BASIC INFANT FORMULA MODULE

WORKBOOK

Basic Infant Formula Workbook

About the Basic Infant Formula Workbook

This workbook contains case studies and test questions that pertain to information in the Basic Infant Formula Module. This workbook is your personal copy to use and keep. Feel free to write in it and use it record your answers to the case studies and test questions.

Using this Workbook Along with the Basic Infant Formula Module

As you read through the main text of the Basic Infant Formula Module, icons will prompt you to stop and refer to the corresponding case studies and test questions in this workbook.

Case Studies — The case studies in this workbook will enhance your learning and help you apply the information in the module.

Test Questions — This workbook contains two sets of test questions that relate to the two parts of the module.

Record your final test answers on the answer sheets following this page of the workbook. The answer sheets can be removed from the workbook if you need to submit them to a supervisor. Each local agency has different procedures for checking test answers and making corrections. Check with your supervisor to find out the procedure in your clinic.

Workbook

Section A Workbook Activities

Name_____ Date:_____

Formula Module Answer Pages
(*Use these pages to record your answers to the test questions.)*

Workbook Activity 1 –
(Workbook activities 1-6 use the tables and handouts on pages 1-11 to 1-16.)

Review Table A-1: Comparison of Select Nutrients in Standard Milk-Based Powdered Infant Formulas and Human Milk

1. Which standard milk based formula(s) contain partially hydrolyzed whey protein?

2. What is the whey to casein ratio of the formula you listed above?

   What is the whey to casein ratio of our contract formula?

   How does the whey to casein ratio in these formulas differ from human milk?

3. Look at the fat source for each formula. What fat source does the contract formula contain?

How does this differ from the other formulas?

4. Compare the carbohydrate source for standard milk based formulas. How do the formulas differ from each other? How are the formulas similar?

5. Standard milk-based formulas are sometimes considered the same or very similar to each other. What can you conclude from comparing the formulas in this chart?

Workbook Activity 2

Review Table A-2: Comparison of Select Standard Milk-Based Infant Formulas with Special Characteristics and the handout "Formulas with Special Characteristics"

1. Which formulas contain added rice starch? Which one of these formulas is 99% lactose free?

2. Which formula contains a probiotic?

3. Which formula is used for the treatment of acute diarrhea?

4. Which formulas are lactose free?

5. Which formula contains partially hydrolyzed protein?

   This formula is considered a standard formula but what would be an indication for using it over other standard milk-based infant formulas?

6. The AAP has increased recommendations for Vitamin D for newborns. Which formula contains 400 IU of Vitamin D in 27 oz of formula? How does this differ from other standard formulas?

Workbook Activity 3

Review Table A-3: Comparison of Select Nutrients in Standard Soy-Based Powdered Infant Formulas and Breastmilk

1. List the names of the standard soy-based formulas.

2. What is the protein source for these formulas?

3. Why would a soy-based formula be indicated for an infant?

Workbook Activity 4
Review Table A-4: Comparison of Select Nutrients in Protein Hydrolysate Infant Formulas

1. List the names of the protein hydrolysate infant formulas:

2. Which formulas contain a probiotic?

   Do liquid forms of this formula contain the probiotic?

   Why or why not?

3. Which formula contains the most MCT (medium chain triglyceride) oil?

Workbook Activity 5
Review Table A-5: Comparison of Select Nutrients in Powdered Post-Discharge Formula for Preterm Infants and Standard Milk-based Infant Formula per 100 calories

1. List the names of the preterm infant formulas:

2. How does the calcium content differ in preterm infant formulas versus standard infant formula?

3. How does the calorie per ounce differ from standard infant formulas?

4. How does the protein content differ from standard infant formula?

Workbook Activity 6
Review Table A-6: Comparison of Selected Standard Follow-Up/Toddler Formulas/Milk Drinks and Whole Cow's Milk

1. List available toddler follow-up formulas or milk drinks

2. Compare the calcium content of toddler formulas and standard milk based formula. How does it differ?

   Refer back to Table A-5. How does the calcium content of toddler formulas differ from preterm infant formulas?

FORMULAS WITH SPECIAL CHARACTERISTICS

Enfamil Newborn

Milk-based standard formula that is designed for newborns to provide 400 IU of Vitamin D in 27 fluid ounces, which is close to the approximate daily formula intake of newborns less than 3 months of age. Current standard formulas provide 400 IU (the AAP recommendation of Vitamin D for infants per day) in 34 ounces of formula. The whey to casein ratio is 80 percent whey and 20 percent casein.

Enfamil Gentlease

Milk-based standard formula that is low in lactose. It also contains partially hydrolyzed milk protein compared to other standard milk-based formulas. The lactose content in Gentlease is about 1/5 of the amount in standard milk-based infant formula. The milk protein is 60 percent whey and 40 percent casein, which is been partially broken down. The formula is not hypoallergenic. However, it may be indicated for infants who have had a negative reaction to other standard milk-based formulas, but not for those who have an allergy to milk protein.

Nestle Good Start Gentle

Milk-based standard formula which differs from other milk-based standard formulas in that it contains 100 percent partially hydrolyzed non-hypoallergenic whey protein. The whey protein is only partially hydrolyzed and is not hypoallergenic. An infant who has had an allergic reaction to milk protein should not be fed Good Start formulas. However, these formulas may have a better taste than casein hydrolysate formulas because they do not contain free amino acids. This formula is not kosher due the use of the pork derived enzyme trypsin, which is used to hydrolyze the protein in production. (**Note**: Good Start Soy formulas are kosher due to the different protein used).

Nestle Good Start Protect

Milk-based standard formula which has the same formulation of Good Start Gentle in that it contains 100 percent partially hydrolyzed non-hypoallergenic whey protein but also contains the addition of a probiotic. This formula contains the live and active probiotic cultures *Bifidobacterium lactis Bifidobacteria.* These live cultures may be compromised when using water above 100 degrees F (40 degrees C). It is only available in powdered form and differs from other standard milk-based formulas by containing 100 percent whey protein.

Similac Sensitive

Milk-based standard formula which is virtually lactose-free; the carbohydrate source is glucose polymers instead of lactose. The whey to casein ratio is 18:82 and the protein is the same as other standard milk-based formulas. This formula may be trialed for infants with symptoms of gassiness, bloating and frequent loose stools.

Enfamil AR and Similac for Spit-Up

Milk-based infant formulas in which rice starch replaces part of the carbohydrate. They may be used to treat spitting up or reflux. Similac for Spit -Up is considered to be a low-lactose formula, which makes it different from Enfamil AR LIPIL (considered a reduced-lactose formula). Both of the formulas differ in the type of fat used in the formulation; Enfamil AR contains a mixture of vegetable oils (palm olein, soy, coconut, and high oleic sunflower oils) compared to Similac for Spit-Up, which uses high oleic safflower oil.

Similac Expert Care for Diarrhea

Soy-based formula designed to treat diarrhea due to gastrointestinal virus or infection. This formula may also be prescribed after long-term use of antibiotics. It contains added dietary fiber (soy) specifically for the management of diarrhea. **Note:** this formula should not be used for more than 10 days.

