Nutrition Risk Factor Module

Welcome to the Nutrition Risk Factor (NRF) module! The NRF module is part of Level I WIC certification. This module is a little longer than others and contains a great deal of information. Don't panic. If you take time to read the module carefully and to do the practice examples you should have a good foundation for assigning risk factors to participants. Refer back to the module periodically until the information becomes "old hat" to you.

In order for a person to be certified on the WIC Program they must meet four criteria:

1. They must be **categorically** eligible. A person must fall into one of the categories of people who are served by the WIC Program. For example the person must be a pregnant, breastfeeding or postpartum woman, an infant, or a child under the age of 5 years.
2. They must meet **residency** requirements. In most cases a person must live in the county where they are served by the WIC Program.
3. They must meet **financial** guidelines. The person's household income can not exceed 185% of the federal poverty level.
4. They must have at least one **nutrition risk factor** that qualifies them for the WIC Program. Nutrition risk factors are the subject of this module.

This module will tell you about the nutrition risk factors (NRFs) that are used to certify participants on the WIC Program. When you have finished this module you should be able to:

- explain what a nutrition risk factor is to a WIC participant
- explain why nutrition risk factors are used
- describe each of the nutrition risk factors
- assign the correct nutrition risk factors for participants

Before working on this module you need to have completed the Orientation, Screening, and Diet Screening Modules. The information presented in these three modules is required to effectively complete the NRF module. This module will assume that you know how to assess a person's diet, screen them with respect to height, weight and hematocrit, and that you have some knowledge of the ASPENS system and the screens involved to certify a participant on the WIC Program. This module generally will not teach you how to counsel WIC participants related to their potential risk factors. Information about counseling and referral for the risk factors is contained in Level II certification modules.

In order for you to complete this module you will also need to have access to a Colorado WIC mini-manual. The mini-manual contains information about the individual risk factors that is required to complete this module.

Nutrition Risk Factors

What is a Nutrition Risk Factor?

What is a nutrition risk factor? Having a "nutrition risk factor" can sound pretty serious. If you were told that you had a number of "nutrition risk factors" you might think that you are unhealthy or that you have a poor diet. If you were a parent and were told that your infant had several nutrition risk factors you might think that your infant was ill and that it was because you were not feeding your infant properly. Would these circumstances be true? Not necessarily. Nutrition risk factors only give us "clues" about a person's nutritional health. A person could be very healthy and have a nutritionally adequate diet even though they have a number of nutrition risk factors. Nutrition risk factors help us to identify people who are **more likely** to benefit from the education and nutritional support provided by the WIC Program.

A nutrition risk factor (NRF) is a condition or set of circumstances that indicate that a person is **more likely** to have a nutritional problem. A person with a nutrition risk factor may or may not actually have a nutritional problem. This is especially important to remember when talking to participants about the NRFs that qualify them for the WIC Program. A person should not be made to feel that they are unhealthy just because they have a nutrition risk factor. Nor should a parent be made to feel that they are a bad parent because their child has nutrition risk factors.

Here are two examples to illustrate this point.

A child is certified on the WIC Program for NRF# 14 - Short Stature (the child's height for age is less than the 5th percentile on her growth chart). Does this child have a nutritional problem? Maybe. Maybe not. We know that poor nutrition can be a cause of short stature, **but** we also know that a child can have short stature simply because her parents are short. We need to evaluate this child's diet to make sure that the child is getting all of the nutrients necessary for growth. Because poor diet can potentially cause short stature we call it a nutrition risk factor.

A pregnant woman is certified on the WIC Program for NRF# 81 - Inadequate Diet. She does not eat any fruits or vegetables that are high in vitamin C. Does she really have an inadequate diet? Maybe. Maybe not. It is POSSIBLE to get adequate vitamin C in your diet without ever eating a fruit or vegetable from the list of those that are high in vitamin C. If the woman ate many servings of fruits and vegetables, each with small amounts of vitamin C, she could get enough. Studies show, however, that people who do not eat at least one fruit or vegetable that is high in vitamin C, USUALLY do not get enough vitamin C in their diets. Because her diet is likely to be deficient in vitamin C we say she has a nutrition risk factor.

Nutrition risk factors tell us which WIC participants are most likely to have nutritional problems. They tell us where we need to look more closely to determine IF more education and referral are required. **Nutrition risk factors help to identify the people who would most benefit from WIC services and to identify what kinds of education and referral may be needed.**

Nutrition risk factors usually fall into one of several groups:

- **Conditions or habits that indicate that a diet may be lacking in nutrients**. Examples include:
  - **Inadequate Diet**. Eating a diet without the recommended servings from each food group usually indicates a diet that is deficient in nutrients.
  - **Smoking**. Use of cigarettes decreases a person's appetite so that they are less likely to consume a nutritionally adequate diet. (Smoking does several other negative things with respect to nutrition including lowering levels of important vitamins in the blood and limiting nutrient supply to the fetus during pregnancy).
  - **Homelessness**. Not having a permanent residence makes food storage and preparation difficult so that diets are more likely to be inadequate.

- **Conditions that increase nutrient needs and make it more likely that a person is not meeting their nutritional needs**. Examples include:
  - **Pregnancy at a Young Age**. When a woman is still growing she requires nutrients for her own growth as well as that of the fetus. This increases her nutrient needs to very high levels that are often not met by the average teenager's diet.
  - **Breastfeeding while pregnant**. Breastfeeding and pregnancy both increase nutritional needs. A woman may need extra nutrition counseling to help her construct a diet with adequate nutrients.

- **Conditions that may require special dietary changes**. Examples include:
  - **Gestational Diabetes**. During pregnancy some women develop diabetes. They still need a nutritious diet, but they may have to limit certain foods or change the timing of when they eat foods to help prevent complications from the diabetes.
  - **Renal Disease**. Protein and mineral levels in the diet may need to be carefully monitored to meet a person's nutritional needs without giving them excess amounts of protein or minerals that will make their kidney's work harder.

- **Conditions that indicate that nutrition status may already be compromised**. Examples include:
  - **Anemia**. Anemia often indicates that a person has not been consuming a diet with adequate iron and needs extra iron in their diet.
  - **Underweight**. When a person is underweight it means that they have not been consuming adequate calories in their diet. Without adequate calories a child does not grow well and a woman is less likely to have a healthy pregnancy. Underweight may also indicate that a person is deficient in other nutrients since their food intake is limited.

How Were the Nutrition Risk Factors Determined?

Prior to 1999 each State created their own list of nutrition risk factors to certify WIC participants. The United States Congress, however, believed that the WIC Program would be better served by a more uniform set of nutrition risk factors and encouraged the United States Department of Agriculture (who oversees the WIC Program) to create such a list. USDA in turn asked the National Academy of Sciences' Institute of Medicine to use current scientific information to identify those conditions for women, infants and children that would have the most impact on nutritional health. USDA and the National Association of WIC Directors then used information from the Institute of Medicine to create a standard list of nutrition risk factors. As of April 15, 1999, the Colorado WIC Program started using these new risk factors.

Purpose of the Nutrition Risk Factors

Nutrition Risk Factors have two basic purposes in WIC. First, they are used to certify participants on the WIC Program. All WIC participants must have at least one nutrition risk factor to be eligible for the WIC Program. Second, NRFs are used to help WIC staff make decisions about education and referrals for WIC participants. NRFs help WIC staff decide which topics are most needed for participant education.

Below you will read about "priority" and "risk" which have been assigned for each nutrition risk factor. "Priority" determines which people will be served by the WIC Program when enrollment is limited (for example in times of limited funding). "Risk" helps to determine if a participant needs special "high risk" counseling or if their chart requires review by a WIC dietitian or nurse.

Priority

Nutrition risk factors have each been assigned a "priority". Priorities run from 1 (one) to 6 (six), with 1 being the highest priority. Priority is important when WIC has limited funding and cannot serve all people who are eligible for the WIC Program. Priority tells us which clients need to be served first. For example, an infant who has inadequate growth as a nutrition risk factor would be classified as "Priority 1". This infant would be certified on WIC before a postpartum woman whose only nutrition risk factor is inadequate diet (Priority 6). Local WIC agencies work with the State WIC office to determine which priorities they should be serving. During times of limited funding a WIC agency may be only able to serve participants who are a certain priority or higher (remember the higher the priority the lower the number).

