NUTRITION BASICS AND FEEDING THE PATIENT

INTRODUCTION

Nutrition is the study of the foods and fluids we eat and how our bodies use them for energy and health. The study of nutrition also involves understanding how poor or inadequate nutrition affects our health.

Understanding the basic concepts of nutrition is important. Many of the patients you will be working with have illnesses that will affect their nutritional status and needs. Also, many of your patients may be unable to properly care for their own nutrition needs. As a CNA and a healthcare professional, one of your responsibilities will be to make sure that your patients are well hydrated and well nourished.

STATEMENT OF PURPOSE

This module will provide CNAs basic information about nutrition, feeding a patient, and aspiration hazards and prevention.

BASICS OF NUTRITION

The human body is very active and it needs energy to survive. The body also must be able to grow, it needs to repair damage, and it must fight off infections. All of these processes require good nutrition and the proper intake of food and fluids, both of which provide us with the two essentials of nutrition: calories and nutrients.

Calories

A calorie is a measurement of the amount of energy a particular amount of food provides; that is the definition of a calorie. Calories are the basic compounds that our bodies use for fuel, and they provide the energy that the metabolic and physiological processes need in order to function.

Different foods have different calorie content. Fats have 9 calories per gram, carbohydrates and proteins each have approximately 4 calories per gram. The average male needs approximately 2100 calories a day; the average female needs about 1900 calories a day. However, the calorie needs listed above are only averages. Calorie needs are different for each person and they change depending on age, health status, and activity level. Many of the patients you will take care of will have a specific amount of calories that their doctor has determined is best for them. This information can be found in the patient's chart.

Regardless of how well balanced a diet is and how well a diet supplies the body with the essential nutrients, a diet that is deficient in calories is unhealthy: Of course, the opposite is true, as well. A diet that provides an excess of calories, even in the form of foods that are considered to be nutritious, is not healthy either. If the difference between caloric intake and caloric expenditure - the
calorie balance - is biased towards caloric intake then the excess calories will not be used for energy but stored as body fat. Weight gain and weight loss are influenced by many factors but caloric balance is one of the most important, and being overweight or obese is considered to be a direct cause of chronic health problems such as diabetes and heart disease.

Learning Break: The term empty calories is often used when discussing nutrition. Empty calories refers to foods that have a high calorie content of fats and sugars but very few nutrients. For example, a candy bar that weighs 43 grams may have 210 calories, 140 of those calories are fats, and the candy bar has essentially no other nutrients. Contrast that with a cup of yogurt that weighs 150 grams: the yogurt has 130 calories, no fat, 12 grams of protein and a significant amount of calcium.

NUTRIENTS

The second essential that food and fluids provide us with is nutrients. A nutrient is a chemical substance found in food that is essential for life. Just as the body needs adequate calories to survive, it also needs the right nutrients in the right amounts. A diet may be high in calories and provide a lot of energy, but it can be lacking in nutrients. Nutrients can be divided into two basic categories: fluids and solids, and into two more specific categories, the macronutrients and the micronutrients. Although there are some macronutrients and micronutrients in fluids, most of our daily intake of these is from solid foods.

Fluids

Fluids are crucial for our health and survival. The body can survive for weeks without solid food, but no one can survive for more than a few days when he/she is completely deprived of fluids. Someone can lose close to half of his/her body weight and survive, but losing close to one-fifth of one’s body fluid can be fatal.

There are many sources of fluids, but water is the most common and the most important. The daily water requirement varies greatly with age, activity, basic health status, the environment, and the presence of illness. The larger and more active someone is, the more fluid he/she will need. Fluid requirement is also increased when the ambient temperature is high. Water does not have calories, but fluids such as juices and milk do.

Fluid intake is from drinking liquids and also from many of the foods we eat such as fruits and vegetables: these foods have a substantial amount of water and they are equally as important as liquids as a source of fluids. Fluid output/loss occurs in three ways: by sweating, by urination, by defecation, and by evaporation of water from the lungs when we breathe. Because maintaining the proper level of fluid balance is so important the processes of intake and output are closely regulated and for most people most of the time, fluid intake and fluid output are fairly well matched.
Learning Break: People who are sick, and especially people who have a fever, need more water because the metabolic rate increases during illness or when there is a fever. The increased metabolic rate increases the need for fluid and a high fever increase body temperature which in turn causes the body to literally "burn off" fluid because of the high temperature.

