

## Section Overview

Breastfeeding is recognized as the optimal nutrition for infants. Building a good feeding relationship with infants begins from day one. Arizona WIC follows the Baby Behavior approach to feeding newborns and young infants. The Baby Behavior framework is important in helping caregivers understand how to see, recognize, and respond to infant hunger and fullness cues. The understanding of hunger and fullness cues remains important for infants aged six months and older as they start solid foods. A foundation of healthy eating is best supported when caregivers understand how to follow their baby's lead.

## Anthropometric Assessment



*Anthropometry* is the measurement of the size, weight, and proportions of the human body. The amount and rate of growth in infancy is an important part of gathering information in the ABCDE assessment process. The anthropometric assessment, or A section of the ABCDE assessment includes measuring and weighing infants, plotting their growth on growth charts and tracking this information over time. The anthropometric assessment includes WIC codes in the 100s.

### Why Is This Important?

Infancy is a time of tremendous growth and development. Many changes occur in relatively short periods of time. For infants to grow at appropriate rates, they need adequate nutrition. Poor growth is an important indicator of nutrition challenges. Although one measurement plotted on a growth chart can be used to screen infants for nutritional risk, it does not provide adequate information to determine an infant's growth pattern and trends over time. When plotted correctly, a series of accurate measurements offers important information about an infant's growth pattern and trends. A series of growth trends helps distinguish between growth delays versus genetic factors, such as the influence of parents' heights. Overall, healthy infants who are growing well have the energy to respond to and learn from their environment and can interact with their caregivers in a manner that encourages bonding and attachment.

### A Infant Assessment Considerations

Newborn infant growth is broken down into different classifications that are determined by plotting weight on growth charts. These classifications include:

- Gestational age: The date the infant was born in comparison to the mother's due date.
- Birth weight: How much did the infant weigh at birth? This includes normal weight, low birth weight, very low birth weight, and extremely low birth weight.

- Weight for gestational age: Small for gestational age, appropriate for gestational age, or large for gestational age.

Growth rates of exclusively breastfed and formula-fed infants will differ. The USDA, the American Academy of Pediatrics (AAP), and the Centers for Disease Control and Prevention (CDC) recommend utilization of the World Health Organization (WHO) growth standards for infants and children from zero to two years of age. This is because the WHO standards establish growth of the breastfed infant as the norm. The WHO growth standards for infants include measuring length for age, weight for age, and weight for length. Body mass index (BMI) is not calculated for infants. BMI in infancy would have to be based on recumbent length, or length while lying down, rather than standing height. To date, there has been little research neither on the accuracy of BMI calculated from length nor on the consequences of high or low BMI in infancy. The CDC concluded that many questions about BMI during infancy remain unanswered, so the use of BMI is not recommended before two years of age. Growth spurts for infants vary, but typically occur between days eight and twelve, between weeks three and four, and in the third month. Healthy infants may lose approximately 6 percent to 10 percent of their birth weight during the first few days of life but should regain the weight within two weeks.

### **A Infant Assessment Concerns**

Growth can be a sensitive subject for families. When an infant is not growing as expected, parents and caregivers may become scared or frustrated and feel they are doing something wrong. WIC staff can help put parents or caregivers at ease by avoiding language that places blame on them, while communicating that caregivers are an important part of the solution to improve their child's health. When talking about weight with parents, certain words used to describe body weight can be offensive (e.g., fat, obese, skinny, chunky, underweight, or overweight). Be mindful of language choices. Address the topic of weight with sensitivity using terms such as growth. Begin by asking the parents or caregivers for their permission to discuss their infant's growth.

### **Ask:**

An important part of the assessment process includes asking probing questions. Asking open-ended questions, or questions that require more than a yes or no answer, yields a more complete picture for prioritizing knowledge, needs, and interests. This also allows WIC staff to coordinate an education message that is consistent with what caregivers may have already been told by their healthcare provider or to correct any misinformation they may have received at the end of the complete assessment when education is offered.

- "What has your doctor said about your infant's growth?"

- “How do you feel about your infant’s growth?”

**Assess:**

Each point in the ABCDE assessment includes critical thinking to explore and evaluate the participant’s situation. This involves pulling together all of the information available and evaluating what other factors need to be considered. Factors to consider in the A infant assessment may include:

- Current infant growth
- Infant growth from birth weight
- Infant growth from last visit
- Birth weight and gestational age

**Concern:**

- **Weight for length less than or equal to second percentile (2<sup>nd</sup> %) (WIC Code 103.1)**

This means that the infant is falling below the expected range of weight for length for most infants. This can be the result of poor nutrition, illness, or a more serious medical condition. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Weight for length above the second percentile (2<sup>nd</sup> %), but less than or equal to the fifth (5<sup>th</sup> %) (WIC Code 103.2)**

This means that the infant may be at risk for falling below the expected range of weight for length for most infants. This can be the result of poor nutrition, illness, or a more serious medical condition. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Family history of BMI greater than 30 (WIC Code 114)**

BMI is not calculated for infants. Family history of BMI is based on the BMI of the biological parents, if it is known. This code will be identified by HANDS (the Arizona WIC computer system) in most instances, and is based on the mother’s BMI. Family history of a high BMI may indicate increased risk of a high BMI later in life for the infant. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Weight for length greater than or equal to ninety-eighth percentile (98<sup>th</sup>%)** (WIC Code 115)

High weight for length in infants may indicate increased risk for future poor health outcomes and/or development of diseases. When identifying high weight for length and when discussing growth with caregivers it is important to communicate in a way that is supportive and nonjudgmental. Use a careful choice of words that conveys an empathetic attitude and minimizes embarrassment or harm to self-esteem while providing information in general ranges of growth. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Failure to thrive** (WIC Code 134) as diagnosed by healthcare provider

This is a diagnosis given by a healthcare provider. Failure to thrive (FTT) in infancy is a complex and serious growth problem. FTT is diagnosed when an infant's weight consistently falls below the third percentile for age. This indicates that an infant's nutrition is not supporting growth. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Inadequate growth** (WIC Code 135)

A low rate of weight gain may indicate that the infant has not regained birth-weight by two weeks of age, or the average daily weight gain is not what is expected for the infant's age. This low rate of weight gain may indicate poor nutrition, illness, or a medical concern. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Low birth weight** (WIC Code 141)

This means the infant's birth weight is five and one-half pounds or less. Low birth weight is an important predictor of infant developmental delays, illness, and future growth. Infants with low birth weight need optimal nutrient intake to complete their growth and development. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Prematurity** (WIC Code 142)

This means the infant was born before thirty-seven weeks of gestation. Premature infants may have physical problems that affect nutrition, including immature sucking, swallowing, digestion, and absorption of nutrients. Premature infants have increased nutrient and caloric needs for rapid growth. Healthcare providers may assess growth based on corrected age. Corrected age is the adjusted age of the infant/child based on his/her original due date. Assess for growth patterns, healthcare provider directions specific to growth (including expectations for growth specific to corrected age), and caregivers feelings about growth.

- **Small for gestational age** (WIC Code 151), as diagnosed by a healthcare provider

This is a diagnosis given by a healthcare provider. It means that infant growth was affected during the mother's pregnancy, potentially resulting in slower growth, developmental delays, or increased risk of health problems. Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

- **Large for gestational age** (WIC Code 153)

This means that the birth weight of the infant was nine pounds or more. Infants who are born large for gestational age may have increased risk of birth injuries and increased risk of childhood obesity, and may be the result of being born to a mother with diabetes (see pregnancy section). Assess for growth patterns, healthcare provider directions specific to growth, and caregivers feelings about growth.