Table A-1 **Comparison of Select Nutrients in Standard Milk-Based Powdered Infant Formulas and Human Milk**

	Enfamil Premium Infant	Gerber Good Start Gentle	Gerber Good Start Protect	Similac Advance	Store Brand Infant Formula	Human Milk (Mature)
Calories per oz	20	20	20	20	20	18-22
Protein source	Non-fat milk, whey protein concentrate	Partially hydrolyzed whey protein	Partially hydrolyzed whey protein	Non-fat milk, whey protein concentrate	Non-fat milk, whey protein concentrate	Human milk
Whey:Casein	60:40	100% whey	100% whey	48:52	60:40	80:20
% of Calories	8.5%	8.8%	8.8%	8.0%	8.5%	6.0%
Fat source	Palm olein, coconut, soy and high-oleic sunflower oils, DHA/ARA*	Palm olein, soy, coconut and high-oleic sunflower or high-oleic safflower oil, DHA/ARA*	Palm olein, soy, coconut and high-oleic sunflower or high-oleic safflower oil, DHA/ARA*	High-oleic safflower oil, soy and coconut oils, DHA/ARA*	Palm olein, soy, coconut and high-oleic (safflower or sunflower oil), DHA/ARA*	Human milk fat, DHA/ARA*
% of Calories	48%	45.3%	45.3%	43%	48%	52%
Carbohydrate source	Lactose and prebiotics-GOS† & PDX‡	Corn maltodextrin, lactose and prebiotic-GOS†	Corn maltodextrin, lactose and probiotic-*Bifidus BL*§	Lactose and prebiotic-GOS†	Lactose and prebiotic-GOS†	Human milk oligosaccharides (prebiotics) and lactose
% of Calories	43.5%	45.9%	45.9%	49.0%	43.5%	42.0%

*DHA/ARA-Docosahexaenoic acid/ Arachidonic acid

†GOS-galactooligosaccharides (prebiotic blend)

‡PDX-polydextrose (prebiotic)

§BL-*Bifidobacterium lactis* (probiotic)

Table A-2 Comparison of Selected Powdered Standard Milk-Based Infant Formulas with Special Characteristics

	Enfamil® A.R.	Enfamil® Gentlease	Good Start® Protect	Similac® Sensitive	Similac® for Spit-Up	Enfamil Premium® Newborn
Protein source	Non-fat milk	Partially hydrolyzed non-fat milk and whey protein concentrate	Partially hydrolyzed whey protein	Milk protein isolate	Milk protein isolate	Non-fat milk
Whey:Casein	20:80	60:40	100% whey	18:82	18:82	80:20
% of Calories	10.0%	9.0%	8.8%	9.0%	9.0%	8.5%
Fat source	Palm olein, soy, coconut and high-oleic sunflower , DHA/ARA*	Palm olein, soy, coconut and high-oleic sunflower oils, DHA/ARA*	Palm olein, soy, coconut and high-oleic sunflower or high-oleic safflower oil, DHA/ARA*	High-oleic safflower, soy & coconut oils, DHA/ARA*	High-oleic safflower, soy & coconut oils, DHA/ARA*	Palm olein, coconut, soy &
% of Calories	46.0%		45.3%		49.0%	
Carbohydrate source	Lactose (66%), rice starch (20%), and maltodextrin (14%)		Lactose, corn maltodextrin and probiotic -*Bifidus BL*§		Corn syrup solids, rice starch, sugar	
% of Calories	44.0%		45.9%		43.0%	
Special Property	Contains added rice starch		Contains probiotic–*Bifidus BL*§		Contains added rice starch, 99% lactose-free	

*DHA/ARA-Docosahexaenoic acid/Arachidonic acid

†GOS-galactooligosaccharides (prebiotic blend)

§BL-*Bifidobacterium lactis* (probiotic)

∞*PDX – Polydextrose* (prebiotic)

Table A-3 **Comparison of Select Nutrients in Standard Soy-Based Powdered Infant Formulas and Breastmilk**

	Similac Soy Isomil	Enfamil ProSobee	Gerber Good Start Soy	Store Brand Soy Formula	Breastmilk
Protein source	Soy protein isolate, L-methionine	Soy protein isolate, L-methionine	Partially hydrolyzed soy protein isolate	Soy protein isolate, L-methionine	Human milk protein
% of Calories	10.0%	10.0%	10.0%	10.0%	6.0%
Fat source	High-oleic safflower, soy, and coconut oils, DHA/ARA*	Palm olein, soy coconut, and high-oleic sunflower oils, DHA/ARA*	Palm olein, soy, coconut, high-oleic sunflower or safflower oils, DHA/ARA*	Palm olein, coconut, soy, and high-oleic safflower or sunflower oil, DHA/ARA*	Human milk fat
% of Calories		48.0%		48.0%	
Carbohydrate source		Corn syrup solids		Corn syrup solids	
% of Calories		42.0%		42.0%	

*DHA/ARA-Docosahexaenoic acid/ Arachidonic acid

Table A-4 **Comparison of Select Nutrients in Protein Hydrolysate Infant Formulas**

	Similac Expert Care Alimentum	**Nutramigen with Enflora LGG£**	**Pregestimil LIPIL**
Calories per oz	20	20	20
Protein source	Casein hydrolysate; L-cystine; L-tyrosine; L-tryptophan; taurine; L-carnitine	Casein hydrolysate; L-cystine, L-tyrosine; L-tryptophan, taurine, L-carnitine	Casein hydrolysate, L-cystine, L-tyrosine, L-tryptophan, taurine, L-carnitine
% of Calories	11.0%	11.0%	11.0%
Carbohydrate source	Corn maltodextrin; sucrose	Corn syrup solids; modified corn starch	Corn syrup solids; modified corn starch
% of Calories	41.0%	41.0%	41.0%
Fat source	High-oleic safflower oil, medium chain triglycerides, soy oil; DHA/ARA*	Palm olein; soy, coconut, and high-oleic sunflower oils; DHA/ARA*	Medium chain triglycerides, soy oil, corn oil, high-oleic vegetable oil (safflower or sunflower); DHA/ARA*
% of Calories	48.0% (33% MCT oil)	48.0%	48.0% (55% MCT oil)

*DHA/ARA-Docosahexaenoic acid/ Arachidonic acid

£LGG-*Lactobacillus rhamnosus GG* (probiotic)

Table A-5 **Comparison of Select Nutrients in Powdered Post-Discharge Formula for Preterm Infants and Standard Milk-Based Infant Formulas per 100 Calories**

	Similac Expert Care Neosure®	Enfamil Enfacare®	Similac Advance®
Calories per ounce	22	22	20
Protein, g	2.80	2.80	2.07
Protein source	Non-fat milk, whey protein concentrate	Non-fat milk, whey protein concentrate	Non-fat milk, whey protein concentrate
% of Calories	11.0%	11.0%	8.0%
Carbohydrate, g	10.1	10.4	11.2
Carbohydrate source	Corn syrup solids, lactose	Corn syrup solids, lactose	Lactose and prebiotic - GOS†
% of Calories	40.0%	42.0%	49.0%
Fat, g	5.5	5.3	5.4
Fat Source	Soy oil, high-oleic Safflower oil, medium chain triglycerides, coconut oil; DHA/ARA* (20% MCT oil)	High-oleic sunflower and/or safflower oils, soy oil medium chain triglycerides, coconut oil; DHA/ARA* (20% MCT oil)	High-oleic safflower oil, soy and coconut oil; DHA/ARA*
% of Calories	49.0%	47.0%	43.0%
Calcium, mg	105	120	78
Phosphorus, mg	62	66	42
Vitamin A, IU	460	450	300
Vitamin D, IU	70	70	60.0
Vitamin E, IU	3.6	4.0	1.5
Vitamin C, mg	15	16	8
Thiamine, mcg	220	200	100
Folic Acid, mcg	25	26	15

*DHA/ARA-Docosahexaenoic acid/ Arachidonic acid

†GOS-galactooligosaccharides (prebiotic blend)

Table A-6 Comparison of Selected Standard Follow-Up/Toddler Formulas/Milk Drinks and Whole Cow's Milk

