Project Information

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Directions to the Licensed Nurse Instructor

The safety of the individuals being served is of utmost importance. You have the responsibility to teach staff (most of whom will have had no formal medical training) to safely discharge the responsibility of administering medication or observing individuals self-administer medication. Staff must be taught to observe each individual's health related signs prior to reporting their observations to you or other medical personnel. They must also be able to recognize when to independently and immediately seek necessary medical treatment for the individual. *Living in the Community* is designed to teach staff how to administer medication and observe individuals self-administering medication in Supervised Group Living Homes (Group Homes) and in Supported Living settings (supporting individuals whose services are provided through Indiana's Medicaid Waivers).

Originated with the primary focus on medication administration within residential facilities (group homes) per Article 1.1 Community Residential Facilities for Persons with Developmental Disabilities, Rule 3 Conditions of Licensure 431 IAC 1.1-3-6, this curriculum has been in use for 10 years in the same form. It is being revised for the purpose of bringing the material up-to-date, correcting errors, strengthening weak areas, and providing an improved format and teaching tool. It is what is considered essential for all Staff. Education and Training Resource (ETR) has received suggestions from licensed nurse instructors across the state. Based on this information, portions of the curriculum have been revised. Staff persons must be thoroughly trained to meet the unique needs of each individual in their care. In some cases, that will mean that you will have to teach certain staff more than this minimum core of material.

When individuals living in a group home setting are present, there must be a staff member present who is at least trained in Core A of this curriculum and has demonstrated competence as outlined below. This also includes times when the individuals living in the group home are not scheduled to take prescribed medications.

The *Living in the Community* curriculum must be taught, in person, by a licensed nurse. The curriculum is divided into two parts: Core lessons and Supplemental lessons. The Core lessons are further divided into Core A and Core B.

Core A must be passed with a minimum score of 85% before a staff member may administer medication or observe individuals self-administering medication. In addition, staff must demonstrate all steps of medication administration (tablets and liquids) with 100% accuracy. Training on administering any other form of medication must be given to each staff member prior to administering that form of medication. Observation of satisfactorily administering that form of medication is also required. See lesson 5. Core A consists of the following lessons:

1. Asepsis, Universal Precautions, and AIDS
2. Responsibilities in the Area of Medication Administration
3. Principles of Administering Medications
4. Documentation
5. Administering Medications

Core A must be passed before taking Core B. Core B must be passed with a minimum score of 85% within the first 120 days of employment for a staff member to continue to administer medications or observe individuals self-administering medications. Core B consists of the following lessons:

6. Fundamentals of Pharmacology
7. Inflammation and Infection
8. Psychotherapeutic Medications
9. Developmental Disorders

Most of the Core lessons are divided into two parts: core information, which is required material, and supplemental information that is important. There is a final Core A test and a final Core B test that each staff member will be required to take and pass with a score of 85%. Each Core must be passed with a score of 85%. The scores from Core A and Core B may not be combined for a total score.

The Supplemental Lessons 1 through 13 are provided for use according to agency discretion. The information is provided so that the staff may be trained on material that is pertinent to the needs of each individual receiving medication. If the individual receiving the medication has needs that are not addressed by the Core or Supplemental Lessons, then you will have to find other supplemental material to use to train the staff.

Only those group home and supported living providers who are authorized by the Bureau of Developmental Disabilities Services (BDDS) can purchase a packet of testing materials from ETR. The security of the test is entrusted to the licensed nurse instructors of the group home or supported living provider agencies. Copies of all completed tests must be destroyed. Only test scores may be retained by the staff member, agency, or licensed nurse instructor.

In order to achieve, as nearly as possible, complete understanding of the Core materials, the licensed nurse instructor should review the material missed on the test with each student staff member or with the class. The completed tests should not be passed back and specific questions should not be reviewed.

Others who purchase the curriculum, that are not BDDS approved group home or supported living providers, will not be permitted to purchase the test packet. Because it is recognized that staff working with individuals in community settings other than group homes can also benefit from training in this curriculum, it has recently been decided that approved providers who provide supported living services, but not group home services, may also use this curriculum and purchase the competency testing materials. Group home providers who also provide supported living services are encouraged to train all of their staff in this curriculum. This would achieve uniform medication administration training for all staff working in community residential settings and the staff would be prepared to work in any setting.

Provider agencies in states other than Indiana are also welcome to purchase this curriculum. However, they will not be permitted to purchase the test packet regardless of the programs they operate.

A staff member may take the test two times (alternate test forms are provided). If the staff member fails after the second time, the course must be repeated.

No assistance can be given to the student staff member taking the tests. No one may read the test to a student staff member or write any answers for them. The ability to read and write adequately in English is crucial for administering medication or observing individuals self-administer medications.

A certificate of completion is to be given by the group home or supported living provider agency if a score of at least 85% is achieved on the final tests for Core A and B and if observation by the licensed nurse instructor verifies that the student staff member can satisfactorily, with 100% accuracy, administer oral tablets, capsules, and liquids. The scores should be recorded on the back of the certificate. Never place the scores on the front of the certificate. Record the test scores in this manner.

Core A: Number of correct divided by number of questions = the score expressed in a percentage
Core B: Number of correct divided by number of questions = the score expressed in a percentage
Observation of 100% satisfactory medication administration of oral tablets, liquids, and capsules (signature of licensed nurse instructor and date)

A copy of the front and back of the certificate will be kept in the personnel file of the staff member. The certificate is to be kept by the staff member and may be used in the case of a change of employment to another group home provider to let the licensed nurse instructor know that the materials have been completed.

If a BDDS approved group home or supported living provider accepts the training provided by a previous BDDS approved group home or supported living provider, instead of requiring that a new employee be trained again in the curriculum at their agency, the new provider employer should copy the certificate and scores for the personnel file as indicated earlier. The new provider employer should still train the staff member on their own forms and policies and do any other training needed to work with each individual for whom they will be caring.

There is no specified requirement for keeping staff competent in the area of medication administration after their initial training. Each agency must decide what training, in-servicing, observations and so on are necessary to maintain staff skills, resident health, and to prevent injury.