## Biochemical Assessment



In WIC, the biochemical assessment, or *B* section, of the ABCDE assessment includes gathering information related to specific blood tests. WIC screens for participants' risk of anemia by measuring hemoglobin. For infants, WIC does not routinely measure hemoglobin until nine to twelve months of age. Currently, we measure the hemoglobin of infants by poking their heels to analyze a small drop of blood. In WIC we also screen for high blood lead concentrations by asking participants if they have had their blood lead concentrations tested by their healthcare provider, and referring them back to their provider if they have not. Both anemia and lead exposure affect growth and development. The biochemical assessment includes WIC codes in the 200s.

### Why Is This Important?

Iron deficiency is the most common cause of anemia. It may be caused by a diet low in iron, insufficient absorption of iron from the diet, which could be related to illness or a medical condition, or increased iron requirements due to growth. In infants, even mild anemia may delay development. This is because anemia can impair the way the body metabolizes energy, interfere with the way the body regulates temperature, and affect immune function or the way the body fights infection.

Early prevention is important to reduce future risks. Elevated blood lead levels also affect nutritional status, as well as growth and development. Lead poisoning is an entirely preventable public health problem in the United States. Infants and children are at greatest risk for lead poisoning because children absorb lead more readily than adults and because children's developing nervous systems are particularly vulnerable to lead's effects. Lead screening and exposure and risk assessment are completed through the healthcare provider.

### **B** Infant Assessment Considerations

During infancy, the body demands more iron. Iron deficiency is less common in healthy, full-term, normal-weight infants during the first six months of life. This is due to infants' body iron stores, which are sufficient to meet requirements. After six months, many infants use up their iron stores and require additional iron from their diets. For breastfed infants, this need can be met by adding high-iron, age-appropriate foods after six months of age. Formula-fed infants meet their iron requirements through iron-fortified infant formula. Premature and low-birth-weight infants are at greater risk for iron deficiency anemia. Premature infants do not spend as much time in the uterus getting nutrients from the mother's diet; as a result, their iron stores are not as substantial.



Infants' brains are still developing, so even a small amount of lead exposure can lead to future learning disabilities, behavioral problems, and anemia. Most commonly, infants and children get lead poisoning from lead-based paint. Infants considered at risk are those living in houses built before 1978 (the year when regulations began prohibiting the use of lead-containing paints in households) or those living in older homes (built before 1970) with lead-based pipes. Other infants and children who may be at high risk are those who immigrate to the United States from a country that does not regulate the use of lead, those who use imported bowls glazed with lead-based paint, or those using traditional folk remedies such as *greta* (powdered lead oxide) or *azarcon* (lead tetroxide).

### **B Infant Assessment Concerns**

#### **Ask:**

- “What has your doctor said about your baby's iron and lead levels?”
- “What have you heard about anemia and lead testing in infants?”

#### **Assess:**

- If hemoglobin value is low, continue the comprehensive ABCDE assessment with assessment of the following as it relates to low hemoglobin:
  - Prematurity (*A Assessment*)
  - Clinical or other medical conditions (*C Assessment*)
  - Breastfeeding or use of iron fortified formula (*D Assessment*)
  - Environmental exposure to lead (paint, pipes, pottery, home remedies)

#### **Concern:**

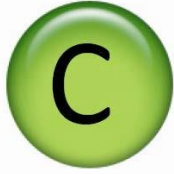
- **Low hemoglobin/low hematocrit** (WIC Code 201)

Hemoglobin (Hgb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of hemoglobin and hematocrit reflect the amount of functional iron in the body. While these tests are not a direct measure of iron status and do not distinguish among different types of anemia, they are useful indicators of iron deficiency anemia. A hemoglobin level of less than 11.0 or a hematocrit level of less than 33 is considered low for infants aged six to twelve months. Assess for anemia and iron supplements.

- **High blood lead levels** (WIC Code 211)

Elevated lead levels are anything equal to or greater than 10 µg/dL within the past twelve months. Blood lead screenings may not be routine for infants with their healthcare providers. Screenings may not begin until age one. Assess for lead poisoning diagnosis, environmental exposure, or recent move from another country.

## Clinical Assessment (Medical Conditions)



The clinical assessment, or C section, of the ABCDE assessment in the nutrition care process is the assessment of clinical or medical conditions that affect nutrition status. Caregivers may report a medical condition that has been diagnosed by a healthcare provider. Medical documentation from a healthcare provider is generally not needed to assign a WIC code.

Dealing with medical conditions in infants can be stressful for caregivers and families. The impact on nutrition and growth from associated conditions can range from simple to complex. In infants, these conditions may include anything from a genetic disorder to a recent surgery. The clinical assessment includes WIC codes in the 300s. The Arizona WIC Nutrition Care Guidelines provide only a general overview of C assessment guidelines and do not include comprehensive, detailed guidelines specific to each individual condition. For more detail about each condition, refer to the Nutrition Risk Manual.

### Why Is This Important?

A basic understanding of medical conditions is important to be able to determine how they affect infants' nutrition status and feeding.

### C Infant Assessment Considerations

Questions and conversations that may surface as a result of gathering C information in the assessment may be sensitive or challenging to navigate. This section can include a broad range of conditions that require healthcare and related services beyond basic, routine care. It is important to understand how the clinical or medical condition will affect nutritional needs and how to make appropriate referrals when necessary. The effects on nutritional needs may include altered growth, inadequate energy, inadequate nutrient intake to support growth and health, feeding problems related to oral–motor or behavioral difficulties, medication–nutrient interactions, need for enteral (tube) feedings, chronic constipation or diarrhea. Most often, identification of these clinical and medical codes through the WIC assessment process requires an evaluation by the WIC registered dietitian (RD).

### C Infant Assessment Concerns

#### Ask:

- “What has your doctor said about your baby’s health?”
- “What are your concerns about your baby’s health?”
- What has your doctor or dentist said about your baby's oral or dental health?



**Assess:**

- The impact of the medical condition on the infant's health
- Any misunderstandings of how to manage and care for the infant's condition
- Family's coping strategies

**Concern:**

- **Nutrient deficiency disease** (WIC Code 341)

This is a diagnosis given by a healthcare provider. It includes nutritional deficiencies or diseases caused by insufficient dietary intake of a specific nutrient. Diseases include, but are not limited to, protein-energy malnutrition, scurvy, rickets, beriberi, hypocalcemia, osteomalacia, vitamin K deficiency, pellagra, cheilosis, Menkes disease, and xerophthalmia. Persistent deficiency may lead to growth problems or malnutrition. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Gastrointestinal disorders** (WIC Code 342)

This is a diagnosis given by a healthcare provider. It includes any gastrointestinal (GI) condition that interferes with the intake or absorption of nutrients. Disorders may include gastroesophageal reflux disease (GERD), stomach or intestinal ulcers, short bowel syndrome, inflammatory bowel disease (including colitis or Chron's disease), pancreatitis, gallbladder disease, or malabsorption disorders. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Diabetes mellitus** (WIC Code 343)

This is a diagnosis given by a healthcare provider. It includes a group of metabolic diseases that cause hyperglycemia (elevated blood sugar) resulting from defects in insulin secretion, insulin action, or both. The two major classifications of diabetes are type 1 diabetes (insulin deficiency) and type 2 diabetes (insulin resistance). Diabetes is identified by fasting plasma glucose greater than 126 mg/dL. Hyperglycemia is defined as equal to or greater than 200 mg/dL. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Thyroid disorders** (WIC Code 344)

This is a diagnosis given by a healthcare provider. It includes abnormal secretions of thyroid hormones due to disorders such as hyperthyroidism, hypothyroidism, congenital (present from birth) hyperthyroidism, and congenital hypothyroidism. Thyroid hormones influence all organ systems in the body and regulate how the body gets energy from food. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Hypertension and prehypertension** (WIC Code 345)