	AI/R DI1-3 yrs	Enfagrow Premium Toddler	Enfagrow Soy Toddler	Similac Go & Grow	Similac Go & Grow Soy	Good Start 2 Soy	Good Start 2 Gentle	Store Brand Follow up Formulas	Similac Advance	Whole Cow's Milk 3.3% fat
Amount	-	5 ounces	5 ounces	5 ounces	5 ounces	5 ounces	5 ounces	5 ounces	5 ounces	5 ounces
Calories	-	100	100	100	100	100	100	100	100	100
Protein, g	14	2.60	3.30	3.00	2.45	2.80	2.20	2.60	2.07	5.00
Protein source	-	Nonfat milk	Soy protein isolate, methionine	Nonfat milk	Soy protein isolate, methionine	Soy protein isolate, methionine	Hydrolyzed whey	Nonfat milk	Non-fat milk, whey protein concentrate	Cow's milk protein
% of Calories	-	10.0%	13.0%	12.0%	10.0%	11.0%	8.8%	10.0%	8.0%	20.0%
Whey:Casein	-	20:80	-	48:52	-	-	100% whey	-	48:52	18:82
Fat source	-	Palm olein, soy, coconut and high-oleic sunflower oil, DHA/ARA*	Palm olein, soy, coconut and high-oleic sunflower oil, DHA/ARA*	High-oleic safflower, soy oil, coconut oil, DHA/ARA*	High-oleic safflower, soy oil, coconut oil, DHA/ARA*	Palm olein, soy, coconut, high-oleic (safflower or sunflower) oils, DHA/ARA*	Palm olein, soy, coconut, high-oleic (safflower or sunflower) oils, DHA/ARA*	Palm olein, soy, coconut, high-oleic (sunflower or safflower) DHA/ARA*	High-oleic safflower oil, soy oil, coconut oil, DHA/ARA*	Butterfat
% of Calories	-	48.0%	40.0%	49.0%	49.0%	45.0%	45.3%	48.0%	43.0%	48.0%
Carbohydrate source	-	Corn syrup solids, lactose	Corn syrup solids	Lactose, GOS†	Corn syrup, sugar	Lactose, corn maltodextrin, GOS†	Lactose, corn maltodextrin, GOS†	Corn syrup, lactose	Lactose, GOS†	Lactose
% of Calories	-	42.0%	47.0%	39.0%	41.0%	44.0%	45.9%	42.0%	49.0%	32.0%
Sodium, mg	200-400	36	36	30	44	40	27	36	24	80
Potassium, mg	2000	130	120	150	120	116	108	130	105	246
Vitamin C, mg	35	12.00	12.00	12.00	12.00	12.00	12.00	12.00	9.00	1.33
Calcium, mg	500	195	195	195	195	190	190	195	78	193
Phosphorus, mg	460	130	130	130	130	106	106	130	42	152
Iron, mg	9.0	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.80	0.08
Zinc, mg	3.0	1.00	1.20	0.75	0.75	0.90	0.80	1.00	0.75	0.62
Vitamin E, IU	5.0	2.00	2.00	3.00	3.00	3.00	2.00	2.00	1.50	0.09

*DHA/ARA-Docosahexaenoic acid/ Arachidonic acid
†GOS-galactooligosaccharides

Nutrition Fact Sheet

An information update for WIC staff

BOTTLED WATER AND INFANT FORMULA

Purified, demineralized, sparkling, spring, mineral, artesian, filtered, deionized, sterilized, carbonated — what does it all mean? Does it contain more of the "good" stuff or less of the "bad" stuff? Bottled water is a confusing subject with a big vocabulary. If you're confused, think how confused WIC participants must feel!

WHO REGULATES BOTTLED WATER?

Because bottled water is considered a "food" in package form, it is regulated nationally by the Food and Drug Administration (FDA). The rules that apply to all other foods also apply to bottled water. So, for example, bottled water must follow federal standards for labeling and standards of identity.

Bottled-water regulation varies widely from state to state, with Texas generally considered to have relatively stringent regulations in place. In Texas, bottled-water manufacturers must be licensed by the Texas Department of Health. The Texas Natural Resource Conservation Commission (TNRCC) regulates municipal and community water systems in the state of Texas.

The water from those systems is often referred to as "tap water." "Tap water" is an inexact term that can include any water flowing from a tap, whether it comes from a regulated municipal or community water system or from an unregulated source. In this fact sheet, however, the term "tap water" will be used to denote water from municipal and community water systems regulated by the TNRCC.

STERILITY

Definition and availability

The FDA has established requirements for commercial sterility, which is defined as "being free of all life forces including bacteria and viruses."

Commercial sterile water is primarily produced for and used in medical settings for such things as wound cleaning. Producing sterile bottled water is an expensive process, and the expense must be passed on to the consumer. That cost makes it prohibitive to sell in grocery stores. For that reason, it is extremely unlikely that sterile bottled water would be found in the grocery store.

Labeling about sterility

Information about sterility is not required on the label of bottled water that is not marketed specifically for infants. Bottled water that is marketed specifically for infants or for use with infant formulas must be labeled as "not sterile" if it does not meet the FDA sterility requirements. The label must display the following statement: *Not sterile, use as directed by a physician or by labeling directions for use of infant formula.*

If bottled water is labeled "sterile," it must meet the FDA requirements for commercial sterility.

In general, if it is not labeled as "sterile," it should be assumed that it is **not** sterile.

Sterility and convenience

Consumers often buy bottled water for convenience because they assume it is sterile and does not require boiling. Almost without exception, bottled water marketed for infants is not sterile. Nonsterile bottled water — and that's all waters not labeled "sterile" — should be treated just like tap water. In other words, **the water**

should be boiled before it is used to prepare formula for infants younger than 3 months of age. For healthy infants 3 months or older, boiling is probably not necessary unless recommended by a doctor.

FLUORIDE

Determining if the fluoride concentration of bottled water is appropriate for infants is a difficult task. Factors to consider are the amount of fluoride in the bottled water; other fluoride sources in the diet, including tap water and/or fluoride supplements; the age of the infant; the amount of bottled water that is given; and the length of time the bottled water will be given.

FDA requirements for fluoride in bottled water

The FDA does not require that the concentration of fluoride in bottled water be stated on the label unless fluoride was added during the bottling process. Bottled water that contains **added** fluoride must indicate so on the product label. The majority of bottled waters do not add fluoride and, therefore, do not list fluoride information on the label.

Fluoride concentrations are reported in two different but equivalent units, milligrams per liter and parts per million. The FDA limits the maximum amount of fluoride in bottled water packaged in the United States to:

0.8–1.7 milligrams per liter (mg/L) for added fluoride

1.4–2.4 mg/L if it is naturally occurring

The specific maximum level for any area of the country is determined by the average maximum daily air temperature of that area. As the average maximum daily air temperature increases, the maximum amount of fluoride allowed decreases. This is because people who live in warmer areas tend to drink more water.

The FDA has not set a minimum fluoride concentration for bottled water.

Fluoride levels for infants

Fluoridated water is beneficial in reducing dental caries. Excessive amounts of fluoride in water, however, can cause mottling of the tooth enamel known as fluorosis. Infants and children younger than 8 years of age are susceptible to fluorosis. For these reasons, it is important that the fluoride concentration in bottled water is appropriate for use with infant formula.