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Living in the Community
Core A

Lesson 1
Asepsis, Universal Precautions, and Infectious Diseases

ASEPSIS, UNIVERSAL PRECAUTIONS, AND INFECTIOUS DISEASES

Key Terms	
AIDS	Aseptic
Antiseptic	Disinfectant
Friction	Hepatitis
Medical asepsis	Rotary motion
Tuberculosis	
Universal precautions	

Precautions must be taken to ensure that both individuals and staff remain healthy. The spread of disease can be cut dramatically by insisting that both individuals and staff wash their hands. Frequent and careful hand washing is the most effective way to avoid spreading organisms that cause disease.

All staff should wash their hands utilizing aseptic technique upon arrival to work or after handling infectious materials without the use of personal protective equipment (gloves). In the absence of a true emergency, personnel should wash their hands with soap and water or a hand sanitizer for at least 30 seconds (one may recite the alphabet to himself/herself while washing), utilizing friction, from the wrists down. Hands should be washed:

- before and between caring for each individual;
- before and after touching wounds;
- after contact with mucous membranes, blood, body fluids, or excretions;
- after touching objects that are likely to be contaminated by body fluids or excretions;
- before giving or applying medication or ointment;
- after removing gloves used for any purpose.

Universal precautions are to be observed when coming in contact with an individual's body fluids.

Aseptic hand washing requires attention to the method and manner of hand washing. Hand sanitizer may be used in certain situations. If bar soap is used, it should be kept on a rack that allows drainage of water. If liquid soap is used, the dispenser should be replaced or cleaned when empty; never add liquids to a partially full dispenser. Disposable single use towels should always be used to dry hands instead of common use towels.

Universal precautions should be taken to protect both you and the individual. Avoid direct skin contact with mucous membranes, bodily fluids, secretions, excretions, and wounds. Any open place on your skin, even very small ones, can become an entry site for the infection. Wearing gloves when you are likely to have contact with blood, body fluids, or objects that could be contaminated with blood will offer sufficient protection. If there is a risk of splashing or spraying of infectious materials, protective eye goggles and a surgical mask should also be worn.

Universal precautions should also be used when cleaning personal items. Personal and disposable items contaminated with blood or body fluids should be put in plastic bags, sealed, and removed with other garbage. An OSHA approved sharps container should be used for items such as razors, needles, and so on. Soiled linen and clothing should be laundered using detergent and the hot wash cycle, and then dried in the drier. Dishes should be run through a complete dishwasher cycle or washed in hot soapy water and rinsed in hot water. A viricidal solution or a 1:10 solution of bleach and water prepared within the last 24 hours may be used for cleaning surfaces that may be contaminated with a blood born pathogen.

Universal precautions should be used in maintaining the cleanliness of the medication storage area. First, all equipment must be properly cleaned and disinfected after each use. To begin, clean the surface thoroughly with soap and water. Afterwards, if you need to use a disinfectant, apply and let it stand for a few minutes, according to the manufacturer's instructions. Wipe with disposable paper towels or with cloth towels that can be washed.

In dealing with medications and their containers, you should wipe the outside of bottles containing liquid with a clean wet cloth. Do not wipe the rim. **Never** touch the inside of medication containers. Finally, dispense medications into appropriate containers, not into your hand. In addition to washing your hands, gloves will be required when administering certain medications.

Antiseptics and Disinfectants

You should be aware of the action and use of antiseptics and disinfectants, as well as common examples of each.

Antiseptics: prevent the growth of microorganisms (germs) and are used to prevent infection. Examples:

1. **ethyl alcohol** (ethanol) used on skin for cleaning. Adverse effect includes dryness.
2. **Phisohex** used on skin for cleaning.
3. **Chlorohexadine** used as a mouth rinse.

Disinfectants: destroy microorganisms and are used to wash skin and clean objects. Examples:

1. **alcohol/ formaldehyde** used on thermometers and instruments.
2. **providone-iodine** (Betadine) used on skin, mucous membranes, decubitus, and ulcers.
3. **bleach -Virex** can be used on all surfaces but can cause local allergic reaction.

The Real Dirt on Antibacterial Soaps!

New studies have shown that antibacterial soaps are no better than regular soap. The antibacterial agent triclosan requires several minutes to work and most people only wash their hands for three to five seconds. Unfortunately residues of antimicrobial soaps do linger on sinks and countertops and they may contribute to the development of drug-resistant bacteria. A solution recommended by the CDC for people with babies or immune-compromised clients is to use an alcohol-based gel, which kills germs by drying them out.

Blood Born Diseases

Individuals or staff with Acquired Immune Deficiency Syndrome (AIDS) may be among the many people with whom you may have contact during the day. AIDS is caused by HIV (the human immunodeficiency virus). However, a positive HIV test does not indicate that a person has AIDS. An AIDS indicator illness is usually the criterion for an AIDS diagnosis, although certain blood tests can also determine the diagnosis.

AIDS causes a weakening of the immune system which leaves the infected person vulnerable to many unusual, life-threatening illnesses. These illnesses are typically controlled by a normal immune system, but in an individual with AIDS, medical interventions are necessary to treat these illnesses.

Although there is currently no cure for HIV or AIDS, there are medical treatments that can slow the progression of HIV to AIDS. Also, there are treatments that can prevent or cure some of the AIDS-related illnesses.

During the mid to late 1990's, advances in HIV treatments led to dramatic declines in AIDS deaths and slowed the progression from HIV to AIDS. However, in recent years, the rate of decline for both cases and deaths began to slow, and in 1999, the annual number of AIDS cases appears to be leveling, while the decline in AIDS deaths has slowed considerably (source: CDC).

The most common means of transmission of HIV are:

- Having unprotected anal, vaginal, or oral sex with an infected person.
- Sharing needles or syringes with someone who is infected.
- From mothers to their babies during gestation, birth, or through breast-feeding. Proper medical treatment can reduce the risk to the baby, but cannot guarantee the prevention of transmission.

Earlier in the AIDS epidemic, some people became infected through blood transfusions, or organ or tissue transplants. In 1985, a test for HIV was approved. Since then all donated blood, tissue, and organs in the United States have been screened for HIV infection. When caring for an individual with HIV or AIDS, universal precautions should be taken to protect you and the individual.

Health care workers are at risk of getting infected if they are stuck with an infected needle or splashed with infected bodily fluid in the eyes, nose, mouth, or on open cuts or sores. However, you can NOT get HIV from feces, nasal fluid, saliva, sweat, tears, urine, or vomit unless there is blood mixed in them.

