables and fruits:

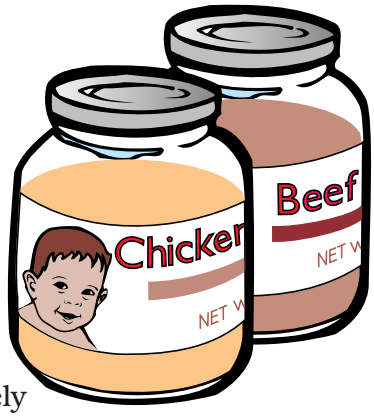
- Raw vegetables (including green peas, string beans, celery, carrot, etc.);
- Cooked or raw whole corn kernels;
- Whole pieces of canned fruit;
- Hard pieces of raw fruit such as apple, pear, melon;
- Whole grapes, berries, cherries, melon balls, or cherry and grape tomatoes (cut these foods into quarters, with pits removed, before feeding to older babies); and
- Uncooked dried fruit (including raisins).

Meat and Meat Alternates

Meat and meat alternates include meat, poultry, fin fish, cheese, yogurt, cooked dry beans and peas, and eggs. Meat and meat alternates are generally introduced by 8 months of age, but some doctors recommend introducing them between 6 and 8 months of age. By 8 months, babies will have already been introduced to cereal, vegetables, and fruits and will be ready for new foods and other sources of iron. Consult with the parent about which meats and meat alternates are being introduced at home so that you can serve the same food at the same time. It is not necessary to add oil, butter, margarine, lard, cream, salt, or seasonings to these foods.

Peanut butter, other nut or seed butters, nuts, and seeds should not be fed to babies and are not reimbursable as meal components in the Infant Meal Pattern. These foods cause choking and may cause an allergic reaction in some babies.

Meats, Poultry, and Fish



Lean meat and poultry are preferable. Examples include: strained or pureed well-cooked lean beef, pork, lamb, veal, chicken, turkey, liver, and boneless fin fish. As the baby's feeding skills mature, meat and poultry can be served ground or finely chopped.

Do not serve fin fish to a baby until the parents have introduced this type of fish to the baby first with no problems. Observe a baby closely when introducing fish because some babies can have allergic reactions to fish. Any fish must be closely examined for bones, and any bones removed, before serving to a baby. Check with the State agency to see if fresh water sport fish is reimbursable as a meat/meat alternate in the Infant Meal Pattern. Before feeding babies any fresh water sport fish, consult your State department of health or natural resources for information on the safety of these fish. **Do not feed any shellfish (includes shrimp, lobster, crab, crawfish, scallops, oysters, clams) to babies less than 1 year of age—these types of seafood can cause severe allergic reactions in some babies. Do not feed any of the following fish (which may contain high levels of harmful mercury) to babies or young children: shark, swordfish, king mackerel, or tilefish.**

Avoid feeding babies these foods (they are higher in fat, lower in protein): hot dogs, sausage, bacon, bologna, salami, luncheon meats, other cured meats, fried meats, and the fat and skin trimmed from meats.

Commercial baby food meats with meat or poultry as the first ingredient in the ingredient listing are reimbursable as a

meat/meat alternate in the Infant Meal Pattern. Such products contain primarily meat or poultry. If commercial baby food is used, plain meat or poultry generally contains more meat or poultry (and more protein and iron) ounce for ounce than combination baby food dinners. Plain meats can be mixed with plain vegetables or fruits to serve to a baby as some babies will accept meat better when mixed.

These foods are **not** reimbursable as meat/meat alternates in the Infant Meal Pattern:

- Commercial fish sticks, other commercial breaded fish products, canned fish with bones, hot dogs, and sausages—these are not reimbursable because they are not designed by their manufacturers for consumption by infants (less than 12 months of age). Infants may choke on these foods and fish sticks and other breaded fish products may have an accidental bone.
- "Baby food" meat sticks (which look like miniature hot dogs)—these are not reimbursable because, by the manufacturer's declaration, they are designed to match the skills of children over 12 months of age. Hot dogs or similarly shaped products are not recommended for babies because they can cause choking, even when cut into round slices.
- Home-canned meats—these meats should not be served at all because they may contain harmful bacteria if improperly canned.
- Commercially prepared baby food combination dinners—the amounts of the various food components in the dinners are difficult to determine. Information on the exact percentage of ingredients is proprietary and thus not available to the public. Given the small percentage of meat required to be in these foods, these dinners may not be a primary source of meat/meat alternate for a baby. These dinners generally have less nutritional value by weight than single-ingredient meats and vegetables or fruit mixed together. If a parent requests, these dinners can be served as additional foods within a reimbursable meal. The parent can provide the dinner if they desire to do so.

Eggs

Egg yolk may be introduced to infants at or after 8 months of age. Do not introduce egg whites and whole egg (it contains egg white) to children younger than 1 year. Egg whites contain substances that may cause allergic reactions in babies. All eggs should be carefully handled, properly refrigerated, and properly cooked to reduce the possibility of contamination with harmful bacteria. Before cooking, wash eggs with water. Cook eggs thoroughly and hard cook the yolk to kill bacteria (no runny soft eggs). **Never** feed raw uncooked or undercooked eggs (including in beverages) to babies or anyone else

because they may contain bacteria (Salmonella) that can cause illness. See page 88 for more information on proper handling of home-prepared eggs.

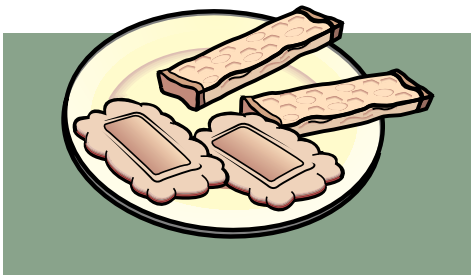
Cheese and Yogurt

Cheese may be introduced to infants 8 months or older. Small thin slices or strips of cheese are easier and safer. Do not feed chunks of cheese, which can cause choking. If serving cheese, regular cheese (such as natural cheddar, colby, or mozzarella) and cottage cheese are the best choices. Cheese food, cheese spread, and pasteurized process cheese are generally higher in salt than regular cheeses or cottage cheese. Commercially prepared plain yogurt, made from low-fat or whole milk, may be introduced and served in small amounts to infants 8 months and older. Since cheeses and yogurt are made from cow's milk, observe babies closely for reactions if fed these foods.

Dried Beans or Peas

Any cooked dry beans and dry peas, such as kidney beans, lima beans, pinto beans, or chick peas, may be served to babies 8 months or older. Serve small quantities (1 to 2 teaspoons) of mashed or pureed cooked beans or peas at first. Modify the texture of cooked dry beans and dry peas for a baby (cooked whole beans or peas could cause choking). Home-prepared dry beans or dry peas are more economical and lower in sodium than commercially canned beans. However, if canned beans are used, drain the salty water and rinse the beans with clean water before using. As with any food, if a baby does not like beans or appears to have difficulty digesting them, do not serve them. To prepare dry beans and peas, follow cooking instructions found on the package label or in many basic cookbooks.

Bread and Crackers



Bread or crackers may be served at the snack or with meals throughout the course of the day. Consult with each baby's parent about bread and crackers being introduced at home so that you can serve the same food at the same time. At 8 or 9 months of age, babies enjoy having finger foods so they can practice picking up the foods. Also, at that age a baby's risk of having a reaction to wheat decreases. Examples of foods to serve babies include:

- Strips or small pieces of dry bread or toast or crackers,
- Plain crackers preferably low in salt such as low salt soda crackers (avoid crackers with seeds, nuts, or whole grain kernels),
- Small pieces of soft tortilla or soft pita bread, or
- Teething biscuits.

Check the food label to make sure the crackers or bread are made from whole-grain or enriched meal or flour.

The types of bread and crackers that are reimbursable on the Infant Meal Pattern include:

Bread

- Breads (white, wheat, whole wheat, French, Italian, and similar breads, all without nuts, seeds, or hard pieces of whole grain kernels),
- Biscuits,
- Bagels (made without nuts, seeds, or hard pieces of whole grain kernels),
- English muffins,
- Pita bread (white, wheat, whole wheat),
- Rolls (white, wheat, whole wheat, potato),
- Soft tortillas (wheat or corn).

Crackers

- Crackers—saltines, low salt crackers, or snack crackers made without nuts, seeds, or hard pieces of whole grain kernels;
- Graham crackers made without honey.

Only serve bread or crackers if the parent, in consultation with the baby's doctor, agrees for them to be served and after they have previously been introduced to the baby with no problems. If any of the above foods are served, prepare them in a form that a baby can eat without choking. That is, serve small thin strips of bread rather than a whole or half of an uncut hard bagel, English muffin, wheat roll, or soft tortilla, or bread with a hard crust.

AVOID

Do not feed babies these foods, which present a choking risk:

- Snack potato or corn chips, pretzels, or cheese twists,
- Cookies or granola bars,
- Crackers or breads with seeds, nut pieces, or whole grain kernels such as wheat berries, and
- Whole kernels of cooked rice, barley, or wheat; these should be finely ground or mashed before feeding to babies.

Other Foods

Other foods that are not listed in the Infant Meal Pattern chart may be served. They are in addition to all the foods listed in the meal pattern requirements and may not substitute for any of the required food. Some examples are bread at meals other than the snack, and rice, pasta, noodles, or macaroni at any meal—these foods are usually introduced to infants 8 months or older. Check with the

parents regarding what type of pasta the baby can eat (e.g., plain, protein-fortified, whole wheat, etc.). Remember to serve foods that are appropriate for a baby's developmental age. Also, pieces of soft cooked fruit or vegetable may be appropriate as a finger food or snack for babies 8 months or older.

Do not provide family-style meal service to babies because it is important to feed them food that is appropriate for their development. Some foods often fed to older children are not appropriate for babies, such as pizza, hot dogs, french fried potatoes, or dishes made from a mixture of foods and condiments such as casseroles. These foods tend to be high in salt and contain a mixture of ingredients that a baby may not have tried before and, thus, may have a reaction to.

Use of Sweeteners and Sweetened Foods

Sweeteners (e.g., sugar, syrups), eaten alone, added to foods, or in prepared foods, add calories to the diet and promote the development of tooth decay in babies. Sweetened foods may fill up the baby without providing essential nutrients. Therefore, avoid feeding babies:

- Commercially prepared baby food desserts,
- Commercial cakes, cookies, candies, and sweet pastries,
- Chocolate—some babies have allergic reactions to this food, and
- Added sugar, glucose, molasses, maple syrup, and corn syrup or other syrups in the baby's food, beverages, or water.

Honey

Honey should never be fed to babies less than 1 year of age. Honey may contain substances that can cause "infant botulism," a serious type of food-related illness that can make a baby very sick. Do not feed babies honey alone or in cooking or baking or as found in prepared foods (e.g., yogurt with honey, peanut butter with honey, honey graham crackers). Even the honey in prepared foods could cause this illness in babies.