How much fluid do we need each day? There is no simple answer to this question and although everyone has heard of the “drink eight, 8 ounce glasses of water a day” advice there is little factual basis for this recommendation. It ignores the fact that we consume a lot of fluid in the foods we eat. It also does not address the fact that the amount of water that is needed to maintain a healthy balance of intake and output depends on too many factors to use a simple rule. This advice also presupposes that everyone is starting at the same point of fluid balance, not taking into account that some people may have an excess of fluid and some people may have a deficit. And finally, the eight, 8 ounce glass rule does not recognize that fluid intake should be categorized as either maintenance or replacement. If the fluid balance is healthy and normal only maintenance fluid intake is required but if there is a fluid deficit then replacement fluid is needed.

Solid Foods, Macronutrients, and Micronutrients

Solids are the source of almost all of the calories we take in each day, and solid foods are the source of most of the nutrients we receive from food. Solid foods such as fruits and vegetables are also a significant source of the fluids we consume each day.

Nutrients can be easily and usefully divided into two categories: the macronutrients and the micronutrients. There are several reasons why nutrients are divided into these two categories, but one of the simplest is because of the required amounts of each that we need. The daily requirements for macronutrients are measured in grams. For example, the daily requirement for protein for an adult male of average body weight is approximately 40 grams a day. However, the recommended dietary allowance of vitamin B₁₂ for the same adult male would be 2.5 micrograms a day: comparing the two you will see that there is 40 million micrograms in 40 grams.

There are three macronutrients: Carbohydrates, fats, and proteins. Each of the macronutrients can be used for calories, but each one also has a specific function aside from being an energy source. Many foods contain more than one type of macronutrient.

- **Carbohydrates:** Carbohydrates are found in grains, fruits, vegetables, and sugars. Some people refer to carbohydrates as starches but this is not accurate: a starch is simply a form of carbohydrate. There are two types of carbohydrates, complex and simple, and there are two important differences between them. First, although complex and simple carbohydrates are both broken down and used for energy, this process is longer and more involved for the complex carbohydrates; these
carbohydrates must often be converted into sugars while the simple carbohydrates often are sugars - table sugar, for example, or fructose that is contained in fruits. The second difference between the complex and simple carbohydrates is that the complex carbohydrates are often found in foods such as beans, grains, and vegetables that contain fiber and micronutrients while the simple carbohydrates are often found in foods that are not important sources of micronutrients. However, complex and simple carbohydrates are primary sources of energy used by the body and in some cases they are the only source of energy that can be easily used. Example: The brain depends almost entirely on glucose (more commonly known as blood sugar) for energy. Fats and proteins can be used by the brain for energy but not very effectively or quickly. The heart typically uses a type of fat called free fatty acids as its primary energy source.

- **Fats**: Fats are found in butter, oils, meats, milk, nuts, and many snack foods. Fats are an important source of energy. Most of the time our bodies are burning fat for energy, not carbohydrates. Fats are not usually an important source of other nutrients, but fats are essential for health, especially for young children. There are many different types of fats, saturated, unsaturated, trans fats, etc. and a full discussion of these is not practical here. Most authorities recommend limiting the total amount of fat that is consumed, especially saturated fats, because a diet that is high in fats is associated with cardiovascular disease and stroke.

- **Proteins**: Proteins are found in meats, fish, cheese, and beans. Proteins are used by the body to build muscle and to repair damage to tissues. Proteins can also be used for energy, but this usually happens only when the body does not have sufficient sources of carbohydrates and/or fats.

The micronutrients are divided into two categories, minerals and vitamins. Our bodies only need very, very small amounts of micronutrients. A nutritious, well-balanced diet should provide all the required amounts of micronutrients and significant micronutrient deficiencies that cause illnesses are rare. However, two points should be mentioned. First, the need for micronutrients does depend on age - some people need more than others do - and many Americans do not eat a nutritious, well-balanced diet.

There are least 20 minerals for which there are recommendations for daily intake. Some of these are needed only in very small amounts and these are the so-called trace minerals or trace elements. The minerals are listed in Table 1.