While each risk factor has an assigned priority, the priority depends on the category of WIC partici-pant (i.e., pregnant, breastfeeding, infant, or child). For example, NRF# 81 Inadequate Diet is as-signed priority 4 for pregnant women, but priority 6 for non-breastfeeding, postpartum women. Use your WIC mini-manual and look at the section labeled "Nutrition Risk Factors." Become familiar with the format of the tables in this section. These tables list all of the nutrition risk factors by category with their assigned priorities and risks. The ASPENS system contains this same information and will assign the correct priority when you certify participants on the WIC Program. There are certain situations when you will want to know priority before entering information into the ASPENS system so you will need to know how to use the tables in your mini-manual.

Note: Each risk factor has an identifying code. Some are numeric, for example the code for the prematurity is "11", and some are alphabetic, the code for alcohol consumption by a breastfeeding woman is "AC". There is no special significance to the fact that some codes are numeric and some are alphabetic. Originally all codes were numeric, but with time the need for new codes required the use of letters.

Risk - Low, Medium and High

In addition to priority, WIC participants are also divided into low, medium and high risk. This is done for the purpose of making sure that participants get the nutrition education they need.

- High risk participants should always be sent in person to the WIC dietitian or nurse (RD/RN) for evaluation and counseling. This generally occurs at the participant's next visit (usually in one month), though sometimes it needs to occur sooner.
- Medium risk participants require evaluation by the WIC RD/RN, though it is done through a chart review. Generally, the WIC educator counsels the moderate risk participant and then forwards the participant's chart to the RD/RN for further instructions.

- Most WIC participants are classified as low risk. Their nutrition risk factors are important, but don't require the specialized nutrition counseling of the RD/RN. Trained WIC educators are experts at providing nutrition education for these participants.

The WIC ASPENS system automatically determines "risk" for participants based on their assigned nutrition risk factors and category. Risk can also be determined by looking at the tables of nutrition risk factors in your mini-manual.

The question could be asked about why "priority" and "risk" are not the same? Aren't the highest priority participants also those at highest risk? Remember that **priority determines who is served by the WIC Program while risk determines who provides counseling for the participant.**

For example:

- A 17 year old pregnant female who is certified for her age on the WIC Program is considered high priority because she has high nutritional needs and good nutrition plays a critical role in a healthy pregnancy. This makes her high priority. She is low risk, however, because she does not require specialized counseling by a dietitian or nurse. WIC educators are specifically trained to handle nutrition education in these cases.

  In some cases a pregnant 17 year old could be both high priority and high risk. If she had gestational diabetes then she would need special counseling by the dietitian or nurse to modify her diet for diabetes.

Subjective vs. Objective Risk Factors

Risk factors are divided into two groups depending on how they get assigned to participants.

- **Objective risk factors** are automatically assigned by the ASPENS system by information input into the computer. Examples of objective risk factors are short stature, short interconceptual period, and anemia. The computer can determine these NRFs from input during the certification visit.

- **Subjective risk factors** are assigned by WIC staff. During the certification process the ASPENS system displays the risk assessment screen (WICPS106) with a pop-up box that lists all of the possible subjective risk factors for a participant. The WIC staff member needs to be familiar with the potential risk factors in the box and assign them with an "X" as necessary. Examples of subjective risk factors for a pregnant woman would include complications of previous pregnancies, hyperemesis gravidarum, and highly restrictive diet.

There is a limit to how many nutrition risk factors can be assigned to a WIC participant. The ASPENS system will only accept eight (8) risk factors per participant. Objective risk factors are assigned by ASPENS first and this will limit the number of subjective risk factors that can be assigned. Most participants will not exceed the 8 risk factor maximum. In the event that the maximum is exceeded, you should try to assign the subjective risk factors which have the greatest significance for the participant. Risk factors that cannot be assigned should be noted in the participant's education note.

At the end of the certification process the ASPENS WICPS106 screen will list all objective and subjective risk factors that have been assigned to the participant.

Once a participant's certification process is complete (this occurs as soon as the first set of Food Instruments is printed) any risk factors which have been assigned to the participant cannot be removed until the next certification period. It is therefore very important to mark only the correct risk factors. Risk factors can be **added**, however, after the initial certification. These are called mid-cert risk factors. ASPENS marks these with an "MC" to show that they were added after the certification process.

Mid-Cert Risk Factors

After a participant has been certified on the WIC Program they sometimes develop new nutrition risk factors. These risk factors need to be added to the participants ASPENS record. For example, a pregnant woman may initially be certified on the WIC Program with only one nutrition risk factor, NRF# 81 Inadequate Diet. Three months later when she comes into the WIC clinic for a follow up appointment she might inform you that she has just been diagnosed with gestational diabetes. This new NRF (NRF# 54 MC - Gestational Diabetes) needs to be added to her ASPENS record. By adding mid-cert risk factors you can increase a participant's priority and risk in the WIC Program. To assign mid-cert risk factors in the ASPENS system you go to screen WICPS106 and select the new risk factor from the mid-cert pop-up box.

Look at Figure 1. It shows the risk assessment screen for a pregnant woman with the two above risk factors. Note that NRF# 54 MC - Gestational Diabetes is marked with an MC because it was added as a mid-cert risk factor. You also need to be aware that risk factors added as mid-cert risk factors are numbered differently than NRFs added at certification. For example, Gestational Diabetes is NRF# 54 MC - Gestational Diabetes when it is added as a mid-cert risk factor, but is NRF# 80 Gestational Diabetes when it is added at a certification visit. This difference in number is required by the ASPENS system for proper collection of data. See your WIC mini-manual for a listing of all of the possible mid-cert risk factors.

Figure 1

Assigning Risk Factors

How do you know which risk factors to assign to a person when certifying them for the WIC Program? After looking through the risk factor tables in your WIC mini-manual you may feel a little overwhelmed and wonder how you will ever remember which risk factors to assign. It is not as hard as you may think to know which risk factors to assign. You do not need to memorize all of the risk factors. Remember that some of the risk factors are objective risk factors and are assigned by ASPENS. These you do not need to worry about.

When determining subjective risk factors, ASPENS will list all the possible risk factors for each category of participant. Staff determine which risks to assign by using the participant questionnaire, growth grid or prenatal grid, the diet assessment tool, and through discussion with the participant. Becoming familiar with the definitions of each nutritional risk factor will help you in determining when and if a risk factor applies and what education is appropriate.

The participant nutrition questionnaire asks specific questions that help to identify subjective risk factors. Look at a nutrition questionnaire and become familiar with its format. Notice that to the right of some questions there are numbers listed which correspond to a nutrition risk factor. You will need to determine if the risk factor applies depending on how the participant responds to the question.

The diet assessment tool can help identify nutritional risk factors related to inappropriate feeding practices. Take time to review the diet assessment tool. You may determine a number of risk factors by simply reviewing and discussing a participant's diet and eating habits with them.

The infant/child growth grids or prenatal grids will guide you in determining whether the participant has a inadequate growth risk factor. The grids are not only a tool for assessing adequate growth, but it is also a great teaching tool when discussing a child's growth pattern or a women's prenatal weight gain.

Take time to review the questionnaire, diet assessment and growth or prenatal grids with the participant. Through discussion with the participant you may determine additional risk factors that apply and you show your interest and concern for the participant's health and well-being.

Practice!

A

Complete the following table by writing in the risk factor number, priority (1-6), risk (low, moderate or high) and whether it is an objective or subjective risk factor for each risk factor example given. Use the risk factor section of your mini-manual to find the information requested. Remember that the risk factor tables in the mini-manual are divided into categories for pregnant women, breastfeeding women, post-partum (non-breastfeeding) women, infants and children. Be sure to look in the correct category for each example below. The risk factor number (or ASPENS code), priority, risk and whether the NRF is objective or subjective (O/S) are all listed in columns next to the NRF descriptions.

Nutrition Risk Factor	**Number**	**Priority**	**Risk**	**O/S**
Pregnant woman with an inadequate diet				
2 year old child with an inadequate diet				
Infant whose length is less than the 5th percentile for age				
Pregnant woman who has hyperemesis gravidarum				
Non-breastfeeding postpartum woman who drinks more than two drinks per day				
2 month old infant who is being fed goat's milk instead or breast milk or formula				
Pregnant woman who is not taking an iron supplement				
8 month old Infant who is consuming only iron fortified formula				
13 month old child who is fed fruit juice in a bottle on a regular basis				
Breastfeeding woman who drinks 5 cups of coffee per day				
Breastfeeding woman with mastitis				
Child from a homeless family				

(See answers in back of module for Practice A)

Assigning Overall Priority and Risk for a Participant

As previously discussed, each risk factor has its own assigned "priority" and "risk." In the WIC Program each participant is also assigned a "priority" and "risk". Basically, a participant is assigned the highest priority (remember lowest number) and highest risk that can be obtained from any one of their nutrition risk factors. The ASPENS system automatically determines this priority and risk for a participant.