Artificial Sweeteners

Do not feed artificially sweetened foods or beverages to babies. Babies, who are growing rapidly have no need for low calorie foods and drinks. Also, artificial sweeteners have not been proven safe for consumption by babies.

Figure 6 summarizes how to introduce semisolid foods, how to feed solid foods, and which foods to avoid. Figure 7 covers general tips on starting good eating habits early.

Figure 6

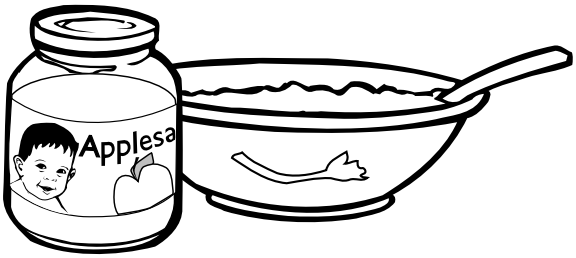
Basic Principles for Feeding Solid Foods

Introducing Solid Foods: Starting out

- Talk with the parents before introducing solid foods. Only introduce solid foods when babies are developmentally ready for them.
- Coordinate with each baby's parents so that the same new foods and textures are introduced at the same time as at home.
- Do not serve solid foods to a baby younger than 4 months of age without a doctor's written instructions.

How to Feed When Baby is Ready for Solid Foods

- Sit directly in front of the baby to encourage the baby. Offer the spoon. Wait for the baby's mouth to open before attempting to feed. If babies are not ready to eat from a spoon they are not ready to eat solid foods.
- In feeding solid foods, use a small spoon and place a tiny amount of food between a young baby's lips. At first much of it may slide out of the mouth, but gradually the baby will learn to move the food to the back of the mouth for swallowing.
- Do not force the baby to finish the serving. Babies are the best judge of how much food they need. Let them decide how much they eat. Feed until the baby indicates fullness by:
  - – not opening the mouth,
  - – pulling away from the spoon,
  - – turning away,
  - – pushing food or spoon back out of the mouth, or
  - – throwing the food on the floor.
- Be calm and friendly but not overwhelming. Follow the baby's lead on when to feed, what to feed, and how much to feed.
- Do not put cereal or any other solid food in a bottle or infant feeder. Use a spoon for feeding instead. An infant feeder is a hard plastic container with a spout at one end and a plunger at the other end which is used to push a liquid mixture of solid food into a baby's mouth. Babies fed food in a bottle or infant feeder are forced to eat the food, can choke, and may not learn to eat foods properly.



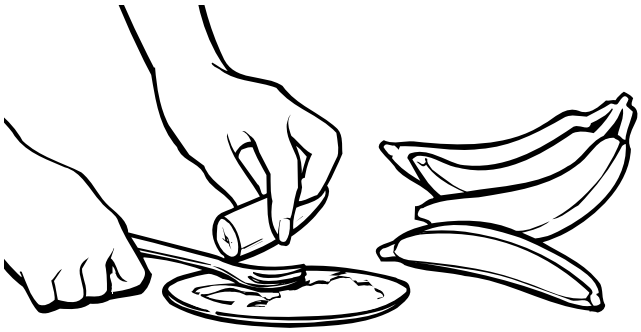
- **Any special equipment needed for feeding children with disabilities should be used. Consult with the parents on how to feed babies with special needs.**
- Make the texture of the food appropriate for the baby's stage of development. Providing new textures encourages the baby's further development.

Feeding Safety

- Test the temperature of foods before feeding them to make sure they are not too hot.
- When feeding solid foods, seat babies in highchairs appropriate for their age and development. Fasten the baby into the highchair with safety straps before feeding. Keep the highchair away from a table, counter, wall, or other surface so that the baby cannot push off from it.
- Babies being fed and older babies learning to feed themselves should be closely supervised by an adult seated at the same table or next to the baby's highchair. Make sure that the baby does not eat while talking, crying, or laughing. Also, the adult can watch for "squirreling" (keeping several pieces of food in the mouth without swallowing) which can cause choking.
- To prevent choking, make sure that babies (and children) are not eating while they are talking, crying, laughing, crawling, walking, running, playing, lying down, or riding in a vehicle.
- Use a small spoon, made of unbreakable material that will not splinter, that easily fits into the mouth (do not use plastic utensils). Place food in a clean small plastic unbreakable bowl or dish with edges that are not sharp.
- Keep hot liquids or foods out of reach of babies and children, not on the edge of a counter or table, or on a tablecloth that could be pulled

Figure 6 (continued)

Basic Principles for Feeding Solid Foods



down. Make sure that staff do not consume hot liquids near babies or children. Babies and children can be burned from hot liquids or foods tipped over.

Watching for Reactions

- Reinforce the introduction of new foods by serving the same foods as the parents are feeding. Wait at least 1 week between introducing new foods to watch for reactions (diarrhea, rashes, vomiting, coughing, wheezing, general irritability, hives, stomach pain).
- If a baby seems to be having a severe reaction to a food (e.g., hives, difficulty breathing, or shock), contact the rescue squad or Emergency Medical Service and the baby's parents immediately.
- If a baby does not like the taste of a new food at first, you can try offering it again 3 or 4 weeks later after discussing this with the parents.

Drinking Water

- A baby's doctor may recommend feeding a small amount of sterile water in a cup when solid foods are introduced. Consult with the baby's parents about the feeding of water. Sterile water is water that is brought to a very bubbly boil, boiled for 1 to 2 minutes, and then allowed to cool.

Do Not Feed Babies These Foods:

- Cow's Milk—it is not as nutritious and may cause anemia in babies. Breastmilk or infant formula are best for the first year of life.
- Hard pieces of raw vegetable or raw fruit—they can cause choking and be difficult to digest.
- Egg white, whole eggs, shellfish (shrimp, lobster, crab, oysters, clams, scallops, crawfish), and chocolate and cocoa. These foods may cause allergic reactions in babies.
- Shark, swordfish, king mackerel, or tilefish—these fish may contain high levels of harmful mercury.
- Citrus (e.g., orange, tangerine, grapefruit), pineapple, or tomato juices or foods before 6 months of age. These foods may cause allergic reactions in babies.
- Home-prepared beets, carrots, collard greens, spinach, and turnips before 6 months of age.
- Peanut butter and other nut and seed butters (e.g., soy nut, almond, cashew, or sunflower seed butter) and nuts and seeds. These foods can cause choking and may cause allergic reactions in some babies.
- Commercially prepared baby food desserts or commercial cakes, cookies, candies, and sweet pastries. These foods tend to be high in sugar and may contain less of the key nutrients that babies need.
- Sugar, maple syrup, corn syrup, molasses, glucose, or other syrups added to food or beverages.
- Foods, beverages, or powders containing artificial sweeteners. Babies should not be fed low-calorie foods or drinks.
- Foods that could cause choking, see page 66.

Never Feed Babies These Foods:

- Honey–Honey and products containing honey, including sources used in cooking or baking (such as in honey graham crackers), should never be fed to babies. Honey is sometimes contaminated with Clostridium botulinum spores which may cause a type of illness called infant botulism.
- Raw milk–Raw cow's or goat's milk could be contaminated with harmful substances which can make a baby very sick. Only pasteurized milk products should be used once milk is introduced at 12 months of age.
- Raw or undercooked eggs, meat, poultry, or fish– These foods when raw or undercooked can contain harmful bacteria, parasites, and other harmful substances that can make a baby very sick.
- Home-canned foods–These foods may contain harmful bacteria if improperly canned.

Figure 7

Good Habits Start Early

During a baby's first year, good nutrition and good eating habits will help the baby to grow up happy and healthy.

When You Bottle Feed a Baby:

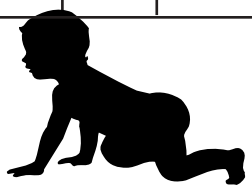
DO	WHY
Burp the baby at natural pauses during the feeding and at the end of each feeding.	To reduce spitting up from swallowed air.
Put only breastmilk or formula in the bottle. **Do not** put cereal, other food, juices, or other drinks in the bottle.	To prevent overfeeding, choking, tooth decay, and to allow the baby to develop good eating habits.
Give the bottle to the baby at feeding time, not nap time, and do not let the baby go to sleep with the bottle.	To prevent choking, ear infections, and tooth decay from the milk which remains on the teeth.
Hold the baby while feeding instead of propping the bottle in the baby's mouth. Do not let the baby walk or crawl around with the bottle.	To prevent choking, to provide cuddling for the baby, and to prevent babies from sharing their bottles with others.

When You Feed a Baby Solid Foods:

DO	WHY
Wash the baby's hands before feeding.	To clean any dirt or germs off the hands to keep the baby's food clean.
Use a small spoon or let the baby use his or her fingers.	To help the baby learn proper eating habits.
Place food on the tip of the spoon and put food on the middle of the baby's tongue.	To make it easy for the baby to swallow.
Remove food from the jar before feeding. Do not feed the baby food from the jar.	To prevent the saliva from the baby's mouth from spoiling the remainder of the food in the jar.
Give only one new food at a time, and wait at least 1 week before giving another new food.	To give the baby time to get used to each new flavor and texture, and to see if the baby is allergic to the new food.

Figure 8

How the Infant Meal Pattern Corresponds with Food Textures and Feeding Styles

Age of Baby by Month	Birth	1	2	3	4	5	6	7	8	9	10	11	12
Age grouping in Infant Meal Pattern	Birth through 3 months				4 months through 7 months				 8 months through 11 months				
Sequence of Introducing Foods in Infant Meal Pattern	Breastmilk or Formula				Infant Cereal Vegetables and/or Fruit				Meat or Meat Alternates Crackers and/or Bread Fruit Juice (only in a cup)				
Texture of Solid Food					**Strained/Pureed (thin consistency for cereal)**								
							Mashed						
									Ground/Finely Chopped				
												Chopped	
Feeding Style	**Breastfeeding or Bottle Feeding**												
					Spoon Feeding								
							Cup Feeding						
									Self Feeding/Finger Foods				

8 Drinking From a Cup

Babies are usually ready to drink from a cup when they can seal their lower lip on the cup and can sit without support. To help the baby learn to drink from a cup:

- Hold the cup for the young baby;
- Introduce small amounts of breastmilk, infant formula, fruit juice, or water in a cup; and
- Feed very slowly, i.e., tilting the cup so that a very small amount of liquid (one mouthful) leaves the cup; then the baby can swallow without hurry.

Weaning From a Bottle

Weaning a baby from a bottle to a cup is a gradual process requiring the baby to learn new skills. Some babies learn to drink from a cup more easily than others. To make weaning easier, a cup can be introduced in place of a bottle at the feeding of least interest or at mealtimes when other people are drinking from cups. Generally, a baby will not drink the same quantity of fluid from a cup as from a bottle at a feeding. Discuss with the parents that it is recommended to totally wean babies off the bottle and onto a cup by 12 to 14 months of age. Children still feeding from a bottle beyond 12 to 14 months of age may:

- be more likely to develop tooth decay,
- consume so much milk that they don't eat enough solid foods to get an adequate amount of nutrients, and
- be delayed in developing appropriate feeding skills.