<table>
<thead>
<tr>
<th>Boron</th>
<th>Calcium</th>
<th>Chromium</th>
<th>Copper</th>
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<tbody>
<tr>
<td>Chloride</td>
<td>Fluoride</td>
<td>Iodine</td>
<td>Iron</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Manganese</td>
<td>Molybdenum</td>
<td>Nickel</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Potassium</td>
<td>Selenium</td>
<td>silicon</td>
</tr>
<tr>
<td>Sulfate</td>
<td>Sodium</td>
<td>Vanadium</td>
<td>Zinc</td>
</tr>
</tbody>
</table>

Table 1: Minerals
Discussing all of these and their recommended dietary allowances (RDA) is not practical or needed in this module, but two of the more common and important of these will be covered.

**Calcium** is essential for bone health, muscle contraction, and proper functioning of the heart and nervous system. Dairy products such as cheese, milk and yogurt, and vegetables such as broccoli and kale are commonly eaten foods that are good sources of calcium. For most people the RDA for calcium is 1000 mg a day, but children, adolescents, and adults over the age of 50 may need more. It is important to remember vitamin D is needed in order for calcium to be absorbed. If the daily calcium intake is too low this can prevent the normal growth of bones during childhood and adolescence and increase the risk for developing brittle, weak bones (osteoporosis) later in life. However, calcium deficiency does not cause signs and symptoms unless the daily intake is very, very low. Calcium supplements should only be taken if they have been prescribed by a physician. If someone has kidney disease excess calcium cannot be excreted.

**Iron** is needed for the formation of hemoglobin. Hemoglobin is the protein in blood that combines with and carries oxygen to the organs and tissues. Iron is found in meats such as beef and chicken and in some plants and nuts, but the amount of iron in meats is higher and is more easily absorbed than that found in plants. There are also many commercially produced foods that are fortified with iron. The RDA requirement of iron for men is 8 mg a day. Because women lose iron during the monthly menstrual period they require more than men, 15-18 mg a day. Infants, children, and pregnant women also need extra dietary iron. Iron deficiency can cause anemia (Commonly referred to as a low blood count) and someone with iron-deficiency anemia will feel tired and weak.

**Vitamins** are chemical compounds that cannot be synthesized by the body (Except for vitamin D) and are essential for the proper functioning of many complex physiological processes.

The vitamins are divided into two categories, the **fat-soluble vitamins** and the **water-soluble**. The primary differences between them is how they are absorbed and how they are stored. The fat-soluble vitamins require fat to be absorbed and they can be stored in tissues. The water-soluble vitamins are dissolvable in water and they cannot be stored in tissues. The fat-soluble vitamins are A, D, E, and K. The water-soluble vitamins are the B vitamins B₁, B₂, B₃, B₅, B₆, B₇, B₉, and B₁₂, and vitamin C. The vitamins are listed in Tables 2 and 3, along with some of the names by which they commonly called.

### Table 2: Fat-Soluble Vitamins

- A (Beta-carotene, retinol)
- D (Cholecalciferol, ergocalciferol)
- E (Tocopherol)
- K (Phytonadione)

### Table 3: Water-Soluble Vitamins

- B₁ (Thiamine)
B2 (Riboflavin)  
B3 (Niacin)  
B5 (Pantothenic acid)  
B6 (Pyridoxine)  
B7 (Biotin)  
B9 (Folic acid)  
B12 (Cyanocobalamn)

As with the minerals, a complete discussion of all the vitamins is not possible or needed here but several of them will be covered to provide examples of what the vitamins do.

**Vitamin D** is needed for the absorption of calcium and several other minerals. There are very few foods that contain vitamin D and most of those only have small amounts or they are not commonly part of the American diet. The majority of vitamin D that we have is synthesized in our skin by exposure to sunlight. Because many people do not receive enough sunlight and there is evidence that a mild level of vitamin D deficiency is common, it is recommended that children and adults take vitamin D supplementation. The RDA of vitamin D for adults is 600 IU (International Units) a day. Adults over the age of 70 should take 800 IU a day and breast-fed infants should receive vitamin D supplementation as breast milk is low in vitamin D. Vitamin D deficiency has been definitely linked to abnormal bone growth and osteoporosis and tentatively linked to many other chronic diseases.

**Vitamin K** is essential for blood clotting. The process of blood clotting depends on having a sufficient amount of clotting factors, and the clotting factors cannot be produced without vitamin K. Vitamin K is found in leafy green vegetables such as broccoli, kale, and spinach. The RDA of vitamin K is age and gender dependent: adult males should get 120 mcg a day, adult women 90 mcg, and children should get an amount that is determined by age. Vitamin K deficiency is very rare in healthy people.

