



High-Risk Guidebook for Infants

An Introduction to High-Risk Codes for Infants

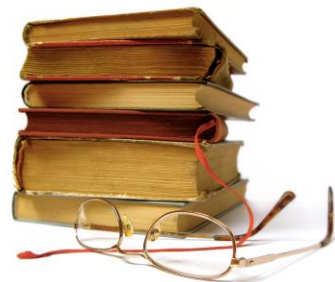
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Before you begin...

Using the High-Risk Guidebook for Infants

Welcome to the High-Risk Guidebook for Infants. Before you begin, we'd like to review a few important points.

1. This guidebook was created to help you learn more about each high-risk code and teach you some counseling techniques and tips to help with your high-risk assessment appointments. As with most medical recommendations, some views and thoughts may change over time so always check with your Local Agency to address any questions you may have.
2. To get the best learning experience from this guidebook, plan to read through the High-Risk Guidebook for Infants on your own and then review with your trainer. Plan to take notes and answer questions in the accompanying Workbook as you go through the guidebook. You can read through these risk codes at your own pace and skip around to best fit your learning needs. Talk with your trainer to see if your Local Agency has additional policies for WIC Registered Dietitian Nutritionist (RDN) and Medium-Risk Nutritionist (MRN) training that you need to follow.
3. Utilize resources provided by the Arizona Department of Health Services (ADHS) as well as your Local Agency. A brief list of resources you have access to:
 - American Academy of Pediatrics (AAP)
 - Nutrition Risk Manual (NRM)
 - Nutrition Services Standards (NSS)
 - Nutrition Care Guidelines (NCG)
 - Arizona WIC Policy and Procedure Manual
 - Baby Behaviors e-learning course
 - March of Dimes website



As you go through the training, it's a good idea to identify what other resources your agency has available for you to learn more about these high-risk codes and what resources are

available to share with your WIC families. Knowing about these resources in advance will set you up for successful nutrition assessment and counseling with our WIC families.

4. The accompanying Workbook has both Critical Thinking Questions and Case Studies for several of the high-risk codes for infants. You will see a blue question mark icon when there is a Critical Thinking Question and a magnifying glass when there is a Case Study for the high-risk code in the Workbook. Practice your assessment and counseling skills by reading these Critical Thinking Questions and Case Studies, answering the questions and discussing your thoughts with your trainer. (Note: Discuss with your trainer whether you should read and think through Case Studies first before meeting with them, or whether your trainer prefers to go through Case Studies with you as you work through them.)
5. Remember that your Local Agency may have developed specific requirements that are best for your setting beyond what is described in this document. This guidebook offers information that applies to RDNs and MRNs throughout Arizona. It is a good idea to write down questions you have about high-risk appointments in your agency and clinic to ask your trainer.

Guidebook Icons

Throughout the High-Risk Guidebook for Infants, we will use icons to help point out important information and resources.

	Medium-Risk Nutritionist	This icon denotes high-risk codes that a Medium-Risk Nutritionist can assess and counsel.
	Critical Thinking Question	Stop at these icons to test your knowledge and practice your counseling and assessment skills. Answers to these questions can be found in the Workbook.
	Case Study	This icon will let you know when there is a Case Study you can review in the Workbook for additional practice with your trainer.
	Resource	This icon means that there is additional information in a resource with which you are familiar. A list of these resources can be found above in #3 of the Before Your Begin section.

What will the RDN or MRN learn?

1. Identify high-risk codes for infants.
2. Assign high-risk codes for infants according to Nutrition Risk Manual definitions.
3. Assess the relationship of subjective and objective information in high-risk case studies to determine appropriate nutrition education options to offer WIC participants.
4. Explore ways to facilitate behavior change consistent with Nutrition Services Standards, the Arizona WIC Policy and Procedure and the Participant Centered Services approach.

Instruction Level

This guidebook is to be completed by newly hired WIC RDNs and MRNs. For this course, you will need to have completed all other LMS and guidebook training as defined by your local agency training plan.

Recommended Time

This training will take approximately three hours to complete. Additional time may be required to complete the accompanying Workbook.

Things to Remember

When you have questions about a specific code, talk with your trainer. Although there is a wealth of information provided in this training, you can learn a lot from your trainer and RDN or MRN peers as well. Talk with your trainer about how they have handled situations or high-risk codes with which you are not comfortable or familiar.

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Module 1: Introduction

Healthy eating practices can start at birth. Infants experience incredible growth and development during their first year of life and nutrition plays a vital role. Whether breastfeeding or formula feeding, WIC is the provider of nutrition education and breastfeeding support services, supplemental nutritious foods and referrals to health and social services.

Years of research tell us that breastfeeding is best for infant and mother, and WIC promotes breastfeeding to all clients, but we also support every parent's or caregiver's decision to offer breastmilk or formula to their baby. Each family does what is best for them and we respect their decision. WIC is here to help infants reach their growth potential. Incorporating Baby Behavior training is crucial to help with infant high-risk concerns that you, the Registered Dietitian Nutritionist (RDN) or Medium-Risk Nutritionist (MRN), will be assessing. This module will assist WIC RDNs and MRNs with high-risk assessments pertaining to infant participants (IEN, IFF, IPN, IPN+).

Doctor Recommendations

Sometimes parents or caregivers will tell you that the infant's pediatrician made recommendations that do not agree with the AAP or WIC recommendations and guidance. In this case it is important to not dismiss what they have been told by the doctor, but instead lead them to the most updated research known to WIC. Explain that WIC follows the AAP which is a group of leaders within the field of pediatrics that make recommendations for the nation. One example of this is when a parent of a 4-month-old says that the pediatrician told them to start offering the baby infant cereal or to add the cereal to the formula. Since this is not a recommendation of the AAP, you can explain to the family that formula and breastmilk are full of all the healthy nutrition that the baby needs and that is one of the reasons that we recommend not offering anything else until the baby is 6 months old.



Other reasons (given by the AAP) for **not** putting cereal in the bottle include:

- the infant's gut not being mature enough to digest cereal

- risk of aspirating cereal into lungs
- exposure to solid foods before four months can increase the risk of food allergies
- risk of overfeeding with the additional calories from the cereal

A parent may come in with a prescription from the doctor for a high-calorie formula such as Neosure or Enfacare or a formula to supplement exclusive breastfeeding. Again, you will need to do a complete assessment to see if that is in line with WIC (see Arizona WIC Policy and Procedure Chapter 4) and AAP guidelines and recommendations. It is not always appropriate to provide the formula that the doctor is requesting on the prescription form (for example, prescribing a soy-based formula for a premature infant). This is where your expertise and knowledge as the nutrition professional come into play. Sometimes, after talking with the mother you may learn that there is a latch issue and once this is solved, the baby will be able to receive more milk from the mother, which will then automatically correct the low weight status of the infant. There are many different instances when you may need to call the pediatrician to have a conversation about a client and what the best nutrition care recommendations are. If you aren't experienced at having a conversations with a physician, this might seem uncomfortable, but you are the nutrition expert so it is an important conversation to have if you disagree with the pediatrician's recommendations. Sometimes a conversation can clear up any misunderstandings. Most physicians appreciate the care you are giving the client and will gladly talk with you about their nutrition care and your concerns.

NOTE: If after contacting the physician or other prescribing authority you still have concerns about approving a prescription request or the specific treatment recommendations provided, contact your Nutrition Services Consultant for additional support and guidance.

Important General Nutrition Assessment Topics for Infants

During the first year of life, an infant goes through incredible changes and development. Along with reaching many developmental milestones, infants are gaining weight faster than they ever will again in their life. This is why it is so important to make sure that the baby is eating healthy and that the family is comfortable with feeding the baby. Every infant grows differently so it's important to help mom understand that the infant's growth pattern gives us clues about whether he is on a healthy track. For example, "What is most important is Eric's progress over time. Don't focus on each dot on the

growth chart, because the trend over time and whether it stays around the same line on the grid are more important.”

Breastfeeding Issues

Breastfeeding can be wonderful, but as we all know, it isn't always an easy thing to do. One of the first things you can do when working with a breastfeeding infant is to make sure that breastfeeding is going well for everyone. Sometimes mom might not know anything is wrong, so using your assessment and PCS skills is really important to collect the information you need to make sure that mom and baby are off to a great start with breastfeeding. Here are a few points to consider when talking with these families:

- **Is mom offering enough?** - Ask this question in an open-ended manner such as, “Tell me more about how you are feeding the baby.” Allow Mary to explain feeding time to you and when possible, use “tell me more about that” to allow her to explain rather than assume and lead the discussion. You'll be amazed at what a parent might tell you when you let them tell their story and you'll get a much more accurate picture of how baby is eating. Feeding on demand is the best way for her to know if baby is hungry **unless** there are any medical conditions or breastfeeding complications that could be affecting the amount of breastmilk the baby is getting. You can also find out more about how the baby is eating by asking mom about the baby's diapers. Having six to eight wet diapers and two to four poopy diapers each day is a sign that baby is getting enough milk from mom (this can also be used for formula-fed babies). However, output can differ between infants so it is important to use this information in conjunction with the whole assessment in order to obtain a complete picture of what is going on.
- **Are there latch issues?** - If there appear to be any issues, remember to assign risk 602/603 to the infant and address latch and milk transfer in your assessment. Helping the mom be more successful with breastfeeding can not only help the infant gain weight more appropriately, but it can give the mother more confidence. By increasing mom's confidence, you can improve the likelihood that she will try to problem-solve and search for solutions before giving formula.

Formula Issues

Although WIC supports breastfeeding as the best nutrition for baby, it is not always possible or the best solution for each WIC family. Some families choose to use formula, and in these cases, there are a few important assessment topics to consider:

- **Appropriate amount offered per day?** Formula-fed infants need about 2.5 ounces of formula per pound of body weight per day for adequate weight gain. Most infants don't drink more than 32 ounces per day; however, using feeding cues as guidance is best practice.
- **Using clean water to mix?** Some water sources may not be clean or the water may have minerals in it that are not safe for infants. This is a reason to give ready-to-feed formula. See Arizona State WIC Policy and Procedures Chapter 4. 
- **What types of bottles are being used?** There are many different types of bottles and nipples available today. Some bottle nipples have a different flow rate which determines the amount of formula or breastmilk the baby can transfer.

Solid Foods

Don't assume that caregivers know the best way to introduce solid foods. There is a lot of conflicting information about the best time and way to introduce infants to solid foods, so it's important to carefully assess the caregiver's feelings and beliefs on solid foods so as not to offend her and lose her trust. Here are some other topics to consider when talking about solid foods with parents:

- **Are age-appropriate foods being given?** - Arizona WIC follows the AAP guidelines and recommendations that infants should only be fed breastmilk or formula for the first six months and then age-appropriate foods can be added to their diet after that. Things to watch for include: putting infant cereal in the bottle with the formula or breastmilk, offering water in the bottle, and feeding purees or other solid foods before four months of age.