The early symptoms of HIV infection often resemble the flu, and usually occur within a month or two after exposure to the virus. These symptoms include: fever, headache, fatigue, and enlarged lymph nodes. These symptoms usually end after about a week, and are often dismissed as another type of infection. More

persistent or severe symptoms may not appear for 10 years or more after infection. These more obvious symptoms include: skin changes (blotches, bumps, and rashes), swollen glands, and weight loss, diarrhea, fatigue, and fever, loss of appetite, persistent dry cough, and night sweats.

At the time of the first AIDS cases in the United States, there were no medicines to fight the deficiency in the immune system and few treatments for the infections that resulted. However, during the past ten years, drugs have been developed that fight both HIV and the diseases associated with this virus.

While there are treatments for HIV and AIDS, there is no cure, nor is there a vaccine to prevent infection. Therefore, people should take care to prevent infection by avoiding high risk behaviors. Many people infected with HIV have no outward symptoms, so it is impossible to know a person's status without a negative HIV test. Abstinence from sex and IV drug use is the best form of prevention. However, if engaging in sexual activity (oral, anal, or vaginal), a male latex condom or a female polyurethane condom should be used. Keep in mind, these offer only partial protection. Drug needles should never be shared. And while the U.S. blood supply is meticulously screened for HIV and AIDS, you may donate your own blood to be used in surgical procedures for extra assurance. If you feel that you may have been exposed to HIV or AIDS, seek medical treatment immediately. Timely treatment may prevent the development of HIV infection.

TUBERCULOSIS AND HEPATITIS

You should be aware of the infectious diseases tuberculosis and hepatitis, as you may come into contact with individuals who have these diseases. With proper precautions, you can protect yourself from contracting these diseases.

Tuberculosis

Tuberculosis (TB) is a disease that can attack any part of the body, but most frequently affects the lungs. It is caused by mycobacterium tuberculosis, and is an airborne disease. When a person infected with TB sneezes or coughs, tiny particles containing the bacteria may be expelled, and can remain suspended in the air for several hours. Transmission then may occur if another person inhales these particles.

The probability of transmission depends on the length of exposure, the environment in which the exposure took place, and the contagiousness of the individual.

Just because a person is infected with TB does not mean that person will develop TB disease. The person is said to have TB infection and is not infectious.

If disease becomes active, the person is said to have active TB. This may be manifested by weight loss, fever, night sweats, cough, chest pain, and/or coughing up blood. These symptoms

can develop very soon or many years after infection. Only about 10 percent of all people who have TB infection will develop active TB. This disease is usually curable with the proper medicine.

An individual with active TB should be quarantined (usually in a hospital setting) for at least 3 weeks after initial treatment. The individual must be released from quarantine by the health care provider. You should also be sure to practice good hygiene after coming into contact with the infected person.

Hepatitis

Hepatitis is a disease that affects the liver. There are several forms of hepatitis, but the most common are Hepatitis A, Hepatitis B and Hepatitis C. While people infected with Hepatitis A and B usually recover, Hepatitis C is more serious and can lead to liver failure.

Hepatitis B and C are spread through contaminated blood. Like HIV, the virus must enter a person's bloodstream for infection to occur. Sharing needles, accidental needle sticks, sexual contact, and contact between blood and open sores pose serious risk of infection.

Hepatitis A virus (HAV) is found in the stool (feces) of a person with hepatitis A. HAV is usually spread from person to person by putting something in the mouth (even though it may look clean) that has been contaminated with the stool of a person with hepatitis A. Hepatitis A vaccine is the best protection. Always wash your hands with soap and water after using the bathroom, changing a diaper, and before preparing and eating food.

Although a person can be infected with viral hepatitis and not show symptoms, the symptoms include jaundiced skin and eyes, fatigue, loss of appetite, nausea/ vomiting, fever, and joint pain. A person infected with hepatitis can spread the disease even if they are showing no symptoms.

While following Universal Precautions should offer you maximum protection from hepatitis, you may also be immunized against Hepatitis A and B if you are at a greater risk of being exposed. There is no vaccine for Hepatitis C.

Statistics of Infectious Disease (U.S) 2000

- **Each year, there are approximately**
  125,000 - 200,000 hepatitis A infections.
  140,000 – 320,000 hepatitis B infections.
  36,000 hepatitis C infections.
- **Tuberculosis strikes nearly 16,000 people annually.**
- **AIDS cases: 50,000 (1997), 43,000 (1998), 42,000 (1999)**
- **AIDS deaths: 22,000 (1997), 18,000 (1998), 17,000 (1999), 14,000 (2000)**
- **The seventh leading cause of death for older adults is influenza and pneumococcal pneumonia.**

Sources: National Center for Health Statistics, The National Coalition for Adult Immunizations and the Center for Disease Control (CDC), 2002.

Definitions of Key Terms

AIDS--Acquired Immune Deficiency Syndrome (AIDS) is a disease that affects the body's ability to fight infection. AIDS is spread through the body fluids of an infected person by sexual intercourse (vaginal, anal, oral), sharing IV needles, infected mothers passing the disease to the fetus, and transfusion of blood or blood products. Can be spread through blood tinged stools or urine.

Antiseptic--A substance that inhibits the growth of germs. Antiseptic solutions are used as cleaning agents to prevent the spread of infection.

Aseptic--Free of infection. Often refers to proper hand-washing and other measures taken to prevent the spread of infection.

Disinfectant--Substance used to destroy microorganisms.

Friction--The rubbing of one thing against another. For example, when you wash your hands aseptically you create friction by rubbing them together in a brisk, back-and-forth motion.

Hepatitis--Inflammation of the liver.

Medical asepsis--Cleaning measures taken to prevent the spread of infection in a doctor's office, hospital, or long-term care agency.

Rotary motion--Rubbing your hands together in a circular motion.

Tuberculosis--Communicable acute or chronic infection caused by mycobacterium tuberculosis.

Universal precautions--Treatment of all blood and bodily fluids as if they were contaminated (blood and bodily fluid isolation), proper disposal of needles.