The RDA of vitamin A is 2300 IU a day for women, 3000 IU a day for men. The RDA for vitamin E is 30 IU a day, for women and men.

**Learning Break:** The fat-soluble vitamins are stored in tissues while the water-soluble vitamins are not. Because of this when water-soluble vitamins are ingested in amounts that are beyond what is needed the excess is eliminated in the urine. However, when a fat-soluble vitamin is ingested in excess amounts it is stored in the tissues and toxic amounts can accumulate, especially of vitamins A and D. Taking a vitamin in excess of the recommended daily allowance is not needed or helpful. More is not better and this is especially true of the fat-soluble vitamins.

The B vitamins, B1 through B12, also known respectively as thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, folic acid, and cyanocobalammin, all play very important roles in cellular metabolism and energy production. The B vitamins are found in a wide variety of foods such as beans,
meats, whole grains, and enriched flour. B vitamin deficiencies are unusual unless someone has very poor dietary habits by choice or because of economic deprivation, and B vitamin excesses that cause signs and symptoms are quite unusual. The RDAs of B vitamins for adults are listed in Table 4. The RDAs for women, if these are different than for men, are listed first.

Table 4: B Vitamins Recommended Dietary Allowances

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>RDA for Adults</th>
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<tbody>
<tr>
<td>B₁</td>
<td>1.1 and 1.2 mg</td>
</tr>
<tr>
<td>B₂</td>
<td>1.1 and 1.3 mg</td>
</tr>
<tr>
<td>B₃</td>
<td>14 and 16 mg</td>
</tr>
<tr>
<td></td>
<td>B₅ 5 mg</td>
</tr>
<tr>
<td>B₆</td>
<td>1.3 mg</td>
</tr>
<tr>
<td>B₇</td>
<td>30 mcg</td>
</tr>
<tr>
<td>B₉</td>
<td>400 mcg</td>
</tr>
<tr>
<td>B₁₂</td>
<td>2.4 mcg</td>
</tr>
</tbody>
</table>

Vitamin C, also known as ascorbic acid, is needed to maintain the strength of the skin, to prevent free radical damage, for the maintenance of the immune system, and for proper functioning of the nervous system. Vitamin C is found in citrus fruits and vegetables such as broccoli and cabbage. Vitamin C deficiency causes a disease called scurvy, and scurvy is characterized by signs and symptoms like bleeding, bruising, impaired wound healing, and weakness. Scurvy occurs in people who have poor dietary habits by choice or circumstance, eg, someone who abuses alcohol or who cannot afford nutritious foods, but intake of vitamin C has to be very low for a long period of time before scurvy will occur. The RDA of vitamin C is 75 mg a day for adult women and 90 mg a day for adult men. Very large amounts of vitamin C can cause abdominal discomfort and diarrhea, but serious illnesses caused by excess amounts of vitamin C are very, very uncommon.

Dietary Recommendations for Health and Disease Prevention

It is not completely clear what the "perfect" diet would look like, and it is not possible to have a diet that would be appropriate for all people all the time. Nutrition needs vary from person to person and these needs will change depending on someone’s age, gender, activity level, and health status.

Learning Break: Many people use the term diet to refer to a decreased food intake, commonly done in an effort to lose weight. However, the term diet is correctly defined as simply the food we eat, so all of us are on a diet.

However, there are some basic rules of nutrition that should be followed. Food and fluids are needed for us to survive and grow, but the wrong foods - either in quantity or quality – can definitely be harmful. For example, a diet that is high in
Saturated fats and cholesterol can definitely contribute to the development of heart disease and increase the risk of suffering a stroke. There are guidelines that can help people eat a healthy diet. However, these are basic guidelines and they must be adjusted for each individual. The recommendations provided below are from the Dietary Guidelines for Americans, guidelines for healthy eating that are from the US Department of Agriculture (USDA) and the US Department of Health and Human Services. A sample food pyramid that illustrates some of these points is also provided.