- **What are the doctor's recommendations?** - This is important to find out because health care providers may offer recommendations that contradict our feeding standards at Arizona WIC. Ask the parent or caregiver what they have been told and dig for more information to see if these recommendations are appropriate. You can always let parents know that we follow the AAP guidelines at WIC. You may also consider calling the pediatrician if you want to make a different recommendation. See above under Doctor Recommendations for more information on this topic.

Using Your Participant Centered Services (PCS) Skills

As a WIC RDN or MRN, we sometimes think that we can't be helpful or that we aren't credible to the participant if we have never gone through pregnancy, childbirth, breastfeeding and/or feeding a picky infant or toddler. This is not the case. Even though you may not have been through these experiences yourself, you can still help our WIC families to become more confident in feeding their baby and learn some healthy tips and tricks for getting their baby off to a healthy start. Here are some helpful reminders about how you can use your PCS skills to help our families build confidence in feeding their baby as well as build their trust and collect the information you need to complete your high-risk assessment:

Affirmations and Reflections

- We want to empower the parents and caregivers of infants that they can do what needs to be done to help their infant grow to a healthy weight.
- Include affirmations throughout your whole discussion with the family. For example:
 - "What an amazing mom you are to get the breastfeeding help that you need to help Eric continue to grow to his full weight potential!"
 - "You are a supermom! Juggling a new baby and all the doctor appointments can be hard. Eric is so lucky to have a mom like you!"
- Having a baby that isn't growing is stressful, so let the parent or caregiver know that you are aware of the stress and can carry that burden with her, even if it is only for the few moments that you are together.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Using your PCS Skills question 1.

Keep it Open, Probe When Needed

- Allowing the parent or caregiver to share what has been going on with their infant will likely cover several of the concerns that you listed above. Then go back and fill in the gaps where it is needed.
- Using the PCS model and skills that you have been trained on will allow you to assess the situation, help the family, and move them toward behavior change and better health outcomes for the infant.
- Try to use as many open-ended questions as possible to let the parent or caregiver provide you with a good picture of how the baby is feeding and what their biggest concerns are.
- It can be easy to generalize, but it's important to assess each client as a new individual so you can get a clear picture of what is going on.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Using your PCS Skills question 2.

Other Counseling Tips and Thoughts—The “Chatty Kathy”

Parents and caregivers might get off topic during a counseling appointment, which is common because they love to talk about their children and babies. You'll still need to collect all of the important information to complete the nutrition assessment. It's important to acknowledge what the caregiver is saying so that you don't ruin the rapport you have been working to build with them. For example, “That is great that little Mason is starting to roll over! How exciting! Meeting developmental milestones like that can also be a time of increased hunger for babies. Tell me more about how he has been eating lately...” Try to tie what they are saying back to nutrition. You'll find that you like a few sayings and that you can use them often.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Using your PCS Skills question 3.

Module 2: Anthropometrics - The 100s Codes

The Anthropometrics section of the infant high-risk codes includes all codes that would occur from a weight or length measurement. Each anthropometric high-risk code is listed below with a definition and etiology, or cause, of the code and information related to completing a high-risk assessment on infants. Activities include various codes to get you to stop and think about how you would ask questions to the parent or caregiver to keep the rapport that you are seeking to build **and** get closer to healthy behavior change!



103.1: Underweight or At Risk of Underweight

- Weight/length is at or below the 2nd percentile on WHO growth grid

Definition

When an infant's weight for length measures below the 2nd percentile on the World Health Organization (WHO) growth chart, the high-risk code 103.1 is assigned. WIC is concerned with this risk because nutritional issues could be preventing the infant from gaining appropriate weight. Long-term undernutrition may cause damage to immune function, organ development, hormonal function and brain development. As the WIC RDN, it is your job to assess the infant to determine if there is a true nutrition risk or concern.

Etiology

Several things could be causing the infant to not gain weight appropriately. It is important to talk with the infant's parents or caregivers to find out if there are any issues with the infant's feeding. Sometimes parents might not be aware of an issue, so doing an assessment can help you to determine if there are any concerns. There could be an underlying medical reason that hasn't been diagnosed yet or there could be environmental factors that WIC can help to address.

These issues could include:

- not feeding on demand
- improperly mixing formula
- feeding inappropriate foods for infant's age and development
- not having access to clean water to mix the formula

We also want to make sure that the parents or caregivers have access to and are being seen by an appropriate health care team since you will need to refer to the pediatrician to assess for any medical conditions that may be present and causing the low weight status.

Assessment

Growth can be a sensitive topic for parents and caregivers. When addressing this high-risk code with the family, it is important to keep this at the front of your mind. Use of projective techniques (Getting to the Heart of the Matter tools) can be a perfect way to start the conversation of an infant's growth.

For example:

"Mary, would you reach into this bag and select a fabric that says something about how you feel your sweet little Eric's growth has been since we saw you last?"

Mary (the mother) may respond, "I picked this rough piece because the doctor told us that Eric is underweight and I have been really stressed about making sure he gets enough milk."

You could respond with, "I'm so sorry to hear that there has been some stress related to such a joyful event of having a new baby! Tell me more about how Eric feeds ..."



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 103.1 question 1.

Keep in mind that parents may be sensitive about their baby's size so greeting them and saying that you are meeting with them today because their baby is at high risk due to being underweight can sound very scary to a parent. This may also cause them to put up a wall and not share important information with you. Try opening up the conversation with, "I'm looking forward to meeting with you today and talking with you about little Alexa and how she has been eating lately." This will come across much warmer and hopefully open the door to a great assessment appointment.



Take a closer look!

This risk code has a case study in the *Workbook*.

115: Weight/Length $\geq$ 98th percentile

- Weight/length is at or above the 98th percentile on WHO growth grid

Definition

When an infant's weight for length measures above the 98th percentile on the World Health Organization (WHO) growth chart, the high-risk code 115 is assigned. Rapid weight gain in infancy has been shown to be a predictor for obesity later in life. With the current high prevalence of obesity, this high-risk code can provide additional support for families as they receive nutrition education and counseling from the WIC RDN.

See the Nutrition Risk Manual for more information.



Etiology

The most common reason for an infant to be above the 98th percentile relates to environmental factors such as overfeeding. Misreading an infant's hunger and satiety cues is easy to do if you haven't learned what they are. Parents and caregivers may be providing too much formula, mixing it improperly or offering inappropriate solid foods to the infant. The infant may also have a medical condition causing them to gain a too much weight.

Assessment

Having an infant with a high weight-for-length measurement is a delicate issue. Discussing weight and obesity should be done with care and sensitivity towards the parent's or caregiver's feelings and to avoid judgment. It is best practice to use the term "high weight-for-length" and to stay away from "overweight," "obese," "large," or any other words that may sound negative. The parents and caregivers will probably not feel like opening up to you and trying to make a meaningful behavior change if you offend them when you talk about their baby. Another issue to consider is that some cultures (such as Hispanic) feel that large, "chunky" babies are healthier and may not see anything wrong with their infant's weight.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 115 question 1.

Learning about the infant's eating habits will be valuable information in the assessment. Using open-ended questions can create an opportunity for parents and caregivers to talk about what the infant is consuming and how feeding times are going. Let's pretend you are talking with a family of a 4-month-old baby that is formula feeding. You ask the parents to tell you more about how the baby is eating. They tell you, "He eats all the time, usually six to eight ounces of formula at each feeding."



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 115 question 2.

Some of the important topics that you may want to address include:

- **Overfeeding the infant** - Formula-fed infants need about 2.5 ounces of formula per pound of body weight per day for adequate weight gain. Most infants don't drink more than 32 ounces per day. Using feeding cues as guidance is best practice and it is important to assess if the family understands the different cues.



Take a closer look!

This risk code has a case study in the *Workbook*.

- **Formula preparation and safety** - It is important that the parent or caregiver understands how to safely mix the formula. This includes the proper proportion of water to formula.
- **Feeding inappropriate foods** - This can include feeding solids before the infant is developmentally ready or feeding foods that could be harmful. Examples of this include choking hazards like popcorn, whole grapes or carrot coins. Sugary foods should also be avoided for infants: juice, candy, cake, ice cream and sweets.
- **Hunger and fullness cues** - The best place to find more information about hunger and fullness cues is in the Baby Behaviors training. Helping families learn to understand and trust the baby's feeding cues can help set them up for successful infant nutrition and feeding.
- **Activity** - Once babies become mobile, they lose a lot of their fat stores. This can be reassuring to parents that their infant's weight gain could slow down once they start to crawl. This is also a recommendation to allow infants to be mobile and active. Encourage parents and caregivers to allow their infant to crawl, walk and expend energy!

Many times the parents and caregivers may be contributing to the infant gaining excess weight by doing things without realizing the consequence (i.e., feeding baby whenever he cries). These parents and caregivers can be educated in a sensitive and encouraging way to help the infant be healthy. An example of how you can acknowledge what the parent or caregiver has told you but also share correct information is: "You do such a great job of responding to your baby's needs! It's hard for babies to clearly express when they feel hungry, drowsy, or when they need something to be different. He's lucky you'll be there to notice when needs something besides food."

134: Failure to Thrive

- Diagnosed by a health care provider with failure to thrive

Definition

Failure to thrive (FTT) is a highly complex medical condition with multiple factors causing poor growth, low weight and/or height in children. There are a few indicators that health care providers use to diagnose FTT, which include:

- Weight consistently below 3rd percentile for age OR
- Weight less than 80 percent of ideal weight for height/age OR
- Progressive fall-off in weight to below the 3rd percentile OR
- A decrease in expected rate of growth along the child's previously defined growth curve without regard to the 3rd percentile. (1)

Failure to thrive is due to inadequate nutrition to support growth and may be a mild form of Protein Energy Malnutrition. Note: Because there is not a single approach to assessing the growth pattern, physicians are not limited to the indicators described above in diagnosing failure to thrive.

See the Nutrition Risk Manual.



Etiology

Failure to thrive (FTT) is a highly complicated diagnosis. There are several reasons as to why an infant may be diagnosed with the disease which are classified into four major categories:

1. Inadequate energy intake
2. Inadequate absorption
3. Excess metabolic demand
4. Defective nutrient utilization.

Some of the medical issues or diseases that could cause failure to thrive include, but are not limited to:

- Developmental delay
- Gastroesophageal reflux (GERD) (2)
- Cystic fibrosis
- Cerebral palsy
- Congenital heart defects
- Inborn errors of metabolism
- Vitamin D deficiency

Behavioral and environmental issues could also play a major role in an infant being diagnosed with FTT. These types of issues could include: giving the infant an inappropriate milk source (cow's milk, watered-down formula or breastmilk), or ignoring or misinterpreting hunger cues. (2,3)

Assessment

Due to the multifactorial nature of the disease process in infants with FTT, it is very important to know whether the family is being followed by a pediatric health care team. Assessing the infant's diet and feeding habits will also be of utmost importance in order to see where any changes could be made to allow for an increase in caloric intake.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 134 question 1.