Table 1

Fluoride Concentration Guidelines for Bottled Water Given to Infants

Age	Optimal	Minimum	Maximum
birth-6	0.7 mg/L	0.0 mg/L	1.2 mg/L
6-12 months	0.7 mg/L	0.3 mg/L	1.2 mg/L

The optimal fluoride concentration for tap water in Texas is 0.7 mg/L, as set by the Texas Department of Health based on guidelines from the Center for Disease Control. At this optimal level, the incidence of fluorosis is minimized and the prevention of dental caries is maximized. As fluoride concentrations increase above 0.7 mg/L, the incidence of fluorosis increases. Conversely, as fluoride levels decrease below 0.7 mg/L, the protection against dental caries diminishes. Table 1 provides acceptable fluoride concentrations for bottled water given to infants when bottled water is their **primary** water source. The guidelines do not apply to infants given bottled water only occasionally or intermittently.

Minimum level of fluoride

As Table 2 shows, infants 6 to 12 months of age need a minimum of 0.3 mg/L of fluoride in their water source to avoid the need for a fluoride supplement. Many brands of bottled water do not contain this minimum amount of fluoride. These bottled waters would not be appropriate as the sole source of water for infants 6 to 12

months unless the infant receives a fluoride supplement.

Fluoride supplementation is **not** recommended for infants birth to 6 months of age, regardless of the fluoride content of their water source.

Table 2

Supplemental Fluoride Dosage Schedule for U.S. Children			
	Concentration of Fluoride in Drinking Water		
Age of Child	**<0.3 mg/L**	**0.3-0.6 mg/L**	**>0.6 mg/L**
birth-6	0	0	0
6 months-3 years	0.25 mg	0	0

Supplementation schedule approved by the American Dental Association and the American Academy of Pediatrics.

Maximum level of fluoride
Infants should not consistently consume water with a fluoride concentration above 1.2 mg/L. A primary water source with a fluoride concentration above 1.2 mg/L would put an infant at an increased risk for fluorosis.

Fluoride-information resources
The International Bottled Water Association (1-800-WATER-11) can verify the fluoride content of specific products. Information on fluoride levels in public drinking water can be obtained from local water districts.

DISTILLED WATER

Participants often use distilled water because they have heard it's the best choice for preparing infant formula. While it is true that distilled water generally contains fewer contaminants than other bottled waters, it is probably not sterile. In addition, the distillation process removes the minerals, including fluoride, from the water. If distilled water is used on a short-term basis — for example, during a visit to Mexico — then it is probably fine. If distilled water is used long-term (two or more consecutive months) or as the primary source of water for an infant, a dentist should be consulted to determine if a fluoride supplement is needed.

CONTAMINANTS AND WELL WATER

Concerns about contaminants in water (e.g., lead, copper, nitrates, agricultural chemicals, etc.) or concerns about the purity of well water, regulated or unregulated, may lead WIC participants to purchase bottled water. Bottled water is a good choice for these participants. But it is important to remind participants to follow the formula preparation instructions or doctor's instructions even when using bottled water. Since these participants may use bottled water exclusively or over an extended period of time, they should check with a dentist to determine if a fluoride supplement is needed.

Participants with questions about contaminants in their water should be directed to their local health department, the Texas Natural Resources Conservation Commission (1-512-239-6020), or the Environmental Protection Agency's Safe Drinking Water Hot Line (1-800-426-4791).

THE BOTTOM LINE

Few assumptions should be made about bottled water. Most bottled water is of good quality, but this does not mean it is purer or cleaner than tap water. Bottled water seems most appropriate for short-term or occasional use with infants. Participants should be counseled to treat bottled water the same as tap water when preparing infant formula. Specifically, **it should be boiled for use with infants less than 3 months of age.** For healthy infants 3 months or older, boiling is not necessary unless recommended by a physician.

Participants who intend to use bottled water as the primary water source for an infant should verify that the fluoride level is appropriate for an infant. And, if the fluoride level is below the

minimum recommended concentration, participants should consult a dentist about the need for a fluoride supplement.

References

American Academy of Pediatrics. "Fluoride Supplementation for Children: Interim Policy Recommendations (RE9511)." *Pediatrics* 95.5: 777.

21 Code of Federal Regulations 165.129. Processing and Bottling of Bottled Drinking Water.

21 Code of Federal Regulations 165.110. Bottled Water.

40 Code of Federal Regulations 141. National Primary Drinking Water Regulations.

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Tate, W. H., et al. 1990. "Impact of Source of Drinking Water on Fluoride Supplementation." *Journal of Pediatrics* 117.3: 419–21.

25 Texas Administrative Code 229F. Production, Processing, and Distribution of Bottled and Vended Drinking Water.

30 Texas Administrative Code 290. Public Drinking Water.

This information in this fact sheet was reviewed by the Water Fluoridation Program and the Manufactured Foods Division of the Texas Department of Health.

Section A Self-Test Questions

1. In standard milk-based infant formulas, the carbohydrate is _____, the fats are _____, and the proteins are _____ and _____.

   ☐ A. Lactase, animal oils, casein/ whey

   ☐ B. Lactose, vegetable oils, casein/ whey

   ☐ C. Lactose, animal oils, casein/ whey

   ☐ D. Lactase, vegetable oils, casein/ whey

2. Infant formula is formulated to be as close to breastmilk as possible; however, it cannot reproduce all the benefits of breastmilk. From the selections below, choose the breastmilk benefits that manufacturers are unable to reproduce:

   ☐ A. Add antibodies to formula

   ☐ B. Change composition to meet an infant's changing needs

   ☐ C. Increased absorption of nutrients

   ☐ D. All of the above

3. Breastfeeding may be contraindicated in the following medical conditions (check all that apply).

   ☐ A. Galactosemia

   ☐ B. Mothers who have been infected with the human immunodeficiency virus (HIV)

   ☐ C. Mothers who are abusing drugs

   ☐ D. All of the above

4. DHA and ARA are:

   ☐ A. Long chain fatty acids that are added to some infant formulas to mimic the composition in breast milk

   ☐ B. Additional amounts of Vitamin D and Vitamin A that are added to some formulas to provide extra nutrients than breastmilk provides

   ☐ C. Proteins that are added to some infant formulas to provide the same high quality protein needed for cognitive function

   ☐ D. All of the above

5. Toddler/ Follow-Up formulas are

   ☐ A. Not Recommended for infants under 12 months of age

   ☐ B. Higher in calcium than standard milk or soy-based formulas

   ☐ C. Higher in calories than standard milk or soy-based formulas

   ☐ D. All of the above

6. Post discharge formulas for premature Infants :

   ☐ A. Provide 22 calories per ounce and higher levels of some vitamins, minerals and protein than standard infant formulas

   ☐ B. Are used for premature infants after they are released from the hospital

   ☐ C. Have some of the lactose content replaced with glucose polymers and about 20% of the fat is medium-chain triglycerides

   ☐ D. All of the above

7. There is conclusive evidence that protein hydrolysate formulas work well in treating colic.

   ☐ A. TRUE

   ☐ B. FALSE

8. There is less chance of an allergic reaction from small protein particles.

   ☐ A. TRUE

   ☐ B. FALSE

9. The “MCT” in MCT oil stands for “modified cellulose triglycerides.”

   ☐ A. TRUE

   ☐ B. FALSE

10. The source of DHA is the fungus Mortierella alpina.

    ☐ A. TRUE

    ☐ B. FALSE

11. Prebiotics are live bacteria that naturally get passed to the infant through breastmilk and are added to some infant formulas.

    ☐ A. TRUE

    ☐ B. FALSE

12. Goat’s milk is a good alternative for an infant who is allergic to cow’s milk.

    ☐ A. TRUE

    ☐ B. FALSE

13. Cow's milk should not be given to an infant before one year of age because:

    ☐ A. Cow's milk contains very little iron, vitamin E, vitamin C and other nutrients compared to breastmilk or infant formula

    ☐ B. Cow's milk can cause blood loss from the intestinal tract

    ☐ C. Cow's milk contains protein that is more likely to cause allergic reactions in infants.