Here is an example of how ASPENS would determine priority and risk for an infant being certified on the WIC Program. The infant has been assigned three nutrition risk factors:

NRF# 88 Inappropriate Use of Nursing Bottles.....Priority 4....Low Risk
(mom puts juice in the bottle)
NRF# 23 Mother on WIC.....Priority 2....Low Risk
NRF# 15 Underweight.....Priority 1....High Risk

Because NRF# 15 Underweight is priority 1 the infant would be assigned priority 1. The infant would also be high risk since NRF# 15 is a high risk nutrition risk factor. ASPENS assigns the participant the highest priority (remember lowest number) and highest risk that is possible from any of their individual nutrition risk factors. Priority and risk do not have to come from the same NRF.

Practice!

B

A. What would be the priority of a breastfeeding woman who drinks 5 cups of coffee per day AND has mastitis (use the information you gathered in the previous **Practice!**)?

Priority_____ Risk_____

B. What would be the priority and risk of an infant whose length is under the 5th percentile for age and who is fed goats milk instead of breast milk or formula (use the information that you gathered in the previous **Practice!**)?

Priority_____ Risk_____

(See answers in the back of the module for Practice B)

Risk Factors Common to Most Categories

Now that you are familiar with the format of the risk factors tables in your mini-manual, it is time to start looking at each of the individual nutrition risk factors. The list appears long, but by breaking it up into small groups it should be easier to understand. Lets start out by exploring nutrition risk factors that are common to most categories of participants. For purposes of learning these common NRFs have been broken into 3 groups:

- blood related
- diet related
- living condition related

NRFs Related to Blood

The first three risk factors which we will examine are related to blood values. While certifying a participant, the ASPENS system requests information related to a person's iron level (hematocrit or hemoglobin) and blood lead level. When you enter these values into the computer, ASPENS compares the values against standard values for your clinic. If the participant's blood values are abnormally low for iron or abnormally high for lead, ASPENS will assign the appropriate risk factors. Remember that because these risk factors are assigned by ASPENS they are considered objective risk factors.

NRF# 45 Anemia - Hematocrit or hemoglobin levels low enough to indicate that iron status may be low (See Table in mini-manual for standard values).

NRF# 46 Severe Anemia - Hematocrit or hemoglobin levels low enough to necessitate a medical referral (See Table in mini-manual for standard values).

You have already learned in the assessment module how to obtain hematocrits and how to determine if a hematocrit is normal, low (anemia) or very low (severe anemia). Some WIC clinics use hemoglobin instead of hematocrit, but for purposes of this module we will only discuss hematocrits. Hemoglobin values are just another way to determine anemia.

Anemia may have serious consequences for an infant, child or woman. Anemia during pregnancy may increase the risk of prematurity, poor maternal weight gain, low birth weight, and infant mortality. Anemia impairs energy metabolism (person feels tired), temperature regulation (person feels cold all the time), immune function (person gets sick more often) and work performance. For infants and children, even mild anemia can cause delays in mental and motor development. The more severe the anemia the more severe are the consequences. For this reason, the condition of anemia has been divided into two risk factors, anemia and severe anemia. Severe anemia requires much more immediate and careful attention as the consequences can have permanent effects on a developing child and can be life threatening for a pregnant woman and fetus.

Note: Normal hematocrit values vary by altitude. A woman living in Leadville, Colorado (elevation 10,152) would be expected to have a higher hematocrit than a woman who lives in Lamar, Colorado (elevation 3,622). At higher elevations the body needs more hemoglobin to carry oxygen in the blood. The ASPENS system uses hematocrit values appropriate for the elevation where your clinic is located.
Note: Normal hematocrit values also vary according to whether and how much a woman smokes. A woman who smokes requires more hemoglobin to carry normal amounts of oxygen in her blood. ASPENS uses appropriate values for comparison based on information you enter about a woman's smoking habits.

NRF# AB Elevated Blood Lead Levels - Blood lead level of greater than or equal to 10 micrograms/deciliter (≥10 ug/deciliter) within the last twelve (12) months.

Blood lead levels are important to consider when they are available. Lead has a number of adverse effects on health, but it is especially damaging to a person's ability to learn. These effects can be on a pregnant woman, her developing fetus, an infant, or a growing child. ASPENS will assign NRF #AB whenever a blood lead value ≥ 10 micrograms per deciliter is entered into the computer.

Note: The participant's nutrition questionnaire asks if they have ever had their blood tested for lead. If the participant indicates that they have had a blood lead test and they know the value you should enter the blood lead value into the computer (Infant/Child Health Data or Woman Visit Data screens). Most WIC participants, however, have never had their blood tested for lead. As a result, the ASPENS system automatically enters "99" for a blood lead level for all participants. The computer interprets "99" as "unknown". If a participant's blood level is known, the actual value should be entered in place of "99".

NRFs Related to Diet

Now let's look at four more nutrition risk factors. These risk factors are all directly related to diet. The first two apply only to women and children. The last two apply to all categories of WIC participants.

NRF# 81 Inadequate Diet - Using the "Daily Food Guide Screening Tool" - a deficiency in one or more servings from any food group.

This NRF probably seems obvious as a nutrition risk factor. If a person does not eat the right number of servings from each of the food groups they are less likely to have an adequate diet. Without an adequate diet they are not going to have adequate building blocks for growth, repair of tissues, normal metabolism, and in the case of a pregnant or breastfeeding women enough nutrients to build a healthy baby.

You should have completed the Diet Screening Module before starting this module and know how to assess either a 24 hr Diet Recall or a Food Frequency to determine the number of servings a person has eaten from the various food groups. The number of servings a person eats from each of the food groups is entered into the computer during the certification process. The com-puter assigns NRF# 81 when at least one serving from a food group is missing from a person's diet. Because the computer assigns this NRF, this is an objective risk factor.

NRF# 64 Pica - Current or recent craving for or ingestion of non-food items, such as: clay, starch (laundry or corn starch), dirt, ashes, paint chips, large quantities of ice or baking soda.

Pica is the craving for and eating of non-food substances. The cause of pica is not known, but it has been related to certain nutritional deficiencies (especially iron and zinc) as well as culture, physiological changes in the body such as pregnancy, and mental states. Pica can lead to lead poisoning (when paint chips are eaten), anemia, excess calorie consumption (when starch is eaten), poor nutrition (because the non-food item displaces nutritious foods from the diet), stomach and intestinal blockage, and parasitic infections. Consumption of substances such as mothballs or paint chips can lead to toxic conditions that could result in death.

Note: A woman or child who craves or eats any potentially harmful substance such as dirt, paint chips, ashes, etc. should be considered to have pica regardless of the amount eaten. With respect to ice, pica is more than an occasional craving for a glass of crushed ice. People with pica CRAVE ice and consume large quantities each day (several trays of ice cubes per day).

NRF# 64 Pica is a subjective risk. This means that you have to remember to tell the computer to assign this NRF. During certification, the participant (or endorser) fills out a nutrition questionnaire which asks a question to help identify if a person has pica. Look at a questionnaire for a pregnant woman. You will notice a question that asks about craving and eating non-food items like clay and laundry starch. If a person answers "yes" to this question it is an indication the person has pica. You should ask more questions to verify the participant's response. For example, if the woman says she craves ice you need to ask how much ice she craves and under what circumstances. If she responds that her home is very warm and she likes an icy glass of water once or twice a day to cool off, this would not qualify as pica. You should always ask participants to clarify information when they indicate that they may have a nutrition risk factor. This way you can determine if a problem really exists and if the problem is serious and requires immediate intervention or counseling. If the woman indicated that she ate moth balls, she should be immediately referred to the WIC RD/RN since this is a potentially lethal situation. This risk factor needs to be assigned on the ASPENS risk assessment screen.