Many times parents will come with a prescription for their infant that has been diagnosed with FTT. This could be for a higher calorie formula or perhaps human milk fortifier for the breastfed baby. The most common formulas that would be prescribed for these infants include Neosure and Enfacare. These formulas offer more calories (22) per mL than the normal 20 kcal per mL formula. If you feel that the diagnosis or treatment, including higher calorie formula, is inappropriate, you need to communicate with the health care provider to discuss the discrepancies. See the Doctor



Take a closer look!
This risk code has a case study in the *Workbook*.

Recommendations section for more information.

135: Inadequate Growth

Inadequate growth is defined as:

- Birth to 2 weeks - Infant has not reached birth weight by 2 weeks
- Birth to 6 months - two weights taken at least one month apart where average actual weight gain is less than expected for age
- 6 months to 12 months - Two weights taken at least three months apart where average actual weight gain is less than expected for age

Definition

Inadequate intake and underlying disease conditions are the main reasons for inadequate growth in infants. WIC uses a cut-off point approximating the 10th percentile rate of change in weight-for-age when assessing an infant for inadequate growth, meaning a drop of 10 percentiles would be cause for this high risk to be assigned.

For more information, see the Nutrition Risk Manual.



Etiology

Due to the rapid growth rates in infants, inadequate growth can usually be identified early on and a Care Plan put in place to correct any nutrition issues right away. An infant that has not regained its birth weight by two weeks of age would be considered to have inadequate growth. This is a critical time in the infant's life and it's crucial to identify any potential nutritional causes by doing a complete nutrition assessment.

Assessment

At the beginning of the appointment, you'll need to re-measure the infant by taking an accurate length and weight. Based on these measurements, you can see if the infant is gaining weight appropriately according to the minimal expected weight gains found in the Nutrition Risk Manual. This will give you a more accurate picture of how the baby has been growing most recently. Even if the weight gains are appropriate, you still need to complete an assessment to determine if there are any nutritional issues.

Talking to the parent or caregiver about the way the baby is eating is important in identifying any nutritional concerns. Remember to ask the parent or caregiver in an open-ended manner about how the baby is eating. Follow up this information by asking how many wet and poopy diapers the baby is having. This may help you identify a nutritional concern immediately.

Some thoughts to consider

- **Breastfeeding** - Asking mom about how the baby is feeding may give you a better picture of what is really going on. Possible causes of inadequate milk intake could include, but not be limited to:
 - latch issues
 - tongue-tie
 - not feeding on demand
 - misreading baby's behaviors and feeding cues.

If you identify breastfeeding complications, this immediately becomes a risk 602/603 and needs to be treated accordingly. Recognizing and correcting breastfeeding issues early on can help create confidence in the mom and a healthy and nourished baby.

- **Formula feeding** – As with any other nutrition risk, find out how the parent or caregiver is feeding the baby, what type of formula the baby is drinking, and ask them to explain how they are mixing it. You'd be surprised at how often a parent or caregiver is not mixing the formula correctly and instructions on proper mixing can change the amount of nutrition the baby is getting with each feeding. Special formula might be requested for these infants to increase weight gain. Formulas like Neosure and Enfacare have more calories per mL, allowing infants to drink the same volume and gain more weight.
- **Growth Grids** - There are different growth grids that may be used to track growth in infants. WIC uses the World Health Organization (WHO) growth grids for infants and toddlers ages 0 to 2 and then the Centers for Disease Control and Prevention (CDC) growth grids from 2 to 5 years of age.

Recommendations for babies with inadequate growth will depend on what the infant is currently eating, but could include:

- increasing frequency or duration of breastfeeding
- supplementing with formula, switching to a higher calorie formula
- feeding higher calorie solid foods (i.e., cheese, peanut butter) that are appropriate for infant's developmental stage.

Parents may be really concerned with whether their infant's weight status will improve with the changes made. It is completely appropriate to invite the parents to come in for a weight check for the infant whenever they want! This is an easy way that WIC can serve these families to help reassure them that the infant is making progress!

For more information on assessment, please review the Nutrition Care Standards (Standard 6: Nutrition Assessment).



Take a closer look!

This risk code has a case study in the *Workbook*.



141: Low Birth Weight and Very Low Birth Weight

This is one of the high risks that can be seen by a Medium-Risk Nutritionist (MRN) under certain conditions. In this case, the MRN can see the infant after 1 year of age; also if the infant has been previously seen by the RDN and the dietitian has documented that the infant can be seen by the MRN. Your agency may have additional criteria that must be met before the MRN can see this participant. For example, requiring the infant must be 1 year old without exception. Check with your Local Agency trainer to discuss the policy.

- Birth weight less than or equal to 5 pounds 8 ounces (under age 2)

Definition

Low birth weight (LBW) and very low birth weight (VLBW) are defined as infants and children less than 24 months of age that were less than or equal to 5 pounds 8 ounces (2500gm) (LBW) or 3 pound 5 ounces (1500gm) (VLBW) at birth.

See Nutrition Risk Manual pg 38.



Etiology

Low birth weight is usually caused by one of two things: prematurity or fetal growth restriction.

Newborns with LBW can have severe complications, including:

- Brain bleeds
- Respiratory distress syndrome
- Necrotizing enterocolitis (NEC)
- Retinopathy of prematurity
- Patent ductus arteriosus (heart condition that can lead to heart failure).

These infants are also at a higher risk for medical complications later in life, including:

- Diabetes
- Heart disease
- High blood pressure
- Metabolic syndrome
- Obesity

Assessment

It is important to remember to take accurate weight and length measurements in order to see infants' progress since they were last in the WIC office. The infant is most likely being followed by a health care team, with the complications of LBW being so severe. As always, don't assume you know what is going on with the infant's care but allow space for the parent or caregiver to explain how the infant is feeding, what the doctor and health care team are suggesting for treatment, and how the family is coping.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 141 question 1.

Some thoughts to consider

Whether breast or bottle feeding, these infants might have a lot of feeding complications. The extent of infant's prematurity directly relates to how much trouble the baby may have suckling at a breast or bottle nipple. If not already indicated in their WIC notes, this could become a 602/603 risk and should be treated as such.

The infant's pediatrician might prescribe a nutrition intervention for a LBW or VLBW infant such as a high-calorie infant formula or adding human milk fortifier to the breastmilk. Work with the family to make sure they understand the importance of what the doctor has recommended and prescribed. If the family is on AHCCCS, they might be able to have this special formula paid for and delivered to them through their AHCCCS plan.

A Note to Medium-Risk Nutritionists

This is one of the high risks that can be seen by a Medium-Risk Nutritionist in some circumstances. In this case, State WIC policy allows MRNs to see the infant once the infant has been seen previously by the RDN and documented a referral back to the MRN. However, your agency may have additional criteria that must be met before the MRN can see a participant with this risk. For example, some Locals Agencies require that in order for the MRN to see these participants, the infant must have been seen previously by an RDN and be at least 1 year old. Check with your Local Agency trainer to learn

your agency's policy. More information about the assessment of a child with the risk code 141 will be discussed in the High-Risk Children's Guidebook.



142.1: Prematurity

This is one of the high risks that can be seen by a Medium-Risk Nutritionist. In this case, State WIC policy allows MRNs to see the infant once the infant has been seen previously by the RDN and the dietitian has documented a referral back to the MRN. However, your Local Agency may have additional criteria that must be met before the MRN can see participants with this risk. For example, it may be required for the infant participant to turn 1 year old to become a C1 prior to seeing the MRN. Check with your Local Agency trainer to learn your agency's policy.

NOTE: Code 142.2 Early Term is not a medium or high risk referral. The Nutrition Care Manual uses USDA's definition of 142 to include both Preterm and Early Term infants. Arizona WIC has chosen to divide 142 into 142.1 Preterm (prematurity) and 142.2 Early Term categories to enable HANDS to auto-assign the high risk designation for preterm infants without including early term infants.

- Born at or less than 37 weeks gestation

Definition

Prematurity is defined as an infant that is born prior to 37 weeks gestation. During the last trimester, the fetus is continuing to develop and mature and even the final few weeks are an important stage of development. The earlier the baby is born, the more severe the health problems may be. According to the CDC, more babies die from prematurity-related problems than any other cause. (1)

See Nutrition Risk Manual pg 39.



Etiology

Some common causes of prematurity include:

- Infections
- Diabetes
- High blood pressure
- Multiple pregnancies

- Carrying multiple babies
- Smoking, alcohol and illicit drug use during pregnancy (WHO)

Babies born prematurely have a higher risk of death and medical problems as they grow, including:

- Neurological issues
- Hearing impairment
- Vision issues
- Breathing difficulty
- Developmental delay
- Cerebral palsy
- Feeding difficulties (1)

Assessment

One of the common concerns with premature babies is breastfeeding problems. The sucking reflex is developing in utero during week 34 of gestation. While babies born after 34 weeks **may** have sucking issues, it is much more likely that a baby born before 34 weeks will present with sucking issues.

Helping the mother breastfeed her premature baby could provide much needed support.

The family may have already been given a lot of guidance while the mom and the baby were in the hospital, so it is important to ask questions before giving advice on feeding a premature infant.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 142 question 1.

A common concern among formula-fed infants is the sterility of the formula. Powdered formula has been shown to contain a group of bacteria called Cronobacter. For full-term, healthy infants, this bacteria does not usually pose a threat. However, to an immunocompromised infant or one whose gut is not as fully developed due to prematurity, powdered formula may not be safe to give to the infant,

as the bacteria can cause sepsis, meningitis and even death. For these families of premature infants, WIC provides concentrated or ready-to feed formula to ensure the formula is as safe as possible. (See WIC's Policy and Procedure Chapter 4)



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 142 question 2.

A Note to Medium-Risk Nutritionists

This is one of the high risks that can be seen by a Medium-Risk Nutritionist. In this case, State WIC policy allows MRNs to see the infant once the infant has been seen previously by the RDN and the dietitian has referred them to be seen by the MRN. However, your agency may have additional criteria that must be met before the MRN can see a participant with this risk. For example, some Locals Agencies require that in order for the MRN to see these participants, the infant must have been seen previously by an RDN and be at least 1 year old. Check with your Local Agency trainer to learn your agency's policy. More information about the assessment of a child with the risk code 141 will be discussed in the High-Risk Children's Guidebook.

Module 3: Biochemical and Clinical - The 200s and 300s Codes

In this section we will cover the Biochemical and Clinical High-Risk Codes. These codes include conditions involving blood issues and other medical conditions. Nutrition is either affected by the medical condition or lack of nutritional intake is causing the medical condition. Either way, WIC can help by providing the nutrition (via formula and baby foods) and support for whatever the family may be experiencing.