Commonly referred to as high blood pressure, this is a diagnosis given by a healthcare provider. It is age-specific when diagnosed in childhood, and is defined as blood pressure readings greater than the ninety-fifth percentile for age, gender, and height on at least three separate occasions. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Renal disease** (WIC Code 346)

Renal means, "of or relating to the kidney." This is a diagnosis given by a healthcare provider. It may include pyelonephritis and persistent proteinuria, but excludes urinary tract infections (UTIs) involving the bladder. Renal disease can result in growth failure in infants and children. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Cancer** (WIC Code 347)

This is a diagnosis given by a healthcare provider and may include any type of cancer. Cancer is a disease caused by the uncontrolled division of abnormal cells in a part of the body. The type of cancer and stage of disease progression determines the type of medical treatment and, if indicated, nutrition management. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Central nervous system disorders** (WIC Code 348)

The central nervous system (CNS) comprises the brain and spinal cord and is a network of nerve tissues that controls the activities of the body. CNS disorder is a diagnosis given by a healthcare provider. It may affect the amount of calories individuals need, their ability to feed, oral dysfunction, and growth. A common CNS disorder is seizures, or epilepsy. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Genetic and congenital disorders** (WIC Code 349)

This is a diagnosis given by a healthcare provider. It may include hereditary or congenital conditions that cause physical or metabolic abnormality, such as cleft lip or palate, Down's syndrome, thalassemia major, sickle cell anemia (not sickle cell trait), and muscular dystrophy. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Inborn errors of metabolism** (IEM) (WIC Code 351)

This is a diagnosis given by a healthcare provider. It generally refers to gene mutations or gene deletions that change metabolism in the body. The inheritance of most metabolic disorders is rare. IEM disorders may happen at any stage of life, from infancy to adulthood. In most cases, when nutrition interventions are screened, identified, and started early in the newborn period and continued for a lifetime, the affected infant can continue to grow normally. The Arizona Newborn Screening Program through the Arizona Department of Health Services screens for twenty-eight metabolic disorders in every infant born in Arizona. Several formulas specifically designed for treating the identified disorder can be made available through the participant's health insurance plan, through his or her AHCCCS plan, or by prescription through WIC. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Infectious diseases** (WIC Code 352)

This is a diagnosis given by a healthcare provider. It includes diseases caused by growth of disease-causing microorganisms in the body that are severe enough to affect nutritional status. Infectious diseases, such as hepatitis, typically increase the nutrient needs of the body. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Food allergies** (WIC Code 353)

Food allergy reactions occur when the body's immune system responds to a harmless food as if it were a threat. The foods that most often cause allergic reactions are known as allergens. Common allergens include cow's milk (and foods made from cow's milk), eggs, peanuts, tree nuts (e.g., walnuts, almonds, cashews, hazelnuts, pecans, Brazil nuts), fish, shellfish (e.g., shrimp, crayfish, lobster, crab), wheat, and soy. Assess for how the medical

condition impacts the infant's health overall and how the medical condition is being managed.

- **Celiac disease** (WIC Code 354)

Celiac disease (CD) is a diagnosis given by a healthcare provider. It is an autoimmune disease in which eating gluten (a protein in wheat, rye, and barley) results in damage to the small intestine and malabsorption of nutrients from food. Celiac disease can result in a wide range and severity of symptoms. Symptoms may include chronic diarrhea; vomiting; constipation; pale, foul-smelling, fatty stools; and weight loss. Failure to thrive may occur in infants if CD is not well managed. The vitamin and mineral deficiencies that can occur from continued exposure to gluten may result in conditions such as anemia and osteoporosis and neurological disorders such as ataxia, seizures, and neuropathy. Treatment includes strictly following a gluten-free diet. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Lactose intolerance** (WIC Code 355)

Lactose is a sugar present in milk. Lactose intolerance is a syndrome in which eating foods that contain lactose results in diarrhea, abdominal pain, flatulence, or bloating. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Hypoglycemia** (WIC Code 356)

Hypoglycemia can occur as a complication of diabetes, as a condition in itself, in association with other disorders, or under certain conditions such as prolonged fasting. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Recent surgery, trauma, burns** (WIC Code 359)

This includes major surgery, trauma, or burns that are severe enough to compromise nutritional status. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Other medical conditions** (WIC Code 360)

This includes diseases or conditions with nutritional implications that are not included in any of the other medical conditions or WIC codes. The current condition, or treatment for the condition, must be severe enough to affect

nutritional status. These conditions include, but are not limited to, arthritis, lupus, heart disease, cystic fibrosis, and asthma. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Developmental, sensory, or motor delays interfering with the ability to eat** (WIC Code 362)

A developmental disability is defined as a severe chronic disability that is the result of mental impairment, physical impairment, or a combination of both. This includes developmental, sensory, or motor disabilities that restrict the ability to intake, chew, or swallow food or that require tube feeding to meet nutritional needs. Developmental disabilities affect individuals of all ages and are not a disease state. They are conditions caused by abnormalities, birth defects, and metabolic and chromosomal disorders. There is no single nutrition intervention that will work for all individuals. Many multidisciplinary teams use a range of treatments and nutrition interventions. Assess increased sensory sensitivity, how the medical condition impacts the infant's health overall and how the medical condition is being managed.

- **Oral health conditions** (WIC Code 381)

Early childhood caries (cavities) often result from inappropriate feeding practices. In infancy this may include baby bottle tooth decay and decay of the molars. Lack of early dental care may lead to tooth loss, damage to permanent teeth, reduced ability to chew, and speech problems. Assess frequency of dental visits, age-appropriate cleaning of gums and teeth, bottle use (if bottle-feeding), how the oral health condition impacts the infant's health overall and how the oral health condition is being managed.

- **Fetal alcohol syndrome (FAS)** (WIC Code 382)

This includes a combination of permanent, irreversible birth defects that are the result of alcohol consumption by the mother during pregnancy. There is no known cure; it can only be prevented. Symptoms of FAS may include failure to thrive, a pattern of poor growth throughout childhood, and poor ability to suck (for infants). Babies with FAS are often irritable and have difficulty feeding and sleeping. Assess for how the medical condition impacts the infant's health overall and how the medical condition is being managed.

## Dietary Assessment



The dietary assessment, or *D* section, of the ABCDE assessment in the nutrition care process is the assessment of food- and nutrition-specific information. The dietary assessment includes WIC codes in the 400s as well as the breastfeeding related codes in the 600s.

### Why Is This Important?

The WIC program plays a key role in the prevention of nutrition-related health problems and promotion of lifelong healthy eating habits. This is achieved by providing high-quality nutrition education and supplemental foods rich in important nutrients. Studies have proven that WIC is one of the most successful and cost-effective nutrition intervention programs in the United States. Since its beginning in 1974, the WIC program has earned a reputation as one of the most successful federally funded nutrition programs in the United States. Collective findings of studies, reviews, and reports demonstrate that because of the early intervention role WIC plays in promoting nutrition in pregnancy, through infancy, and into early childhood, the program improves birth outcomes of infants, early diet-related outcomes, infant feeding practices, and cognitive development. Because of WIC's focus on nutrition, the dietary assessment is an important part of the comprehensive ABCDE assessment in gathering important information to support a healthy start for infants. The information gathered from the *D* assessment helps prioritize food- and behavior-based goals that are of greatest concern for caregivers to maximize nutrition-related health outcomes during the first year of life.