NRF# 91 Excessive Intake of Dietary Supplements, Vitamins, or Minerals -

- pregnant women: intake of any more than a prenatal v/m* and/or an iron supplement recommended by an MD;
- postpartum women: daily intake of any more than a prenatal or one-a-day type v/m supplement or supplements recommended by an MD;
- infants: intake of any more than a one-a-day type infant v/m drop or supplements recommended by an MD;
- children: daily intake of any more than an age-appropriate one-a-day type v/m supplement or supplements recommended by an MD.

* v/m = vitamin/mineral

Certain vitamins and minerals can be toxic when taken in excess amounts. The toxic effects can be to an infant, child, woman or developing fetus. Excesses of some vitamins and minerals can cause birth defects in the infant. Vitamin A and D are particularly toxic when taken in excess. Toxic or unsafe levels of vitamins and minerals vary greatly, from as a little as a couple of times the RDA (Recommended Dietary Allowance) to many times the RDA. Inadequate research has been done with some vitamins and minerals to determine toxic levels. In general it is safest not to take daily vitamin/mineral supplements that significantly exceed the RDA.

Any time a WIC participant or their care giver lists on the nutrition questionnaire that they are taking dietary supplements they should be questioned further to determine what type of supplements are being taken. NRF# 91 should be assigned if a WIC participant is taking a vitamin or mineral supplement that does not fall into one of the categories listed above. Remember that NRF# 91 should not be assigned for supplement use if the supplement was prescribed or recommended by a participant's physician (the physician needs to recommend the supplement for this participant’s use in their current condition, such as pregnancy).

NRF# 91 is a subjective risk factor and needs to be assigned on the ASPENS risk assessment screen.

NRF# 86 Highly Restrictive Diets - Diets that are very low in calories or severely limit intake of entire food groups or important food sources of nutrients, such as, but not limited to:

- vegan diets (where all animal products are excluded including meat, poultry, fish, eggs, milk, cheese, or other dairy products)
- macrobiotic diet
- very high protein/low carbohydrate diets

Diets that are very low in calories or that restrict entire food groups often lack important nutrients that are needed by all WIC participants to maintain health, growth, pregnancy and/or breast-feeding. This is a subjective risk factor and is assigned on the ASPENS risk assessment screen. The nutrition questionnaire or 24 hour diet recall/food frequency will help identify participants with highly restrictive diets. If in doubt about whether a participant's diet would qualify for this risk factor, consult with the WIC RD/RN.

NRFs Related to Living Conditions

Finally, in this section of the module we are going to examine four more common nutrition risk factors. These four risk factors apply to all categories of participants. The four risk factors are related to a person's living situation. The first two risk factors, NRF# 70 Homelessness and NRF# 71 Migrancy, are objective risk factors and are assigned by ASPENS. The ASPENS system gets the information for these two risk factors on the demographic screen (WICPS102) when you enter the person's residential status. The second two risk factors (NRF# 93 & 94) are subjective risk factors and need to be marked on the ASPENS risk assessment screen.

NRF# 70 Homelessness - A woman, infant or child who lacks a fixed and regular night time residence or whose primary night time residence is: A supervised publicly or privately operated shelter (including a welfare hotel, a congregate shelter, or a shelter for victims of domestic violence) designated to provide temporary living accommodations; an institution that provides a temporary residence for individuals intended to be institutionalized; a temporary accommodation in the residence of another individual not exceeding 365 days; or a public or private place not designed, or ordinarily used as, a regular sleeping accommodation for human beings.

Homeless individuals are a very vulnerable population with special nutritional needs. It is difficult for a homeless person to get adequate nutrition because they lack food storage and preparation facilities. They often lack adequate employment and/or finances to purchase food. Many of today's homeless are families and are individuals who have just lost their jobs. Homeless people are well known to be at nutritional risk.

Note: Every effort should be made to reduce barriers which may prevent homeless people from receiving WIC benefits. Special food packages are available to help homeless people with their nutritional needs. While the food packages provide the same amount of food for all WIC participants, homeless food packages offer food in forms that do not require refrigeration and/or that are divided into more food instruments (checks) so that storage problems are minimized. It is important to work with homeless participants to find food packages that fit their situations.

Note: Homeless shelters need to be approved as "WIC-eligible" when they are being utilized by WIC participants. See the WIC Policy and Procedure Manual for details. A homeless person may receive WIC food instruments during only one certification period if they live in a non-WIC-eligible shelter.

NRF# 71 Migrancy - A woman, infant or child whose family's principle employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who establishes, for purposes of such employment a temporary abode.

Data on the health and nutritional status of migrants indicate that migrants have significantly higher incidence of infant mortality, malnutrition and other diseases than among the general U.S. population.

Note: People working as migrants are considered an especially vulnerable population and every effort should be made to reduce barriers which may prevent migrant people from receiving WIC benefits.

NRF# 93 Woman or Primary Caregiver with Limited Ability to Make Feeding Decisions and/or Prepare Food -

Woman, or infant/child whose primary caregiver is assessed to have limited ability to make appropriate feeding decisions and/or prepare food. Examples may include individuals who are:

- mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist);
- physically disabled to a degree which restricts or limits food preparation abilities; or
- currently using or having a history of abusing alcohol or other drugs.

A parent's limited mental ability has been recognized as a risk factor for failure-to-thrive and neglect. The mentally handicapped caregiver may not exhibit the necessary parenting skills to promote beneficial feeding interactions with an infant or child. Maternal mental illness such as severe depression and maternal chemical dependency are also strongly associated with neglect.

Note: Clinical depression or mental illness must be diagnosed by a physician or licensed psychologist before this NRF may be assigned. Determination of the physical disability or alcohol and drug abuse are determined by the WIC staff member who is certifying the potential participant. Alcohol USE does not indicate use for this NRF. It is a pattern of alcohol use that inhibits this care giver's ability to care for themselves or their child. Disabilities need to be significant enough to restrict or limit food preparation abilities. This is a subjective risk factor and would be assigned on the ASPENS risk assessment screen.

NRF# 94 Foster Care - Entering the foster care system during the previous six months or moving from one foster care home to another during the previous six months.

"Foster children are among the most vulnerable individuals in the Welfare system. As a group, they are sicker than homeless children and children living in the poorest sections of inner cities" (GAO 1995). As a group, foster children have a high frequency of mental and physical problems, birth defects, inadequate nutrition and growth retardation. Many have suffered from neglect, abuse and abandonment prior to entering the foster care system.

Note: This nutritional risk cannot be assigned if the person has been continuously living in the same foster home for longer than the past 6 months.

Practice!

C

Below are two case studies. Read through each case study and then list all of the nutrition risk factors that apply for the participant. Include both objective and subjective risk factors (ordinarily ASPENS would assign objective risk factors, but for the purposes of learning you will need to assign them here). Also indicate for each case study the assigned risk and priority for the participant.

Case #1: 25 year old, pregnant woman, first trimester
She lives at 5200 feet above sea level
Her hematocrit tubes read 32% for one and 31% for the other
No blood lead has been done
Does not smoke
Diet recall: 2 servings dairy
2 servings meat/meat alternative
6 servings bread/cereal
3 servings fruits/vegetables
No vitamin A or vitamin C
Currently lives in a shelter for battered women
Reports craving and eating chalk

Answer (List NRFs):

	Priority	Risk

What is her priority?_____ What is her risk?_____

Case #2: 19 year old, pregnant woman, second trimester
She lives at 4800 feet above sea level
Her hematocrit tubes read 33% for one and 32% for the other
Her blood was tested for lead 14 months ago and it was 11 micrograms/deciliter
Does not smoke
Diet recall: 0 servings dairy
0 servings meat/meat alternative
4 servings bread/cereal
3 servings fruits/vegetables
1 vitamin A
1 vitamin C
Currently lives in an apartment with her husband
She takes a prenatal vitamin plus a 500 mg vitamin C tablet per day (her doctor did not recommend the vitamin C)
She does not eat animal products of any kind

Answer (List NRFs):

	Priority	Risk

What is her priority?_____ What is her risk?_____

(See answers in back of module for Practice C)

Nutrition Risk Factors for Pregnant Women

All of the NRFs presented up to this point apply to pregnant women as well as to other WIC participants. This next section of the module will examine the nutrition risk factors that are specific to pregnancy (Table 1 at the end of this section for a listing of all NRFs for pregnant women). Some of the NRFs apply to breastfeeding and non-breastfeeding postpartum women as well and will be discussed again in a later section.