Overview of Anthropometrics: 200s

This Biochemical section of the High-Risk Guidebook for Infants has the code relating to anemia for infants (201.1). The WIC RDN and MRN can add valuable information and resources for these families as they evaluate the nutrition that their infant is receiving and choose the best options for the family to reach better health outcomes.



201.1: Low Hemoglobin

This can be referred to a Medium-Risk Nutritionist when in the Nutritionist range.

- Hemoglobin below the Nutritionist cut-off level

See the Nutrition Risk Manual for cut-off values tables 

Definition

Iron deficiency anemia is a condition in which the blood doesn't have enough healthy red blood cells. When there is not enough iron in the blood, the body cannot produce hemoglobin (Hg), which is an iron-rich protein found in red blood cells that carries oxygen throughout the body. Hemoglobin and hematocrit (Hct) are commonly used to screen for iron deficiency anemia. When red blood cells are low in hemoglobin, it usually means that there is also low iron in the blood. Hematocrit is the portion of red blood cells within the blood, so when there are low red blood cell levels within the blood, this is also a good indicator of low iron status. At WIC, we use the Centers for Disease Control (CDC) cut-off values to determine if an infant is at risk for iron deficiency anemia.

Etiology

The third trimester of gestation is a time of rapid growth for the fetus and also when about 80 percent of iron stores are accumulated in the body, according to the AAP. Healthy term infants are born with a rich store of iron which will start to decrease at around 6 months of age, so it is rare to see low iron before this time unless there were other underlying medical conditions.

Some causes of low iron status in infants birth to 6 months:

- Low-iron formulas, formulas not fortified with iron or homemade formulas - this is usually rare in the U.S. The AAP strongly recommends offering infants breastmilk or iron-fortified formula to help prevent iron deficiency.
- Preterm infants - these babies are at higher risk for low iron since they were not in utero as long as term babies and, therefore, may not have been able to build up a good store of iron.
- Other medical conditions (most of these can be assessed for and treated with proper prenatal medical care) -
 - Severe maternal iron deficiency - For more information on maternal iron deficiency, see the Women's High-Risk Guidebook for risk code 201.
 - Intrauterine growth restriction
 - Severe or chronic blood loss during pregnancy
 - Uncontrolled maternal diabetes
 - Small for gestational age

For more information, see the Nutrition Risk Manual.



Assessment

WIC is one of the reasons that low iron status is rare among infants today, because we provide breastfeeding support and iron-fortified formulas to infants from birth to 6 months plus iron-fortified cereal, iron-rich foods from 6 to 12 months and nutrition education throughout every life stage. Talking with the parent or caregiver to find out how the baby is eating is can identify any areas of concern in their diet that may be causing low iron status.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 201 question 1.

As with all assessments, don't assume that you know what is going on with the baby. Asking open-ended questions about how the baby is fed is the best way to collect the information you need to complete the assessment and really understand what is going on. For example, if the baby is drinking formula, don't assume iron-fortified formula is being used. Ask about feeding time and dig for more information. Ask what formula they are using, how it is being mixed and what other foods the baby is eating. Improper mixing can decrease the amount of iron the baby is getting. Some parents or caregivers are not aware of what foods are iron-rich and that they should be including iron-rich foods in the baby's diet after 6 months of age.

Recommendations for treatment or prevention of iron deficiency anemia in infants include:

- Exclusively breastfed from birth to 6 months
- Offer iron-fortified formula from birth to 6 months
- Once the infant is 6 months of age, offer iron-fortified infant cereals and other iron-rich solid foods:
 - ▶ **Meats** - these are the most bioavailable, or absorbable, sources of iron. Let the parents know that they can begin to include meats, either pureed or at a consistency appropriate for the infant's stage in development. Many parents are hesitant to offer meats due to fear of choking or concern about the thicker consistency of pureed meats. You can help by explaining how important it is to include healthy meats in the baby's diet to make sure they are getting enough iron.
 - ▶ **Vegetable sources of iron** - Although these foods are not as bioavailable, they are also a good source of iron to include in the infant's diet. Beans, broccoli, chickpeas, lentils and spinach are great examples of iron-rich foods that can be steamed and pureed to the appropriate consistency for the baby. If the baby is older, these foods can be cut into small bite-sized pieces to allow baby to practice feeding himself.
 - ▶ **Iron-fortified infant cereals or iron-fortified regular cereals** - WIC provides iron-fortified infant cereal which can be a great food to offer baby at 6 months when they start on solid foods, plus it is a good source of iron. There is some debate about infant

cereals being healthy for infants because it is said that infants produce smaller amounts of amylase to break down cereal efficiently. In fact, infants produce proportionately small amounts of pancreatic amylase before one year of age. However, they secrete sufficient amounts of salivary amylase to efficiently digest infant cereals. (2) Regardless of the debate, infant cereals are a good source of iron. If the parent or caregiver doesn't want to feed her baby infant cereal, you can talk with her about other healthy sources of iron to include in the baby's diet.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 201 question #2 and 3.

Overview of Clinical Codes: 300s

All of the 300s codes must be diagnosed by a medical professional such as a pediatrician. Although you won't be providing medical nutrition therapy like in the clinical setting, your assessment and support can help families successfully meet the needs of their infant. By learning what recommendations and treatment plans health care providers have prescribed, you can explain and clarify information for WIC clients who have questions or feel overwhelmed.

Communication between the WIC RDN and the participant's health care provider is encouraged, especially if there is a concern with the treatment plan. If treatment disagrees with evidence-based practices or seems inappropriate given the circumstances, the RDN should consider calling the doctor to clarify the treatment plan. An example of a time when you might not agree with the treatment plan is if the doctor recommends that an LBW infant stop breastfeeding and use a high-calorie formula (when the mother wants to continue breastfeeding). If clarification is needed after your nutrition assessment is complete, calling the infant's pediatrician can help you understand the treatment plan. In this case, you would be able to explain that breastfeeding is very beneficial to the infant in more ways than just offering enough calories, explore other options like adding human milk fortifier, and hopefully help the mother continue breastfeeding with the support of the pediatrician. Having a conversation with the health care provider to let them know your concerns about this treatment plan and what your recommendations are can help to determine the best course of action for the infant.

General Assessment for 300s:

Most infants with a clinical nutrition-related disease or diagnosis will already be following a specific diet or nutrition care plan (NCP) prescribed by their medical team or RDN. Although you may not be creating an NCP for these infants already following a treatment plan provided by a healthcare provider, you'll still need to assess their nutrition. While you may understand the diagnosis, it is important to make sure the family does as well, so ask them to explain the infant's condition and/or diagnosis to you. Ask them if the infant is being followed by a health care provider or other medical professionals like an RDN and what the medical professionals have advised for a nutrition intervention or NCP for this infant. You may find that this family is not well informed or is confused about the NCP. This is why it is important to use open-ended questions and don't assume they know and understand everything about their infant's diagnosis.

Recommendations and Tips for Assessments:

- Assess the impact of the medical condition on the infant's health. It is important to understand how the clinical or medical condition will affect nutritional needs and how to make appropriate referrals when necessary.
- For some families it can be very stressful and emotional to discuss their infant's diagnosis, so try starting the conversation by talking about the exciting developmental milestones the baby is reaching. Sometimes these may be delayed due to the disease; however, it is still very exciting for the infant's family to see these milestones being reached. This can help decrease the stress and anxiety the family might be experiencing and help build rapport.
- Find out what the medical professionals have told the family about the infant's condition/diagnosis and make sure they understand what they have been told.
 - Do they understand the disease?
 - Do they have an NCP and are there any misunderstandings of how to manage and care for the infant's condition?
 - Do they understand the importance of continuing to receive medical care for the infant?
- Family's coping strategies - Chronic diseases in infants can be very stressful and hard on a family or caregiver. Find out if the family has a medical team they are working with, family and friends that support them, and community support. This is a perfect time to find out more information about possible referrals you can make.

341: Nutrient Deficiency or Disease

- Diseases caused by insufficient intake of nutrients

Definition and Etiology

The nutrient deficiency disease code includes diseases that cause an insufficient intake of nutrients. Infants who have nutritional problems, are born prematurely, or have other chronic diseases that interfere with nutrient absorption will be more at risk for any or all nutrient deficiencies.

Some of these diseases seen in infants include, but are not limited to:

- **Protein energy malnutrition (PEM)** - This is caused by a lack of protein in the diet, which can also be low in energy. In the United States, PEM is more commonly seen as a secondary complication to diseases such as cancer, AIDS, chronic kidney disease and other diseases that impair nutrient absorption. (1, 2)
- **Kwashiorkor** - Also known as wet PEM, it is a protein deficiency. This might be seen in infants not being fed a nutritious diet and adequate formula intake or breastfeeding.
- **Marasmus** – This is also a PEM disorder; however, this is caused by overall calorie/energy deficiency rather than just from protein deficiency. In infants, this might be seen when they are no longer breastfeeding or getting an appropriate formula or with severe diarrhea.
- **Scurvy** – This is a vitamin C deficiency and is pretty rare in infants today. When it does occur, infants are at least 7 months of age and experience extreme pain and tenderness in the arms and legs. Scurvy is usually accompanied by poor weight gain. (3)
- **Rickets** – This is from vitamin D deficiency and can cause bone malformation and lead to bowed legs. (4)
- **Beriberi** – This is thiamin (B1) deficiency, which can occur in breastfeeding infants when mom's diet is lacking thiamin or in formula-feeding infants if they are on a homemade formula or one that is lacking in thiamin. This disease can affect the cardiovascular system (wet beriberi) or nervous system (dry beriberi) and most times, with treatment involving supplements or injections of thiamin, levels of thiamin return to normal. (5)

- **Menkes disease** - This is a copper deficiency caused by a gene mutation; treatment involves copper injection therapy. RDNs can help with treatment of one of the symptoms of this disease, which is failure to thrive. (6)

According to NHANES data from 2011-2012, formula fed infants had an average usual intake of choline that was below the AI for that nutrient; however, intakes of other vitamins and minerals were estimated to be adequate. Intakes of vitamin D, iron, and zinc among breastfed infants can be of concern if appropriate and timely complementary foods and/or vitamin and mineral supplements are not provided to the infant.

According to NHANES data from 2009-2012, at least 10% of infants receiving human milk between 6 and 12 months of age had inadequate intakes of iron and zinc. Concentrations of vitamin D in human milk have been found to be low. Therefore, it has been recommended by the American Academy of Pediatrics (AAP) to provide all infants who are taking less than 32 ounces of formula a day a vitamin D supplement of 400 IU daily. Additionally, infants who are born to mothers who are vitamin D deficient are more likely to be deficient themselves. (For more information see risk 411 Inappropriate Nutrition Practices for Infants.)

For more information, see the Nutrition Risk Manual. 