Breastmilk or Formula From a Cup

Discuss with the parents when they would like you to feed breastmilk or infant formula from a cup. Babies will consume less breastmilk or formula from the bottle as their intake of solid foods and drinking from a cup increases.

Fruit Juice

Only serve fruit juice to babies when they are developmentally ready to drink from a cup and are at least 6 months of age or older. If fruit juices are introduced, remember:

- Consult and coordinate with parents about introducing fruit juice. Introduce new fruit juices one at a time and at least 1 week apart, and observe the baby for reactions to the juice.

- Choose a 100 percent fruit juice that is pasteurized and naturally high in or fortified with vitamin C. Only full-strength fruit juice is reimbursable for infants ages 8 through 11 months in the Infant Meal Pattern. Either regular fruit juice with vitamin C or commercial baby juices can be served.
- Do not feed babies unpasteurized juices—they may contain bacteria that could make a baby very sick.
- Only feed fruit juice in a cup. Do not feed fruit juice in a bottle or let a baby carry around or drink continuously throughout the day from a bottle or covered (sippy) cup of juice. Do not give babies juice at naptime.
- When using juice for a snack, measure 2 to 4 ounces of juice. Limit the total juice given to a baby to no more than 4 ounces per day. Too much juice can spoil a baby's appetite for other nutritious foods and can cause diarrhea, gas, abdominal pain and bloating, and tooth decay. Fruit juice contains very few nutrients compared to other nutritious foods.
- Avoid feeding citrus (orange, tangerine, and grapefruit), pineapple, and tomato juices before 6 months of age because they are more likely to cause an allergic reaction.
- Do not feed babies fruit drinks, fruit punch, soda pop, artificially sweetened drinks, and sweetened iced tea. They are not 100 percent fruit juice and contain added sugar.

Fruit juices cannot be used to meet the fruit and vegetable components in the Infant Meal Pattern. Juice drinks (which contain some full strength fruit juice, water, and possibly other ingredients), fruit and vegetable juice blends, and vegetable juice are **not** reimbursable in the Infant Meal Pattern.

Other Beverages

WATER

Consult with the parent about what the baby's doctor recommends about feeding plain water to the baby. Water fed to babies as plain water, mixed with formula, or mixed with foods, should be from a source approved by the local health department. As a precaution, sterilize the water fed to babies or used to prepare formula or foods. If tap water is used, collect only from the cold water tap which has been allowed to run for 2 minutes (hot tap water may pick up lead from water pipes). Sterilize the water by bringing it to a very bubbly boil, boiling for 1 to 2 minutes, and then letting it cool. Do not boil for a long time because this concentrates harmful substances that may be in the water (e.g., lead, nitrates). If there is a flood or disaster in

the area that contaminates the water supply, consult with the local health department on procedures to disinfect water or obtain clean water.

WHOLE COW'S MILK

Whole cow's milk is not recommended for babies less than 12 months of age and is **not** reimbursable as a meal component in the Infant Meal Pattern unless it is approved by a recognized medical authority. Whole cow's milk is a poor source of iron, vitamin C, and other nutrients and contains too much protein, sodium, and other nutrients. Breastmilk and iron-fortified infant formula contain adequate amounts of the nutrients babies need. Whole cow's milk may cause babies to develop iron deficiency anemia. Parents (or guardians) who are concerned that they cannot afford to buy infant formula, for babies who are not breastfed or are only partially breastfed, can be referred to the local Special Supplemental Nutrition Program for Women, Infants, and Children (WIC Program) for assistance. Contact your local health department for more information.

Consult with parents about introducing whole cow's milk. At 12 months of age, whole cow's milk can gradually be introduced by mixing part whole cow's milk and part breastmilk or infant formula at a particular feeding and, over time, increasing the amount of whole cow's milk in the cup. If cow's milk is served, only serve whole, pasteurized milk. Raw cow's milk has not been pasteurized (heated to kill disease-causing bacteria). Babies could get very sick from drinking unpasteurized cow's milk that has not been heated to kill harmful bacteria.

REDUCED-FAT AND FAT-FREE (SKIM) COW'S MILK

Do not serve fat–free (skim) milk, reconstituted nonfat dry milk, or reduced-fat milk to babies or young children less than 2 years old. These milks contain too little fat and too much protein for very young children. Babies and young children need fat for proper growth and for development of the brain and nervous system. Fat is found in the right amounts in breastmilk, infant formula, and whole cow's milk (for 1 to 2 year olds).

OTHER MILKS

For babies who are not breastfed or are partially breastfed, iron-fortified infant formula is the formula of choice and is reimbursable as a meal component in the Infant Meal Pattern. See page 24 for more information on the milks that are not recommended for babies less than 12 months of age.

9 Choking Prevention

Babies are at risk of choking on food due to their poor chewing and swallowing abilities. It is therefore very important to be careful about how a baby is fed. Serve foods that are the appropriate texture for a baby and avoid feeding certain foods that can cause choking. Following the general guidelines below will reduce the risk of choking in babies in your care.

Preventing Choking When Serving Foods

When serving food to babies, keep in mind the following:

- Keep mealtimes calm by avoiding too much excitement or disruption during eating. Feed the baby in a quiet area away from noise and distractions such as a TV set.
- Sit with the baby and supervise mealtimes and snacks. Do not leave babies alone when they are eating.
- Have babies sit in an upright position during meals and snacks.
- Make sure that biscuits, toast, and crackers are eaten only when the baby is in an upright position. A baby who eats these foods while lying down could choke on crumbs.
- Hold babies while giving them a bottle.
- Make sure the hole in the nipple of the baby's bottle is not too large (if the bottle is held upside down, the falling drops should follow each other closely and not make a stream).
- Serve foods that are the appropriate texture for the baby's development. Prepare food so that it is soft and doesn't require much chewing.
- Avoid using teething pain relief medicine before mealtime since it may interfere with chewing.
- Feed small portions.
- Encourage babies to eat slowly.

Feeding and Eating Behaviors to Avoid

Certain feeding and eating behaviors increase a baby's risk of choking on food and must be avoided. These include:

- Propping a bottle in the baby's mouth,
- Giving the baby a bottle with a nipple with too large a hole,
- Feeding solid foods to a baby before the baby is developmentally ready,

- Feeding a baby solid foods in a bottle,
- Feeding the baby too quickly,
- Feeding while the baby is lying down, walking, talking, crying, laughing, running, riding in a vehicle, or playing,
- Serving difficult-to-chew foods to babies with poor chewing and swallowing abilities,
- Feeding a baby without close supervision,
- Feeding foods that may cause choking (see list below).

Acceptable Finger Foods

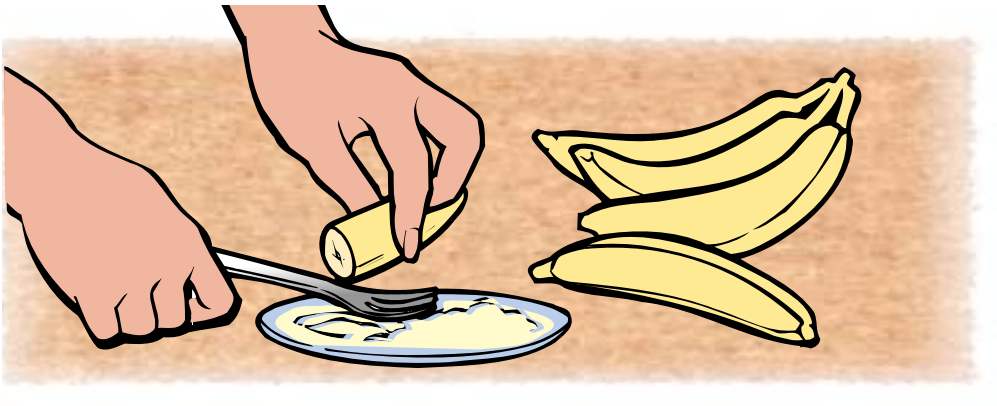
Examples of finger foods that are safer and present a lower risk of choking include:

- Small pieces of ripe soft peeled banana, peach or pear,
- Small strips of toast or bread,
- Cooked macaroni,
- Thin slices of mild cheese,
- Soft cooked chopped vegetables such as string beans or potatoes,
- Teething biscuits, and
- Soft moist finely chopped meats.

Foods to Avoid That Can Cause Choking

Some foods are hard to control in the mouth, and they can slip into the airway before being chewed properly. Do not feed babies or young children foods or pieces of food that are the size or shape of a marble. Foods this size can be swallowed whole and could become lodged in a child's throat and cause choking. The following foods are **not** recommended for babies and young children because they can cause choking:

- tough meat or large chunks of meat,
- peanuts or other nuts and seeds (such as pumpkin or sunflower),
- peanut butter or other nut or seed butters,
- candy (e.g., hard candy, jelly beans, caramels, chewing gum),
- popcorn,
- hot dogs, sausages, or toddler hot dogs (even when cut into round slices),
- potato and corn chips and similar snack foods,
- pretzels,
- chunks of cheese,



- cooked or raw whole kernel corn,
- plain wheat germ,
- fish with bones,
- marshmallows,
- whole uncut grapes, berries, cherries, melon balls, or cherry or grape tomatoes,
- raisins and other dried fruit,
- whole beans,
- hard pieces of raw fruit,
- whole grain kernels,
- raw vegetable pieces (e.g., carrots, green peas, string beans, celery, etc.) or hard pieces of partially cooked vegetables,
- whole pieces of canned fruit (cut them up instead).

See above for a list of acceptable finger foods.

Food Preparation Techniques to Lower Choking Risk

You can lower a baby's risk of choking on food by taking the proper precautions. When preparing food for babies, make sure it is in a form that does not require much chewing. The following preventive preparation techniques are recommended:

- Cook foods until soft enough to easily pierce with a fork.
- Cut soft foods into small pieces (cubes of food no larger than 1/4 inch) or thin slices that can easily be chewed.
- Cut soft round foods, such as soft cooked carrots, into short strips rather than round pieces.
- Substitute foods that may cause choking with a safe substitute, such as thinly sliced meat or hamburger instead of hot dogs.
- Remove all bones from poultry and meat and especially from fish.

- Cut grapes in quarters.
- Remove pits and seeds from very ripe fruit and cut the fruit into small pieces.
- Grind or mash and moisten food for young babies.
- Cook and finely grind or mash whole grain kernels of wheat, barley, rice, etc. before feeding to a baby. Do not feed babies raw or cooked whole grain kernels in the whole form.

Remember, choking can occur anywhere and anytime there is food. Avoid those foods known to be a risk or modify them to make them safer. Closely supervise mealtimes and encourage babies to eat their meals sitting quietly. Meals can continue to be both a happy time and a safe time.

For more Information:

For more information, see Figure 9, "You Can Help Prevent Choking," page 69.