### ***D* Infant Assessment Considerations**

Arizona WIC follows the Baby Behavior approach with infant feeding cues. Baby Behavior shows that when parents understand their infant's cues, they are able to meet the infant's needs more appropriately. This results in positive health outcomes, including increases in exclusive breastfeeding and decreases in overfeeding. Baby Behavior focuses on seeing, recognizing, and responding to infant hunger and fullness cues; understanding engagement and disengagement; and understanding crying and sleep patterns.

Infant engagement cues include:

- Reaching for caregiver
- Looking intently at caregiver's face
- Smiling
- Following caregiver's voice and face
- Raising head
- Relaxing face and body



Infant disengagement cues include:

- Looking away, turning away, or arching
- Yawning or falling asleep
- Frowning or glazed look
- Stiff hands, arms, and legs
- Crying
- Grimacing
- Choking or coughing
- Putting hands to ears

Infant hunger cues include:

- Hands near mouth
- Sucking noises
- Rooting or searching for nipple
- Bent arms or legs
- Puckered lips

Infant fullness cues include:

- Relaxed hands or arms
- Slowed or stopped sucking
- Turns or pushes away from nipple
- Falls asleep

In light or active sleep, infants are dreaming and may be easy to wake. Newborn and breastfed infants are more often in active sleep. Deep, or quiet, sleep includes regular and steady breathing and relaxed arms and legs. Newborn infants move to quiet sleep after twenty to thirty minutes of active sleep and may be harder to wake during deep sleep. Refer to the Baby Behavior training materials for detailed information.

Breast milk is recognized as the ideal nutrition for infants. It is recommended that infants breastfeed until at least one year of age, and as long as mutually desired for both mother and baby. A mother's breast milk has the perfect combination of nutrients needed for infant growth and development. When breast milk is not available, iron-fortified infant formula is the appropriate alternative for the infant's first year of life. Regardless of whether infants are breastfed or formula fed, they should be held and cuddled during feedings.

**Breastfeeding.** Breast milk has a unique nutrient composition and many protective factors to promote optimal infant health and development throughout the first year of life. Breast milk is more easily digested than infant formula. The composition of breast milk is constantly changing based on age, stage of

lactation, beginning or ending of a feeding, time of day, and the mother's diet. During the first few days after the infant is born, the breastfed infant receives colostrum. Colostrum helps protect newborn infants from infections. Breast milk continues to protect infants against other common illnesses of infancy, such as ear infections and respiratory infections. Breast milk may offer protection against or delay the onset of food allergies. During the first few weeks, exclusively breastfed infants eat a total of eight to twelve feedings within twenty-four hours. These young infants need to eat often throughout the day and night because their stomachs cannot hold a large quantity. From birth to six months of age, infants grow rapidly and will gradually increase the amounts they can consume at each feeding, the time between each feeding, and the total amount consumed in twenty-four hours. Encourage bottle-feeding parents or caregivers to prepare two ounces of breast milk or infant formula every two to three hours at first. More should be prepared if the infant seems hungry, especially as the infant grows. Refer to *Breastfeeding Answers Made Simple* for a comprehensive breakdown of breast milk composition.

**Formula Feeding.** Breast milk is the optimal source of nutrition for infants. When breast milk is not available, iron-fortified infant formula is the appropriate alternative. Infant formula types include cow's-milk-based, soy-based, hypoallergenic, lactose-reduced formulas, and specialty formulas for specific conditions. The AAP believes that there are only a few circumstances in which soy formula should be chosen instead of cow's-milk-based formula in healthy, full-term infants (infants who have no medical problems and were not born premature). These limited indications for use include infants with galactosemia (an inherited disorder that affects how the body processes a sugar called galactose) and hereditary lactase deficiency (an inherited disorder in which the amount of the digestive enzyme, lactase, is inadequate for the normal digestion of milk products), or in situations in which a vegan diet is preferred by the family. Some caregivers may be concerned about the safety of soy formula. Soy infant formula contains phytoestrogens, a substance found in certain plants that acts like the hormone estrogen. The safety and impact of phytoestrogens in infancy and early childhood remains under review.

Infant formula is available in three forms: powdered, concentrated liquid, and ready-to-feed. Powdered infant formula is prepared by mixing one unpacked level scoop of dry powdered formula using the measuring scoop that comes in the can of formula with two ounces of water. Concentrated infant formula is prepared by adding equal parts of water to concentrated liquid formula. AAP recommends that caregivers use water from a safe source as identified by the local health department. Ready-to-feed infant formula is ready for the infant to consume and does not require additional water.

**Caution.** Although liquid infant formula is commercially sterile, powdered infant formula is not. Powdered infant formula contains low levels of *E. sakazakii*, a gram-negative, non-spore-forming bacterium belonging to the *Enterobacteriaceae* family. *E. sakazakii* has been associated with sepsis, meningitis, cerebritis, and necrotizing enterocolitis. Premature, low-birth-weight, or immunocompromised infants are at particular risk. Improper preparation and refrigeration of powdered infant formula can cause an increase in the level of contamination of *E. sakazakii* in powdered formula. Arizona WIC issues liquid concentrate or ready-to-feed infant formula, which is commercially sterile, to premature, low-birth-weight, or immunocompromised infants for up to six months corrected age. Corrected age is the adjusted age of a premature baby based on the original due date.

**Guidelines for Using a Bottle.** To ensure that bottle-feeding is safe and comfortable for infants and caregivers:

- Wash hands with soap and water before and after feedings.
- Hold infants in arms or lap in a semi-upright position during feedings to minimize the possibility of choking and allow physical eye contact with their caregiver.
- Hold the bottle at an angle so the end of the bottle near the nipple does not fill with air. Propping the bottle is never recommended.
- Burp infants at a natural break during the feeding.
- Do not give a bottle to an infant who is lying down or in a car seat because this can lead to dental problems.
- Never force infants to finish what is in the bottle.
- Remember that infants are the best judges of how much they need.
- Do not put cereal or other foods in the bottle.

**Introduction of Complementary Foods.** Complementary foods are foods other than breast milk or infant formula (liquids, semisolids, and solids) introduced to an infant to provide nutrients. Introducing complementary foods supports infants in learning how to eat a variety of foods and textures. This is a messy stage, but allowing infants to feed themselves is very important to their development of feeding skills. The introduction of complementary foods is exciting because the infant joins the caregiver at the table for family meals. Encourage caregivers to show a positive attitude when introducing complementary foods to their infant. Avoid force-feeding foods to an infant. If foods are rejected, it is important to offer rejected foods again in a week or two. Research has demonstrated that it takes as many as ten to fifteen exposures to a new food for an infant to readily accept the food. It may take time to adapt to the flavor and texture of new foods; familiarity plays a significant part in food acceptance.

**When to Start.** The World Health Organization (WHO) recommends that infants start receiving complementary foods in addition to breast milk around six months of age. However, an infant's age alone does not always determine readiness. Signs of readiness for solids include:

- Sitting up with support
- Holding head steady
- Putting fingers or toys in mouth
- Showing desire for food by opening mouth
- Turning head away when finished eating
- Keeping food in mouth and swallowing (also known as loss of the early tongue thrust reflex)

All infants develop at their own rate. Infants with special medical conditions or developmental delays may not be ready for complementary foods at the same age as healthy full-term infants. Consider the infant's developmental stage and nutritional status; coexisting medical conditions; social factors; the family's cultural, ethnic, and religious food preferences; financial considerations; and other pertinent factors discovered through the nutrition assessment process. The jaw and muscle development that occurs when an infant eats complementary foods at the appropriate age contributes to later speech development. Infants who are not introduced to complementary foods when developmentally ready may reject foods when they are introduced at a later age or consume an inadequate variety and amount of food to meet their nutritional needs.