Most of the time, a nutrient deficiency can be caught before the disease state develops. Other common nutrients that can become deficient in infants include, but are not limited to:

- **Vitamin B12** - Vitamin B12 deficiency is most commonly seen in infants who are exclusively breastfed by someone deficient in B12, sometimes due to a strict vegetarian or vegan diet. In these instances, the nursing mother can supplement with B12, which will transfer into the breastmilk and also nourish the infant. (7,8)
- **Vitamin B6** - This is usually very rare since infant formula and breastmilk have adequate amounts of B6 in them.
- **Zinc** - Infants are susceptible to zinc deficiency due to the rapid growth they are experiencing, and a zinc deficiency can impair cognitive and motor development. (9)

Assessment

Micro- and macronutrients are needed for our bodies to function properly. Being aware of a disease that an infant could have allows the RDN to recommend foods that contain the nutrient(s) needed in the infant's diet. In general, an infant that is on a standard formula or is breastfed by a mother without any nutrient deficiencies herself will avoid nutrient deficiencies.

As with other clinical risk codes, make sure the family understands the disease and the nutrients lacking in their infant's diet. If the infant needs to increase these nutrients in their diet as a nutrition treatment or intervention, make sure the family understands appropriate foods to help meet these needs.

Some things to consider:

- **Strict vegetarian or vegan diets** - Exclusively breastfeeding mothers with nutrient deficiencies, mostly seen in strict vegetarian or vegan diets, should ensure their diet is not lacking in nutrients or consult their doctor about taking a supplement. If the mother is deficient herself, then vitamins B6, B12 and zinc could be scarce for the infant.
- **Formula-fed infants** - Discuss formula preparation and mixing procedures to ensure the infant is receiving all the nutrients and nutrition they need from the formula.
- **Introduction of solid foods** - Talk with families about important nutrients found in different foods and explain how they can prepare some of these foods for their baby at home. Some families may understand what foods are healthy for the infant but they might not be aware of how to prepare them in an appropriate consistency for the infant.

342: Gastrointestinal Disorders

- Gastroesophageal reflux disease (GERD), peptic ulcer, short bowel, inflammatory disease, etc.

Definition and Etiology

Gastrointestinal (GI) disorders are a broad category that could describe several conditions from which an infant could be suffering. The GI disorders that are seen more often among infants include:

Gastroesophageal reflux disorder (GERD), biliary tract disease, short bowel syndrome and liver disease. A few of the most common conditions include GERD and short bowel syndrome. GERD occurs when contents from the stomach are refluxed or come back up into the esophagus. (1) Short bowel syndrome is when part of the small intestine is missing or is removed during surgery. (2) This can cause problems with breakdown and absorption of nutrients.

Symptoms of GI disorders include:

- Diarrhea
- Vomiting
- Constipation
- Abdominal distension
- Abdominal pain
- Failure to thrive
- Irritability

Assessment

Most likely, the family will come to you after seeing a physician and have a plan to manage the infant's GI condition. GERD is the most common GI disease diagnosed among infants. Some of the common treatments that infants with GERD may be prescribed include:

- **Change in formula** - Participants will bring in a prescription from their medical provider with a new formula to try. There are several formulas that are appropriate for a GERD diagnosis. Similac for Spit Up is a milk-based formula with reduced lactose. For some infants, any amount of cow's milk causes GERD problems. In this case, protein hydrolyzed or amino-acid based formula, such as Alimentum or Nutramigen, may be prescribed. Neocate is another formula that can be helpful as well. (3)
- **Change in the breastfeeding mother's diet** - Eliminating cow's milk and eggs have been shown to improve GERD symptoms in the breastfed infant. (4)
- **Thickened formula or breastmilk** - Adding rice cereal to a bottle is a common treatment for infants with GERD, as studies have shown reduced episodes of regurgitation with thickened liquid. (5) However, the safety and efficacy of the use of thickened liquids in a bottle is still

undetermined (see concerns with cereal in a bottle, pg. 8-9 of High-Risk Infant Guidebook). Best practice is to start cereal with a spoon at around six months; however, if the pediatrician has prescribed adding cereal to the formula or breastmilk due to GERD, then you may refer the parent or caregiver to the health care provider for clarification or to ask about alternatives to adding cereal to the bottle. For example, formula feeding infants may ask the provider about potential benefits of a special formula; formula and breastfeeding infants may benefit from changes in positioning, timing, rate of consumption and amounts provided during individual feedings. If you have any concerns about a prescription or recommendations from a health care provider, consider calling them to make sure the parents have understood the recommendations. For more information about talking with health care providers, see the Doctor Recommendations section in the Introduction of this High-Risk Guidebook.

Some of the main concerns for short bowel syndrome include:

- **Micro- and macronutrient malabsorption** - This can occur, depending on what part of the intestine is missing. Supplements or injections of nutrients may be prescribed for the infant.
- **Parenteral or enteral nutrition** - Infants may leave the hospital and come to WIC with enteral feeding tubes due to SBS. Assessment of appropriate formula for the infant and referrals for additional formula (if needed by family) should be provided. If the participant has AHCCCS medical insurance (Arizona's Medicaid program), then home delivery of enteral formula and supplies could be arranged.
- **Water-soluble fiber** - For older infants with intact colons, water-soluble fiber has been shown to lengthen time in the intestinal tract.(6) This is a treatment that should be followed by a health care provider since too much fiber can cause gas, bloating, and further malabsorption or obstruction. (7)

343: Diabetes Mellitus

- Type 1 or type 2

Definition and Etiology

Diabetes mellitus (DM) refers to the disease in which there is too much glucose, or sugar, in the blood stream. Type 1 DM is a condition where the pancreas stops making enough insulin to adequately process the carbohydrates or sugars that are consumed. This is a chronic condition that will usually require lifelong use of insulin for the infant. Type 2 DM is a condition in which there is insulin being produced by the body, but it is not working properly or there is not enough being produced. Babies with DM will have to have regular blood glucose monitoring to keep their levels on track.

It is very rare for an infant to be diagnosed with DM. If the infant has type 2 diabetes, it can be undetected since they are still making insulin and are eating so frequently that symptoms can be masked.

It is estimated that less than one percent of all children diagnosed with type 1 diabetes are under the age of one. Classic symptoms of type 1 DM in infants include:

- Polyuria - excessive urination
- Nocturia - excessive urination at night
- Polydipsia - excessive thirst
- Polyphagia - excessive hunger
- Weight loss

Hypoglycemia is a concern in infants due to the fact that glucose is the major fuel for the brain, so not having enough glucose can impair brain function and development.

Assessment

Infants with diabetes will have similar diets as healthy infants their same age. There is no contraindication for breastfeeding so moms should be supported in their effort to breastfeed their baby. Here are some more tips and information that may be helpful for the infant's family.



Take a closer look!

This risk code has a case study in the *Workbook*.

- **Overall nutrition**
 - Make sure the family understands healthy infant nutrition and the importance of providing a variety of foods at consistent times and in fairly consistent amounts throughout the day and night.
 - Limit concentrated carbohydrates like fruit juices.
- **Mealtimes-** As with any family, mealtimes can be stressful since infants don't always eat the way parents want them to eat or like the foods prepared for them. Encouraging healthy eating habits for the whole family can help ease some stress for the family with an infant with DM by helping them to better understand infant feeding norms. Ellyn Satter has great tips for healthy feeding practices.

345: Hypertension and Prehypertension

- High blood pressure

Definition and Etiology

Hypertension (HTN) is defined as high blood pressure. An infant may have this problem due to other medical conditions such as:

- bronchopulmonary dysplasia (BPD)
- intraventricular hemorrhage (IVH)
- or patent ductus arteriosus (heart failure).

It is most commonly seen among premature babies and those with kidney and heart conditions. (1)

The presence of HTN in an infant is a life-threatening event that can result in:

- lethargy
- apnea
- seizures
- intracranial hemorrhage
- Congestive heart failure (CHF)
- or cardiogenic shock (2)

A health care team should be following the infant closely, as their goal would be to treat the underlying condition that is causing the hypertension.

Assessment

There are no common nutrition recommendations for controlling hypertension in infants. These infants have undergone a lot of tests and treatments and may be in and out of the hospital often.

During the nutrition assessment you may realize that the family has received a lot of information from the medical team and the parents or caregivers may need clarification or have questions. Using the counseling technique of summarizing can be a useful skill in these situations. Summarizing is the skill of repeating back to the parent or caregiver the key points of information that they shared throughout the appointment, what behavior changes the family has adopted, and other follow-up information.

For example, summarizing your nutrition assessment with a family that has an infant with HTN might sound like, “We discussed Jason’s heart condition that is currently causing high blood pressure. You are following the doctor’s recommendations for medications and, as of now, Jason is breastfeeding every two to three hours. Your goal for Jason is to continue breastfeeding and increase the time spent skin-to-skin. You will continue to go to Jason’s doctor appointments and are going to ask the doctor about how long they think Jason will have to be on the antihypertensive medications. Does that sounds about right? Are we missing anything?”

By summarizing what was discussed, you are letting the family know that you were listening and present throughout the discussion. It also reinforces the family's commitment to follow through with what they said they wanted to change, which is putting baby skin-to-skin more often in this case. Better health outcomes are usually achieved by meeting small goals along the way. Summarizing the appointment is a easy way to increase the family's chance of success with their goal.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 345 question 1.

346: Kidney Disease

- Any kidney disease (does not include bladder infections)

Definition and Etiology

There are two major types of kidney disease: chronic kidney disease (CKD) and nephrotic syndrome (NS). CKD in infants could be congenital (present at birth), an inherited disease, or inborn error of metabolism. There is also the potential for getting the disease due to trauma, untreated kidney infections, or illness. (1) CKD is classified from stages 1-5, with stage 5 needing dialysis or transplant. Nephrotic syndrome is characterized by protein in the urine without a chronic kidney disease.

Assessment

Some things to consider with CKD:

- **Enteral tube feeds** - The infant may be on a tube feed in order to get enough calories into the body. If the participant is on AHCCCS health care insurance, they may be eligible to receive their formula through AHCCCS for home delivery.
- **Specialized formula** - If the infant is able to take oral feeds, they will most likely be on a specialized formula for kidney disease, such as Similac 60/40. Participants should come in with a formula prescription from their physician.

Some things to consider with NS:

- Low sodium diets are usually recommended for the infant. When the infant starts solids, encourage reading of nutrition labels to be aware of the amount of sodium in packaged foods. Choosing foods without sodium (whole fruits and vegetables) in an appropriate texture based on developmental stage (pureed, soft, bite-sized) should be encouraged for the family. (1)

347: Cancer

- Any cancer

Definition and Etiology:

Cancer is the uncontrolled growth of abnormal cells in the body. Today there are over 100 different types of cancers; however, the types of cancers seen in infants and children are different than the types of cancers in adults. Neuroblastoma is the most common form of cancer in infants, followed by leukemia and brain or central nervous system (CNS) cancers.