Good nutrition during pregnancy is crucial for the health of the mother and growing fetus. A woman needs enough nutrients to keep her own body healthy and enough nutrients for the growth and development of a healthy baby. Poor nutrition can have very serious effects on the health of a mother and her developing infant. The effects of poor nutrition on a developing fetus can last for a lifetime.

NRFs Related to Body Weight

NRF# 47 Underweight - Prepregnancy weight <19.8 Body Mass Index (BMI) or ≤90% of Ideal Body Weight (IBW).

An underweight woman is more likely to give birth to a low birth weight or growth retarded infant. These infants tend to have significantly more health problems after birth. An underweight woman is also more likely to have complications during the pregnancy and delivery. These complications include higher likelihood of pre-birth hemorrhage, premature rupture of membranes necessary for the pregnancy, anemia, endometritis (inflammation of the uterus lining), and cesarean delivery. This is an objective risk factor that is assigned by the ASPENS system when a woman's prepregnancy weight is entered into the computer.

Note: This risk factor is based on a woman's **prepregnancy** weight, NOT her current weight. Refer to the Prenatal module for ways to estimate a woman's prepregnancy weight when it is not known.

Body Mass Index (BMI) is a way of determining if a person is overweight. If you know a person's height and weight you can calculate their BMI. BMI is a person's weight in kilograms divided by their height in meters squared. This is not an easy calculation, especially since we don't usually talk in meters and kilograms. ASPENS calculates a women's BMI for you. It is displayed on the WICPS104 screen. You can also determine a woman's BMI by using a chart. ASPENS, however, can calculate BMI much more precisely than you can from a table. A table for determining BMI is in your mini-manual and on the reverse side of the Prenatal Weight Gain Grid.

NRF# 48 Overweight - Prepregnancy weight >26 Body Mass Index (BMI) or >120% of Ideal Body Weight (IBW).

An overweight woman is more likely to have complications during pregnancy and delivery. These complication include conditions such as diabetes, high blood pressure, dysfunctional labor, premature delivery, birth of a very large infant, and blood clot difficulties. This is an objective risk factor that is assigned by the ASPENS system when a woman's prepregnancy weight is entered into the computer.

Note: This risk factor is based on a woman's **prepregnancy** weight, NOT her current weight.

NRF# 49 Inadequate Weight Gain During Pregnancy - Any weight gain which falls below the appropriate curve on the "Prenatal Weight Gain Grid"; or

- any weight loss below pregravid weight during the first trimester, or
- weight loss of $\geq$2 pounds in the 2nd or 3rd trimesters (14-40 weeks gestation).

Women who do not gain adequate weight during pregnancy tend to give birth to infants with smaller average birth weights and with fetal growth restriction. Lower birth weight and fetal growth restriction are indicators of poor health for an infant and can have lasting effects throughout the infant's life. This is a subjective risk factor that must be assigned on the risk assessment screen. This NRF may be assigned at initial certification of a pregnant woman who is not gaining weight, but it is more likely to be added as a mid-cert risk factor (NRF# 32 MC - Inadequate Weight Gain During Pregnancy) at subsequent visits during the pregnancy.

In the screening module you learned how to determine if a pregnant woman's weight gain is adequate. If a woman's weight gain falls below the appropriate curve for her BMI then her weight gain is considered inadequate. This risk factor makes a woman high risk and she needs to be referred to the WIC dietitian or nurse for evaluation and counseling.

This risk factor also applies to a woman who is losing weight during pregnancy. At any time that a woman has a net* loss of 2 or more pounds during her 2nd or 3rd trimester she should be risked as having inadequate weight gain. This rule applies even if the woman is already well above her recommended weight gain curve.

Confused? On the next page are some examples to help clarify when to assign this NRF. Look at the examples on the next page and see if you can determine when to assign the NRF for inadequate weight gain during pregnancy. The answers follow the graphs.

*Net loss: If a woman loses one pound, then gains one pound, then again loses one pound, this is not a net loss of two pounds. A net loss is when the woman drops two pounds so that her current weight is 2 pounds less than a previous weight during the 2nd or 3rd trimester.

A. NRF# 49 would apply because this normal weight woman is below her recommended weight gain curve during the third trimester.

B. NRF# 32 (the mid-cert NRF for inadequate weight gain during pregnancy) would apply. This is the woman's second visit to WIC. Even though the woman is above her recommended weight gain curve for an obese woman she has lost 3 pounds during the second trimester.

C. NRF# 49 applies because the woman is below her pregravid weight and below her recommended weight gain curve.

D. No NRF applies here. The woman is above her recommended weight gain curve and her weight loss is only one pound during the 2nd and 3rd trimesters. If the woman returned in one more month with another one pound weight loss then NRF# 32 would apply because her NET weight loss during her 2nd and 3rd trimesters is 2 pounds or greater.

NRF# 76 High Maternal Weight Gain - Weight gain during a singleton pregnancy of greater than or equal to 7 pounds per month.

Women who have high weight gain during pregnancy often give birth to larger than normal infants. If the infant is too large there is significant risk of injury to the woman and infant during delivery. In addition, high maternal weight gain is associated with other complications of pregnancy including high blood pressure, preeclampsia, and toxemia. High maternal weight gain also makes it more difficult for a woman to return to her prepregnancy weight after the birth of her infant.

Preeclampsia: a condition in pregnancy that includes high blood pressure, water retention (edema), and protein in the urine. It is very serious and requires medical attention.

Toxemia: a more severe stage of preeclampsia that can include convulsions and death.

This NRF is a subjective risk factor and requires you to use some of your math skills! Don't panic, it is fairly simple. Any time a pregnant woman gains 7 or more pounds in a 4 week period she needs to be assigned this risk factor. This applies to all pregnant women regardless of whether they are classified as overweight, normal weight or underweight. It **does not** apply to multi-fetal pregnancies (twins, triplets, etc.). When a pregnant woman's weight gain appears high, evaluate to see if it meets the >7 pounds per month criteria.

Note: High Maternal Weight Gain will generally be assigned as a mid-cert risk factor at a visit after the certification visit, therefore it will usually be assigned as NRF# 77 MC - High Maternal Weight Gain (remember NRFs are numbered differently when they are mid-cert risk factors). NRF# 76 could be used on an initial certification visit if the woman has averaged more than a 7 pound per month weight gain based on her pregravid weight until the date of her certification. Because this is a subjective risk factor you need to assign it to the participant on the ASPENS risk assessment screen. Remember to assign the risk factor at mid-cert visits if it applies.

To determine if a woman has a high maternal weight gain you need to determine her weight gain in a 4 week period.

- If the woman was seen one month ago and her weight gain appears high you simply need to subtract her previous weight from her current weight. The ASPENS system even calculates this number for you on screen WICPS104 Update Woman Visit Data. If the difference is greater than or equal to 7 pounds then the risk factor applies.

- If the time period between weights is less than 4 weeks, subtract the previous weight from the current weight. If the difference is greater than or equal to 7 then the NRF should be assigned.

- If a woman's last visit is more than four weeks ago you may need to use a calculator. Subtract the woman's previous weight from her current weight. Divide the weight difference by the number of weeks between the weights. Multiply this number by 4 (this gives you the average weight gain per month for the time period). If this number is greater than or equal to 7 then the risk factor applies.

Note: For the purposes of calculating maternal weight gain all months contain 4 weeks (in reality months average 4.3 weeks, but to simplify the math you should use 4 weeks).
Note: The number of weeks should be obtained by subtracting the weeks gestation of the first weight from the number of weeks gestation from the current weight as determined by ASPENS.

Here are some examples of calculating for high maternal weight gain:

- Look at the attached Prenatal Weight Gain Grid for Mary Sandoval. At 16 weeks gestation she weighed 123 pounds. At 20 weeks gestation she weighed 131 pounds. Twenty weeks minus 16 weeks = 4 weeks. Her current weight (131 pounds) minus her previous weight (123 pounds) = 8 pounds. The weight gain is 7 or more pounds in 4 weeks so NRF# 77 should be assigned as a mid-cert risk factor.