**What to Feed and How Often.** Research does not support introducing foods in a particular order; however, it is recommended to introduce one single-ingredient new food at a time. As an infant's oral skills develop, continue to provide a variety of textures of foods. Foods rich in iron and zinc are important at six months of age due to the depletion of the infant's body stores. Foods rich in iron and zinc can include well-cooked lean beef, chicken, turkey, egg yolk, or legumes.

**Progression and Texture Transition.** It is important to expose infants to a variety of food textures at the appropriate times. Encourage caregivers to transition infants through textures so they are eating a range of healthy family foods by twelve months. Infants who stay on pureed foods for prolonged periods, such as beyond eight to nine months of age or when developmentally ready, may have difficulties progressing through textures later, which may limit future food choice and therefore consumption of essential nutrients.

**Watching for Food Reactions.** When introducing complementary foods, do so gradually. Observe infants closely for adverse reactions such as rash, wheezing, vomiting, or diarrhea after eating a new food.

**Safe Feeding.** Gagging is common in infants as a result of the tongue-thrust reflex. It occurs frequently in infants being offered varying textures as they are learning how to hold the food in their mouths, chew, and swallow. It is not to be confused with choking. Choking is a dangerous situation. A choking infant will be unable to breathe and not be able to make noise. To reduce infants' risk of choking, caregivers can:

- Cook food until soft enough to easily pierce with a fork.
- Cut soft foods into small pieces (cubes of food not larger than a quarter inch) or thin slices that can easily be chewed.
- Cut soft round foods, such as well-cooked carrots, into short strips rather than round pieces.
- Substitute foods that may cause choking with a safe alternative, such as thinly sliced meat or hamburger instead of hot dogs.
- Remove all bones from poultry and meat, and especially from fish.
- Cut small round foods (e.g., grapes, cherry tomatoes, grape tomatoes) in quarters.
- Remove pits and seeds from very ripe fruit and cut the fruit into small pieces.

**The Importance of Introducing Family Foods.** Foods prepared for an infant at home can be as nutritious as and more economical than commercially prepared infant food. Caregivers who use home-prepared infant foods have more control over the variety and texture of food than those who use commercially prepared infant foods. Home-prepared foods should be prepared and stored safely, appropriate in texture, cooked using methods that conserve nutrients, and prepared without adding unnecessary ingredients such as sugar and salt.

### **Foods to Avoid in Infancy**

- **Cow's milk.** Cow's milk is not appropriate substitute for breastmilk or infant formula for infants. Young infants cannot digest cow's milk as completely or easily as they digest formula. Also, cow's milk contains high concentrations of protein and minerals, which can stress an infant's immature kidneys and cause severe illness. In addition, cow's milk lacks the proper amounts of iron, vitamin C, and other nutrients that infants need.
- **Honey.** Infants should avoid honey. Honey may be contaminated with bacteria that can cause infant botulism. This may cause muscle weakness and breathing problems.
- **Foods with added sugar.** It is also recommended that infants avoid foods with added sugars, including sugar-sweetened beverages such as juice, Kool-Aid, tea, and sports drinks. The AAP has concluded that fruit juice offers no nutritional benefit for infants younger than six months and has no

advantage over whole fruits for infants older than six months; therefore, juice is not recommended in infancy and is not provided to infants through WIC.

### **D Infant Assessment**

Inappropriate infant feeding practices are included in the 411 WIC codes. Dietary Risk Associated with Complementary Feeding Practices includes the 428 WIC code. Education may be offered after completion of an ABCDE assessment.

#### **Ask:**

- “How do you feel about your baby’s eating?”
- “How do you feel breastfeeding is going?”
- “How does your baby let you know he/she is hungry or full?”

#### **Assess:**

- Breastfeeding status
- Feeding schedule and frequency
- Developmental milestones specific to eating
- Cultural traditions specific to eating
- Use of vitamins and/or supplements
- How foods are prepared and stored

#### **Concern:**

- **Routinely using a substitute for breast milk or FDA-approved iron-fortified formula as primary nutrient source during first year of life** (WIC Code 411.1)

This may include the use of low-iron formula without iron supplementation; cow’s, goat’s, or sheep’s milk; canned evaporated or sweetened condensed milk; and imitation or substitute milks (such as rice- or soy-based beverages or nondairy creamer). During the first year of life, breastfeeding is the preferred method of infant feeding. Iron-fortified formula is generally the acceptable alternative for breastfeeding. Low-iron infant formula can compromise an infant’s iron stores and lead to iron deficiency anemia. Cow’s milk has insufficient and inappropriate amounts of nutrients and can cause blood loss that can lead to iron deficiency, stress on the kidneys, and allergic reactions. Sweetened condensed milk contains a high amount of sugar that displaces other nutrients or causes overconsumption of calories. Homemade formulas prepared with canned evaporated milk do not contain optimal types and amounts of the nutrients infants need. Goat’s milk, sheep’s milk, and imitation milks do not contain nutrients in amounts appropriate for infants.



Assess frequency and contents of substitute feeds and reasons for substitutions.

- **Routinely using nursing bottles or cups improperly** (WIC Code 411.2)

Eating and feeding habits that affect tooth decay may be started during infancy and may continue into early childhood. Baby bottles may be a primary contributor to dental problems in infancy. Factors include using bottles with beverages containing sugars (e.g., fruit juice, soda, and other sweetened drinks) or pacifiers dipped in sweet products such as sugar, honey, or syrups. The AAP and the American Academy of Pedodontics recommend that juice should not be offered in a bottle and that infants should not be put to bed with bottles in their mouths. While sleeping with bottles in their mouths, infants' swallowing and salivary flow decrease, creating a pooling of liquid around the teeth. The practice of allowing infants to carry or drink from a bottle or training cup of juice for periods throughout the day leads to excessive exposure of teeth to carbohydrates, which promotes the development of dental problems. Adding solid food, such as infant cereal, to a nursing bottle results in force-feeding, inappropriately increases the calories and alters the nutrient composition of the formula, deprives the infant of experiences important to the development of feeding behavior, and could cause an infant to choke. Assess frequency and use of sugar sweetened beverages in the bottle or cup, frequency of propping the bottle or cup, and frequency of falling asleep with the bottle or cup.

- **Routinely offering complementary foods or other substances that are inappropriate in type or timing** (WIC Code 411.3)

This includes adding sweet agents such as sugar, honey, or syrups to any beverage (including water), prepared food, or pacifier and introducing any food other than breast milk or iron-fortified infant formula before four months of age. Offering anything other than breast milk or infant formula before the infant is developmentally ready may deprive the infant of other important calories or nutrients and lead to dental problems. Assess baby behavior and cues, developmental signs of readiness for complementary foods, reasons for offering solids, and cultural food patterns.

- **Routinely using feeding practices that disregard the development needs or stage of the infant** (WIC Code 411.4)

Infants held to rigid feeding schedules are often underfed or overfed. Caregivers who may not be seeing, recognizing, or responding to baby behaviors, or those who overmanage feeding, may inappropriately restrict

feeding or encourage overfeeding. These practices may promote negative or unpleasant associations with eating that may continue into later life, and may also contribute to obesity. Infrequent breastfeeding can result in lactation insufficiency and infant failure to thrive. Infants consuming solid foods require a texture appropriate to their developmental level. Assess caregiver's knowledge of baby behavior, developmental milestones specific to eating, and cultural food patterns.

- **Feeding foods to an infant that could be contaminated with harmful microorganisms** (WIC Code 411.5)

Raw, undercooked, and unpasteurized foods may contain pathogens such as *Escherichia coli* (*E. coli*), *Salmonella*, *Brucella*, *Listeria*, and *Cryptosporidium* organisms. These organisms can cause serious disease or foodborne illness (food poisoning). Honey has also been found to be the primary food source of *Clostridium botulinum* during infancy. These spores are extremely resistant to heat, including pasteurization, and are not destroyed by present methods of processing honey. Assess solids offered to the infant, preparation and cooking methods, and cultural eating patterns.