Having healthy nutrition during cancer treatment can help these infants:

- Continue normal growth and development
- Have more strength and energy
- May have less risk of infection
- Heal and recover faster
- Keep up their weight and body stores of nutrients

Each infant will have different nutritional needs. (1)

Assessment

Some of the concerns that you will want to address with the infant's parent or caregiver include:

- **Appetite changes** - After chemotherapy treatment, patients often are not able to eat what they could before due to nausea and other side effects.

Constipation – Cancer treatment, decreased activity and diet/appetite changes can affect the motility in the gut, so constipation may occur.

Mouth dryness - Some types of treatment for cancer can cause dry mouth which can make it hard to eat. Some visible symptoms that indicate the presence of mouth dryness include: dried, flaky, whitish saliva in and around the mouth, thick saliva that's more like mucus and that sticks to lips opening mouth, increased trouble swallowing foods or thick liquids, and tongue surface looks ridged or cracked. Encourage caregivers to keep the mouth moist

according to health provider instructions, such as sips of water or applying moistened cloths or sponge to the mouth and lips.

Nausea and vomiting

Nausea is having a sick or queasy feeling in the stomach, and vomiting is throwing up food or liquids from the stomach. Frequent vomiting can be dangerous because it can lead to dehydration. Work with health care providers to find out what recommendations are appropriate for nausea in infants. Food odors can trigger or aggravate nausea. Offer to make meals or ask others to make meals to reduce bothersome food odors. Use kitchen vent fans to reduce smells. Cover or remove foods with strong or unpleasant smells. Try to help the patient avoid constipation and dehydration. Either of these can make nausea worse.

Swallowing issues - These may occur due to mouth or throat sores from cancer treatments. If the infant is old enough to have solid food, soft and pureed foods that are a cool temperature can provide relief and nutrients for the infant. Examples include yogurt and any pureed baby food (lukewarm or cool). The American Cancer Society has a great resource for nutrition in infants and children with cancer. (2)

348: Central Nervous System Disorders

- Epilepsy, cerebral palsy, neural tube defects, Parkinson's or multiple sclerosis

Definition and Etiology

Central nervous system disorders are classified as high risk because of the affect the disorder has on energy requirements, the ability to feed oneself, and because they alter the nutritional status metabolically, mechanically or both. These conditions include: epilepsy, cerebral palsy, neural tube defects, Parkinson's disease and multiple sclerosis.

See Nutrition Risk Manual. 

Epilepsy is a condition in which the infant has seizures which can be caused by illness, abnormal brain development in the womb, genetic disorders, infection in the brain, meningitis, or sometimes an unknown cause. (1)

Cerebral palsy (CP) describes disorders that impair the control of movement due to injury to the developing brain. CP is caused by infections, birth injuries, and poor oxygen before, during or immediately after delivery of the infant. (3)

Neural tube defects, most commonly spina bifida, is a permanent disability where the spine does not completely close around the spinal cord while the infant is in the womb. Genetic and environmental factors together are thought to cause the defect. It can be prevented by encouraging women of childbearing age to take 400 micrograms of folic acid. (4)

Parkinson's disease and **multiple sclerosis** are conditions that can occur in infancy but are very rare in this population. Parkinson's disease is a slowly progressing neurodegenerative condition where dopamine is no longer made in the brain. This makes it harder to control extremities (arms and legs), emotions and movements. (5) Multiple sclerosis is an abnormal response of the immune system where it attacks the central nervous system, causing fatigue, walking difficulty, vision problems, numbness, weakness, cognitive changes and more. (6)

Assessment

Many of these diseases have symptoms that range from mild to severe. Sufferers can be anywhere along the range in their disease state, so it is important to talk with the family to see where the infant is in the range of their symptoms.

Some things to consider for the specific diseases:

Epilepsy

Ketogenic diet - This diet is sometimes used when medications and other treatments are not helping with the seizures. It is not something that a WIC RDN would be prescribing, as initiation onto this diet usually requires hospitalization. It is good, however, to be aware of the diet, as participants could already have started this diet before you see them. This diet is low in carbohydrates and high in fats and includes protein to help with growth and development. It creates ketones and the body functions normally when using these ketones for energy; however, without strict adherence to this diet, the ketosis will not occur. Even one high-carbohydrate snack can destroy ketosis. (2) You can support these families and children by encouraging adherence to the diet and helping them to better understand other low-carbohydrate/high-fat meals and snacks they can offer their child.

Cerebral palsy

- Oral-motor issues - These infants can have weak sucking, poor lip closure, hyperactive gag reflex and swallowing difficulties, so thickening feeds may be required for successful feedings to occur.
- Referrals - Community agencies (early intervention programs) and child nutrition programs (preschools) can and must provide modified meals (by public law 192-119) when the family brings a prescription from their doctor. (7)

Spina bifida

- Swallowing difficulties - Infants with spina bifida can have various types of swallowing issues. They may come to WIC on a modified texture diet.

- Constipation - A common concern for infants with spina bifida is constipation. Infants may be getting laxatives regularly per their provider's orders. It is important to assess for stool output and constipation in your nutritional assessment. They may have not talked with their physician about the problem yet. The WIC RDN should refer back to the physician if constipation comes up as an issue that has not been addressed with their medical team. (8)
-

349: Genetic and Congenital Disorders

- Cleft palate, Down syndrome, muscular dystrophy

Definition and Etiology

Genetic and congenital disorders are present at birth and alter nutritional status metabolically, mechanically or both. These disorders include: cleft lip or palate, Down syndrome, thalassemia major, sickle cell anemia (not sickle cell trait), and muscular dystrophy.

See Nutrition Risk Manual.



Cleft lip and palate is the presence of an opening in the lip, palate or combination of both in an infant due to the lip or palate not forming properly in utero. (1)

Down syndrome is one of the most common chromosomal abnormalities and occurs due to extra genetic material on chromosome 21. It is characterized by developmental delay, hypotonia (low muscle tone), short stature, and certain features of the face and hands. Other complications can be present, including heart defects, GI malformations, hearing loss, obstructive sleep apnea and more. (2)

Sickle cell anemia is an inherited blood disease where the red blood cells are a crescent shape instead of a doughnut shape (like normal red blood cells). Some of the symptoms of sickle cell anemia include: shortness of breath, coldness in hands and feet, and jaundice. (3)

Muscular dystrophy is a genetic disorder where abnormal genes interfere with proteins being made for healthy muscle. It is a gradual disease where people may eventually lose the ability to perform everyday tasks like walking or sitting up. (4,5)

Assessment

Some things to consider:

Cleft lip and palate

- **Infant feeding** - Breastmilk is highly encouraged, as these infants are at high risk for ear infections due to their anatomical structure. Iron-fortified formula should be given when breastmilk is not available.
- **Solid foods** - These infants may or may not tolerate transitioning to solids (pureed foods). Many infants can transition to purees, even if the cleft repair is not complete. If infants refuse and are frustrated with eating solids, further referral to feeding specialists is encouraged. (6)

Down syndrome

- **Feeding difficulties** - Issues like weak suck, poor lip closure, choking and swallowing difficulties usually occur early in life and cause poor weight gain. If you suspect any of these issues, referral to their physician and a speech therapist is recommended.
- **Weight** - These infants are at risk for overweight and obesity due to their short stature, decreased physical activity and decreased calorie needs. (2) Sharing information from Baby Behaviors about reading their infant's cues can be helpful to prevent overfeeding.

Sickle cell anemia

- **Nutrition during painful episodes** - It is common for those diagnosed with sickle cell anemia to experience times of extreme pain requiring hospitalization. Due to these hospitalizations, nutritional intake suffers. Offering families tips and ideas for continuing to consume food (formula, breastmilk, solids) during these times is important. Mentioning various ways to increase calorie consumption (nutritional shakes, supplements) during these times of extreme pain could help the family tremendously. (3, 7)

Muscular dystrophy

- Swallowing issues - If the muscles related to swallowing are affected, then nutritional intake will become a concern. If the parent or caregiver suspects that the infant is having trouble swallowing, refer them right away to their physician and health care team so that a swallow evaluation can be done for the infant. (5)



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 349 question 1.

351: Inborn Errors of Metabolism

- Phenylketonuria, Maple syrup urine disease or other metabolic disorders

Definition and Etiology

Inborn errors of metabolism (IEM) are disorders that infants are born with due to abnormal development in utero that affects metabolism. The most common disease is phenylketonuria (PKU). PKU is the absence of a liver enzyme, phenylalanine hydroxylase, which breaks down the essential amino acid phenylalanine to tyrosine. Because this breakdown does not occur, phenylalanine builds up in the blood. If left untreated, neurological damage will occur, including intellectual disability, growth delay and seizures.

There are several other inborn errors of metabolism that could fall into this high-risk category. For a complete list of all the IEMs, see the Nutrition Risk Manual.



Assessment

These participants should be followed closely by a health care team, especially a physician and an RDN that specializes in IEMs. Participants will receive meal plans from the dietitian that have

modified sources of protein and energy, restrict phenylalanine and supplement tyrosine. For more detailed information on what foods are included and avoided on the PKU diet, see <http://www.pkunews.org/>.

Because the parents and caregivers have probably been overwhelmed with information and have discussed many issues with their health care team, they may not seem interested in talking more about their infant's condition with yet another health care member (the WIC RDN).

Imagine you are seeing George, an 8-month-old baby who has been diagnosed with PKU. You pull out your colors and ask George's mom, Lindsay, to choose a color that says something about how she feels about managing George's PKU diet.

Lindsay picks blue and says, "I feel calm. It was a lot to process at first, but now I have a great doctor and nutritionist to help with questions that I have about his diet so I don't feel as stressed as I once did."

You respond, "That is wonderful! Are there any questions you have about George that I can help you with today?"

Lindsay says no.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 351 questions 1 and 2.

352.1: Infectious Disease - Acute

352.2: Infectious Disease - Chronic

- Acute Infectious Diseases include diseases of shorter duration diagnosed within the last 6 months, such as Hepatitis A, Hep. E, Meningitis (Bacterial/Viral), Parasitic Infections, Listeriosis, Pneumonia, Bronchitis (3 episodes in past 6 months)
- Chronic Infectious Diseases include conditions that likely last a lifetime and require long-term management, such as HIV, AIDS, Hepatitis D, Hep. B, Hep. C

Definition and Etiology

Infectious diseases are caused by bacteria, viruses, fungi or parasites. Some of the common diseases that can affect infants include: tuberculosis, pneumonia, meningitis, hepatitis, bronchitis and HIV/AIDS. These diseases are of concern because they are severe enough to interfere with nutritional intake.

For more information, see the Nutrition Risk Manual. 

Assessment

Participants probably won't be coming to you when they are in the midst of severe illness, so our nutrition assessment will cover how they have been eating and how to ensure they are getting the best nutrition possible. The infant's nutrition is critical in ensuring they are getting enough calories and nutrients to boost their metabolism and meet their energy needs as their bodies fight the infection.