    ☐ D. All of the above

14. Prepared formula may be stored at room temperature for up to 48 hours.

    ☐ A. TRUE

    ☐ B. FALSE

15. One of the most important aspects of mixing/using infant formula is:

    ☐ A. Dilution

    ☐ B. Sanitation

    ☐ C. Storage

    ☐ D. All the above

16. Water intoxication can result when a family is running low on formula and tries to "stretch" the formula by adding extra water.

    ☐ A. TRUE

    ☐ B. FALSE

Nutrition Fact Sheet

An information update for WIC staff

CONSTIPATION IN INFANCY AND CHILDHOOD

Constipation is defined as the passage of firm or hard stools. Infrequent or irregular bowel movements do not by themselves indicate constipation. Often constipation is accompanied by other symptoms such as difficulty in passing stools, bloody stools, and abdominal pain. If constipation is not treated, it may lead to anal fissures (cuts in the skin of the anus), impacted stools (stools that are tightly packed into the anal canal and can't be expelled voluntarily) or both. Anal fissures and impacted stools are very painful and require immediate medical care.

NORMAL BOWEL PATTERNS

There is a range of normal bowel patterns among healthy children that varies depending on age and usual dietary intake.

AGE	*FREQUENCY OF STOOLS*
Breastfed infant	two to five per day for first 3 months
Formula-fed infant	
≤1 week	four to five per day
1 week to 3 months	two per day
When solid foods are introduced (around 4–6 months)	fewer than two stools per day
Children 1–4 years	varies from one every four days to two to three per day

CAUSES OF CONSTIPATION

There are two main kinds of constipation: ***functional*** and ***organic.***

Functional (not associated with a disease) constipation is often caused by poor bowel habits, poor dietary habits (i.e., inadequate amounts of fiber and fluid), lack of physical activity, or stress. Most constipation falls into this category.

Organic (associated with a disease) constipation can be ruled out with a history and physical examination by a physician. Some children with special health-care needs may have a problem with constipation. For example, children with Down syndrome and cerebral palsy tend to get constipated because of decreased abdominal muscle tone and decreased activity level. In addition, some types of drugs such as anticonvulsants, antidepressants, diuretics, and antacids can cause constipation**.**

PREVENTION OF CONSTIPATION

Promote breastfeeding. Totally breastfed infants rarely get constipated, because breastmilk is so easily digested.

Counsel parents on ways to prevent constipation through diet, regular physical activity, and regular toilet habits.

Diet:

Children ages 1–5 should consume about 6–8 cups of fluid each day. Children should consume a variety of foods based on the Food Guide Pyramid. The primary sources of dietary fiber for children are whole-grain breads and cereals, fruits, and vegetables. Children ages 1–5 should have five servings of fruits and vegetables each day and six to eight servings of breads and cereals each day — with half of the servings from 100-percent whole grains.

NOTE: Fiber intake needs to be increased gradually to lessen the chance of gastro-intestinal side effects.

Physical Activity:
Children should be encouraged to participate daily in 60 minutes of moderate physical activity. These activities include playing ball, walking, biking, playing on the playground, etc.

Toilet Habits:
Parents should establish regular schedules for mealtimes, sleeping, and the toilet. Encourage your child to sit on the toilet after breakfast every day. Keep your child occupied with a toy or book so that he feels relaxed. Encourage your child to sit for about 10 minutes. When the opportunity to use the toilet is delayed for an extended period, a drier stool may result. This can cause pain and start a cycle of constipation.

TREATMENT OF CONSTIPATION

Recommendations for infants

Birth–4 months — Recommend 2 ounces of water twice a day between feedings.

4 months — Recommend infant cereal (rice or barley). May give prune juice, diluted with 3 ounces water to 1 ounce juice, up to 4 ounces daily.

5 months — Recommend strained fruits and vegetables, especially strained prunes.

6 months — Recommend fruit juice (limit to 3 ounces daily) from a cup. Counsel parent on limiting formula to 26–30 ounces per day as infant starts eating more foods. Offer water several times a day.

Do not switch to low-iron formula. Iron-fortified formula has not been proven to cause constipation.

Over-the-counter medications for treatment of constipation should be discouraged unless prescribed by a doctor.

Recommendations for children 1–5 years

Five servings of fruits and vegetables daily. Offer raw or lightly steamed vegetables. Some high-fiber foods include cooked dry beans (such as black-eyed peas or pinto beans), broccoli, corn, baked potato with skin, strawberries, dried fruit such as raisins (except for children under 2 years old), and fruits with skin such as apples and pears.

Whole-grain breads and cereals at least half the time (three to four of the six to eight recommended servings). Some whole-grain products include oatmeal, Malt-O-Meal, bran muffins and bread labeled “100 percent whole wheat.”

Frequent fluid intake throughout the day. Water and unsweetened juices are best. Children should limit milk intake to 16–18 ounces per day. Also, juice should be limited to 4–6 ounces per day, as children may drink too much juice and not eat enough solid foods.

If the above suggestions do not lessen the problem, **unprocessed bran may be mixed with foods such as cereals, mashed potatoes, and applesauce, or combined with hamburger.** Begin by mixing 1–2 teaspoons of unprocessed bran daily and slowly increase the amount to no more than 2 tablespoons daily. Be sure to increase fluid intake when increasing use of high-fiber foods.

Over-the-counter medications for treatment of constipation should be discouraged unless prescribed by a doctor.

WHEN TO REFER TO A DOCTOR

If constipation is accompanied by vomiting, persistent abdominal distention, bloody stools, poor growth, or is unresolved by above-mentioned interventions, it may be due to a more serious problem. It is also important to call a doctor if the constipation begins within the first few days after birth.

Remember that constipation is **not** irregular bowel movements; it is **the passage of firm or hard stools.**

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SELF-STUDY QUESTIONS

1. What is the main difference between *functional* and *organic* constipation?

a) functional constipation is due to a poor diet, low fluid intake, and inadequate amounts of physical activity

b) organic constipation is caused by a disease such as Down syndrome or cerebral palsy due to decreased abdominal muscle tone and low amounts of physical activity

c) both cannot be controlled, they just occur naturally

d) both a and b

2. How many bowel movements should a 1–3 month old child have per day?

a) two

b) five

c) four and a half

d) one

3. What is the recommended treatment for children with constipation ages 0–4 months?

a) 2 ounces of apple juice after a feeding

b) water only for four hours

c) 2 ounces of water twice a day between feedings

d) 3 ounces of prune juice between feedings

4. What is the best action a parent should take when their 4-month-old child has not had a bowel movement for two days?

a) give the child 1 ounce of an adult laxative

b) feed the child 3 ounces of strained peaches twice a day

c) switch to a low-iron formula

d) add infant rice cereal and diluted prune juice to the child's diet

5. Which does *not* help a 5-year-old child to have normal healthy bowel movements?

a) bran cereal and strawberries for breakfast

b) drinking four to six glasses of water a day

c) having a cheese sandwich for a snack

d) having cooked broccoli with bean chili for dinner

Answers: d, a, c, d, c

Common Infant Problems

(Birth – 1 year)

Constipation

How do I know if my baby is constipated?

Your baby will have fewer bowel movements than usual. His stools may be hard, dry, and difficult to pass. Other signs include:

- Upset, swollen, or hard stomach.
- A fussy baby.
- A raw or bleeding rectum (area between buttocks).
- Fever, loss of appetite, nausea, vomiting, weight loss, or poor weight gain.

What's normal?