- **Routinely feeding inappropriately diluted formula** (WIC Code 411.6)

Overdilution of infant formula can cause water intoxication resulting in hyponatremia (low sodium concentrations in the blood), irritability, coma, inadequate nutrient intake, failure to thrive, or poor growth. Underdilution of formula increases calories and protein and may cause kidney problems in infants. Powdered formulas vary in density, so manufacturers' scoops are formula specific to ensure correct dilution. Assess formula preparation, daily amount of formula consumed, and reasons for improper dilution if known.

- **Routinely limiting the frequency of nursing of the exclusively breastfed infant when breast milk is the sole source of nutrients** (WIC Code 411.7)

Exclusive breastfeeding provides ideal nutrition to an infant and is sufficient to support optimal growth and development. Frequent breastfeeding is critical to establishing and maintaining an adequate milk supply for the infant. Inadequate frequency of breastfeeding may lead to early weaning by the mother and to dehydration, poor weight gain, diarrhea, vomiting, illness, and malnourishment in the infant. Exclusive breastfeeding protects infants from early exposure to contaminated foods and liquids. In addition, infants who receive breast milk rather than infant formulas have a lower risk of being overweight later in life. Assess potential reasons for limiting feedings, breastfeeding concerns, and cultural beliefs specific to food.

- **Routinely feeding a diet very low in calories and/or essential nutrients** (WIC Code 411.8)

This may include following a strict vegan diet, macrobiotic diet, or other diet very low in calories or nutrients. Highly restrictive diets prevent adequate intake of nutrients and interfere with growth and development. Infants are particularly vulnerable during the weaning period; if they are being fed a macrobiotic diet, they may experience developmental delays. Strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein, and essential amino acids needed for growth and development. The more limited the diet, the greater the health risk. Assess reasons for following the restrictive diet, cultural or religious beliefs, and knowledge of baby behavior.

- **Routinely using inappropriate sanitation in preparation, handling, and storage of expressed breast milk or formula** (WIC Code 411.9)

Expressed breast milk and prepared infant formula must be handled and stored properly in order to be safe for consumption. Avoid offering infants formula that has been at room temperature for longer than one hour, or that has been held in the refrigerator longer than forty-eight hours for concentrated or ready-to-feed formula or twenty-four hours for powdered formula. Lack of sanitation may cause gastrointestinal infection. Most babies who are hospitalized for vomiting and diarrhea are bottle-fed. This has often been attributed to the improper handling of formula rather than sensitivities to the formula. The following breast milk feeding, handling, and storage practices are considered inappropriate: feeding fresh breast milk held in the refrigerator for more than forty-eight hours or held in the freezer for more than six months; thawing frozen breast milk in the microwave oven; refreezing breast milk; adding freshly expressed, unrefrigerated breast milk to already-frozen breast milk in a storage container; feeding previously frozen breast milk that has been thawing in the refrigerator for more than twenty-four hours; and saving breast milk from a used bottle for another use at a subsequent feeding. Assess water source, bottle preparation and storage, bottle cleaning, and hand washing.

- **Feeding dietary supplements with potentially harmful consequences** (WIC Code 411.10)

An infant who consumes inappropriate or excessive amounts of single vitamins, multivitamins, or mineral or herbal remedies not prescribed by a physician is at risk for a variety of adverse effects, including harmful nutrient interactions and toxicity. While some herbal teas may be safe, some have

undesirable effects, particularly on infants who are fed herbal teas or who receive breast milk from mothers who have ingested herbal teas. Examples of teas with potentially harmful effects include licorice, comfrey leaves, sassafras, senna, buckhorn bark, cinnamon, wormwood, woodruff, valerian, foxglove, pokeroor or pokeweed, periwinkle, nutmeg, catnip, hydrangea, juniper, Mormon tea, thorn apple, yohimbe bark, lobelia, oleander, yerba mate, kola nut or gotu cola, and chamomile. Like drugs, herbal or botanical preparations have chemical and biological activity, may have side effects, and may interact with certain medications. These interactions can cause problems and can even be dangerous. Assess vitamin use, frequency, and amount; supplement use, frequency, and amount; use of herbs or teas, frequency, and amount; and reasons for use.

- **Routinely not providing dietary supplements recognized as essential** (WIC Code 411.11)

Depending on an infant's specific needs and environment, certain dietary supplements may be recommended by the healthcare provider. For example, fluoride supplements may be beneficial in reducing dental decay for children living in fluoride-deficient areas. Furthermore, to prevent rickets and vitamin D deficiency in healthy infants and children, the AAP recommends a supplement of 400 IU per day for all breastfed and partially breastfed infants. Formula-fed infants meet their vitamin D requirements through infant formula. Assess dietary patterns, types and varieties of solids if older than six months, and vitamin and supplement use.

- **Dietary risk associated with complementary feeding practices** (WIC Code 428)

The process of adding complementary foods should reflect the physical, intellectual, and behavioral stages of infants and children as well as their nutrient needs. Lifelong eating habits are developed in the early years. Food exposure and accessibility, the modeling behavior of parents and siblings, and the level of parental control over food consumption influence a child's food preferences. Inappropriate feeding practices may result in under- or overfeeding and may promote negative associations with eating that continue into later life. Caregivers may not recognize signs of developmental readiness and therefore offer foods and beverages that may be inappropriate in type, amount, consistency, or texture. Zinc is critical for growth, immunity, and brain development and function. The concentration of zinc in breast milk declines to a level considered inadequate to meet the needs of infants between seven and twelve months of age. Complementary food sources of zinc, such as meats or zinc-fortified infant cereals, should be introduced to exclusively

breastfed infants by seven months. It is also recommended that breastfed infants be offered a supplemental iron food source beginning at six months, the point at which infants' bodily iron stores have been depleted. Assess for eating patterns, textures and types of solid foods offered to the infant, and cultural traditions specific to food and eating.

### Other Concerns in Infancy

**Formula Intolerance.** It is normal for almost all infants to be fussy at times, making it challenging to diagnose a true allergy or intolerance to infant formula. Only about 2 percent to 3 percent of infants have a true allergy to the milk protein in standard formulas. Caregivers concerned about possible formula intolerance should be referred to the WIC registered dietitian, who will coordinate care and approach with the doctor. Assess growth, type of formula, formula preparation, and symptoms.

**Spitting Up and Vomiting.** It is normal for young infants to spit up breast milk or infant formula after feedings. A more severe form of spitting up is called gastroesophageal reflux disease (GERD). Reflux is defined as the spontaneous regurgitation of material from the stomach into the esophagus. Excessive spit-up can be reduced by burping the infant several times during a feeding to slow the feeding and lessen the amount of air swallowed, holding the infant in an upright position after a feeding for about fifteen to thirty minutes, avoiding excessive movement or play right after eating, and avoiding forcing the infant to eat or drink when full and satisfied. Assess feeding status, amount, and frequency; amount and timing of spit-up; and bottle preparation (if bottle-feeding).

**Diarrhea.** Typical dirty diapers look different for breastfed infants than for formula-fed infants. On average, stool from formula-fed infants is firmer than that from breastfed infants. Diarrhea is defined as the frequent passage of loose, watery stools. Diarrhea should not be confused with the normal stools of breastfed infants. Diarrhea in infants can be caused by a reaction to a food, excessive juice consumption, use of certain medications, medical conditions or infections, malabsorption of food, or consumption of contaminated food or water. Proper infant formula preparation and storage techniques are very important in ensuring that infant formula is not contaminated and a potential cause of diarrhea. Use of ordinary beverages to treat diarrhea may actually worsen the condition and lead to further dehydration. In most cases of acute diarrhea, and clearly when dehydration is not present, continued feeding of the infant's usual diet is the most appropriate treatment. This is true whether the infant's usual intake is breast milk, milk-based infant formula, soy-based infant formula, or any of these milks along with complementary foods. Assess feeding status; juice intake; and safe bottle handling, preparation, and storage.