- Maintain a balance between calories taken in and calories expended to maintain a proper body weight.
- Consume nutrient dense foods.
- Most people should consume less than 2300 mg of sodium (salt) a day, and people who are over age 51, African Americans, and people who have diabetes, hypertension, or kidney disease should only consume 1500 mg of sodium a day. Note: A single teaspoon of salt contains 2300 mg of sodium.
- Limit cholesterol intake to 300 mg a day. A single egg has approximately 186 mg of cholesterol.
- Do not have more than one alcoholic drink a day. A drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of hard liquor.
- Most people need approximately 2 to 3 liters of fluid a day.
- Most people should eat 6 to 8 servings of fruits and vegetables a day.
- Proteins should be about 20% of the daily calorie intake.
- Carbohydrates should be about 50% of the daily calorie intake.
- Fats should be limited to less than 30% of the daily calorie intake.
- Trans fats should be limited to less than 1% of the total daily calorie intake. Trans fats are liquid vegetable oils that have been changed to make them more palatable and to give food a specific taste and texture, and they are commonly found in baked goods and snack foods. Trans fats have essentially no nutrient value and they increase serum cholesterol.
The caloric, macronutrient, and micronutrient requirements of infants and children depend on age, gender, and activity level. For example, children who are three years of age and younger should not have their fat intake restricted as fat is essential for development of the nervous system. Infants and children should drink whole milk, not 2% or skim. Breast-fed infants should receive supplemental vitamin D, but aside from that if the infant/child is eating a well-balanced diet micronutrient supplementation is not needed. Children also eat more frequently than do adolescents or adults and frequent snacks are necessary for this age group.

The nutritional requirements of adolescents do not differ significantly from those of adults, with two exceptions. Adolescents need more calcium because the teen years are critical for bone growth, and adolescent females may be iron deficient.

Older adults, 65 years and older, may suffer from poor nutrition caused by factors such as dental problems, lack of financial resources, dementia, and social isolation.

The daily recommended intakes and allowances for calories, macronutrients and micronutrients are age and gender specific and activity specific, and the USDA has a dietary reference intake calculator that can be used to determine
these intakes and allowances. It is available at following web address provided below. Once you are on the website click the link that is entitled Dietary Reference Intake Calculator for Healthcare Professionals and then click the link for Interactive DRI for Healthcare Professionals.


Example: An adult female who is 45-years-old, weighs 139 pounds, and is considered to have a low activity level would require:

1. 2300 calories a day
2. 2.7 liters of fluid a day
3. A total daily fat intake of no more than 30% of the total daily calorie intake
4. 51 grams of protein a day.
5. 18 mg of iron and 1000 mg of calcium a day
6. 600 IU of vitamin D a day

Two other sources that can be used for determining nutritional needs are the Dietary Reference Intakes and the Daily Values, both available at the National Institutes of Health website.

https://ods.od.nih.gov/Health_Information/Dietary_Reference_Intakes.aspx/


SPECIAL DIETS

Some patients will have no significant restrictions and can essentially eat whatever they like. Yet there are many of the patients you will care for who will have special dietary needs. Many patients may also be restricted in the amount of fluids they can take in each day. For example, a patient may have congestive heart failure and diabetes. That patient will need to be on a sodium restricted diet, his/her fluid status must be carefully monitored, and the foods she/he eats must be chosen carefully to avoid hypo- and hyperglycemia and diabetic complications. Some patients such as those who are going to surgery or just coming back from surgery may not be allowed to have any food or fluids at all.

The following are some of the specific diets that are commonly prescribed by physicians. Depending on where you work these may have different names.

- Regular or house diet: There are no restrictions (within reason) to what the patient eats.
- Soft diet: The patient cannot tolerate "hard" foods; everything must have a smooth, soft texture.
- Low sodium: The amount of salt is carefully restricted.
- Clear liquids: The patient is only allowed to have liquids that are clear, coffee and tea without milk, clear juices, etc.
• NPO: NPO is an abbreviation for a Latin phrase, nothing by mouth. A patient with a dietary restriction of NPO is not allowed any food or fluid; there is no exception. Some patients have an NPO order written because they do not have a gag reflex: this is discussed in a later section of the module.

In certain situations, the patient will not be able to ingest food or fluids but he/she will receive nutrition by the IV route, a process that is called total parenteral nutrition (TPN). These patients can also be fed a liquid diet through a nasogastric (NG) tube that is inserted through the nose into the stomach or through a percutaneous endoscopic gastrostomy (PEG) tube, a short, plastic tube that is permanently place into the stomach through the abdominal wall. Feedings through an NG tube or a PEG tube are called enteral feedings.

Learning Break: Always check the patient's chart before giving them food or fluids. This is one of the most important rules of feeding and nutrition you need to remember. The specific dietary needs and restrictions of food and fluids for each patient should be clearly written and easy to find.