During the first few days of life, babies have dark, sticky stools called meconium. These stools were in the baby before birth. The stools change color around days four to six. Although each baby is different, newborns have stool habits something like the following:

Breastfed Newborns

Breastfed babies often stool after every feeding during the first month of life.

Formula-fed Newborns

Week 1: four to five stools per day
Weeks 2 – 4: around two stools per day

At about one month, breastfed and formula-fed babies may have fewer stools each day or a stool every few days.

In general, stools are considered normal if they:

- Are not watery.
- Do not happen more than three times in one day, although some healthy babies may have more.
- Are not too dry and hard.
- Pass easily even after a few days with no bowel movements.

What causes constipation?

- Not enough fluids (breastmilk or formula) or solid foods (if 6 months or older).
- Changing from breastmilk to infant formula or changing to a new infant formula.
- Adding solid foods to your baby's diet, including adding cereal to the bottle.
- Mixing infant formula with too much or too little water.

(Continued on other side)

What causes constipation?

(Continued from other side)

- Feeding cereal or other solid foods to an infant under 4 months old.
- Water loss due to vomiting, fever, or hot weather.
- Lack of physical movement or activity by the infant.
- Side effects of certain medicines.

Infants with certain medical conditions such as Down syndrome and cerebral palsy are more likely to have constipation. Your doctor can recommend the best treatment for these conditions.

When should I call the doctor or clinic?

Call the doctor if:

- You have tried all of the above, and your baby is still constipated.
- Your newborn does not pass meconium in the first day or two of life.
- Your baby vomits, has blood in the stools, has a bloated tummy, refuses to feed, or has a fever over 99°F.

What can I do to prevent constipation?

Do:

- Breastfeed your baby.
- Mix infant formula and infant cereal according to directions.
- If your baby is under 6 months old, increase fluids such as breastmilk or formula.
- If he is constipated, offer 2 ounces of water twice a day and, if your doctor advises, 1 to 2 ounces of 100 percent prune, pear, or apple juice. (Juice is generally not recommended for infants less than 6 months old, except when treating constipation.)
- Wait to feed infant cereal until your baby can sit up with help, opens his mouth for a spoon, and can keep most of the cereal in his mouth — about 6 months old.
- If your baby is 6 months or older, feed more mashed fruits and vegetables and 2 to 3 ounces of 100 percent prune, pear, or apple juice.
- Increase activity by moving your baby's legs in a bicycle fashion and allow more play time on the floor.

Do not:

- Give your baby honey. It could give your baby infant botulism, a type of food poisoning.
- Add cereal to your baby's bottle, unless your baby's clinic or doctor tells you to.
- Give your baby any medicine, laxatives, suppositories, or enemas to cause a bowel movement unless your baby's clinic or doctor tells you to.
- Insert objects, such as a thermometer, into your baby's rectum.

For more ideas on how to relieve constipation, visit the American Academy of Pediatrics www.aap.org/topics.html or the Mayo Clinic www.mayoclinic.com/health/infant-constipation/AN01089.

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Section B Case Studies

Workbook Activity 10: Constipation

Janie is 18 years old and a new mother for the first time. She is certifying her 1 month old infant today at the WIC Clinic. Janie states that one of her concerns is that her baby is constipated. She is currently on the standard milk-based contract formula. Janie is not breastfeeding at this time. Janie asks if changing formulas will help her baby's constipation.

What additional information would you need to know?

Janie states her infant has a bowel movement every 2 to 3 days, he seems to struggle but the stools are fairly soft.

What recommendations could you offer to Janie in this situation?

What recommendations would you offer if Janie had reported that her infant was having very hard dry stools every 4 to 5 days?

Common Infant Problems

(Birth – 1 year)

Diarrhea

What is diarrhea?

Your baby has diarrhea when he has three or more watery stools (bowel movements) in one day or when his stools become more frequent and watery than usual. It is important to treat the cause of the diarrhea first. Diarrhea can be harmful if it is not treated quickly because a baby may lose too much fluid, this can cause dehydration.

If my baby begins to have diarrhea, what should I do?

- Continue with breastfeeding or formula feeding to help slow down the amount and how often a baby has a stool.
- Do not switch infant formulas unless your doctor says you should.
- Do not add extra water to dilute infant formula.
- Infants fed solid foods can continue to eat their usual foods, but give more complex carbohydrates (rice, wheat, potatoes) and meats.
- Do not give juices, soft drinks, and sport drinks since these have simple sugars which can make the problem worse.
- Do not withhold food for more than 24 hours. Do not feed the "BRAT" diet (bananas, rice, applesauce, and toast) alone — these can decrease calorie and nutrient intake.

If my baby has severe diarrhea or dehydration, what should I do?

If your baby has any of the following problems, call your doctor or clinic **NOW**:

- Seems cold, without energy, limp — or will not wake up.
- Dry, sunken eyes, dry mouth or tongue, or cries without tears.
- Blood, mucus, or pus in the diaper or stool, or black stools after 4 days of age.

(continued on other side)

If my baby has severe diarrhea or dehydration, what should I do?

(continued from other side)

- Vomiting or weight loss.
- Dark, yellow urine in the diaper or no urine for over 6 hours.
- Refuses to breastfeed or take a bottle.
- More than three watery stools in one day or diarrhea that lasts more than one day.
- A fever above 99°F.

Ask your doctor about giving fluids and electrolyte solutions such as Pedialyte to your baby. Electrolyte solutions should be given to infants only under the supervision of a doctor. Do not give medicine to your baby unless your doctor tells you to.

What can I do to help prevent diarrhea?

- Wash your hands with soap and water:
  - Before making your baby's food or bottles.
  - Before feeding your baby.
  - After using the toilet, changing diapers, sneezing, or coughing into your hands.
- Wash your baby's hands often and clean under his fingernails with soap and water.
- Regularly wash any toys or things your baby puts into her mouth.
- Breastfeed your baby.
- Boil bottles and equipment for breastmilk or formula.
- For babies 3 months and younger, boil water used for making formula.
- Throw away breastmilk or formula left in the bottle after each feeding.
- Keep prepared or open cans of formula in the refrigerator. Throw them away after two days.
- Never feed right out of a jar of baby food. Always use a clean spoon to take the baby food from the jar and put it on a dish. When your baby is done eating, throw away any baby food left on the dish.
- Wash all fresh fruits and vegetables.
- Refrigerate foods after you use them.
- Do not give your baby:
  - Raw milk or juice that has not been pasteurized.
  - More than 4 ounces of fruit juice a day. If your baby is less than 6 months old, do not give any juice.
  - Food from your mouth, fork, or spoon.

For more information on treating diarrhea visit Kids Health www.kidshealth.org

or the American Academy of Pediatrics www.aap.org/topics.html.

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Workbook Activity 12: Diarrhea

Donna reports that she is mixing her 7 month old baby's formula at half strength due to the baby having diarrhea. She previously has been tolerating the milk-based contract formula and consuming baby foods. She has been having diarrhea since yesterday. Donna's mother told her to give the baby more juice and less formula until the diarrhea went away. Donna asks if she should switch her baby's formula today since she is in the clinic to pick up benefits.

What recommendations would you make to Donna regarding her infant's diarrhea?

Common Infant Problems

(Birth – 1 year)

Colic

Is my baby crying because she has colic?

Listening to a baby cry for long periods of time can cause you stress and even anger. Babies cry for many reasons, but some cry because they have colic.

What exactly is colic?

The cause of colic is not known, even though it is a common problem. Babies can be fussy, but babies with colic have long periods of sudden, unexplained crying that will not stop. The crying may be due to stomach pain.

Doctors often say a healthy baby is colicky if the baby:

- Cries for more than three hours per day, more than three days a week, for more than three weeks.
- Begins this process during the first 2 to 6 weeks of life.
- Stops by 3 to 4 months of age.