- Look at the attached Prenatal Weight Gain Grid for Nancy Bodin. At 18 weeks she weighed 130 pounds. At 25 weeks she weighed 145 pounds. The period between the first weight and the second is 7 weeks (25 - 18 = 7). Her weight gain during that time is 15 pounds (145 pounds - 130 pounds = 15 pounds). 15 pounds divided by 7 weeks and then multiplied by 4 weeks equals 8.56 pounds per month (15 pound/7 weeks = 2.14 pounds per week. 2.14 pounds X 4 weeks = 8.56 pounds per month). NRF#77 should be assigned to Nancy Bodin as a mid-cert risk factor.

Practice!

D

For the questions below use Prenatal Weight Gain Grids and determine which if any of the 4 weight related pregnancy risk factors may apply. For determining BMI use the chart on the back of the Prenatal Weight Gain Grid. You will need to use mid-cert NRF codes for inadequate and high weight gains.

1. Hilda Ruppert was certified on WIC at 14 weeks gestation.
   Pregravid weight = 141 pounds
   Height = 60.5 inches
   Weight at 14 weeks = 147 pounds
   Weight at 20 weeks = 159 pounds

   Answer (List NRFs):

2. Amy Farr
   Pregravid Weight = 132 pounds
   Height = 5 feet 3 inches
   Weight at 8 weeks = 134 pounds
   Weight at 20 weeks = 144 pounds

   Answer (List NRFs):

3. Heather Hunt
   Pregravid Weight = 150 pounds
   Height = 5 feet 7 inches
   Weight at 22 weeks = 158 pounds
   Weight at 30 weeks = 164 pounds

   Answer (List NRFs):

4. Sue Christopher

   Pregravid Weight = 123 pounds
   Height = 5 feet 8.5 inches
   Weight at 28 weeks = 147 pounds
   Weight at 36 weeks = 144 pounds

   Answer (List NRFs):

(See answers in back of module for Practice D)

NRFs Related to Physiological Conditions of Pregnancy

There are a number of physiological conditions (conditions related to how a person's body functions) that can affect the outcome of pregnancy or the health of mother and child. Some of these change a woman's requirements for nutrients (a woman who has previously delivered a baby with a neural tube defect is usually advise to take extra folic acid) or some of them require a woman to alter her diet to meet the conditions of certain diseases (a woman with renal disease may need to be careful about the amount and type of protein that she eats).

Review a nutrition questionnaire for a pregnant woman. The questionnaire is designed to ask the necessary questions to uncover subjective risk factors that a person may have including various physiological conditions that affect pregnancy. In the column on the right side of the nutrition questionnaire is a listing of the NRF numbers that correspond to each question. If a woman answers yes to one of these NRF related questions then the corresponding NRF number will usually apply. It is important that you learn to use the nutrition questionnaire properly or you will assign incorrect risk factors or miss risk factors that should be assigned.

NRF# 79 Hyperemesis Gravidarum - Severe nausea and vomiting to the extent that the pregnant woman becomes dehydrated and acidotic as diagnosed by a physician and self reported by applicant/participant.

Hyperemesis gravidarum is a very serious condition. A woman with this condition has SEVERE nausea and vomiting. This condition is different from the "morning sickness" that many women experience during pregnancy. This condition is so severe that the woman finds it difficult to eat food or drink fluids. As a result she loses weight, becomes dehydrated and acidotic. It can be a life threatening condition and requires medical attention. To be considered a nutrition risk factor the condition must be diagnosed by a physician. The woman may bring documentation that the condition was diagnosed by a physician or she may self-report that a physician made the diagnosis. This is a subjective risk factor that you must assign.

Note: Before this NRF can be assigned to a participant she must have been diagnosed as having hyperemesis gravidarum. Being hospitalized for dehydration with nausea and vomiting is not sufficient to qualify for this NRF. A diagnosis of hyperemesis gravidarum must actually be made.

NRF# 80 Gestational Diabetes - Presence of gestational diabetes as diagnosed by a physician and self reported by applicant/participant.

Gestational diabetes is a form of diabetes that appears during pregnancy. It was not present prior to the pregnancy. Ninety percent of pregnant women with diabetes have this form of diabetes. An infant born to a woman with gestational diabetes has a higher risk of being born very large (this results in complications at delivery) or of having problems such as congenital abnormalities (birth defects), hypoglycemia (low blood sugar) and neonatal death. Diet is a very important part of the treatment for gestational diabetes. The better a pregnant woman controls her diabetes the more likely she is to have a healthy baby without complications. This is a subjective risk factor. Because this is a high risk condition, the WIC participant should be referred to the WIC dietitian or nurse.

Note: If a woman has diabetes BEFORE she became pregnant then she does not have gestational diabetes and this NRF should not be assigned. A woman who has diabetes before becoming pregnant should be assigned NRF #HC/MC for having diabetes mellitus.

Complications of Previous Pregnancies - Presence of any of the following conditions in any previous pregnancy:

NRF# AM - gestational diabetes
NRF# AN - preterm delivery (37 weeks or before)
NRF# AO - delivery of a low birth weight infant (5 ½ pounds or 2500 grams or less)
NRF# AP - fetal death (≥20 weeks gestation) or neonatal death (death within 0-28 days after birth)
NRF# AQ - delivery of infant with neural tube defect or cleft palate or lip

These are all conditions that may benefit from improved nutrition. For example, it is known that if a woman who previously had an infant with a neural tube defect consumes more folic acid in her diet, her chances of having another child with a neural tube defect are greatly reduced. Women who have preterm babies or low birth weight babies or have experienced the death of a fetus or newborn are also likely to benefit from improved nutrition.

Note: These NRFs can only be used if one of the above listed conditions existed during a **previous** pregnancy. For example, if a woman has gestational diabetes in this pregnancy, but did not in any previous pregnancies then this NRF would not be assigned. You would assign NRF# 80 for her current gestational diabetes. If she has gestational diabetes in this pregnancy AND had it in a previous pregnancy (but between pregnancies she was not diabetic) you would assign both NRF# 80 gestational diabetes and NRF# AM gestational diabetes in a previous pregnancy.

Neural Tube Defect: certain birth defects that involve malformation of the brain or spinal cord.

Folic Acid: a B-vitamin that is found in foods such as leafy green vegetables, orange juice and beans.

Complications of Previous Pregnancies is different from any of the NRFs we have looked at so far because it is actually a group of conditions. Each one of the individual conditions in the group has its own nutrition risk factor code. All of these codes are subjective so you must enter them on the ASPENS risk assessment screen when they apply. The pop-up box on the risk assessment screen includes the option "F4 - Complications, Previous Pregnancy". If you depress the F4 function key you will get a second pop-up box that will list the individual conditions listed under "Complications of Previous Pregnancies". You then need to assign all of the conditions that apply and then save the pop-up box.

NRF# 40 Pregnancy at a Young Age - Less than 16 years at the time of conception.
NRF# 41 Pregnancy at a Young Age - 16 or 17 years at the time of conception.

Being pregnant under the age of 17 years increases the likelihood of having a low birth weight infant. Adolescent mothers often come into pregnancy underweight. They have high nutritional needs because they are supporting their own growth as well as the growth of an infant**.** Improved nutrition and weight gain have been shown to improve pregnancy outcome. This is an objective risk factor that is assigned by the computer based on a woman's birth date.

Note: There are two risk factors for Pregnancy at a Young Age. There is a distinction made between less than 16

and those over 16 because the risk associated with young age is greater.

NRF# 43 Closely Spaced Pregnancies - Less than 24 month between the date of the last delivery, abortion, or miscarriage and the current EDD date.

Nutritional needs during pregnancy are usually greater than the amount of nutrients a woman can eat during pregnancy. A woman's body during pregnancy relies partially on stored nutrients that the woman ate before she was pregnant and partially what she takes in during the pregnancy. Having closely spaced pregnancies makes it hard for a woman's body to accumulate enough nutrients for the next pregnancy. Studies have shown that women who have closely spaced pregnancies tend to have low birth weight infants. These infants are not usually premature, but instead are small for their gestational age. This is an objective risk factor assigned by the ASPENS program based on dates entered into the computer.

Note: The timing for this NRF is from termination of one pregnancy (usually delivery) until the EDD of the next. Termination date of a pregnancy includes situations where the pregnancy is ended by miscarriage or abortion as well as by delivery.

EDD = Expected Due Date

NRF# 83 Multi-fetal Gestation - Pregnant woman carrying more than one fetus, or postpartum women who carried more than one fetus in most recent pregnancy.