Supplemental Information for Lesson 1

Correct Technique for Aseptic Hand Washing

1. Remove your watch and any rings
2. Turn on the water and regulate it to a comfortable, warm temperature.
3. Wet your hands, wrists, and forearms.
4. Apply soap to your hands, wrists, and forearms.
5. Wash your wrists and forearms using at least 10 rotary motions and at least 10 friction motions.
6. Point your arms downward, and rinse from elbow to fingertips.
7. Wash your palms and the back of your hands using at least 10 rotary motions and at least 10 friction motions.
8. Be sure to scrub between fingers and under fingernails.
9. Interlace your fingers and rub them up and down at least 10 times.
10. Point your hands downward and rinse thoroughly.
11. Leave the water running while you dry your hands with a clean, disposable (or single-use) towel.
12. Blot your arms and hands, beginning at your forearm and blotting down to your fingertips.
13. Turn the faucet off using a clean paper towel as a barrier.
14. Dispose of the towel appropriately, preferably in a can with a foot-pedal-operated lid.

Overview of Universal Precautions

These guidelines are consistent with the Universal Precautions Rule 410 IAC 1-4. It is not the intent of these guidelines to mandate protection from all possible or theoretic exposures to blood or body fluids visibly with blood. Rather, the intent is to provide guidelines for protection from predictable exposure to blood or body fluids visibly contaminated with blood, regardless of known or suspected infectiousness. These guidelines are not intended to replace or equal the infection control measures that hospitals and health care facilities are now using. Rule 410 IAC 1-4 has a very broad effect, relating to industries, schools, etc., as well as health care providers. The rule contains only minimum requirements for those settings which do not have broader requirements.

The human immunodeficiency virus (HIV), the causative agent of AIDS, is transmitted through direct contact with blood, through sexual intercourse, or perinatally from an infected pregnant woman to the baby she is carrying. The virus also appears transmissible from an infected mother to her child through breast milk. Blood, semen, vaginal secretions, and possibly breast milk are the only body fluids known to transmit HIV. Universal precautions also apply to tissues and the following fluids: cerebrospinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, and blood or body fluids of animals that have been intentionally

or are suspected of having been exposed to pathogens in the in vivo testing of pharmaceuticals or through other procedures. The risk of transmission of HIV and Hepatitis B Virus (HBV) from these fluids is unknown; epidemiologic studies in the health-care and community setting are currently inadequate to assess the potential risk to health-care workers from occupational exposures to them. However, HIV has been isolated from CSF, synovial fluid, and amniotic fluid, and HBsAG has been detected in synovial fluid, amniotic fluid, and peritoneal fluid. One case of HIV transmission was reported after a percutaneous exposure to bloody pleural fluid obtained by needle aspiration. Whereas aseptic procedures used to obtain these fluids for diagnostic or therapeutic purposes protect health-care workers from skin exposures, they cannot prevent penetrating injuries due to contaminated needles or other sharp instruments.

Employees must protect themselves from direct exposure to blood or body fluids that are visibly contaminated with blood to prevent exposure to HIV, HBV, and other infectious agents. However, many potentially serious communicable diseases, such as those due to infections with cytomegalovirus or Hepatitis A virus, are transmitted by body fluids such as saliva, urine, or feces, in the absence of contamination with blood. For this reason, it is strongly recommended that precautions be taken to prevent direct contact with all body fluids of all persons, whether or not the body fluids are visibly contaminated with blood.

The United States Food and Drug Administration (FDA) has approved several drugs to be used for treating HIV. Some of these nucleoside reverse transcriptase inhibitor drugs, including the well-known AZT, work in the early stages of infection to inhibit the duplication of the virus in the body. These drugs can also delay the start of the opportunistic infections associated with HIV. More recently, the FDA has approved a series of protease inhibitor drugs which interrupt virus duplication at a later stage. Unfortunately, HIV can become resistant to these drugs, so they must be used in combination, often referred to as a drug cocktail. While none of these drugs cure HIV or AIDS, they can improve the lives of those who are infected.

Health care workers should be aware of the possible side effects with these drugs, some of which can be severe. The serious side effects can include a decrease of red or white blood cells, inflammation of the pancreas, and nerve damage. Less serious, but more common side effects include nausea, diarrhea, and other gastrointestinal discomfort. Care should also be taken to avoid interaction with other drugs.

Because individuals with AIDS have suppressed immune systems, they are highly susceptible to infection. You should take care to protect the individual if you have any infection, even a minor one like a cold. Any infection has the potential to become a life-threatening illness to an individual with AIDS. Wearing gloves and a surgical mask and maintaining a clean environment are especially important when you have an infection and must come in contact with the individual with AIDS. However, while you pose much more of an infection risk to the individual than the individual does to you, there is a special

consideration for pregnant women. Individuals with AIDS often carry the cytomegalovirus (CMV), which can pose a serious threat to unborn babies. In fact, complications can include hearing and/or vision loss, and varying degrees of mental impairment. Therefore, pregnant women should avoid contact with an individual with AIDS and should practice good personal hygiene.

Finally, while individuals with AIDS will have few dietary restrictions, there are some precautions that are necessary to avoid unnecessary risk for the individual. Do not use unpasteurized milk or raw eggs. Be aware that some prepared foods (i.e. homemade mayonnaise, hollandaise sauce, and ice cream) may contain raw eggs. All meats should be cooked well done, with no pink visible in the middle. Finally, do not eat raw fish or shellfish.

RECOMMENDATION ON WHAT TO DO IF EXPOSURE OCCURS

First, the employee should wash the affected area immediately and thoroughly. If an eye or mucous membrane (mouth) is contaminated, rinse with running water for fifteen minutes. You should then immediately report the incident to the supervisor or designated person. While vomitus, saliva, urine, tears, and feces have not been implicated in the transmission of HIV or Hepatitis B infections (with the exception that human bites have transmitted HBV), other communicable diseases may be transmitted by these fluids.

An incident report should be completed according to institutional policy and state law. The report should include the circumstances of the incident, the blood or body fluid source's name, institutional number (if appropriate), and what protective equipment and precautions were used at the time of the exposure. If the situation involved an emergency medical care provider, and the exposure was of a magnitude that has been demonstrated epidemiologically to transmit a dangerous communicable disease, the emergency medical care provider may complete the form: REPORT OF BLOOD OR BODY FLUID EXPOSURE: DANGEROUS COMMUNICABLE DISEASE EXPOSURE NOTIFICATION FOR EMERGENCY MEDICAL CARE PROVIDERS as required by IC 16-1-45.