Contact your local chapter of the American Red Cross (national web site: http://www.redcross.org), American Heart Association (national web site: http://www.americanheart.org), or American Lung Association (national web site: http://www.lungusa.org) for pamphlets, posters, and classes in emergency techniques for preventing choking, cardiopulmonary resuscitation (CPR), and first aid. Also, a pamphlet on first aid, choking, and CPR can be ordered from the American Academy of Pediatrics (national web site: http://www.aap.org) or may be available from a pediatrician's office.

Figure 9

You Can Help Prevent Choking

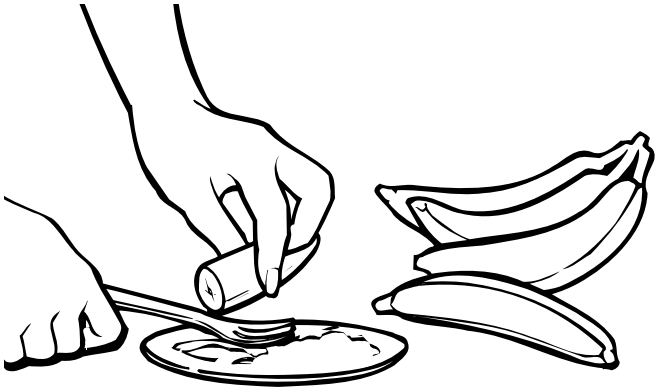
Babies and young children are at the highest risk of choking on food and remain at high risk until they can chew better. Choking kills more young children than any other home accident. How can you make eating safer for young children?

Watch Babies and Children During Meals and Snacks to Make Sure They:

- Sit quietly for all feedings.
- Eat slowly.
- Chew food well before swallowing.
- Eat small portions and only one bite at a time.

Fix Table Foods So They Are Easy to Chew:

- Grind up tough foods.
- Cut soft food into small pieces or thin slices.
- Cut soft round foods, like cooked carrots, into short strips rather than round pieces.
- Remove all bones from fish, chicken, and meat before cooking.
- Cook food until it is soft.
- Remove seeds and pits from fruit.



Foods That Can Cause Choking and Should Not be Fed to Babies and Young Children:

Firm, smooth, or slippery foods that slide down the throat before chewing, such as:

- hot dogs, sausages, or toddler hot dogs (even when cut in round slices)
- peanuts and other nuts
- hard candy, jelly beans
- whole beans
- whole grapes, berries, cherries, melon balls, or cherry and grape tomatoes
- whole pieces of canned fruit

Small, dry, or hard foods that are difficult to chew and easy to swallow whole, such as:

- popcorn
- peanuts, nuts and seeds (like sunflower or pumpkin seeds)
- plain wheat germ
- whole grain kernels (like rice, wheat berries)
- small pieces of raw carrots or other raw or partially cooked hard vegetables or fruits
- pretzels
- cooked or raw whole kernel corn
- potato and corn chips

Sticky or tough foods that do not break apart easily and are hard to remove from the airway, such as:

- peanut butter or other nut or seed butters
- raisins and other dried fruit
- tough meat or large chunks of meat
- marshmallows
- chewing gum
- caramels or other chewy candy.

10 Sanitary Food Preparation & Safe Food Handling

Babies are more susceptible to bacteria than older children, and unsanitary food conditions can cause serious infections. General cleanliness, proper food selection, and sanitary food preparation and storage are key to preventing illnesses related to food contamination in babies. Take extra care when handling babies' food, bottles, and utensils to make sure they are safe and clean. State and local guidelines may vary regarding requirements for sanitary food preparation in child care facilities and other institutions. Contact your local health department to obtain the local regulations and standards for food safety and sanitation and to ask about a local food handler course in your area. See Chapter 11, Commercially Prepared Baby Food, for guidelines on purchasing, serving, and storage of commercially prepared baby foods. See Chapter 12, Home-Prepared Baby Food, for information on home-prepared baby food, including information on cleanliness, equipment to use, preparation guidelines for specific types of foods, food safety, and storage of foods.

Hand Washing

Proper hand washing can help prevent the spread of illness in child care settings. Make sure to wash your hands thoroughly by following these steps:

- Wet your hands with warm running water.
- Add soap.
- Wash all surfaces on hands. Rub vigorously for at least 20 seconds. Wash carefully between fingers, around the tops and palms of hands, over wrists, and under nails using a clean nail brush.
- Rinse your hands well under warm running water, leave the water running while drying hands.
- Dry your hands with a clean, disposable paper towel.
- Turn off the faucet, using the disposable paper towel, instead of your clean bare hands.

When should the hands be washed?

Wash your hands thoroughly before you:

- bottle feed a baby,
- handle, prepare, serve, or touch food or bottles,

- handle food utensils and set the table,
- touch raw meat, poultry, or fish,
- eat, drink, or feed food to babies or children,
- put away clean dishes,
- give medication.

Wash your hands thoroughly after you:

- arrive at the site for the day,
- handle raw meat, poultry, fish, or eggs,
- change a baby's or child's diaper and/or clothing,
- use the bathroom or assist a child in the bathroom,
- handle a baby or child who is ill or give medication,
- come in contact with any bodily fluids (e.g., soiled diapers, urine, blood, feces, vomit, mucus, spit, breastmilk),
- sneeze or cough into tissues or hands,
- get your hands dirty, or have been cleaning, or working outside,
- wipe noses, mouths, bottoms, sores or cuts,
- handle pets, or other animals, or garbage.

Make sure to wash a baby's or child's hands before and after eating meals and snacks, and after changing a diaper (many babies place their hands in the diaper area during changing).

See pages 97-99 for resources on food safety (which include materials on hand washing).

If a Caregiver Has an Illness or Infected Injury

People who are ill and handle food can easily spread their illness to others, including babies and children. Therefore, the following caregivers should not handle food for babies:

- those who have signs or symptoms of illness (including vomiting, diarrhea, and infectious skin sores that cannot be covered); and
- those who may be infected with bacteria or viruses that can be carried in food.

Food Preparation Areas Are Not for Diaper Changing

Do not use food preparation and dining areas or surfaces for changing diapers. Staff and caregivers should make sure to follow the hand washing guidelines above.

Cleaning and Sanitizing Food Preparation Areas, Equipment, Feeding Dishes and Utensils, and Dining Areas

Clean and sanitize all food preparation, food service, and dining areas (including countertops, tables, and high chairs) before and after each meal. Clean and sanitize all food preparation equipment, dishes and utensils for serving and feeding after each use and store them in a clean and sanitary manner.

Before and after preparing and serving food, the following should be washed with soap and hot water and then rinsed thoroughly with hot water:

- all surfaces used to prepare food, including countertops and tables,
- food preparation equipment and utensils (including food warmers),
- food service and dining areas (including highchairs).

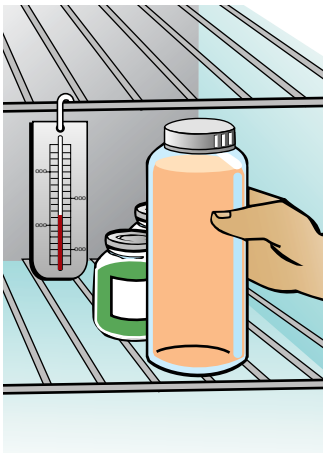
After washing, sanitize all of the above according to applicable Federal, State, and local food service rules and regulations for centers, small and large family child care homes, and other public institutions serving food to infants and children. Follow applicable Federal, State, and local guidelines if a dishwashing machine is used for sanitization.

Note: Do not use styrofoam cups and plates and breakable disposable plastic utensils. Swallowed styrofoam pieces or broken plastic utensil pieces can cause choking or other injuries.

Refer to the latest edition of the following publication, for additional guidelines regarding cleaning and sanitizing serving and feeding dishes and utensils and equipment in child care facilities: American Public Health Association and the American Academy of Pediatrics. *Caring For Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs.* Ask your State agency for information on obtaining this publication. It is also available from the National Resource Center for Health and Safety in Child Care, toll-free phone 1-800-598-KIDS, web site: http://nrc.uchsc.edu

Clothing of Caregiver Involved in Food Preparation or Handling

Providers and staff should wear clean clothing and aprons when working with breastmilk, infant formula, or food. Consult with your State agency about requirements for wearing rubber or latex gloves or other types of protective clothing.



Refrigerator and Freezer Temperature

The refrigerator in the facility should be set at a temperature of 40° Fahrenheit or below and should be checked regularly with an appliance thermometer. The temperature in a freezer should be 0° Fahrenheit or below and should be checked regularly with an appliance thermometer. Have the appliances checked immediately by a qualified repairperson if the temperatures are above those levels.

Reducing Lead Exposure from Food

To reduce the chances that a baby will be exposed to lead from food:

- Store foods or beverages in covered plastic or regular glass food storage containers. After opening canned foods or beverages, store the leftover food or beverage in such containers. Do not store food or beverages in their opened cans, except infant formula.
- Do not feed babies any canned imported foods or beverages—these cans may have lead seams (lead in seams can leak into the food).
- Do not use decorative or ornamental ceramic ware or pottery, especially if imported from another country, for cooking, storing, or serving food or beverages. Imported dishware may release toxic levels of lead into food.
- Do not cook, store, or serve foods or beverages using:

  —Leaded crystal (glass) bowls, pitchers, or other containers, or

  —Antique ceramic or pewter vessels, dishes, or utensils.

  These items can release toxic amounts of lead into food.

If using canned foods to make baby food, only use food manufactured in the United States, where can seams cannot contain lead by law.

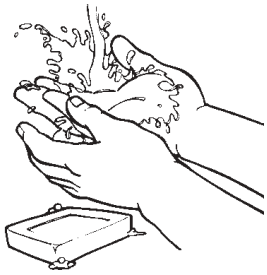
Wash each baby's and child's hands with soap and water before feeding to wash away dirt and dust that could contain lead. Dust and dirt containing lead can come from outside or inside a house or apartment. For this same reason, it is important to regularly wash toys and wash the hands of babies and children in your care. See page 25 on lead in water.

Figure 10

Hand Washing Tips

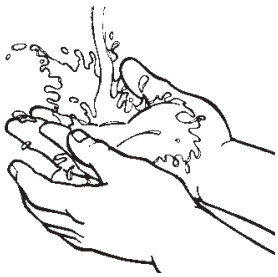
Wash Your Hands Often!
Proper and regular hand washing by adults and children can keep children, caregivers and their families healthier and can help prevent the spread of illness in child care settings. Hand washing is the easiest, least expensive, and most effective way to stop the spread of germs that cause illness. Our hands pick up germs from objects, other children and adults, food, surfaces, and our own bodies. Once germs are on our hands, they can easily enter our bodies or those we care for and cause illness. Make sure to wash your hands thoroughly by following these steps:

1 Wet your hands with warm running water. Add soap.

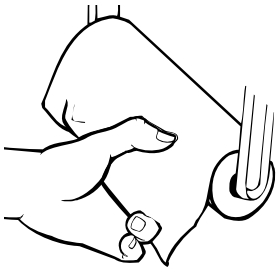


2 Wash all surfaces on hands. Rub vigorously for at least 20 seconds. Wash carefully between fingers, around the tops and palms of hands, over wrists, and under nails using a clean nail brush.