Multi-fetal pregnancies are associated with low birth weight, fetal growth restriction, placental and cord abnormalities, preeclampsia, anemia, shorter gestation, and an increased risk of infant mortality. Twin births account for 16% of all low birth weight infants. The risk of pregnancy complications is greater in women carrying twins and increase markedly as the number of fetuses increases. This is a subjective risk factor and must be assigned on the risk assessment screen.

Note: The woman must self report that her primary care provider has established that she is pregnant with more than one fetus.

NRF# 66 Breastfeeding Pregnant Woman - Pregnant woman currently breastfeeding another infant or child.

Breastfeeding during pregnancy creates a large demand for nutrients for the woman. The woman needs nutrients to support breastfeeding as well as nutrients to support a growing fetus. The hormones of pregnancy can also dramatically decrease a woman's milk supply creating a situation where a breastfeeding infant may not be getting adequate milk. Breastfeeding infants whose mothers are pregnant need careful evaluation of their weight gain to ensure they are receiving adequate milk intake. Hormones released during breastfeeding (specifically oxytocin) can also have an adverse effect upon pregnancy. Oxytocin can cause premature contractions leading to premature birth. When a woman chooses to nurse through a pregnancy, she needs breastfeeding evaluation as well as special nutrition counseling. This is a subjective risk factor and must be assigned on the risk assessment screen.

NRFs Related to Prenatal Care

NRF# 65 Inadequate Prenatal Care - Prenatal care beginning after the first trimester.

Women who do not receive early and adequate prenatal care are more likely to deliver premature, growth retarded, or low birth weight infants. This is an objective risk factor assigned by the ASPENS system based on input about when a woman first began her prenatal care. Whenever you enter that prenatal care started on the 4th month of pregnancy or later, ASPENS will assign this NRF.

Note: While **early prenatal care is very important** and women should be encouraged to get prenatal care as early as possible, this risk factor is only assigned if a woman has not started her prenatal care by the second trimester. (4th month of pregnancy or later).

NRF# 92 Inadequate Iron Supplementation - Pregnant women not taking 30 mg of iron per day.

A large proportion of women have difficulty maintaining adequate iron stores during pregnancy. It is recommended that all women take an iron supplement while pregnant to help prevent low iron stores and anemia. This is a subjective risk factor and should be assigned if a woman is not taking prenatal vitamins with iron. Most prenatal vitamin/mineral pills contain 30 mg of iron in a daily dose.

Note: If a woman is not taking her prenatal vitamin/mineral supplement **DAILY** but is only taking it periodically, she should be assigned this NRF.

NRFs Related to Medical Conditions and Substance Abuse

Before completing this section on nutrition risk factors for pregnant women there are two more groups of NRFs that need to be covered. These groups of NRFs apply to other categories of participants as well as pregnant women. The first group concerns diagnosed medical conditions and the last group concerns substance abuse.

Medical Conditions - Moderate Risk
Medical Conditions - High Risk

HA - Nutrient Deficiency Disease
HB - Gastro-Intestinal Disease
HC - Diabetes Mellitus
HD - Thyroid Disorder
HE - Hypertension
HF - Renal Disease
HG - Cancer
HH - Nervous System Disorder
HI - Genetic/Congenital Disorder
HJ - Inborn Error of Metabolism
HK - Infectious Disease
HL - Food Allergy
HM - Celiac Disease
HN - Lactose Intolerance
HO - Eating Disorder
HP - Major Surgery or Burns
HQ - Juvenile Rheumatoid Arthritis
HR - Lupus Erythematosus
HS - Cardiorespiratory Disease
HT - Heart Disease
HU - Cystic Fibrosis
HV - Asthma
HW - Clinical Depression
HX - Developmental Delay
HY - Dental Problem
JE - Fetal Growth Restriction

Medical Conditions consists of a fairly lengthy list of conditions that may impair nutrition status of pregnant women, postpartum women, infants or children. Many of these conditions require special counseling to modify a participant's diet in a way that is compatible with the disease AND to provide adequate nutrition. All of these conditions must be diagnosed by a physician to be used as a qualifying NRF (there are a few exceptions which will be noted below). The WIC participant must bring in documentation of diagnosis or must self report the diagnosis by a physician.

You do not need to memorize this list. When assigning subjective risk factors to a participant on the risk assessment pop-up box you will see the options "F2 MEDICAL HR" and "F3 MEDICAL MR". If you depress either the F2 or F3 function key you will get a second pop-up box that will identify all of the conditions listed above. You should then mark all of the conditions that apply.

If you choose either "F2 MEDICAL HR" or "F3 MEDICAL MR" you will get a very similar pop-up box. The boxes list the same medical conditions except that the NRF codes are different. One pop-up box allows you to mark the medical conditions as high risk (HR) while the other allows you to mark them as moderate risk (MR). If you are certifying a participant for the first time you should always mark their medical condition as high risk and refer them to the WIC RD/RN. If you are recertifying a participant and this is the first time they have reported the medical condition, you should also mark the condition as high risk and refer them to the RD/RN. If, however, you are recertifying the participant and this is the second certification period during which the participant has reported this medical condition, then the decision is up to the WIC RD/RN as to whether it should be marked as a high or moderate risk condition. Each WIC agency should have its own procedure for communicating this information about risk between RD/RNs and educators.

For more complete explanations of each of the medical conditions listed in this group refer to the table in your mini-manual that lists Medical Conditions. More specifics are given as to whether a condition qualifies as an NRF or not.

The table in your mini-manual called "Medical Conditions" shows individual diseases that fall into each nutrition risk factor in the medical conditions group. For example, if you look up NRF# HK Infectious Diseases on the table you will find that Infectious Disease includes:

- tuberculosis
- pneumonia
- meningitis
- parasitic infections
- hepatitis
- bronchitis (3 episodes in last 6 months)
- HIV
- AIDS

You need to check the Table each time a person reports a medical condition or disease to see if it is listed.

Asthma is one of the medical conditions that qualifies as a nutrition risk factor. If you check the table in your mini-manual you will find that it only qualifies as an NRF if it has been diagnosed by a physician and it is persistent, requiring daily medication.

This group of nutrition risk factors can also be entered as mid-cert risk factors. When they are entered as mid-cert risk factors, however, they are not individually identified. NRF# 30 MC - Medical Conditions (high risk) and NRF# 31 MC -Medical Conditions (moderate risk) are used. There is no second pop-up box to allow selection of the individual conditions. The same rules apply here for determining when to use high or moderate risk. If it the first time this condition is reported it is high risk. After the initial reporting it is up to the evaluation of the RD/RN.

Self Reporting of a Medical Condition

Self reporting is an important concept that you need to understand when assigning NRFs. For most medical conditions the risk factor list says that the medical condition may be used as a NRF when the condition has been **" . . . diagnosed by (a) physician as self reported by applicant."** Medical conditions must be diagnosed by a physician or someone working under a physician's orders. For example, one of the listed medical conditions that may impair nutritional status is having a food allergy. If a pregnant woman tells you that she has a food allergy you can only use this as a nutrition risk factor if the food allergy has been diagnosed by a physician. The WIC participant may bring in documentation from the physician that they have been diagnosed with the food allergy OR they can tell you that their food allergy was diagnosed by a physician. At times you may have to question the participant to make sure that the condition was actually DIAGNOSED by a physician. If a physician told the person to avoid a food because it seems to upset their stomach, this would not be a diagnosis of a food allergy. The physician would have to perform specific tests to determine if the participant has a food allergy and then tell the person "you have a food allergy to peanuts". Soooo . . . if a woman goes to a physician and says that she breaks into a rash every time she eats strawberries and the physician says "Do not eat strawberries any more", you should not use NRF# HL as a qualifying NRF (The physician did not do any tests and never actually said the woman had a food allergy) but, if a woman goes to a physician and says she breaks out in a rash every time she eats strawberries and the physician does some tests (for example elimination diet, RAST test, skin testing, etc), and informs the woman that she does indeed have a food allergy to strawberries, then you should assign this woman NRF# HL.

Note: The woman may bring documentation from the physician that she has a food allergy to strawberries, but it is not required. If she can describe that tests were done and that the physician did make an official diagnosis then she has "self reported" the diagnosis and this is acceptable.
Note: The term physician is used in this module, but any health professional working under a physician's orders may also make the diagnosis. These health professionals usually are nurse practitioners or physician assistants.
Note: There are three conditions listed under "Medical Conditions" that may be "diagnosed" by the WIC dietitian or nurse (for the purpose of assigning nutrition risk factors) or by a physician. These are lactose intolerance, dental problems and eating disorders. The WIC dietitian or nurse must document in the participant's chart (preferably ASPENS) the reason why they are assigning these conditions as nutrition risk factors for this participant. There is a fourth condition (large for gestational age) that can be identified by any WIC staff member, but it only applies to infants and will be discussed later. See the Medical Conditions list for more detail on these conditions.