**Constipation.** Constipation is generally defined as the condition when bowel movements are hard, dry, and difficult to pass. Although some believe that constipation is related to the frequency or the passage of stools, this may not be as important as the consistency of the stools. True constipation is not very common among breastfed infants who receive adequate amounts of breast milk or among formula-fed infants who consume adequate diets. Some caregivers believe iron causes their infant to be constipated, but studies have demonstrated no relationship between iron-fortified infant formula and gastrointestinal distress, including constipation. Formula-fed infants tend to have firmer stools, but this does not indicate constipation. Assess whether symptoms are true constipation; feeding status including number and length of feedings; formula intake and dilution; any recent changes in feeding; and blood in the stool.

**Physical Activity in Infancy.** Physical activity for infants focuses on the development of motor skills, or motions carried out when the brain, nervous system, and muscles work together. Gross motor skills involve the large muscle groups, such as those in the arms and legs, while fine motor skills involve smaller muscles like those in the hands and fingers. Caregivers can help infants develop the skills needed to be physically active. Stimulating environments that encourage infants to move and explore affect the rate of motor skill development. Similarly, the way infants are held; how much time they spend in infant equipment such as seats, swings, and walkers; the amount of time they spend on their stomachs during play; and the toys they play with can all affect motor skill development. Assess opportunities for infant movement; time and frequency of infant movement; and safety.



## Environmental Assessment (Including Other Social and Safety Factors)



The environmental assessment, or *E* section, of the ABCDE assessment includes assessing environmental, social, and safety factors that influence nutritional status. The common environmental factors assessed in WIC that affect infants include smoking, physical abuse, substance abuse, and foster care. The environmental assessment includes WIC codes in the 900s.

### Why Is This Important?

Environmental factors directly affect health and well-being. Referrals and follow-up are important opportunities to motivate caregivers and empower families with options to explore.

### *E* Infant Assessment Considerations

Information gathered from the *E* assessment can sometimes include sensitive topics that are challenging to address. Caregivers can be supported most effectively when they are made to feel safe to share without shame or blame. Based on the caregiver's motivation and interest, WIC may provide key connections to community resources and programs.

### *E* Infant Assessment

#### Ask:

- “What concerns do you have about the safety of your baby within your family relationships?”
- “How do you feel about smoking in your home and around your infant?”
- “What concerns do you have about alcohol or drug use in your home and around your infant?”

#### Assess:

- Safety concerns
- Alcohol and drug use
- Foster status
- Tobacco use in the home
- Access to community services

#### Concern:

- **Recipient of abuse** (WIC Code 901)

Serious neglect and physical, emotional, or sexual abuse have short- and long-term physical, emotional, and functional consequences for children. Nutritional neglect is the most common cause of poor growth in infancy and

may account for as many as half of all cases of failure to thrive. Assess infant safety and access to community services.

- **Woman or infant/child of primary caregiver with limited ability** (WIC Code 902)

Caregivers with limited ability to make feeding decisions may include individuals who are mothers aged seventeen years or younger, mentally disabled or delayed, diagnosed with a mental illness such as depression, physically disabled to a degree that restricts or limits food preparation abilities, or currently or historically abusing alcohol or other drugs. Assess support system for the infant and access to community services.

- **Foster care** (WIC Code 903)

Foster children have higher rates of chronic conditions such as asthma, diabetes, and seizure disorders than children not in foster care. They are also more likely than children in the general population to have birth defects, inadequate nutrition, and growth retardation, including short stature. These defects may be the result of abuse or neglect prior to entry into the foster care system or the history and frequency of moves between foster homes. For example, the foster caregiver accompanying a foster child to a WIC clinic for a first-time certification may have no knowledge of the child's eating patterns, special dietary needs, chronic illnesses, or other factors. Without any anthropometric history, failure to grow, often a problem for foster children, may not be diagnosed. The nutrition education, referrals, and service coordination provided by WIC can support foster parents in developing skills and knowledge to ensure that foster children receive appropriate nutrition and healthcare. Foster parents may have inadequate information about the health needs of new foster children; therefore, through the ABCDE assessment, WIC can alert foster parents to the nutritional risks that affect foster children and suggest ways to improve nutritional status. Code 903 will be automatically assigned by HANDS (the Arizona WIC computer system) based on the information provided on the certification screen. Assess most recent foster home move, instructions for special care of the infant, and linkages to community services.

- **Exposure to environmental tobacco smoke** (WIC Code 904)

WIC defines the environmental tobacco smoke (ETS) code as exposure to smoke from tobacco products inside the home. Studies suggest that the health effects of ETS exposure at a young age could last into adulthood. This includes risk of cancer—specifically lung cancer—and cardiovascular

diseases. There is strong evidence that ETS exposure to the fetus or infant results in permanent lung damage. Assess smoking inside the home and utilization of ASHLine cessation and referral services.

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## Education for Infants

Education may be offered after the completion of a complete ABCDE assessment based on caregivers' identified concerns, interests, and motivations. Education for infants may emphasize:

- Baby behavior education (cues: look, recognize, respond)
- Age-appropriate foods
- Infant eating behaviors that can lead to growth below or above the expected rate
- Breastfeeding practices
- Bottle-feeding practices
- Cultural beliefs and food traditions
- Social and financial referrals

## A Anthropometric WIC Code Education

Education specific to concerns identified during the A assessment may include:

### A Education Messages Related to Growth:

- “Every infant grows differently.”
- “It’s normal for some infants to lose weight after birth. Typically they are gaining weight again and are at least back to their birth weight by fourteen days. If not, they may not be eating enough.”
- “Infants who are growing too slowly or too quickly may not be getting all of the important nutrition they need for healthy development.”
- “An infant’s hunger cues may include holding their hands near their mouth, making sucking noises, rooting or searching for the nipple, bending arms and legs, and puckering lips.”
- “An infant’s fullness cues may include relaxing hands or arms, slowing or stopping sucking, turning or pushing away from the nipple, or falling asleep.”
- “Understanding and responding to your infant’s cues can help his growth because he is more likely to be eating just the right amount.”
- “Because young infants have such a small stomach, they grow best when feedings are of small amounts and provided more frequently. This may include eight to ten feedings per day for infants under three months old.”
- “Your baby is very smart! She knows exactly how much and how often she is hungry. Trust your baby to lead the way when it comes to eating.”

## **B Biochemical (Blood Work) WIC Code Education**

Education specific to concerns identified during the *B* assessment may include:

### **B Education Messages Related to Blood Work:**

- “Hemoglobin is a tool used to screen for anemia, or low iron in the blood. Low hemoglobin isn’t a diagnosis of anemia, but it is a clue that your doctor may want to look into it a little more.”
- “The amount of iron you get from foods also affects your hemoglobin, or iron levels.”
- “Anemia can affect your infant’s development and lead to other infections.”
- “Any home built before 1978 may have lead-based paint. Other lead sources can be soil, toys (depending on where they were made), imported ceramics or old pottery, and imported herbal remedies.”

## **C Clinical (Medical Conditions) WIC Code Education**

Education specific to concerns identified during the *C* assessment may include:

### **C Referral Messages for Medical Conditions:**

- “How do you feel about talking to your doctor about your infant’s condition?”
- “What referrals can WIC help you with to make sure you are getting all of the support you need to manage your infant’s condition?”