Possible areas of concern:

- **Previous nutrition status** - Has their infectious disease caused poor eating recently or routinely? If this is the case, offering tips for maintaining nutrition status when sick can be beneficial.
- **Medications and diarrhea** - Antibiotics are often given for an infectious disease and they can cause diarrhea. Make it part of your nutrition assessment to ask the parent or caregiver about the infant's stool output. Recommend continuing to feed on demand to try to replace the fluids and nutrients that are being depleted.

-
- **Doctor recommendations** - Discuss the infant's nutrition plan and make sure the family understands the disease and its impact on the infant's nutritional status.

353: Food Allergies

- Immune response to a food allergen

Definition and Etiology

Food allergies occur when the body mistakenly has an immune response to a protein in a specific food and attacks the body. It is extremely important to eliminate any food that has been identified as a food allergy. Reactions to allergic foods may range from mild like a skin rash or eczema to life threatening, and it is impossible to know what type of reaction an infant will have, so it is extremely important to eliminate any food that has been identified as a food allergy.

About 90 percent of all food allergies are triggered by following foods:

- Dairy
- Eggs
- Peanuts
- Soy
- Wheat
- Tree nuts
- Fish
- Shellfish (1)

Several systems within the body can be affected by food allergies, including skin, cardiovascular, gastrointestinal and respiratory. Symptoms for children experiencing food allergies can include:

- Stomach cramps and vomiting
- Hives
- Wheezing
- Shortness of breath
- Swelling of tongue
- Weak pulse

-
- Dizziness or fainting
 - Life-threatening anaphylaxis (2)

These symptoms can occur within minutes or up to two hours after coming into contact with the allergen. (2) It is estimated that 80 to 90 percent of children outgrow a food allergy to egg, milk, wheat and soy by age 5; however, those with peanut, nut or seafood allergies tend to persist throughout a lifetime. (3)

For more information, see Nutrition Risk Manual. 

Milk and soy allergies are the most common food allergies for infants. Breastmilk is the least likely to trigger an allergic reaction and since breastmilk also helps to strengthen the immune system, this continues to be the recommended form of feeding for all infants. For breastfeeding infants with known food allergies, the mother can eliminate these foods from her diet to prevent them from getting into her milk and to the baby. If the infant is fed formula, they may be able to tolerate regular cow's-milk based formula or their doctor may prescribe a soy formula such as Gerber Good Start Soy.

To better understand the conditions under which soy formulas are appropriate as an alternative to cow's-milk based formulas, consider the following guidance provided by AAP regarding soy formulas. (4)

1. Soy protein-based formulas are not designed for or recommended for preterm infants.
2. In term infants, although isolated soy protein-based formulas may be used to provide nutrition for normal growth and development, there are few indications for their use in place of cow milk-based formula. These indications include (a) for infants with galactosemia and hereditary lactase deficiency (rare) and (b) in situations in which a vegetarian diet is preferred.
3. For infants with documented cow milk protein allergy, extensively hydrolyzed protein formula should be considered, because 10% to 14% of these infants will also have a soy protein allergy."

For infants appropriately prescribed a soy formula as an alternative to cow's-milk formula who continue having allergic reactions, the doctor may prescribe a special hypoallergenic or hydrolyzed

formula, such as Similac Alimentum or Nutramigen Enflora. These formulas are specially designed so that the proteins are already broken down so the body's immune system will not attack and cause allergic reactions.

Assessment

Food allergies are a very hot topic today and for good reason. There has been debate on the proper time to introduce highly allergenic foods. In the case of infants with other known allergies or a family history of food allergies, it is best to have them discuss this with their allergy doctor and/or the infant's medical team, as the foods may need to be delayed. For infants who do not have any known allergies, introducing highly allergenic foods can be as early as 6 months.

Here are some general tips for talking with these families:

Breastfeeding infant

- Continue nursing - If mom has decided to continue nursing, she is most likely eliminating the food from her diet that is causing the allergic reaction in her baby. This may be very hard for the mom, so offering her support and resources to help her to continue breastfeeding while also feeling confident in what foods she can and cannot eat can be very helpful.

Formula feeding

- Continue to offer formula per pediatrician's recommendations - If the family notices more allergy symptoms, they should talk with the pediatrician to figure out a good formula to try. Most formulas are cow's milk-based, so if the infant has a true milk protein allergy, they might need a soy formula or special hypoallergenic formula. For more information on infant formulas, please see the Infant Formula Cheat Sheet in Chapter 4 of the Arizona WIC Policy and Procedure Manual <http://azdhs.gov/prevention/azwic/agencies/index.php#manuals>

Introduction of solid foods

- Follow WIC recommendations and help the family to learn developmental milestones that would indicate the baby may be ready for solid foods or recommend waiting until 6 months of age.

- Encourage them to offer a new single food every few days and while at home to be able to screen for any allergies. Parents should talk with the allergy doctor to create a plan for introduction to foods.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 353 questions 1 and 2.

Recall the previous workbook example of a doctor diagnosing baby with a milk protein allergy and writing a prescription for Similac Sensitive or Enfamil Gentlease. This is common and may require a call to the pediatrician to make sure the formula they have prescribed is the best choice for the infant. Sometimes a doctor might not be aware that the family is on WIC and, therefore, has access to many different types of formula at little to no cost to them (depending on how much the infant is drinking, the family may need to purchase more than what WIC provides). However, talking to the doctor about your thoughts and concerns can help to make sure the infant is getting the best formula and nutrition possible.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 353 question 3.

354: Celiac Disease

- Also known as celiac sprue, gluten enteropathy and non-tropical sprue

Definition and Etiology

Celiac disease is an immune reaction to eating gluten, a protein found in wheat, barley and rye. The gluten causes an immune response in the small intestine, which causes inflammation and damages the villi in the lining of the small intestine and can prevent absorption of some nutrients. This malabsorption is especially critical in infants due to the major growth and development they are experiencing in the first year of life. There is no known cause of celiac disease but it does appear to be genetic and some populations are at higher risk for developing it. (1)

Signs and symptoms for children may occur at any age and can include:

- Irritability
- Chronic diarrhea or constipation
- Bloating and gas
- Vomiting
- Skin rashes
- Damaged tooth enamel
- Iron deficiency anemia
- Decreased appetite
- Slow growth (2)

Although there is no cure for celiac disease, the prognosis is good when following a strict gluten-free diet. Sometimes doctors may recommend oral or intravenous vitamin supplements to help with any vitamin or nutrient deficiencies, depending on the condition of the intestine. Adherence to a gluten-free diet can result in a diet low in iron, folate, niacin, B vitamins, calcium, and the fat-soluble vitamins (vitamin A, D, E and K), so working with an RDN can be critical to ensuring the infant has enough of these vitamins and minerals in their diet.

Usually after about two to three weeks of starting a gluten-free diet, the villi begin to heal and normal absorption of nutrients can be reached. Any gluten in the diet can cause intestinal discomfort and lead to abortion issues again, so maintaining a gluten-free diet is essential to good health.

If left untreated, the damage done to the intestine from celiac disease can lead to long-term health conditions such as iron deficiency anemia, early onset osteoporosis, and neurological manifestations, among others. It is critical for a healthy gluten-free diet to be maintained for life to decrease complications and other health concerns resulting from a damaged intestine due to celiac disease.(1) For more information, see Nutrition Risk Manual. 

Assessment

When completing an assessment, it is important to watch for signs of malnutrition in these participants. Newly diagnosed infants or those that are not following a strict gluten-free diet may show signs of malnutrition such as poor growth. Helping the family to better understand the disease and how to help their infant have a healthy intestine that can absorb all the nutrients its body needs to grow and develop can help increase adherence to a healthy gluten-free diet.

One way that can help a family to better understand what is going on in their baby's body is to provide a picture of what the intestine is like in people with celiac disease. A normally functioning intestine is like a lush carpet with healthy villi reaching into the intestines and absorbing nutrients and vitamins for the body. However, with celiac disease, the villi are flattened, so instead of resembling a lush carpet, the intestines look more like a tile floor. These flattened villi are not able to absorb all the nutrients like the fibers in the lush carpet, so health suffers. Luckily, with adherence to a gluten-free diet, the villi can become like that lush carpet again. That is why it's important to make sure there is no gluten in the diet so that the villi and intestine can heal and start to better absorb nutrients again.

Other topics to discuss with the family:

- What is gluten and what foods are likely to have gluten in them
- What foods are recommended to include in the diet
- Reading nutrition labels - Making sure the family understands how to read nutrition labels and what to look for is crucial in making sure gluten is completely eliminated from the infant's diet.
- Cross-contamination - Help the family to better understand what this means and how to prevent gluten in the diet due to cross contamination
- Other resources such as books, recipes, websites (For some ideas, see the Resources section of the Appendix)



Critical Thinking Question:

Please go to the accompanying Workbook to answer Risk 354 questions 1, 2 and 3.

356: Hypoglycemia

- Low blood sugar

Definition and Etiology

Hypoglycemia is more common in neonates, newborn to about 4 weeks of age, and less common as the infant ages. Hypoglycemia in infants is usually due to hyperinsulinemia, or too much insulin in the blood. Causes of hyperinsulinemia in infants may include:

- genetic disorders
- metabolic defects
- maternal gestational diabetes
- babies who are large for gestational age.

Mothers with gestational diabetes (GD), and more specifically those that are not managing their GD, are at higher risk for delivering a baby that is hypoglycemic.

In the majority of cases, hypoglycemia is temporary, easily treated and does not have any serious complications or consequences. However, it is important to note that this condition needs to be managed immediately since glucose is an essential fuel source for the body and brain. Long-term hypoglycemia can lead to smaller head size, decreased IQ, and other long-term neurologic complications.

Assessment

As with many clinical disorders, infants with a diagnosis of hypoglycemia will be closely followed by a medical team. Usually the infant has been treated with fast-acting glucose source, either in the form of a glucose mixture the baby takes orally or intravenously, and then monitored closely to make sure the hypoglycemia does not reoccur. Talking with the family about the treatment and making sure they understand the diagnosis are great ways to build rapport with the family.

Feeding practices to emphasize:

- Understanding feeding cues
- Breastfeeding - feeding on demand, good latch, building confidence in breastfeeding
- Formula feeding - Proper mixing of formula
- Proper introduction of solid foods - discuss developmental signs of solid food readiness

362: Developmental, Sensory or Motor Disabilities Interfering with the Ability to Eat

- Brain injury/impaired function, autism, etc

Definition and Etiology

Developmental delays are a delay in development in any or all of the following categories:

- Vision
- Speech and language
- Motor skills (movement)
- Cognitive skills (thinking)
- Social and emotional skills

There are many different causes of developmental delays in infants that might include, but are not limited to: spina bifida, Down syndrome, autism, or parental neglect. It is important to make sure the delay was diagnosed by a medical doctor and not by the family, friends or other WIC staff. If you are working with a family and realize that this was not diagnosed by a doctor but the family is concerned about developmental delays in their infant, they should be referred to the infant's pediatrician for further assessment.