The employer should perform an evaluation and follow-up of the employee according to institutional policy. At a minimum, exposed employees should be counseled about risk of acquisition of HIV and other relevant communicable diseases, receive information about prevention of transmission, and be offered voluntary serologic testing. In general, post-exposure management where HIV and/or HBV infection is considered possible should be in accordance with current CDC guidelines. These guidelines include discussions of HIV serological testing and hepatitis B vaccine usage.

Persons whose blood or body fluids were the source of exposure shall be informed if HIV serologic testing is part of institutional policy and must consent before testing is performed. Persons refusing to give consent should not be tested, except for the purpose of diagnosis or treatment of the patient or

under court order as described in IC 1619.52.5. Persons who refuse HIV testing should be considered seropositive. All persons should be informed of their test results and should receive appropriate counseling; seropositive persons should be referred for further medical assistance according to institutional policy. If a person is exposed to blood or body fluids of an employee, that person should be informed of the exposure (without identification of the employee), and procedures similar to those outlined above should be followed.

Handling Spills of Blood or Body Fluids

The following precautions contain the necessary elements for handling spills of blood or other body fluids. If the spill is extensive, housecleaning or janitorial services should be notified. Large facilities may choose to train selected staff to clean up spills. In the event of a small spill, the employee should first put on impermeable gloves. The employee will then remove visible material with disposable absorbent towels. When cleaning a hard surface, flood with a solution of one part household bleach to ten parts water, or use an approved hospital disinfectant. If the surface is a rug or a carpet, use a sanitary absorbent agent according to directions. Again wipe the area with fresh disposable towels, and place all soiled towels and gloves in a leak-proof bag or container and dispose of in the usual manner. Finally, wash your hands thoroughly in the proper manner.

Note: Items used in handling spills that are contaminated with small amounts of blood such as paper towels, cotton balls, bandages and gloves, are not considered infectious waste if they are not co-mingled with infectious waste. Items so saturated with blood that they could be considered liquid or semi-liquid as defined by the Infectious Waste Rule 410 IAC 1-3, must be considered infectious waste and handled according to 410 IAC 1-3.

References

"Issues in Health Care Settings." 1 Sept. 2003. Centers for Disease Control and Prevention. 1 Sept., 2003 http://www.cdc.gov/ncidod/hip/default.htm.

Universal Precautions. State of Indiana. 410 IAC 1-4 Rule 4. 1 Sept. 2003. http://www.in.gov/hpb/boards/isbhfa/410_IAC_1-4.pdf

410 IAC 1-4
Rule 4. Universal Precautions

INTRODUCTION

These guidelines are designed to assist facilities and individuals in the use of universal precautions that are necessary to prevent the spread of Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and certain other infectious agents. These guidelines are consistent with the Universal Precautions Rule 410 IAC 1-4 adopted by the Executive Board of the Indiana State Board, of Health under Public Law 123-1988 (Senate Enrolled Act 9).

410 IAC 1-4-0.5 Applicability of definitions
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 0.5. The definitions in this rule apply throughout this rule. Additionally, the definitions of any other terms contained in the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030) are incorporated by reference. *(Indiana State Department of Health; 410 IA C 1-4-0.5; filed Nov 22, 1993, 5:00 p.m: 17 IR 753; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*
410 IAC 1-4-1 "Blood" defined
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 1. "Blood" means human blood, human blood components, and products made from human blood. *(Indiana State Department of Health; 410 IA C 1-4-1; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 753; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-1.1 "Bloodborne pathogens" defined
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 1.1. "Bloodborne pathogens" means pathogenic micro-organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, HBV and HIV. *(Indiana State Department of Health; 410 IA C 1-4-1.1; filed Nov 22, 1993, 5:00 p.m: 17 IR 753; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*
410 IAC 1-4-1.2 "Contaminated" defined
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 1.2. "Contaminated" means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface. *(Indiana State Department of Health; 410 IA C 1-4-1.2; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*
410 IAC 1-4-1.3 "Contaminated laundry" defined
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 1.3. "Contaminated laundry" means laundry which has been soiled with blood or other potentially infectious materials or laundry which may contain sharps. *(Indiana State Department of Health; 410 IA C 1-4-1.3; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*
410 IAC 1-4-1.4 "Covered individual" defined
Authority: IC 16-41-11-9
Affected: IC 16-41-11-4
Sec. 1.4. "Covered individual" means any individual covered by IC 16-41-11-4 whose professional, employment, training, or volunteer activities or duties include any reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials. *(Indiana State Department of*

Health; 410 IA C 1-4-1.4; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)

410 IAC 1-4-1.5 "Decontamination" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 1.5. "Decontamination" means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item which does not require sterilization to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal. *(Indiana State Department of Health; 410 IA C 1-4-1.5; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-2 "Department" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 2. "Department" means the Indiana state department of health. *(Indiana State Department of Health; 410 IA C 1-4-2; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-2.1 "Employee" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11; IC 22-8-1.1-1

Sec. 2.1. "Employee" has the meaning set forth in IC 22-8-1.1-1. *(Indiana State Department of Health; 410 IA C 1-4-2.1; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-3 "Employer" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11; IC 22-8-1.1-1

Sec. 3. "Employer" has the meaning set forth in IC 22-8-1.1-1. *(Indiana State Department of Health; 410 IA C 1-4-3; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-3.1 "ERP" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 3.1. "ERP" means expert review panel, as defined in section 8.1 of this rule. *(Indiana State Department of Health; 410 IA C 1-4-3.1; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4 "Facility" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4. "Facility" means a building or location where an individual can be reasonably anticipated in the course of performing his or her professional, employment, training, or volunteer activities or duties to have skin, eye, mucous membrane, or parenteral contact with potentially infectious materials. *(Indiana State Department of Health; 410 IA C 1-4-4; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 754; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.1 "HBeAg" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.1. "HBeAg" means the presence of hepatitis B e antigen in human blood as an indicator of high infectivity for hepatitis B virus. *(Indiana State Department of Health; 410 IA C 1-4-4.1; filed Nov 22, 1993, 5:00 p.m:17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.2 "HBsAg" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.2. "HBsAg" means the presence of hepatitis B surface antigens in human blood as an indicator of infectivity for hepatitis B virus. *(Indiana State Department of Health; 410 IA C 1-4-4.2; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.3 "HBV" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.3. "HBV" means hepatitis B virus. *(Indiana State Department of Health; 410 IA C 1-4-4.3; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.4 "Health care worker" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.4. "Health care worker" means any covered individual providing health care for or to a patient during the patient's care or treatment and whose professional, employment, volunteer, or student training duties or activities can be reasonably anticipated to result in skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials. *(Indiana State Department of Health; 410 IA C 1-4-4.4; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.5 "HIV" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.5. "HIV" means human immunodeficiency virus. *(Indiana State Department of Health; 410 IA C 1-4-4.5; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.6 "Other potentially infectious materials" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.6. "Other potentially infectious materials" means the following:

(1) Human body fluids as follows:

(A) Semen.