3 Rinse your hands well under warm running water, leave the water running while drying hands.



4 Dry your hands with a clean, disposable paper towel.



5 Turn off the faucet, using the disposable paper towel, instead of your clean bare hands.

WHEN SHOULD THE HANDS BE WASHED?

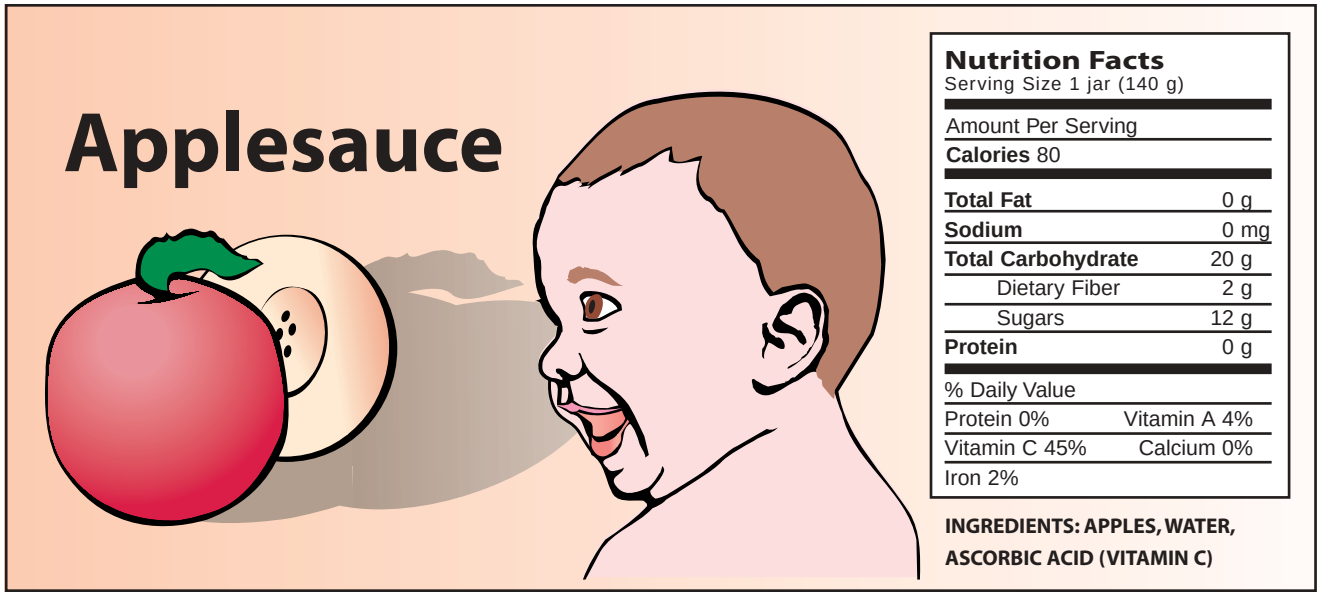
Wash your hands thoroughly *before* you:

- bottle feed a baby,
- handle, prepare, serve, or touch food or bottles,
- handle food utensils and set the table,
- touch raw meat, poultry, or fish,
- eat, drink, or feed food to babies or children,
- put away clean dishes,
- give medication.

Wash your hands thoroughly *after* you:

- arrive at the site for the day,
- handle raw meat, poultry, fish, or eggs,
- change a baby's or child's diaper and/or clothing,
- use the bathroom or assist a child in the bathroom,
- handle a baby, child, or person who is ill,
- come in contact with any bodily fluids (e.g., soiled diapers, urine, blood, feces, vomit, mucus, spit, breastmilk),
- wipe noses, mouths, bottoms, sores or cuts,
- get your hands dirty or have been cleaning a child, a room, potty chairs, toys, or other objects,
- sneeze or cough into tissues or your hands,
- give medication,
- handle pets, or other animals, or garbage,
- have been playing or working outside.

Sample Nutrition Label and Ingredient List for Commercial Jarred Baby Food*



*Note that manufacturers may include information on the content of additional nutrients (e.g., zinc, potassium, B-complex vitamins) on the nutrition label of foods for children under 2 years of age. Information about other essential vitamins and minerals is mandatory only when they are added to enrich or fortify a food, or when a claim is made about them on the label.

Definitions:

% Daily Value shows how a food fits into the overall daily diet of the child. It shows what percent of the nutrient is provided from one serving of the food to meet the daily dietary needs of the child.

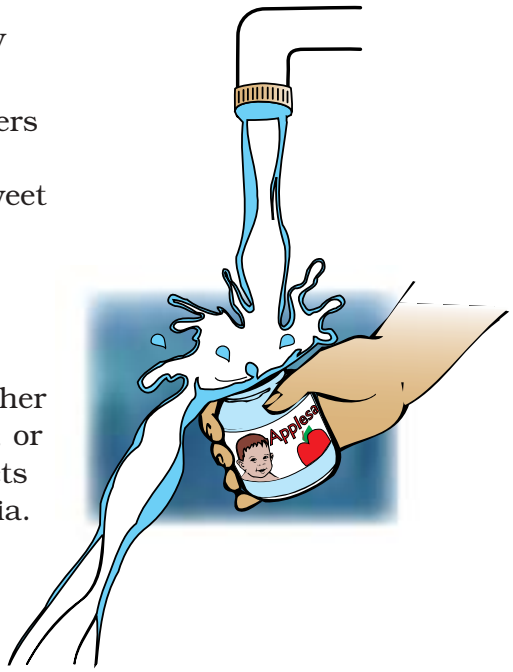
Serving Size is the basis on which manufacturers declare the nutrient amounts and % Daily Values on the label. It is the amount of food customarily eaten at one time.

11 Commercially Prepared Baby Food

Commercially prepared baby foods are safe, sanitary, and nutritious. Below, and in Figure 11, are guidelines on purchasing, serving, and storing commercially prepared baby foods.

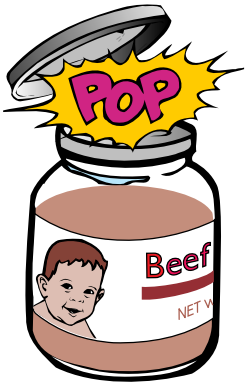
Purchasing Baby Food

- Look at the "use-by" dates for purchase and use of unopened baby food jars or other commercial baby food. If the date has passed, do not purchase or use the food.
- Buy baby food jars that are clean on the outside and do not have a broken vacuum seal. The seal is broken if the button in the center of the top is popped out. Do not purchase or use sticky or stained jars, jars with rusty lids, or cracked jars (the food in such jars would contain germs and may contain glass chips). Do not purchase or use any jar with the vacuum seal already broken.
- Choose single-ingredient baby foods and ones containing a small number of simple ingredients. Some combination foods or dinners with many different types of ingredients may have less nutritional value by weight than single-ingredient foods mixed together. Plain meat and plain vegetables can be mixed together if the baby likes the taste. Plain fruits can be served instead of baby food desserts.
- Read the ingredient list and the nutrition label on the food package. See the sample food label on page 78. Avoid baby foods containing added salt and sugar.
- Avoid desserts such as baby puddings, custards, and cobblers because they are high in sugar. Babies do not need added sugar and should have the opportunity to have naturally sweet foods such as fruit.
- For babies 6 to 12 months of age, choose baby foods that progress in texture and thickness to challenge the baby to learn new mouth skills.
- Do not feed commercial baby food dinners, vegetables, or other products containing milk, yogurt, cheese, whole milk solids, or nonfat dry milk to babies who cannot consume milk products because of milk allergies, lactose intolerance, or galactosemia.

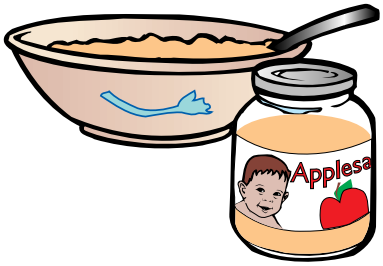


Serving Baby Food

- Look at the "use-by" date on the baby food jar. If the date has passed, do not use the food.

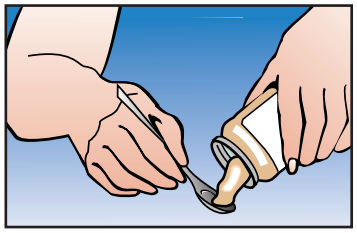


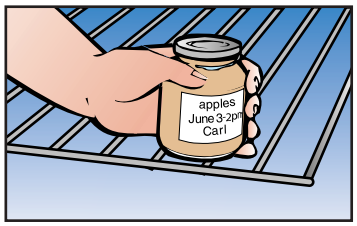
- Wash the jar and lid of baby food before opening it.
- Be sure the vacuum seal has not been broken before using. You should hear a pop when you open the lid of the jar.
- **Do not tap the jar lid with a utensil or other object or bang it against a hard surface—this could break glass chips into the food**. If a grating sound is heard when opening the jar lid, check if there are any glass chips under the lid. Always look at the food for any abnormal pieces when removing it from the jar.
- Since babies usually do not finish a small jar of baby food at one feeding, remove enough food from the jar for one feeding and put it in a dish for serving. Do not use the baby food jar as a serving dish. If the spoon used for feeding is put back into the jar, the baby's saliva will contaminate and spoil the remainder of the food. If more food is needed from the jar, use a clean spoon to remove it.



- **Do not leave baby food in jars to heat in a microwave oven—this may heat food unevenly and then the food could burn the baby's mouth**. Instead, remove the food from the jar and heat it only until warm on a stove, in a food warmer, or in a microwave oven. Then, stir it, and test its temperature before feeding. If a microwave oven is used to heat food removed from a jar, let the food sit for a few minutes, stir thoroughly, and test its temperature.
- Throw away any leftover food in the dish. Do not put it back into the jar because it could make the food in the jar spoil.
- The desired amounts of plain meats and plain vegetables can be mixed together. Some infants will accept meat better when it is mixed in this manner.

Storing Baby Food





- Observe "use-by" dates for pantry storage of unopened baby food jars. If the date has passed, throw out the food. Rotate the inventory of baby food. Store the unopened jars in a cool dry indoor place—not in a refrigerator or in a vehicle, a garage, or outdoors.
- Once a jar is opened and some food is removed, label and date the jar, store any remaining food immediately in the refrigerator, and use it within 2 days. However, baby food meats and egg yolks should be used within 24 hours. Throw out food not used within those time periods. Keep masking tape and a marker in the kitchen to use in marking food with the date and time opened.
- Regularly check to make sure the refrigerator is cold enough, 40° F or below, to keep food safe (see page 74).