Other signs of a colicky infant may include:

- Hard to calm down
- Stiffening of legs, pulling legs up in pain, clenching of fists
- Passing a lot of gas
- Spitting up and crying during and after a feeding
- Not sleeping for very long at a time

Breastmilk oversupply (too much breastmilk) can cause colic in the breastfed baby. Moms with breastmilk oversupply often have constant breast fullness, leaking during and between feedings, and strong milk let-down.

What can I do?

Although there's no cure for colic, try the following to calm a fussy, crying infant:

- Play calming music or talk quietly to your baby.
- Give your baby a gentle massage.
- Place your baby on your chest, skin to skin.
- Wrap your baby snugly in a blanket (swaddle).
- Hold your baby on his side/stomach.
- Gently swing or rock your baby in your arms.

(continued on other side)

What can I do?

(continued from other side)

- Make a loud "shushing" sound in your baby's ear.
- Take your baby for a car ride or a brisk walk outside in a stroller.
- Do not give juice, especially apple, white grape, or pear juice – they may cause gas.
- If your breastfed baby has signs of colic and you have signs of breastmilk oversupply, talk to your WIC breastfeeding counselor or visit www.breastmilkcounts.com to learn what you can do about breastmilk oversupply.

What if nothing seems to work?

1. Take your baby to the doctor or clinic to see if she has a medical problem. Colic may have nothing to do with your breastmilk or the infant formula you feed your baby. Still, it's important to let your doctor make sure.
2. Ask your doctor before using any medications.
3. No matter how upset or angry you feel, do not shake your baby. Shaking can cause serious problems, including brain damage or even death. Let someone calmer help with the baby. If you or your partner needs help with your baby's constant crying, call the Shaken Baby Alliance at 1 (877) 636-3727 (1-877-6-END-SBS).
4. Remember: be patient — and get someone to help you. Colic usually goes away within three to four months.

For more information on colic, visit the American Academy of Pediatrics www.aap.org/topics.html or the Mayo Clinic www.mayoclinic.com/health-information.

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Workbook Activity 14: Colic

Rhonda, a new mom of a 2-week old son, is in the clinic to add him to the WIC program. She looks exhausted and informs you that the baby has had severe colic. He has been crying nonstop. She is giving him formula and breastmilk.

Is there any additional information you would need to obtain?

What advice could you offer to Rhonda regarding her infant's colic?

Common Infant Problems

(Birth – 1 year)

Spitting Up

The "Happy Spitter"

Spitting-up is common in babies, in fact, half of all infants spit up. Spitting up is normal and does get better over time. Babies who spit up can be happy and healthy. If your baby is otherwise healthy, there is no need to worry.

What helps prevent spitting up?

- Do not overfeed. If your baby spits up during a feeding, stop and wait until the next feeding.
- Offer smaller, more frequent feedings.
- Take time to burp half way through the feeding.
- Make feedings calm and relaxed.
- Positioning after meals:
  - Avoid laying him down to change his diaper right after feeding.
  - Keep your baby upright for 30 minutes.
  - Try holding your baby on his left side or on his tummy at a slight angle with his head and shoulders up higher than his legs.
  - Avoid putting your baby in a car seat position or bouncy, vibrating baby chair.
- Make sure clothing and diapers are not too tight.
- Avoid smoking around your baby.

Take your baby to the doctor if he is:

- Not gaining weight.
- Vomiting forcefully or vomiting blood or green or yellow fluid.
- Crying and irritable when spitting up.
- Arching backwards when feeding.
- Refusing food or having trouble eating.
- Having trouble breathing.
- Coughing or wheezing during or after feeding.

How much should my baby drink?

Breastfed Infants:	
Birth – 2 months	8 - 12 or more feedings in 24 hours
2 months – 6 months	6 - 10 or more feedings in 24 hours
Formula-Fed Infants:	
7 – 8 lbs	16 - 23 oz (2 - 4 oz every 2 to 3 hours)
8 – 10 lbs	21 - 26 oz (3 - 5 oz every 3 to 4 hours)
10 – 12 lbs	24 - 28 oz (4 - 6 oz every 3 to 4 hours)
12 – 16 lbs	29 - 39 oz (5 - 8 oz every 3 to 4 hours)

A healthy baby will drink about ½ oz of formula per pound of body weight at each feeding until he is eating solid foods. Your baby is getting enough to eat if he is gaining weight and growing.

For more information on spitting up, visit the American Academy of Pediatrics www.aap.org/topics.html or the National Digestive Diseases Information Clearinghouse http://digestive.niddk.nih.gov/ddiseases/a-z.asp.

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Workbook Activity 16: Gastroesophageal Reflux

You are conducting a class today on Infant Nutrition. Amanda has a 2-month-old baby and she states that she is worried that the baby spits up a lot. Amanda says she runs out of formula from WIC every month and that her baby drinks about 40 ounces of formula every day. Amanda is bouncing the baby on her knee during the class after feeding her a bottle. The baby spits up and Amanda says “See, this is what she does all the time!”

What advice could you offer Amanda regarding her baby’s spitting up?

Workbook Activity 17: Vomiting

Tonia is in class today as well and comments that she is also having trouble with her 4-month-old baby spitting up. She says she has tried four different formulas and the baby continues to spit up. She has tried two milk-basedformulas and a lactose-free formula but the baby is vomiting all of these. Her friend had the same problem with her baby and adding cereal to the formula helped. Tonia wants to know if she can get cereal today with her WIC benefits.

What advice could you offer Tonia regarding her baby's vomiting?

Common Infant and Childhood Problems

(Birth – 5 years)

Food Allergies

What are food allergies?

A food allergy is when the body's immune system reacts negatively to the proteins in foods. The reaction occurs right after eating the food. These reactions can range from mild to severe.

What are the most common foods that cause allergies?

- Dairy, such as cow's milk, cheese, cream, yogurt, butter, sour cream, ice cream, and cottage cheese
- Eggs
- Wheat
- Soy
- Peanuts
- Nuts from trees, such as pecans, walnuts, and pistachios
- Fish, such as tuna, salmon, and cod
- Shellfish, such as shrimp and lobster

Although these are the most common food allergens, any food can cause a reaction.

How do I know if my child has a food allergy? Signs your child may have:

- Hives (red spots), itchy skin rashes, or swelling
- Sneezing, congestion, wheezing, or tight throat
- Nausea, vomiting, or diarrhea
- Pale skin, light-headedness, or drop in heart rate

If your child is experiencing several signs listed above or is having trouble breathing, the reaction could be a severe, life-threatening reaction called anaphylaxis. **Call 911 if your child has a severe reaction.**

How can I help prevent food allergies?

- Breastfeed exclusively (feed only breastmilk) for about the first 6 months of life.
- Do not give foods other than breastmilk or formula before your baby is 4 to 6 months old.
- Give one new food at a time. Wait 5 to 7 days to watch for signs of allergies before giving another new food. If your baby has signs of a food allergy, wait a few months before giving that food again. Unless your doctor tells you otherwise:
- You do not need to cut out common food allergens from your diet while pregnant or lactating.

(continued on other side)

This is one in a series of handouts to help parents and caregivers handle common infant and childhood problems.

How can I help prevent food allergies?

(continued from other side)

- Feeding a common food allergen to your baby after 6 months of age is OK, and it does not increase the chance of your baby developing a food allergy.

If your child is showing signs of a possible food allergy:

- Take your child to the doctor to have allergy tests done.
- Read the entire food label to look for common food allergens, and talk to a dietitian for help.
- Most children outgrow food allergies.
- Your child may need a vitamin/mineral supplement.