Assessment

When assessing an infant with a developmental delay, it is important for you to understand how the infant's nutrition and developmental delay affect each other. This will be different for many infants, so assessing each situation on its own will help you understand the infant's nutritional needs.

Sometimes there is no nutrition concern; for example, an infant may have been diagnosed with a developmental delay due to not reaching developmental milestones, such as not rolling over by 9 months. However, there is no other delay that affects the infant's nutrition. This would be a perfect time to let the family know that WIC can help with nutrition education and support as well as offer referrals to assist the family in the future if they ever were to need additional support.

Even if the family tells you there are no nutritional concerns, you should still complete a nutrition assessment to determine for yourself what, if any, nutrition concerns exist. For example, an infant that has developmental delays might do well with breastfeeding or formula feeding but their delays may cause issues when solid food is introduced. Try talking with the family about developmental milestones and what they should look for to determine if their infant is ready for solid foods or to advance to different textures and consistencies.



Take a closer look!

This risk code has a case study in the *Workbook*.

If you are concerned about the infant's readiness to start solid foods, refer them to their pediatrician for additional support. The doctor can determine if working with a feeding therapist or outpatient RDN that specializes in this area would be helpful. Sometimes parents are not aware of the support available to help their infant and you can be that link to the right information and important referrals. Arizona has a program called Early Intervention that assesses infants and children with delays.

383: Neonatal Abstinence Syndrome (NAS)

- Drug withdrawal symptoms related to the mother's use of opioids or other drugs during pregnancy

Definition and Etiology

Neonatal abstinence syndrome (NAS) is a drug withdrawal syndrome that occurs among drug-exposed (primarily opioid-exposed) infants as a result of the mother's use of drugs during pregnancy. NAS can last up to six months after birth. NAS is a combination of withdrawal symptoms that involve multiple bodily systems. The following list includes symptoms associated with NAS:

- Loud, high-pitched crying
- Sweating
- Yawning
- Sleep disturbances
- Feeding difficulties
- Poor weight gain
- Excessive sucking
- Regurgitation
- Diarrhea

Infants with NAS may have impaired feeding behaviors such as excessive sucking, regurgitation, diarrhea and poor feeding that is characterized by fussiness, crying, and sleepiness. Infants with NAS have higher caloric requirements due to their energy expenditure.

Assessment

Due to the stigma of drug addiction caregivers of infants with NAS may be reluctant to discuss the diagnosis and symptoms related to drug exposure. It is important to remain nonjudgmental and supportive to help caregivers feel safe sharing information about the infant's condition. AAP recommends that infants with NAS be fed frequent small volumes of human milk or high calorie formula, as needed, in a quiet and calm environment, to aid the infant in tolerating feedings and improving digestion and to allow for adequate growth.

The Academy of Breastfeeding Medicine recommends breastfeeding for women who are on a prescribed stable dose of methadone maintenance because the concentrations of methadone in human milk are low. Breastfeeding has been found to provide protection against the development of NAS symptoms and lessen the severity of symptoms, which would decrease the need for pharmacological intervention for the infant.

WIC can support caregivers by offering education to recognize infant hunger cues and behaviors that signal developmental readiness. Help manage gastrointestinal symptoms of NAS by reviewing feeding frequency for breastfeeding infants, or formula type and amount for bottle-feeding infants.

Other assessment recommendations for infants with NAS include:

- Monitor growth to assess adequate weight gain.
- Encourage skin-to-skin contact, swaddling, and a quiet environment with little stimulation.
- Encourage breastfeeding unless medically contraindicated.
- Provide referrals for support services such as drug and alcohol counseling, parenting support, and medical evaluations.
- Encourage mothers who are on medication-assisted therapy (e.g., methadone or buprenorphine) and who are breastfeeding, to speak with their health care provider if they have questions about the timing and dose of their medication.
- Educate mothers who are on medication-assisted therapy and who are breastfeeding on the importance of gradual weaning when mutually desired by the mother and infant.

Module 4: Dietary Codes and the Concern with High-Risk Participants

There are no high-risk dietary WIC 400 codes. However, when you see a participant that does have a high risk assigned to them, they may have a dietary code assigned to them as well. It can be very meaningful for your high-risk appointment if you take the time to look into their previous certification appointment to see which codes were assigned. Often, dietary codes could be part of the cause that has made the participant high-risk. For example...



You are seeing Rowen, a 3-month-old baby boy with high-risk code 115, weight-for-length greater than or equal to 98th percentile. You look in his chart and one of the WIC codes assigned includes 411.2, improperly using nursing bottles or cups. The NES that certified Rowen wrote in her TGIF note that Rowen's mother has been giving him cereal in the bottle and propping the bottle when feeding him. The mom said that she would stop putting cereal in the bottle because she didn't realize that this was a dangerous practice.



Critical Thinking Question:

Please go to the accompanying Workbook to answer Dietary Codes questions 1 and 2.

Taking the time to look back to previous notes and WIC codes can help guide your conversation. Some of the questions you want to consider when looking at previous notes include:

- Did the NES talk to the parent or caregiver about the dietary code that you are concerned about?

- Did the parent or caregiver commit to changing something related to that code? If so, this is a perfect starting point to discuss with the parent or caregiver about how the change is going and to provide further encouragement if they need.
- What were the parent's main concerns at the previous appointment?

Although you may not be specifically addressing these 400 codes, you will find that information about these codes can really help in your assessment of the client and help you choose the nutrition education to offer.

Appendix

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<http://www.cancer.org/cancer/cancerinchildren/detailedguide/cancer-in-children-types-of-childhood-cancers>
2. Nutrition for Children with Cancer. American Cancer Society:
<http://www.cancer.org/acs/groups/cid/documents/webcontent/002902-pdf.pdf>

Risk 348

1. Diagnosis of Infant Seizures. Epilepsy Foundation: <http://www.epilepsy.com/learn/seizures-youth/about-newborns-and-infants/diagnosis-infant-seizures>
2. Information on the Ketogenic Diet. Epilepsy Foundation:
<http://www.epilepsy.com/information/professionals/resource-library/links/information-ketogenic-diet>
3. Cerebral Palsy. Mayo Clinic: <http://www.mayoclinic.org/diseases-conditions/cerebral-palsy/basics/definition/con-20030502>
4. What is Spina Bifida? Spina Bifida Association:
http://www.spinabifidaassociation.org/site/c.evKRI7OXIoJ8H/b.8277225/k.5A79/What_is_Spina_Bifida.htm
5. What is Parkinson's Disease. National Parkinson's Foundation: <http://www.parkinson.org/Parkinson-s-Disease/PD-101/What-is-Parkinson-s-disease>
6. What is MS? National MS Society: <http://www.nationalmssociety.org/What-is-MS/Who-Gets-MS/Pediatric-MS>
7. Cerebral Palsy/Nutrition Intervention. Pediatric Nutrition Care Manual:
https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=144742
8. Spina Bifida. Pediatric Nutrition Care Manual:
https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=144744

Risk 349

1. Facts about Cleft Lip and Cleft Palate. Center for Disease Control and Prevention:
<http://www.cdc.gov/ncbddd/birthdefects/cleftlip.html>
2. Down's Syndrome. Pediatric Nutrition Care Manual:
https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=144743

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3. What are the Signs and Symptoms of Sickle Cell Anemia? National Heart, Lung and Blood Institute: <http://www.nhlbi.nih.gov/health/health-topics/topics/sca/signs>
 4. Muscular Dystrophy. Kid's Health: http://kidshealth.org/teen/diseases_conditions/bones/muscular_dystrophy.html
 5. Muscular Dystrophy. Mayo Clinic: <http://www.mayoclinic.org/diseases-conditions/muscular-dystrophy/basics/symptoms/con-20021240>
 6. Cleft Lip and Palate. Pediatric Nutrition Care Manual: https://www.nutritioncaremanual.org/topic.cfm?ncm_category_id=13&lv1=144619&ncm_toc_id=144619&ncm_heading=Nutrition%20Care
 7. Complications and Treatments of Sickle Cell Anemia. Center for Disease Control and Prevention: <http://www.cdc.gov/ncbddd/sicklecell/treatments.html>

Risk 351

1. Phenylketonuria/PKU. Pediatric Nutrition Care Manual: https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=145136
2. Inborn Errors of Metabolism. MedScape: <http://emedicine.medscape.com/article/804757-overview#a0104>

Risk 353

1. Food Allergy Disorders. Nutrition Care Manual. Available from: https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=255482 Accessed September 30, 2015
2. Food Allergies. American College of Allergy, Asthma, and Immunology. Available from: <http://acaai.org/allergies/types/food-allergies> Accessed September 30, 2015
3. Food Allergies in Children. Healthy Children. Available from: <https://www.healthychildren.org/English/healthy-living/nutrition/Pages/Food-Allergies-in-Children.aspx> Accessed September 30, 2015
4. AAP Policy Statement: Where We Stand: Soy Formulas; <https://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Where-We-Stand-Soy-Formulas.aspx>

Risk 354

1. Celiac Disease. AND Nutrition Care Manual: Gastrointestinal Diseases: https://www.nutritioncaremanual.org/topic.cfm?ncm_toc_id=144772
2. Celiac Disease in Children. National Foundation for Celiac Awareness. Available from: <http://www.celiaccentral.org/Celiac-Disease/Celiac-Symptoms/Celiac-in-Children/281/> Accessed September 30, 2015

Risk 356

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1. Boston Children's Hospital. <http://www.childrenshospital.org/conditions-and-treatments/conditions/hypoglycemia-and-low-blood-sugar>

Risk 362

1. Developmental Delays. CDC: <http://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html>

Risk 383

1. Neonatal Abstinence Syndrome. Nutrition Risk Manual: <https://azdhs.gov/documents/prevention/azwic/manuals/nutrition-risk-manual.pdf>
2. MMWR 66(9): 242–245. CDC Grand Rounds: Public Health Strategies to Prevent Neonatal Abstinence Syndrome <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5687191/>

Competency Achievement Checklist: High-Risk Guidebook for Infants

RDN/MRN name: _____

Trainer name: _____

*Trainer: Evaluate the RDN or MRN's competency of the basic nutrition information upon completion of Infant High-Risk Guidebook, all learning activities, case studies and all discussions.

Registered Dietitian Nutritionist or Medium-Risk Nutritionist can:	Dates Achieved:
Identify high-risk codes for infants	
Assign high-risk codes for infants according to Nutrition Risk Manual definitions	
Assess the relationship of subjective and objective information in high-risk case studies to determine appropriate nutrition education options to offer clients	
Explore ways to facilitate behavior change consistent with NSS, AZ WIC policy and Participant Centered Services approach	