Figure 11

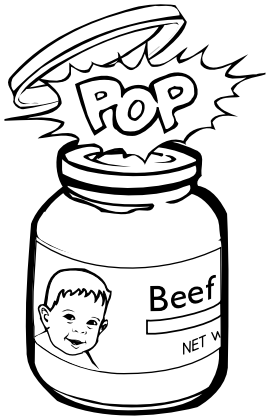
Using Commercially Prepared Baby Food

Keep the baby's food clean to keep it safe. Remember to wash your hands before handling any food (See Figure 10 on Hand Washing Tips).

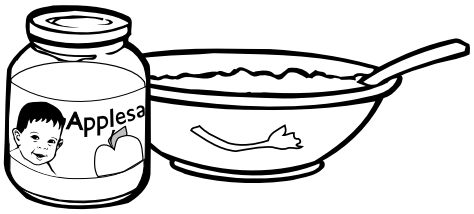
When you buy baby foods:

- Look at the "use-by" date on baby food jars. If the date has passed, do not buy or use the food.
- Buy baby food jars that are clean on the outside and do not have a broken vacuum seal. The seal is broken if the button on the center of the top is popped out.
- Single-ingredient baby foods, like single vegetables, fruits, and meats provide more nutrition ounce for ounce than baby food combination dinners and baby food desserts. Plain meats and plain vegetables or fruit can be mixed together if the baby likes the taste. Fruit can be served instead of a baby food dessert.
- Read the ingredient list on the baby food label. This way you can tell if foods contain vegetable, fruit, or meat as the first ingredient and if they have added salt, butter, oil or cream, sugar, corn syrup, or other ingredients.

When you serve baby food in jars:



- Look at the "use-by" date on the baby food jar. If the date has passed, do not use the food.
- Wash the lid and jar of baby food before opening.
- Make sure the jar lid is sealed and has not been broken before opening it. If the seal has not been broken, you should hear a "pop" noise when you open the lid of the jar.
- Do not tap the jar lid or bang it to open it—this could break glass chips into the food.
- Remove enough food from the jar for one feeding. Look closely at the food to make sure there are no abnormal pieces in it. Place the food in a dish for feeding. This way the baby's saliva on the spoon will not spoil the leftover food in the jar. If additional food is needed, use a clean spoon.
- If needed, warm the baby food on a stove or in a food warmer. Stir the food and test its temperature before feeding. Do not leave baby food in jars to heat in a microwave—the food can get very hot and could burn the baby's mouth.
- Throw away any leftover food in the dish. Do not put it back in the jar.



When you store baby food in jars:

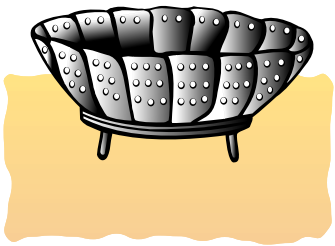
- After opening a jar, replace the lid and place it in the refrigerator. Label the jar with the child's name and the date and time that it was opened. Use the food within 2 days, except for baby food meats and egg yolks which should be used within 24 hours. Throw out foods not used within those times.
- Regularly check to make sure that your refrigerator temperature is cold enough (40° Fahrenheit or lower) to keep the food safe.
- Look at the "use-by" date on the jar when storing unopened jars. If the date has passed, throw out the food and recycle the jar.
- Store unopened jars in a cool dry place like a kitchen cabinet or pantry (not in the refrigerator, car, garage, or outdoors).
- Rotate the stored jars so that you use the food previously purchased prior to newly purchased food.

12 Home-Prepared Baby Food

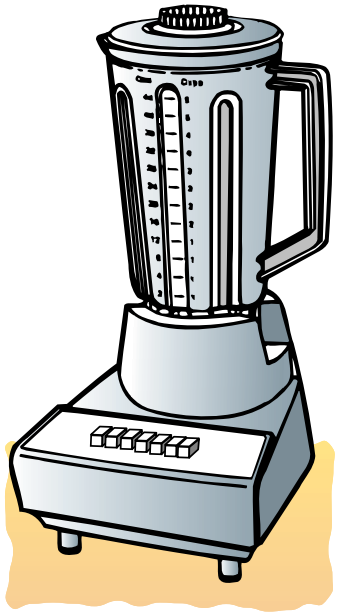
Home-prepared baby foods can be equally nutritious and more economical than commercially prepared baby foods. With home-prepared baby foods, the parent or caregiver has more control over the variety and texture of food than with commercial baby foods. Babies 8 months and older who are on commercial baby foods can be shifted to home-prepared baby foods with a thicker texture. When preparing food for the older baby, some similar foods can be used as those prepared for children over 1 year of age as long as the texture is modified for the baby's stage of development. However, some foods for children are not appropriate for babies, such as mixed foods like casseroles, pizza, etc. These mixed foods contain ingredients that a baby may not have tried before, may be allergic to, and could possibly choke on. See Figure 12 on using home-prepared baby foods.

When preparing baby food at home, care must be taken to ensure that the food is:

- prepared and stored safely;
- appropriate in texture;
- cooked using methods that conserve nutrients; and
- prepared without adding unnecessary ingredients such as sugar and salt.



Take extra care when handling a baby's food, bottles, and utensils. To better assure that baby food is safe and sanitary, it is critical to follow handwashing guidelines and to wash and sanitize all equipment used to prepare and serve food before and after food preparation. See Figure 10 on handwashing guidelines. See page 73 on washing and sanitizing all equipment and appliances, dishes and utensils, and food preparation and serving surfaces.

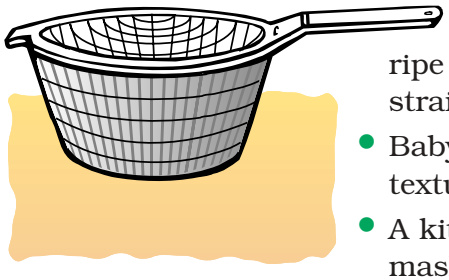


Equipment for Preparing Baby Food

Common kitchen equipment is all that is needed for cooking food. A simple metal steamer, found in supermarkets, can be used to cook vegetables and fruit and will reduce the loss of vitamins in cooking.

Equipment for making food into appropriate textures for babies include:

- Blender or food processor (purees foods, including meats, vegetables, and fruit, to a very smooth texture);



- Fine mesh strainer (use to puree soft cooked or very ripe fruits and some vegetables—push the food through the strainer with the back of a spoon);
- Baby food grinder or food mill (purees most foods to a smooth texture and purees meats to a coarser texture); or
- A kitchen fork and/or knife (for older infants, foods can be mashed with a fork or chopped finely with a knife—cubes of food should be no larger than 1/4 inch to reduce the chances of choking).

Wash the above equipment with soap and hot water, rinse thoroughly with hot water, and sanitize. Allow to air dry. Use separate cutting boards for animal foods (i.e., meat, poultry, fish) and non-animal foods (i.e., vegetables, fruits, breads). Do not use boards with crevices and cuts. Wash and sanitize boards after each use. Non-porous plastic or glass cutting boards are best as they are easiest to clean.

Preparing Food

Some general tips to remember when making baby food include these:

- Begin with good quality food. Use fresh food. Ideally, prepare foods for a baby immediately before use and avoid using leftover food.
- Cook foods until soft and tender.
- After pureeing food, liquid (cooking liquid, water, or fruit juice) can be added for a thinner texture. As a baby gets older and develops better eating skills, the texture of foods can be changed.
- It is not necessary to add sugar, syrups, salt, seasonings, oil, butter, lard, cream, gravy, sauces, or fat drippings to the baby's food. When cooking foods for a group of children, separate out the baby's portion before adding those ingredients.
- **Never** add honey to a baby's foods because of the risk of getting a very serious illness, called infant botulism.
- Do **not** use:
  - — home-canned food (if canned improperly, harmful bacteria could be in the food),
  - — outdated cans (if dated),
  - — food from dented, rusted, bulging, or leaking cans or jars, or
  - — food from cans or jars without labels.

Some tips to remember when preparing, using, and storing different foods include these:

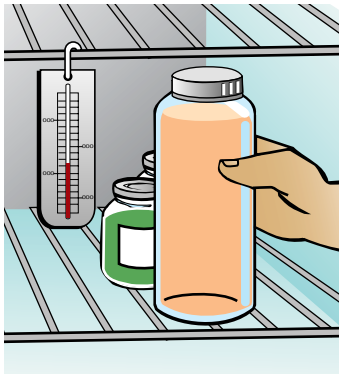
VEGETABLES AND FRUITS

- Do not feed home-prepared spinach, beets, turnips, carrots, or collard greens to babies **under 6 months old**. These types of home-prepared vegetables may contain large amounts of nitrates or nitrites which could make babies under 6 months of age sick.
- Select high quality fresh vegetables and fruits or plain frozen vegetables and fruits (without added salt or sauces). Canned fruits without added sugar or canned vegetables without added salt can be used. If frozen or canned foods are used, make sure to check the ingredient list.
- Wash fresh vegetables and fruits very well with clean cold running water to remove dirt. Remove pits, seeds, skins, and inedible peels from fruits and some vegetables. Edible skins and peels can be removed either before or after cooking.
- When cooking is needed to soften a food's texture, cook the vegetables or fruits either by boiling in a covered saucepan with a small amount of water or steaming in a saucepan until just tender enough to be pureed or mashed or eaten as a finger food. A microwave oven can be used to cook vegetables until soft.
- After cooking, puree or mash food with liquid until it reaches the desired smoothness. Vegetables puree easier in large quantities in a blender or food processor.
- Keep produce separate from meat, poultry, and fish in both your shopping cart and your refrigerator. The meat, poultry, and fish could drip juices and contaminate the other foods. When shopping, ask the cashier to bag meat, poultry, and fish separately from other foods.

MEATS, POULTRY, FISH, AND MILK PRODUCTS

Food Purchasing

- Obtain all food from an approved source, such as a grocery store or food wholesaler. Check with your State agency for approved sources.
- Purchase only USDA government-inspected meats.
- Select cheese made from pasteurized milk. Never feed babies dairy products made from raw, unpasteurized milk. Unpasteurized milk products may contain harmful bacteria that can cause serious illnesses.
- If fish is purchased, only purchase finfish (e.g., flounder, haddock, cod, salmon) not shellfish.



Food Storage

- Immediately after purchasing meats, poultry, finfish, and dairy products such as cheese, store them in a refrigerator (not in the door section) and remove them right before use. Make sure these foods are wrapped securely so that any juices do not drip and contaminate other foods. Do not allow these foods to sit out at room temperature.
- Store these uncooked foods in the coldest part of the refrigerator, on a bottom shelf or drawer, and prepare them quickly (within 1 day for fish, and 1 to 2 days for meat and poultry).

Thawing Foods

- Thaw frozen foods either in a refrigerator, during cooking, or in a microwave oven set at the defrost setting. If thawed in a microwave oven, cook immediately since parts of the food will be warm.
- Do not thaw frozen meat, poultry, or fish on a kitchen counter or in standing water at room temperature. Germs grow rapidly as food thaws at room temperature.