If you are breastfeeding and your child is showing signs of possible food allergies:

- Your baby may be having an allergic reaction to something you are eating.
- Stop eating the common food allergens listed above, starting with all dairy foods.
- If your child is still having signs of allergies after two weeks of eating no dairy foods, stop eating eggs next. Keep going down the list of common foods that cause allergies until your baby's signs of allergy go away.

The following are not a food allergy:

- Lactose intolerance, or sensitivity to the Lactose sugar in dairy foods, is not the same as a food allergy. Infants and children with lactose intolerance have bloating, gas, diarrhea, and stomach aches after drinking or eating milk products.
- Vomiting, diarrhea, and upset stomach can also be due to food poisoning or certain diseases such as Celiac disease.

For more information on food allergies, visit The Food Allergy and Anaphalaxis Network www.foodallergy.org or the Asthma and Allergy Foundation of America www.aafa.org.
For more information on food allergies and breastfeeding, visit www.kellymom.com.

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Workbook Activity 19: Adverse Food Reactions

Linda states her 2-month-old baby has a rash and diarrhea on the current milk-based contract formula. Her older child had the same problems with milk as an infant. Do you think Linda's baby is showing symptoms of an allergy or lactose intolerance?

What are some other symptoms of food allergies?

Self-Test Questions-Section B

1. Constipation can be caused by a variety of factors or conditions such as:

   ☐ A. Diet

   ☐ B. Use of certain medications

   ☐ C. Abnormal muscle tone

   ☐ D. Lack of movement or activity

   ☐ E. All of the above

2. Constipation in infants may be caused by dietary influences listed below except for:

   ☐ A. Inadequate intake of fluids

   ☐ B. Improper dilution of infant formula

   ☐ C. Early introduction of complementary foods

   ☐ D. Consumption of iron fortified formula

   ☐ E. C and D only

3. Diarrhea in infants can be caused by the following:

   ☐ A. Excessive juice consumption

   ☐ B. Consuming contaminated food or water

   ☐ C. Mixing breastmilk and formula

   ☐ D. All of the above

   ☐ E. A and B only

4. If untreated, diarrhea in an infant can rapidly lead to dehydration, so it is important to:

   ☐ A. Recommend that sports drinks and juice be given to the infant

   ☐ B. Refer the infant to the HCP for a medical evaluation

   ☐ C. Recommend that all infant foods be discontinued

   ☐ D. Recommend a BRAT diet

   ☐ E. All of the above

5. Colic is described as prolonged, inconsolable crying that appears to be related to stomach pain or discomfort.

   ☐ A. TRUE

   ☐ B. FALSE

6. The following suggestion(s) can be provided for an infant with symptoms of colic:

   ☐ A. Give the infant apple, white grape or pear juice

   ☐ B. Recommend adding cereal to the bottle so the infant will sleep through the night

   ☐ C. Use Infant massage, soothing music and swaddling to calm the infant.

   ☐ D. All of the above.

7. Gastroesophageal Reflux or GER can range from mild spitting up to a severe form that causes aspiration, failure to thrive, lung disease and/or esophageal inflammation.

   ☐ A. TRUE

   ☐ B. FALSE

8. The treatment of Gastroesophageal Reflux Disease (GERD) must be prescribed by a doctor and may consist of:

   ☐ A. Smaller and more frequent feedings and positioning

   ☐ B. Surgery

   ☐ C. Medication

   ☐ D. All of the above

9. If an infant is "spitting up" formula, it could be due to:

   ☐ A. Overfeeding

   ☐ B. Swallowing air before or during feeding

   ☐ C. Excessive stimulation

   ☐ D. All of the above

10. The terms "milk allergy" and "lactose intolerance" have the same meaning.

   ☐ A. TRUE

   ☐ B. FALSE

11. Allergic reactions to foods usually happen within four hours after the food is eaten, but maybe delayed as much as three days after eating.

   ☐ A. TRUE

   ☐ B. FALSE

12. Symptoms of food allergy can include nausea, vomiting, diarrhea, congestion, eczema, and swelling of the throat, face, and lips.

☐ A. TRUE

☐ B. FALSE

13. An anaphylactic reaction is a whole body response to an allergen. Symptoms can include an irregular heartbeat, changes in blood pressure, shock, and even death if not treated promptly.

☐ A. TRUE

☐ B. FALSE

14. Inability to digest a food due to a lack of a particular enzyme is an example of food intolerance.

☐ A. TRUE

☐ B. FALSE

Additional Resources

United States Government Websites:

http://www.fns.usda.gov/fns

USDA Food and Nutrition Service Website contains information about Nutrition Assistance Programs such as Supplemental Nutrition Assistance Program (SNAP), WIC, School Meal Program, Farmer's Market, School Meals, Commodity Supplemental Food Program and the Child and Adult Care Food Program.

http://www.hhs.gov

Department of Health and Human Services (HHS) Website contains information on services such as: Medicaid, Medicare, Disability Services, Dental Health and Long-Term Care facilities.

http://www.nal.usda.gov/wicworks

WIC Works Resource System is an online education and training center for the WIC staff. It provides nutrition service tools for health and nutrition professionals, including information on pregnancy, breastfeeding, infant and child nutrition and health, assessment tools, nutrition education, databases that include education and training materials, bulletin board, and formula.

http://grande.nal.usda.gov/wicworks/formulas/FormulaSearch.php

WIC Formula Database includes information about all infant formulas. Formulas can be sorted by eligibility category, manufacturer, use in WIC, type and form.

http://fnic.nal.usda.gov/

Food and Nutrition Information Center (USDA National Agricultural Library) provides credible, accurate and practical resources for nutrition and health professionals, educators, government personnel and consumers.

http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/InfantFormula

FDA Website includes information on infant formulas; and consumer information about infant formulas, alerts & safety, and guidance & regulations. Website may be helpful to industry, consumers, government agencies, and other interested parties. Information

includes the following: FDA's regulation of commercial infant formulas, commonly-asked questions about infant formulas, how to report problems, and links to other resources.

http://www.cdc.gov

Centers for Disease Control and Prevention website contains credible health information for the public, and also includes past and present issues of Morbidity and Mortality Weekly Report (MMWR).

Texas Websites

http://www.dshs.state.tx.us/

Texas Department of State Health Services (DSHS) Website contains information about Programs such WIC, Mental Health Services, Substance Abuse Services, or finding local health departments.

http://online.dshs.state.tx.us/default.htm

Texas Department of State Health Services, Women, Infants and Children Program (WIC) website contains information the programs. Includes nutrition education, food packages, clinic resources, and more information on the program.

Formula Manufacturers

http://abbottnutrition.com/

Abbott Nutrition manufactures infant and adult formulas, supplements including such brands as: EleCare, Ensure, Pediasure, and Similac. Similac is currently Texas WIC's contract formulas.

http://www.gerber.com/public/default.aspx

Gerber, manufactures Good Start formula brand.

https://www.mjn.com/app/iwp/hcp2/guestHome.do?

Mead Johnson manufactures Enfamil, Nutramigen, and Pregestimil brands.

http://www.nestle-nutrition.com/Public/Default.aspx

Nestle Nutrition manufactures brands such as Boost and Peptamen supplements.

Additional Resources

http://www.aap.org/

American Academy of Pediatrics Website

http://aapnews.aappublications.org

American Academy of Pediatrics, Website of the official newsmagazine of the American Academy of Pediatrics.

Nutrition Services Section
Nutrition Education / Clinic Services Unit
Texas Department of State Health Services

Stock No. 13-174-1

A companion publication, 13-174
Basic Infant Formula Module is also available from DSHS.