The following three NRFs related to substance abuse will be discussed in relation to pregnant women, though they can be applied to women in any category (except smoking for non-breastfeeding, postpartum women). The definitions of "alcohol use" vary by category of participant. Here we will only describe the definition of alcohol use by pregnant women.

Smoking, using alcohol or drugs during pregnancy is known to have adverse effects on the outcome of pregnancy as well as impact a woman's overall health. Any use of these three substances should be strongly discouraged during pregnancy. Smoking, drugs, and routine alcohol consumption should be discouraged when breastfeeding. Remember: WIC staff are required to counsel ALL pregnant women on the dangers of substance use during pregnancy and breastfeeding.

NRF# 55 Use of Cigarettes - Any daily smoking of cigarettes during current pregnancy.

Women who smoke are at risk for chronic and degenerative diseases. Smokers have lower plasma levels of vitamin C and E. Smoking impairs folate status. Smoking is associated with poor intakes of vitamin A and C, folate, fiber, and iron among women. Smoking is strongly associated with the birth of low birth weight infants.

Note: This is an objective risk factor assigned by ASPENS. To be used as risk factor, a pregnant woman must report that she is **currently** smoking on a **daily** basis. Smoking is defined as at least one cigarette, pipe or cigar per day. During the certification process ASPENS will ask about "current use of cigarettes" and "cigarette use three months prior to pregnancy". ASPENS uses the "current use of cigarettes" information to assign this NRF. If a pregnant woman reports that she has smoked during her pregnancy, but has now stopped, you should not mark that she currently uses cigarettes. If the woman does not smoke on a **daily** basis you also should not mark current cigarette use.

NRF# 56 Use of Alcohol - Any current use of alcohol.

Drinking alcoholic beverages during pregnancy can damage the developing fetus. Excessive alcohol consumption may result in low birth weight, reduced growth rate, birth defects, and mental retardation. This is a high risk situation and the woman should be referred to the WIC dietitian or nurse.

Note: This is an objective risk factor assigned by ASPENS. During the certification process ASPENS will ask about "current alcohol consumption". If a woman reports **ANY CURRENT** use of alcohol you should mark "yes" to current alcohol consumption. If a woman reports that she consumed alcohol during this pregnancy, but has quit, you may **NOT** mark "yes" to current alcohol consumption. A woman who reports previous alcohol use during pregnancy may require further evaluation or counseling to rule out substance abuse, but the risk factor for alcohol consumption may not be assigned. During certification the ASPENS system will also ask about alcohol use 3 months prior to pregnancy. This information is asked for statistical purposes and is not used to assign this risk factor.

NRF# 57 Use of Illegal Drugs - Any illegal drug use.

Use of illegal drugs during pregnancy can damage the developing fetus. This is a high risk situation and the woman should be referred to the WIC dietitian or nurse.

Note: This is an objective risk factor and will be assigned if you answer "yes" to "current drug use" during the certification process. It is important that a pregnant woman not take ANY drugs (including prescription drugs, over the counter drugs, and herbal supplements) while she is pregnant unless she first consults with her physician. Legal and natural drugs can also have negative impacts on the developing fetus.

You have now explored all of the nutrition risk factors that apply to pregnant women except for three that will be covered at the end of the module (these three remaining NRFs apply to all categories of WIC participants and are used to transfer participants and to maintain a participant on the WIC Program when no other risk factors apply). To see how well you are understanding what you have learned, it is time to do a couple of case studies for pregnant women!

Practice!

E

Below are 3 case studies of pregnant women. List the nutrition risk factors that apply to each. After each case study give the priority and risk that would be assigned to the woman.

1. Maria Garcia (certification visit)
   20 year old
   Height = 5 feet 5.5 inches
   Pregravid Weight = 139 pounds
   Weight at 24 weeks = 157 pounds (current weight)
   Prenatal care started at 3 months gestation
   Hematocrit readings = 31 and 31 (5200 feet)
   Diet recall: 4 servings dairy
   3 servings meat/meat alternative
   5 servings breads/cereals
   5 servings fruits/vegetables
   1 vitamin A
   1 vitamin C
   Pregnant with twins
   Drank alcohol until she found out she was pregnant, but does not drink now
   No smoking or drugs
   Taking prenatal vitamin/mineral with iron
   Was diagnosed by a physician as having diabetes mellitus one year ago
   Says she has been feeling depressed since finding out she was pregnant because her family depends on her income from harvesting vegetables while they live in Colorado for the summer (they move to Texas to harvest vegetables in the winter)

Answer (List NRFs):

	Priority	Risk

What is her priority?_____ What is her risk?_____

2. Margaret Cunningham (certification visit)

Pregnant 17 year old (conceived while 16 years old) now in her 2nd trimester
Second pregnancy (last pregnancy ended in miscarriage at 25 weeks gestation less than one year ago)
No blood lead
Hematocrit readings 36 and 37 (5200 feet)
Non-smoker, no drugs, no alcohol
Height = 5 feet
Pregravid Weight = 92 pounds
Weight at 16 weeks = 96 pounds (current weight)
Diet recall: 2 servings dairy
1 servings meat/meat alternative
5 servings bread/cereal
5 fruits and vegetables
No vitamin A
1 vitamin C
Not taking prenatal vitamin/mineral
Has nausea and vomiting
Prenatal care began during the 4th month

Answer (List NRFs):

	Priority	Risk

What is her priority?_____ What is her risk?_____

3. Silvia Porter (certification visit)

Pregnant 27 year old, 2nd trimester
Lives alone
Diagnosed with severe Juvenile Rheumatoid Arthritis (diagnosed by MD)
Has extreme difficulty preparing foods, shopping, etc due to arthritis
Takes prenatal vitamin with iron given to her by MD but also takes megadoses of antioxidant vitamins in a belief that they will help her arthritis

Diet recall:
0 servings dairy
1 serving meat/meat alternative
4 servings breads/cereals
4 servings fruits/vegetables
1 vitamin A
3 vitamin C

Height = 5 feet 6 inches
Pregravid Weight = 108 pounds
Weight at 24 weeks = 116 pounds (current weight)
Hematocrit readings = 36 and 37 (5400 feet)
Currently drinks one glass of wine per day
No smoking or drugs
First prenatal care at 6 weeks

Answer (List NRFs):

	Priority	Risk

What is her priority?_____ What is her risk?_____

(See answers in back of module for Practice E)

Table 1. Nutrition Risk Factors that Apply to Pregnant Women

		Priority	O/S	Risk
45/46	Anemia/Severe Anemia	1/1	O	L/H
AB	Elevated Blood Lead	1	O	M
81	Inadequate Diet	4	O	L
64	Pica	4	S	L
91	Excessive Intake of Dietary Supplements, Vitamins, or Minerals	4	S	L
86	Highly Restrictive Diets	4	S	M
70	Homelessness	4	O	L
71	Migrancy	4	O	L
93	Woman or Primary Caregiver with Limited Ability to Make Feeding Decisions	4	S	L
94	Foster Care	4	S	L
47	Underweight	1	O	L
48	Overweight	1	O	L
49	Inadequate Weight Gain During Pregnancy	1	S	H
76	High Maternal Weight Gain	1	S	H
79	Hyperemesis Gravidarum	1	S	H
80	Gestational Diabetes	1	S	H
	Complications of Previous Pregnancy (AM, AN, AO, AP, AQ)	1	S	L
40/41	Pregnancy at a Young Age	1/1	O	H/L
43	Closely Spaced Pregnancies	1	O	L
83	Multi-fetal Gestation	1	S	L
66	Breastfeeding Pregnant Woman	1	S	L
65	Inadequate Prenatal Care	1	O	L
92	Inadequate Iron Supplementation	4	S	L
	Medical Conditions HR/MR	1	S	H/M
55	Use of Cigarettes	1	O	L
56	Use of Alcohol	1	O	H
57	Use of Illegal Drugs	1	O	H
69	Regression	4	S	L
95/96	Transfer		S	L