Avoid Spreading Harmful Bacteria to Other Foods

- To avoid spreading harmful bacteria to other foods, do not allow raw or partially cooked meat, poultry, fish, or their juices, to touch other foods or the surfaces, serving plates, or utensils used to serve or prepare other foods. For example, do not use a fork to test a piece of meat, poultry, or fish while cooking and then use the same fork to mix a cold vegetable dish.
- Use separate utensils and cutting boards for meat, poultry, fish and non-animal foods (i.e., vegetables, fruits, breads). Do not use boards with crevices and cuts. Wash and sanitize utensils and boards after each use. Non-porous plastic or glass cutting boards are best as they are easiest to clean.
- In the refrigerator, store raw or cooked meat, poultry, and fish **below** cooked or ready-to-eat foods so that no juices from those foods drip on other foods.

Preparation Before and After Cooking

- Remove all fat, gristle, skin, and bones from meat, poultry, and fish **before** cooking. Take care in removing all the bones, including small ones, from fish and poultry. Heat from cooking destroys any bacteria that may be added to food when bones are removed.
- After cooking, remove tough parts and visible fat.

Cooking Guidelines

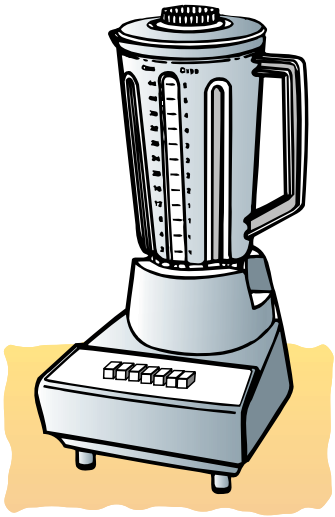
- Always use a meat thermometer when cooking meat, poultry, or fish to ensure that the foods are safely cooked. Brochures on how to use kitchen and meat thermometers are available from USDA's Food Safety and Inspection Service, toll-free phone 1-800-535-4555, or web site: http://www.fsis.usda.gov.
- Cook meat, poultry, and fish thoroughly to kill any bacteria that might be present in the food:
  - —Cook all red meats to an internal temperature of at least 160° Fahrenheit. Check the temperature with a meat thermometer.
  - —Cook white meat poultry to an internal temperature of at least 170° Fahrenheit and dark meat poultry to an internal temperature of at least 180° Fahrenheit for doneness. Check the temperature with a meat thermometer.
  - —Cook fish to an internal temperature of 160° Fahrenheit. Check the temperature with a meat thermometer.
- Try these cooking methods: broiling, baking or roasting, pan broiling, braising, pot roasting, stewing, or poaching (for fish).
- Do not cook food in an oven set at a temperature below 325° Fahrenheit because low temperatures may not heat the food hot enough to kill bacteria.

Never Feed Partially Cooked or Raw Meat, Poultry, Fish, or Eggs

- Never feed infants partially cooked or raw meat, poultry, fish, or eggs. Uncooked meat, poultry, fish, and eggs can contain harmful bacteria, parasites, or viruses that could cause very serious food poisoning.

Preparation After Cooking

- After cooking, separate any remaining bone, skin, and visible fat. Cut the meat, poultry, or fish into small pieces and puree, using some sterile water or cooked broth if needed for moisture, to the desired texture. Warm meat is easier to blend than cold meat; chicken, turkey, lamb, and fish are the easiest to puree. Also, meats are easier to puree in a blender or food processor in small quantities.
- As a baby's feeding skills mature, meats, poultry, and fish can be served ground or finely chopped instead of pureed.



Storage After Cooking

- After cooking, immediately serve these foods or store them in the refrigerator (for no longer than 24 hours) or freezer (use within 1 month). If stored, label the container with the date

and time the food was prepared. Cool foods immediately in the refrigerator after cooking.

- Throw out cooked meat, poultry, or fish if kept at room temperature out of the refrigerator for more than 2 hours, including serving time.

Home-Prepared Eggs

- Buy grade AA or A eggs with clean, uncracked shells. Do not buy unrefrigerated eggs.
- As soon as possible after purchasing, refrigerate eggs in the original carton, in the main section of the refrigerator which is colder than refrigerator door sections.
- Cook eggs well—boil them until the yolk and white are firm and not runny, and then separate the yolk from the white. Do not serve soft, runny eggs—these are undercooked and might contain bacteria that can make a baby sick.
- Only feed babies the yolk of the egg—the white is not recommended for babies less than 1 year of age. The hard yolk can be mashed with some liquid, such as sterile water or infant formula, to the desired texture.
- Refrigerate eggs immediately after cooking or keep them hot. Throw out eggs if kept at room temperature out of the refrigerator for more than 2 hours, including serving time.
- Do not feed babies raw or partially cooked eggs or foods that contain them, such as homemade ice cream, mayonnaise, or eggnog (do not feed commercial foods containing eggs to babies either because they would contain egg whites).
- Before using commercially prepared foods, check the list of ingredients to check if they contain whole eggs.
- Wash hands, utensils, equipment, and work areas with warm soapy water before and after contact with eggs and dishes containing eggs.
- Serve cooked eggs and dishes containing eggs immediately after cooking or place in shallow containers for quick cooling and refrigerate immediately.

Dry Beans or Dry Peas

- To cook dry beans or dry peas, follow cooking instructions found on the package label or in many basic cookbooks. It is not necessary to add seasonings, salt, or fat to the beans or peas. Make sure to cook the beans or peas until soft enough to puree or mash easily.
- If canned beans are used, drain the salty water and rinse the beans with clean water before pureeing or mashing.

Grain Products

- Cook noodles, macaroni, and spaghetti until soft, then mash or finely chop, depending on the baby's development.
- Cook rice, barley, or other grain kernels until very soft and then puree or finely mash before serving to a baby. Babies can choke on cooked grain kernels that are not mashed or ground.

Serving, Storing, and Reheating Home-Prepared Baby Foods

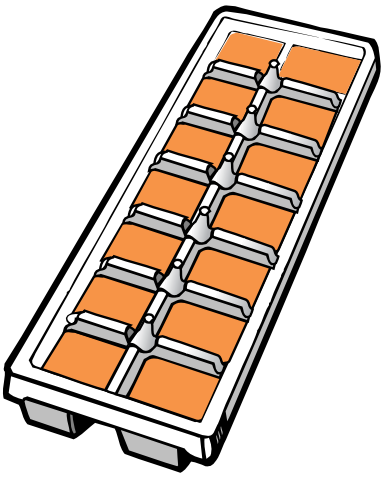
Recommended guidelines for serving and storing home-prepared baby foods after cooking and pureeing include:

If Serving Immediately:

- Serve freshly cooked food to a baby shortly after preparation is completed. Allow the food to cool for a short period (10-15 minutes) so that it does not burn the baby's mouth. Test the temperature of the food, using a clean spoon, before feeding it to the baby.
- Do not allow freshly cooked foods to stand at room temperature or between 40° and 140° Fahrenheit for more than 2 hours. Between those temperatures, bacteria can grow that can cause a baby to become ill.

If Refrigerating Foods:

- Keep the refrigerator maintained in a clean and sanitary condition. See page 74 on maintaining the proper temperature in a refrigerator.
- Refrigerate or freeze home-prepared foods, which will not be eaten, immediately after cooking. All foods to be stored should be covered, wrapped, or otherwise protected and labeled with the date and time they were prepared.
- Refrigerate hot foods in shallow containers with the food less than 3 inches deep and cover the container only after the food is cold.
- Store raw or partially cooked foods below cooked or ready-to-eat foods so that the raw juices cannot drip onto the other foods.
- Use freshly prepared refrigerated foods within 2 days (except meats, poultry, fish, and egg yolks which should be used within 24 hours).
- Throw out any foods if left unrefrigerated for more than 2 hours. It is not wise to taste the food to see if it is safe because a food can contain harmful bacteria but still taste normal.



If Freezing Foods:

- Keep the freezer clean and sanitary.
- Try these methods of freezing baby food in serving-size quantities:
  - —**Ice cube tray method**—Pour cooked pureed food into sections of a clean ice cube tray; cover with plastic wrap, a lid, or aluminum foil; and place into the freezer. When frozen solid, the cubes can be stored in a freezer container or plastic freezer bags in the freezer.
  - —**Cookie sheet method**—Place 1-2 tablespoons of cooked pureed food in separate spots on a clean cookie sheet, cover with plastic wrap or aluminum foil, and place into the freezer. When frozen solid, the frozen food pieces can be stored in a freezer container or plastic freezer bags in the freezer.
- Label and date the bags or containers of frozen food and use them within 1 month. When ready to use the frozen baby food, remove the desired number of cubes or pieces from the bag or container with clean hands and thoroughly reheat them.
- See page 74 on checking the temperature of the freezer.

When Reheating Foods:

- Thoroughly reheat refrigerated or frozen home-prepared baby foods to 165° F before feeding them to a baby. Reheating kills bacteria which can grow slowly while a food is in the refrigerator or during thawing. Stir the food and test its temperature before feeding it to the baby.
- Defrost frozen foods in the refrigerator, under cold running water, or as part of the reheating process. **Never** defrost baby foods by leaving them at room temperature or in standing water, as in a pan or bowl.
- Throw out any uneaten leftover food in the baby's dish or the serving dish.

Do not refreeze baby food that has been removed from the freezer and allowed to thaw in the refrigerator. Use thawed food within 48 hours from the time it was removed from the freezer (label the food with the date and time you removed it). Throw it out if it has been stored longer than 48 hours. Meats, poultry, or fish should be thrown out if stored longer than 24 hours.

Figure 12

Using Home-Prepared Baby Foods

Keep the baby's food clean to keep it safe. Remember to wash your hands before handling any food (See Figure 10 on Hand Washing Tips).

Before preparing food:

- Wash all bowls, utensils, pots and pans, equipment (such as a blender, food mill, food processor, baby food grinder, cutting board), the sink, and counters in hot, soapy water, rinse, and sanitize. Allow to air dry.

When you prepare baby food:

- Begin with good quality food. Use fresh food if possible. Check ingredients on the ingredient label of commercially canned or frozen foods. Prepare foods for a baby immediately before use and avoid using leftover food.
- Wash fruits and vegetables well and remove parts not to be eaten (peels, seeds, pits) before cooking.
- **Do not feed home-prepared spinach, beets, turnips, carrots, or collard greens to babies under 6 months old**.
- Remove bones, fat, and gristle from meats, poultry, and fish. Meats, poultry, fish, dried beans or peas, and egg yolks should be well cooked. Baking, boiling, broiling, poaching, and steaming are good cooking methods. Call USDA's Meat and Poultry Hotline at 1-800-535-4555 for information on safe food handling, including what temperatures to bring meat, poultry, and fish to during cooking.
- Cook foods until they are soft and tender. Food can be pureed to the right texture using a blender or food processor, a fine mesh strainer, baby food grinder, or food mill. For older babies, foods can be mashed with a fork or chopped finely. Water can be added to give pureed food a thinner consistency.
- Do not add salt, butter, margarine, lard, oil, cream, sugar, syrups, gravy, sauces, or fat drippings to the baby's food. **Never add honey to the baby's food**.
- **Do not use home-canned food, food from dented, rusted, bulging or leaking cans or jars, or from cans or jars without labels**.