ASSISTING THE PATIENT WITH FEEDING

Many patients will at times need assistance with eating and some will always need assistance. These patients have a functioning gastrointestinal tract and they are allowed to have fluids and solid foods. However, the patient may have had a stroke and cannot move his/her arms. The patient may be visually impaired. There are many reasons why someone might not be able to feed himself/herself. Feeding someone is not difficult, but it does require time and common sense and there are some important points that you must remember.

• Be patient: Someone who needs assistance eating will very often not be able to consume his/her food very rapidly. Although you should encourage your patients to eat, never rush the patient or force feed someone. Doing so can cause the patient to aspirate the food. Aspiration will be discussed later in this section of the module.

• Budget time. The patient who cannot feed herself/himself will typically eat at a slow pace and because of this you plan accordingly. This will take some practice; just remember that you can't use the amount of time it takes you to eat as a reference. Try and allot enough time so that neither you nor the patient are hurried and that the patient has enough time to eat all of the food. Never rush a patient through a meal; this increases the risk of aspiration.

• Use small portions. The patient who needs assistance with eating often cannot chew and swallow large pieces of food. Food portions that are too large may be aspirated.
Never leave the patient with the food tray. If the patient is disoriented or confused, there is a chance that he/she might aspirate a piece of food.

Use utensils. Even if you are wearing gloves, never place a piece of food in a patient’s mouth using your fingers.

Begin by washing your hands. The next step is to identify the patient by checking his/her name band. Following that, you should check the food tray/meal. There should be some identifying information attached to the food tray or the meal, something that indicates that the meal is for that patient and the proper type of meal has been delivered. Always check the patient’s chart for diet information before helping the patient to eat. Giving a patient the wrong meal can be like giving the patient the wrong medication or the wrong treatment; not quite as serious, but still a potential problem.

If the patient is in a chair make sure his/her head is supported and place a towel or absorbing protecting pad across the patient’s chest and under the chin. If the patient must stay in bed, elevate the head of the bed as far as is practical and comfortable. The exact angle is not important, but if the patient is at risk for aspiration there will often be a protocol for a minimal angle of elevation that should be used during feeding. The key is to keep the patient in an upright position. This allows food to travel down into the stomach and prevents food from being aspirated into the lungs. Make sure that her/his head is supported and place a towel or absorbent protecting pad on the chest and under the chin.

When you feed the patient consider using a spoon instead of a fork, if possible. This is not an absolute rule, but a spoon is as effective as a fork and using a spoon eliminates the chance that the patient could be injured by the points of a fork. This may sound implausible, but a patient who is confused and disoriented and especially hungry may bite down hard on a fork, or grab the fork and place it forcefully in his/her mouth.

Ask the patient what he/she would like to eat first, second, etc. If the patient is unable to view the tray, describe the food. Feed the patient in small portions. Don’t be afraid to underestimate what the patient can tolerate; it is better to use smaller rather than larger bites to avoid the risk of aspiration. Again, if the patient cannot view the tray or cannot see, let him/her know what you are giving with each bite. Make sure there are fluids available and occasionally offer something to drink.

Encourage the patient to eat as much as possible. An adequate calorie intake and good nutrition is vital for people who are sick. Make sure you document on the patient’s chart how much of the meal he/she finished and how much fluid was consumed. If the patient was unable to finish a substantial portion of the meal, ask why (if he/she can tell you) and make sure your supervisor is informed.

Aspiration
Aspiration is a medical term for movement of a foreign body or foreign substance into the lungs. In people who are awake and alert and neurologically intact, aspiration is prevented by the gag reflex. The gag reflex is a protective reflex that is initiated when something - food, liquid, etc. - comes in contact with a nerve that is located in the back of throat, near the point at which the beginnings of the trachea and the larynx are located. When this nerve is stimulated by the foreign body a powerful cough is produced and this expels the aspiration hazard. Almost everyone has experienced the gag reflex after eating or drinking something too quickly; it is commonly called “something going down the wrong way.”

Aspiration of food into the lungs can have serious medical consequences such as pneumonia. Many patients who cannot feed themselves are likely to have a weak or absent gag reflex. For example, patients who a depressed level of consciousness may have a weak gag reflex and patients who have had a stroke may not have a gag reflex. In either case, aspiration can occur with minimal signs and symptoms or without signs and symptoms so caution is required when feeding these patients. Because aspiration can be difficult to detect, a patient who requires assistance with feeding should be closely observed during meals. Each healthcare facility should have guidelines for aspiration precautions.