(B) Vaginal secretions.

(C) Cerebrospinal fluid.

(D) Synovial fluid.

(E) Pleural fluid.

(F) Pericardial fluid.

(G) Peritoneal fluid.

(H) Amniotic fluid.

(I) Saliva in dental procedures.

(J) Any body fluid that is visibly contaminated with blood.

(K) All body fluids where it is difficult or impossible to differentiate between body fluids.

(2) Any unfixed tissue or organ, other than intact skin, from a human, living or dead.

(3) HIV-containing cell or tissue cultures, organ cultures, and HIV or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV. *(Indiana State Department of Health; 410 IA C 1-4-4.6; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.7 "Parenteral" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.7. "Parenteral" means piercing the mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, or abrasions. *(Indiana State Department of Health; 410 IA C 1-4-4.7; filed Nov 22, 1993, 5:00 p.m: 17 IR 755; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-4.8 "Sterilize" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 4.8. "Sterilize" means the use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores. *(Indiana State Department of Health; 410 IA C 1-4-4.8; filed Nov 22, 1993, 5:00 p.m: 17 IR 756; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-5 "Universal precautions" defined

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 5. "Universal precautions" means an approach to infection control in which all human blood and certain human body fluids are treated as if known to be

infectious for HIV, HBV, and other bloodborne pathogens. *(Indiana State Department of Health; 410 IAC 1-4-5; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 756; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-6 Facility operator responsibilities

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 6. (a) An individual or entity that is a facility operator shall comply with the following:

(1) Inform all health care workers and covered individuals whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of the facility, that it is strongly recommended by the department that all persons who have reason to believe they are at risk of HIV infection should know their HIV status.

(2) Inform all health care workers that it is strongly recommended by the department that all those:

(A) who perform procedures during which there is a recognized risk of percutaneous injury to the health care worker, and, if such injury occurs, the health care worker's blood may contact the patient's body cavity, subcutaneous tissue, or mucous membranes; and

(B) who do not have serologic evidence of immunity to HBV from vaccination or from previous infection should know their HBsAg status and, if that is positive, should also know their HBeAg status.

(3) Ensure that the training described in the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030) is provided to all covered individuals whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of the facility.

(4) Ensure that a record is maintained, as required under the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030) of an individual's participation in the training that is provided. The record shall be made available to the department for inspection upon request.

(5) Ensure that each covered individual whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of the facility, is provided appropriate equipment and expendables needed to implement the precautions required under section 8 of this rule and under the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030).

(6) Require all health care workers whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of the facility to provide evidence of compliance with the continuing universal precautions education requirements contained in section 7.1 of this rule.

(b) The operator of a facility, if providing services to patients or the public in which there is a risk of skin, eye, mucous membrane, or parenteral contact to human blood or other potentially infectious materials, shall display, or make available to the public, a description of compliance with the requirements contained in subsection (a)(6).

(c) The operator of a facility, if providing services to patients or the public in which there is a risk of skin, eye, mucous membrane, or parenteral contact to human blood or other potentially infectious materials, shall display, or make available to the public, written materials prepared or approved by the department explaining universal precautions and patients' rights under this rule. These materials shall include information on how to report violations of universal precautions and shall include information

regarding the department's duties to investigate. *(Indiana State Department of Health; 410 IAC 1-4-6; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 756; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*

410 IAC 1-4-7 Facility operator policies

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 7. A facility operator shall develop a written policy in compliance with this rule and the requirements of the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030), that:

(1) requires the use of universal precautions by a covered individual when performing those professional, employment, training, or volunteer activities or duties that include any reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials;

(2) provides sanctions, including discipline and dismissal, if warranted, for failure to use universal precautions; and

(3) proscribes the facility operator, or any covered individual acting at or on behalf of the facility, from retaliating against any person, including any professional, employee, trainee, volunteer, or patient, for filing a complaint with the department in good faith under this rule.

(Indiana State Department of Health; 410 IAC 1-4-7; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 757; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)

410 IAC 1-4-7.1 Covered individuals' minimum training and certification requirements

Authority: IC 16-41-11-9

Affected: IC 16-41-11

Sec. 7.1. All covered individuals shall comply with the following:

(1) Covered individuals, including health care workers, whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of a facility, must complete the training programs which the facility is required to have employees attend under the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030).

Approved programs under this rule shall be as follows:

(A) A bloodborne pathogen training session provided by a facility or employer under the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030).

(B) Unless the department makes a specific determination to the contrary, any continuing professional education program on current universal precautions techniques that has been accepted or accredited by the applicable professional credentialing or health licensing entity.

(2) Covered individuals who are health care workers shall, either individually or through their employer, upon receipt of a written request by the department, employer, or a patient to whom direct services have been provided, provide evidence of compliance with the requirements of this section.

(Indiana State Department of Health; 410 IAC 1-4-7.1; filed Nov 22, 1993, 5:00 p.m: 17 IR 757; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)

410 IAC 1-4-8 Precautions generally

Authority: IC 16-41-11-9

Affected: IC 16-19; IC 16-41-11

Sec. 8. (a) All covered individuals and health care workers under this rule shall comply with the requirements imposed under the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030).