## **D Dietary (Nutrition) WIC Code Education:**

Education specific to concerns identified during the *D* assessment may include:

### **D 411.1 Education Messages for Substituting Breastfeeding or Iron-Fortified Formula:**

- “Breastfeeding is the optimal source of nutrition for infant.”
- “Breast milk or iron-fortified infant formula is all that infants need for the first six months.”
- “Babies this age who drink things other than breast milk or formula tend not to grow and develop the way that is expected because they are missing important nutrients that breast milk and formula provide in just the right amounts.”

### **D 411.2 Education Messages for Inappropriate Use of Bottles or Sippy Cups:**

- “Babies who fall asleep with a bottle containing formula, milk, fruit juice, or any sweetened liquid or while breastfeeding tend to have more tooth decay because the sugar in the liquids (including breast milk) pools around lower teeth while they sleep.”
- “Bottles are for breast milk or formula only.”
- “Babies who drink juice or other sweetened liquids (such as juice, Kool-Aid, soda, Karo syrup) from a bottle often have more dental problems and get more calories than they need to avoid dental problems and overfeeding.”
- “Adding infant cereal to the bottle is not recommended because it may interfere with the proper dilution of infant formula and water. This also ignores infant cues and can lead to overfeeding.”

**D 411.3 Education Messages for Offering Inappropriate Complementary Foods:**

- “Arizona WIC recommends waiting until infants are six months old before starting solid foods.”
- “Most healthy full-term infants are ready to start solid foods at six months when they can sit up with support, hold their head steady, put their fingers in their mouth, and keep food in their mouth and swallow it.”
- “Added sugars or sweeteners are not needed for infants.”

**D 411.4 Education Messages for Feeding Practices That Disregard Developmental Needs or Stage of Infant:**

- “Arizona WIC recommends waiting until infants are six months old before starting solid foods.”
- “Most healthy full-term infants are ready to start solid foods at six months when they can sit up with support, hold their head steady, put their fingers in their mouth, and keep food in their mouth and swallow it.”
- “Infants move through the stages of textures as they get used to eating foods.”
- “Infants who are not introduced to solid foods when developmentally ready for them may reject foods when they are introduced at a later age.”

**D 411.5 Education Messages for Feeding Foods That Could Be Contaminated with Harmful Microorganisms:**

- “Honey is a known source of the bacteria spores that cause botulism. For this reason, honey shouldn’t be given to babies under twelve months of age.”
- “Unpasteurized foods, such as unpasteurized milk, cheese, or juice, may result in illness in your baby as a result of the bacteria in the food.”



**D 411.6 Education Messages for Routinely Feeding Inappropriately Diluted Formula:**

- “Powdered infant formula is prepared by using the measured scoop that comes in the can of formula to mix one unpacked level scoop of dry powder with two ounces of water.”
- “Concentrated infant formula is prepared by combining equal parts of water and concentrated liquid. That would be one ounce of formula for every one ounce of water.”
- “It is important to prepare the infant formula bottle according to the instructions to make sure your baby gets all of the calories and nutrients needed for healthy growth.”
- “WIC does not recommend increasing the water-to-formula amount because your baby will not get all of the calories she needs for growth.”
- “It is not recommended that you decrease the amount of water to formula because this could lead to dehydration and result in kidney or digestion problems.”
- “Adding cereal to a bottle can interfere with the proper dilution of infant formula and water. This also ignores infant cues and can lead to overfeeding.”

**D 411.7 Education Messages for Limiting the Frequency of Nursing for an Exclusively Breastfed Infant:**

- “Babies use their bodies and make noises to let you know when they need to eat and when they are done. These are called cues. It is recommended that you follow your baby’s cues when breastfeeding.”
- “Babies have to be fed often because their stomachs are very small.”
- “When your baby is hungry, he may keep his hands near his mouth, bend his arms and legs, make sucking noises, pucker his lips, and search for the nipple.”
- “You will know your baby is full when she begins to suck slower or stops sucking, relaxes her hands and arms, turns away from the nipple, pushes away, or falls asleep.”
- (If less than two months old) “On average you can expect approximately eight or more feedings in twenty-four hours.”
- (If two to six months of age) “On average you can expect approximately six or more feedings in twenty-four hours.”
- “Limiting breastfeeding may lead to poor weight gain and growth for your infant.”

**D 411.8 Education Messages for Routinely Feeding a Diet Very Low in Calories and/or Nutrients:**

- “It is typically not recommended that infants follow a strict diet.”
- “Infants need breast milk for optimal growth. If breastfeeding is not an option, infant formula is the acceptable alternative. Infants also benefit from the introduction of a variety of age-appropriate solid foods beginning at six months in addition to breast milk or formula.”

**D 411.9 Education Messages for Inappropriate Sanitation in Preparation, Handling, and Storage of Pumped Breast Milk or Formula:**

- “Young infants may become ill from bottles that are not cleaned and prepared properly.”
- (If breastfeeding) “As a precaution, use refrigerated bottles of breast milk within forty-eight hours to prevent the growth of harmful bacteria.”
- (If formula-feeding) “As a precaution, use refrigerated bottles of prepared formula within twenty-four hours to prevent the growth of harmful bacteria.”
- “As a reminder, wash your hands in warm soapy water after each diaper change and before feeding your baby to prevent illness.”
- “As a precaution, discard any unused breast milk or formula left in the bottle after a feeding to prevent the growth of bacteria.”

**D 411.10 Education Messages for Feeding Dietary Supplements with Potentially Harmful Consequences:**

- “Herbs, teas, and other supplements may contain compounds that could be harmful to infants.”
- (If providing a vitamin supplement by healthcare recommendation) “Follow your doctor’s instructions for how often and how many vitamins to give your baby.”

**D 411.11 Education Message for Routinely Not Providing Dietary Supplements Recognized as Essential:**

- “Vitamin D is recommended for all exclusively breastfed babies.”

**D 428 Education Messages for Dietary Risk Associated with Complementary Feeding Practices:**

- “It is recommended that you wait until your baby is six months old to introduce solid foods.”
- “Introducing solid foods before an infant is ready may lead to illness.”
- “Foods rich in iron and zinc are important at six months of age due to the depletion of the infant’s body stores. Foods rich in iron and zinc include well-cooked lean beef, chicken, turkey, egg yolk, and legumes.”

***E* Environmental WIC Code Education:**

Education specific to concerns identified during the *E* assessment may include:

- Provide local agency referral list.
- Encourage the caregiver to follow up on community support services.
- Refer to social and community services.

***E* Referral Message for Environmental Concerns:**

- “May I give you this referral list of services available here in our community that may be able to help you?” (Provide local agency referral list.)
- “Arizona 211 is a community information and referral service. Let’s explore some options together, and I will also show you how to find this information from your home.”

DRAFT

### *Infants—Take-Home Messages*

The following is a summary of key nutrition education messages that may be shared with participants based on the concerns they share and the goals that they set for themselves.

- Breastfeeding provides optimal nutrition for infants.
- A good feeding relationship is established when parents understand how to look for, recognize, and respond to infant cues.
- Newborn infants typically feed eight to twelve times per day or drink two to three ounces per feeding if bottle-feeding.
- Appetite and growth spurts typically occur when an infant is eight to twelve days old and at six weeks, three months, and six months. Infants may feed more frequently during these periods of increased need.
- Every infant grows differently.
- Infants will develop feeding skills at their own rate if given the opportunity.
- Complementary foods can be started when infants are developmentally ready, which is typically at six months of age for most healthy full-term infants.
- Introduce new foods gradually.
- Cow's milk should not replace breastmilk or infant formula.
- Physical activity is important for infant development.

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