When you store home-prepared baby food:

- Immediately after cooking, refrigerate or freeze freshly cooked food to be stored. Label the food with the date and time it was prepared. Do not let the food sit at room temperature—harmful germs can grow in the food at that temperature. Throw out foods left at room temperature for 2 hours or more including serving time.
- Make sure to place foods to be stored in the refrigerator in a clean container with a tightly fitting lid. Regularly check to make sure that the refrigerator temperature is cold enough (40° Fahrenheit or below) to keep food safe.
- Use refrigerated foods within 2 days (except for meats, poultry, fish, and egg yolks—use them within 24 hours). Throw out foods not used within those times.
- To freeze baby food, either pour cooked food into sections of a clean ice cube tray or place 1 to 2 tablespoons of pureed food in spots on a clean cookie sheet. Cover the food with plastic wrap or foil. When frozen, place the food pieces into a covered freezer container or tightly closed plastic bag in the freezer. Label and date the containers or bags. Use frozen foods within 1 month.
- Regularly check to make sure that the freezer temperature is cold enough (0° Fahrenheit or below) to keep food safe.

When you serve home-prepared baby food:

- Serve freshly cooked food to a baby right after preparing it. Allow the food to cool to lukewarm. Stir the food and test its temperature before feeding.
- Throw away any leftover food in the baby's dish. Do not put it back in the refrigerator or freezer.

When you reheat home-prepared baby food:

- Completely reheat refrigerated or frozen home-prepared baby food to at least 165° Fahrenheit before feeding. Allow food to cool to lukewarm. Stir the food and test its temperature to make sure it is not too hot or cold before serving to baby.
- Thaw frozen foods in the refrigerator, under cold running water, or when reheating the food. Never defrost baby foods by setting them out at room temperature or in a bowl of standing water. Germs can grow in food sitting at room temperature.
- Throw out leftover food remaining in the dish that the baby does not eat.
- Do not refreeze baby food that has thawed. Label food with the date and time it was removed from the freezer. Store thawed food in the refrigerator and use it within 2 days or throw it out (except for meats, poultry, or fish which should be thrown out after 24 hours).

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* These are also the references for Figure 1, page 12.

Resources on Infant Nutrition, Food Safety, and Related Topics

Agency or Organization and Address	Resources Available and Contact Information
Child Nutrition Division Food and Nutrition Service U.S. Department of Agriculture 3101 Park Center Drive Alexandria, VA 22302	Administers USDA's child nutrition programs and provides resource materials on child nutrition programs. **Phone:** (703) 305-2590 **Web site:** http://www.fns.usda.gov
National Food Service Management Institute The University of Mississippi P.O. Drawer 188 University, MS 38677-3054	Provides training and resource materials to USDA funded child care providers. **Phone:** (601) 232-7658 **Toll-free phone:** 1-800-321-3054 **Web site:** http://www.nfsmi.org
Food Safety and Inspection Service U.S. Department of Agriculture Washington, DC 20250	Protects consumers by ensuring that meat, poultry, and egg products are safe, wholesome, and accurately labeled. Provides resource materials on food safety. Operates the USDA Meat and Poultry **Hotline Toll-free phone:** 1-800-535-4555 **TTY:** 1-800-256-7072 **Web site:** http://www.fsis.usda.gov Resource publication: Keeping Kids Safe: A Guide for Safe Food Handling & Sanitation for Child Care Providers (1996) Publishes "The Food Safety Educator," a free quarterly newsletter on new food safety educational programs and materials, and emerging science concerning food safety risks. To subscribe: provide your full name, organization name & mailing address to: • USDA/FSIS/Food Safety Education, Room 2944 South Building, 1400 Independence Ave., SW, Washington, DC 20250-3700, or • fax your request to: (202) 720-9063, or • e-mail your request to: fsis.outreach@usda.gov
Child Care Bureau Administration for Children and Families Department of Health and Human Services 400 Sixth Street, S.W. Washington, DC 20013	Administers Federal child care programs to states, territories, and tribes for low-income children and families. **Phone:** (202) 690-6782 **Web site:** http://www.acf.dhhs.gov/programs/ccb Sponsors the National Child Care Information Center, 243 Church Street, N.W., 2nd Floor, Vienna, VA 22180 This center is a national resource that links information and people to complement, enhance, and promote the child care delivery system. **Toll-free phone:** 1-800-616-2242 **TTY:** 1-800-516-2242 **Web site:** http://nccic.org
Centers for Disease Control and Prevention Department of Health and Human Services 1600 Clifton Rd. Atlanta, GA 30333	Develops and applies disease prevention and control, environmental health, and health promotion and education activities. **Toll-free phone:** 1-800-311-3435 **Web site:** http://www.cdc.gov Related publication: The ABCs of Safe and Healthy Child Care: A Handbook for Child Care Providers (1996) (To order, call 1-800-553-NTIS; the order number is: PB97-104723)

Food and Drug Administration Center for Food Safety and Applied Nutrition Department of Health and Human Services 200 C Street, S.W. Washington, DC 20204	Promotes and protects the public's health by ensuring that the Nation's food supply is safe, sanitary, wholesome, and honestly labeled, and that cosmetic products are safe and properly labeled. Operates a toll-free public information line, 1-888-SAFEFOOD that provides accurate and meaningful information about food safety. **Web sites:** http//www.cfsan.fda.gov This is a gateway web site that provides links to selected government food safety-related information: http//www.foodsafety.gov
National Agriculture Library (NAL) U.S. Department of Agriculture 10301 Baltimore Blvd., Room 304 Beltsville, MD 20705-2351	Provides resource materials on infant nutrition and food safety. NAL sponsors: —**Food and Nutrition Information Center (FNIC)**—collects and disseminates information about food and nutrition. **Phone:** (301) 504-5414 **Web site:** http//www.nal.usda.gov/fnic —**USDA/FDA Foodborne Illness Education Information Center**—provides information about foodborne illness prevention to those developing education and training materials for food workers and consumers. **Web site:** http//www.nal.usda.gov/foodborne —**Child Care Nutrition Resource System**—provides recipes, resources, and information on food safety and preparing nutritious meals. **Web site:** http//www.nal.usda.gov/childcare —**WIC Works Resource System**—provides information on infant nutrition and breastfeeding. **Web site:** http://www.nal.usda.gov/wicworks
National Resource Center for Health & Safety in Child Care National Center for Education in Maternal & Child Health Georgetown University 2000 15th Street, North, Suite 701 Arlington, VA 22201-2617	Provides publications, resources, and references on infant nutrition and health and safety in child care. **Toll free phone:** 1-800-598-KIDS **Phone:** (703) 524-7802 **Web site:** http://nrc.uchsc.edu Publishes the National Health and Safety Performance Standards: Guidelines for Out-Of-Home Child Care Programs.
National Maternal and Child Health Clearinghouse 2070 Chain Bridge Road, Suite 450 Vienna, VA 22182	Serves as a clearinghouse of maternal and child health publications including those on infant nutrition subjects. **Toll-free phone:** 1-888-434-4MCH **Phone:** (703) 821-8955 **Web site:** http://www.nmchc.org
U.S. Consumer Product Safety Commission (CPSC) Washington, DC 20207	CPSC protects the public from unreasonable risks of injury or death from many types of consumer products including baby and children's products. **Toll-free phone hotline:** 1-800-638-2772 **TTY Hotline:** 1-800-638-8270 **Web site:** http://www.cpsc.gov Free copies of CPSC's "Sleep Safe/Play Safe" campaign brochures and posters, in English and Spanish, are available through the web site or by writing to CPSC, Washington, DC 20207. To obtain information about product safety or report a dangerous product or a product-related injury, call CPSC's above hotline or visit CPSC's web site.

NUTRITION.GOV (Web site)	Serves as a web-based guide to nutrition and health information on Federal Government Web sites. This national resource enables easy access to government information on nutrition, healthy eating, physical activity, and food safety, and specialized nutrition information for infants and children. **Web site:** http://www.nutrition.gov
Federal Consumer Information Center (FCIC) Pueblo, CO 81002	Provides free and low cost publications, including those on health and nutrition topics, through the Consumer Information Catalog. FCIC also sponsors the National Contact Center that answers questions about Federal agencies, programs, and services. **Toll-free phone for the Catalog:** 1-888-8 PUEBLO (1-888-878-3256). **Toll-free phone for the National Contact Center:** 1-800-688-9889 **TTY:** 1-800-326-2996 **Web site:** http://www.pueblo.gsa.gov
U.S. Government Bookstore Norwest Banks Building 201 W. 8th St. Pueblo, CO 81003	Offers for sale official Government books, periodicals, posters, pamphlets, forms, and subscription services in many subject categories, including nutrition, childhood, health care, and safety. **Phone:** (719) 544-3142 **Fax:** (719) 544-6719 **E-mail:** pueblobks@gpo.gov **Web site:** http://bookstore.gpo.gov/locations/pueblo.html
American Dietetic Association (ADA) 216 W. Jackson Blvd. Suite 800 Chicago, IL 60606	Provides materials and information on infant nutrition, food safety, and other nutrition topics. ADA's National Center for Nutrition and Dietetics (NCND) Information Line offers the public direct access to objective, credible food and nutrition information from registered dietitians. **Toll-free phone:** 1-800-366-1655 **Web site:** http://www.eatright.org/ncnd.html
The American Academy of Pediatrics 141 Northwest Point Boulevard Elk Grove Village, IL 60007-1098	Provides materials on infant nutrition, child safety, first aid, and choking prevention. **Phone:** (847) 434-4000 **Web site:** http://www.aap.org
American Red Cross	Provides health and safety training to the public and emergency social services to U.S. military members and their families. Your local chapter provides pamphlets, posters, and classes in emergency techniques for first aid, preventing choking, and cardiopulmonary resuscitation (CPR). **National Red Cross web site:** http://www.redcross.org. This web site can help you find your local chapter of the American Red Cross.
Partnership for Food Safety Education 800 Connecticut Avenue, N.W., Suite 500 Washington, DC 20006-2701	Sponsors "Fight BAC!" Campaign and is a source of information on food safety. **Phone:** (202) 429-8273 **Web site:** http://www.fightbac.org
National Network for Child Care (NNCC) NNCC Special Products Communication Systems - Distribution Center 119 Printing and Publications Building Ames, IA 50011-3171	Shares land grant university information about children and child care, through Cooperative Extension, with parents, professionals, practitioners, and the general public. **Phone:** (515) 294-5247 **Web site:** http://www.nncc.org

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