(b) The operator and all covered individuals whose professional, employment, training, or volunteer activities or duties are performed at or on behalf of a facility providing services to patients or other members of the public in which there is a reasonably anticipated risk of skin, eye, mucous membrane, or parenteral contact with human blood or other potentially infectious materials shall also comply with the following requirements:
(1) All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.
(2) Heating procedures capable of sterilization must be used when heat stable, non-disposable equipment is sterilized. Heat labile, reusable equipment requiring sterilization must be sterilized by chemical means. Records must be maintained to document the following:
(A) Duration of sterilization technique.
(B) Mechanisms for determination of effective sterility.
(C) Routine monthly equipment maintenance inspections.
These documents must be made available to the department upon request.
(3) Environmental surfaces and equipment not requiring sterilization which have been contaminated by blood or other potentially infectious materials shall be cleaned then decontaminated. Disinfectant solutions shall:
(A) be a hospital grade, tuberculocidal Environmental Protection Agency (EPA) registered disinfectant; or
(B) be sodium hypochlorite, five-tenths percent (0.5%) concentration, by volume (common household bleach in ten percent (10%) concentration in water); the solution shall be dated and shall not be used if it is more than twenty-four (24) hours old.
(4) If a patient's diagnosis, laboratory analysis, or medical condition requires additional infection control measures or isolation, those specific measures apply in addition to the requirements of this rule and other requirements found at IC 16-19.
(Indiana State Department of Health; 410 IAC 1-4-8; filed Oct 6, 1989, 4:20 p.m: 13 IR 280; filed Nov 22, 1993, 5:00 p.m: 17 IR 757; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)

410 IAC 1-4-8.1 Expert review panel
Authority: IC 16-41-11-9
Affected: IC 16-41-11
Sec. 8.1. (a) An HIV infected or HBV infected (and HBeAg positive) health care worker whose practices include digital palpation of a needle tip in a body cavity or the simultaneous presence of the health care worker's finger and needle or other sharp instrument in a poorly visualized or highly confined human anatomic site should either seek the advice of an ERP approved by the department or voluntarily cease these practices.
(b) As used in this rule, "expert review panel" means a group of experts authorized under this rule to provide confidential consultation and advice to HIV and HBV (and HBeAg) infected health care workers as indicated to promote the highest achievable level of safe, professional care. To be deemed authorized, an ERP must be sponsored by an organization which has been approved by the department under subsection (c).
(c) Before any public or private medical, surgical, dental, nursing, or other health care organization may sponsor an authorized ERP under this section, the potential sponsor must be approved by the department as having provided credible assurances that:
(1) the sponsor is capable of establishing specific ERP protocols and procedures that will accomplish the purposes of an ERP under this section; and

(2) it will comply with general protocols to be established and disseminated on request by the department.
(d) The ERP will consist of:
(1) an expert review entity consisting of:
(A) the HIV or HBV infected health care worker's treating physician, either directly or through medical and historical treatment records;
(B) an infectious disease specialist knowledgeable in the epidemiology of HIV and HBV infection;
(C) a health care provider of the same profession as the infected health care provider with expertise in the procedures practiced; and
(D) an infection control expert or epidemiologist; or
(2) any other expert review entity expressly authorized by the department.
(e) An ERP sponsored by an organization approved by the department under subsection (c) will be deemed an authorized ERP.
(f) An ERP shall advise the health care worker whether and how to modify techniques or to cease performing certain procedures. In rendering this advice, the ERP shall consider the past history of the health care worker's technique, and the extent to which, in the context of other indicated procedures with a measurable and unavoidable significant risk to patients, an indicated invasive procedure in the hands of that health care worker does or does not expose patients to the significant risk of HIV or HBV transmission from the health care worker.
(g) The role of the ERP is strictly confidential and advisory to the health care worker.
(h) All proceedings and communications of the ERP shall be confidential. All communications to an ERP shall be privileged communications. Neither the personnel nor any participant in a panel proceeding shall reveal the identity of any health care worker consulting such panel nor any content of communication to the records of or the outcomes of an ERP outside the panel to any person or other entity, other than the health care worker consulting such panel.
(i) No person who participates in an ERP proceeding shall be permitted or required to disclose any information acquired in connection with, or in the course of, the proceeding, any opinion, recommendation, or evaluation of the panel or of any panel member.
(j) The only duty of an ERP is to provide good faith consultation and advice to the HIV or HBV infected health care worker seeking such advice. A health care worker is not, by this rule, relieved of any responsibility, either to himself or herself or to others, for all actions taken or not taken in his or her professional capacity after consulting with an ERP. Neither an ERP nor any member of an ERP is approved by this rule to substitute or assume responsibility for the subsequent actions of the health care worker. No civil or other legal action of any nature shall arise against any member or personnel of an ERP for any good faith act or statement made in the confines of the panel or proceeding thereof.
(k) Neither an ERP nor any member of an ERP shall, by virtue of their consultation and advice, assume any liability of any kind to the health care worker, his or her patients, or any other person. The personnel and members of an ERP shall be immune from any civil action arising from any determination or recommendation made in good faith in the scope of their duties. *(Indiana State Department of Health; 410 IAC 1-4-8.1; filed Nov 22, 1993, 5:00 p.m: 17 IR 759; errata, 17 IR 1009; readopted filed Jul 11, 2001, 2:23 p.m: 24 IR 4234)*
410 IAC 1-4-9 Complaints
Authority: IC 16-41-11-9

Affected: IC 4-15-2-34; IC 4-15-2-35; IC 16-41-11; IC 25

Sec. 9. A person who believes that this rule has been violated may file a complaint with the department. A complaint must be in writing unless, in the opinion of the department, the violation complained of constitutes an emergency. The department shall reduce an emergency oral complaint to writing. The department shall maintain the confidentiality of the person who files the complaint. The department shall also comply with the following:

(1) The department shall promptly investigate, or cause to be investigated with available resources, all complaints received alleging violations of this rule.

(2) The department shall not disclose the name or identifying characteristics of the person who files a complaint under this rule:

(A) unless the person consents in writing to the disclosure; or

(B) the investigation results in an administrative or judicial proceeding and disclosure is ordered by the administrative law judge or the court. Confidential communication of the complaint information to the Indiana department of labor for compliance purposes shall not constitute disclosure for the purposes of this rule.

(3) The department shall give a person who files a complaint under this section the opportunity to withdraw the complaint at any time prior to the issuance of an order under subdivision (2)(B).

(4) A person filing a complaint must make a reasonable attempt to ascertain the correctness of any information to be furnished. Failure to make a reasonable attempt may subject that person to other sanctions available at law.

(5) A determination of a substantiated and unresolved violation of this rule by a health care provider licensed under IC 25 shall be referred by the department to the appropriate licensing board through notification of the attorney general's consumer protection division.

(6) In the investigation of a complaint regarding a violation of this rule, the department shall coordinate the investigation, as appropriate, with the state or federal enforcement agency having jurisdiction over the industry or occupation. All complaints alleging violations of the Indiana occupational safety and health administration's bloodborne pathogens standards (as found in 29 CFR 1910.1030) shall be forwarded to the Indiana department of labor.

(Indiana State Department of Health; 410 IAC 1-4-9; filed Oct 6, 1989, 4:20 p.m.: 13 IR 282; filed Nov 22, 1993, 5:00 p.m.: 17 IR 760; readopted filed Jul 11, 2001, 2:23 p.m.: 24 IR 4234)

Living in the Community
Core A

Lesson 2
Responsibilities in the Area of Medication Administration

RESPONSIBILITIES IN THE AREA OF MEDICATION ADMINISTRATION

Key Terms	
Assault and battery	Competent
Code of ethics	Duty of care
Libel	Malpractice
Medication	Negligence
Reasonable care	Slander
Standard of Care	

Doctors, pharmacists, nurses and other specified staff are all members of a team that is responsible for giving individuals the correct medications. All staff must be aware of their legal responsibilities regarding the administration of medication. They must therefore understand how to properly give (administer) medications and record their actions (effects).

In addition to understanding the correct method of administration and documentation, the staff must be aware of policies and procedures regarding omitted and refused medications. The material in this lesson will be supplemented with your agency's specific policies and procedures.

People Responsible for Medication

- Physicians: determine need for and order medication.
- Pharmacists: fill the order and provide information about medications to the staff and individuals.
- Registered nurses, licensed practical nurses, and qualified staff

Responsibilities before administering medication	Read the medication order
	Prepare the medication for administration
	Use the proper equipment
	Prepare the medications accurately
Responsibilities during the administration of medications:	Identify the individual
	Explain the procedure to the individual
	Administer the medication correctly
Responsibilities following administration of medications	Record the administration of the medication
	Clean the equipment
	Observe and record the effects of the medication
	Record and report the adverse effects or poor response to the medication

Legal and Ethical Obligations of Medical Personnel

State and Federal regulations set forth the rights of individuals. Agencies and all personnel are required to respect individuals' rights which include:

- The right to refuse medication and treatment.
- The right to be informed of consequences of refusing medication and treatment.
- Freedom from physical and mental abuse and neglect.
- Freedom from restraint without a physician's written order.
- The right to privacy.
- The right to confidential treatment.

All individuals are legally protected from:

- Libel and slander
- Assault and battery

Charts provide a medical picture of the individual. This is confidential information that is available only to people authorized by the agency. Entries should present an accurate, readable picture of the individual's care. The chart is a legal record that is admissible evidence in legal action. Legally, the chart is considered accurate. Every medication given must be charted. Staff are held responsible for any medications signed out but not charted. Refer to the six rights of administering medications that are listed in Section H.

Legibility is very important--write or print so the information you chart can be read easily by others. Use ink. The color will be determined by agency policy. Never erase or obliterate an entry. When you make a mistake, draw a single line through the incorrect words, write "error" above them, and initial the entry. Your signature on an entry means that you assume responsibility for the entry. You administered or supervised the administration of the medication, made the observation, knew that the care was given as charted.

State law or regulation determines the length of time records must be kept. At present, Indiana facilities must keep records for five years. PRN medications must be documented. Every entry must be signed and dated.

A "Code of Ethics" is a voluntary set of rules that influence relationships between people based on dignity and respect for each individual's rights. "Golden Rule" for ethical behavior is "Do unto others as you would have them do unto you, or one of yours." Words that describe ethical behavior: honesty, sincerity, loyalty, dependability.

Unethical behavior results in:

- Discipline of the worker or group.
- Feelings of guilt.

Negligence and Malpractice

Negligence is the omission or neglect of any reasonable precaution, care, or action. By law, individuals can expect safe and efficient care. Individuals expect medications personnel to administer medications accurately. Individuals are protected from health care negligence—malpractice by a law called "Duty of Care."

Malpractice is any improper or injurious practice, or any unskillful or faulty medical treatment. The staff is obligated to perform care that meets minimum standards. The staff is

negligent if "reasonable" care is not given or if "unreasonable" care is given.

Both staff and individuals are protected by the standard of "Reasonable Care." Individuals can expect "reasonable care." Reasonable care is doing only that which you have been trained to do; acting as others would act in the same or similar situations. Staff is required to provide care based on this minimum standard of "reasonable care."

To avoid being negligent:

- Do only those things you have been trained to do.
- Observe the legal rights of every individual.
- Complete all records carefully.
- Be informed about the medications including their actions and adverse effects.
- Follow the policies of your agency.

Examples of negligence include:

- Leaving a dependent individual unattended in a shower or bath.
- Giving the wrong medication to an individual.
- Failing to report an observation or adverse effect to the staff nurse that later has profound consequences for the individual's health.
- Causing an injury by using defective/broken equipment or supplies.
- Failing to give a medication at the prescribed time.

All persons are accountable for their own actions. Supervisory personnel are accountable for the actions of whomever they direct and supervise. The agency is legally obligated to ensure all individuals are free from physical and mental abuse and restraints.

Legal action may result from claims of negligence and/or malpractice. Action can be brought against the agency, supervisory personnel, and/or an individual who is considered negligent. See agency policy. Criminal action may also be taken if a crime is committed, such as: battery, neglect, misuse of controlled substances.

Standardization of Medications

Medication is standardized to guarantee the purity, potency, and strength. Information concerning resources which provide reliable information about a medication are available from your nurse.

Definitions of Key Terms

Assault and battery--The threat to use force upon another person and the carrying out of the threat.

Code of Ethics--A voluntary set of rules that influence relationships between people.

Competent--Well-qualified or capable.

Duty of Care--Performance of services that meet common standards.

Libel--Any written statement that damages a person's character.

Malpractice--Improper, injurious or negligent professional treatment or care of an individual.

Medication--Any substance used in the diagnosis or treatment of disease or the relief of pain or other symptoms.

Negligence--Omission or neglect of any reasonable precaution, care, or action.

Reasonable care--Doing only those things that you have been trained to do; acting as others would act in the same or similar situations.

Slander--A malicious statement or report.

Standard of Care--A description of conduct that illustrates what a reasonably prudent person would have done, or would not have done, under similar circumstances.

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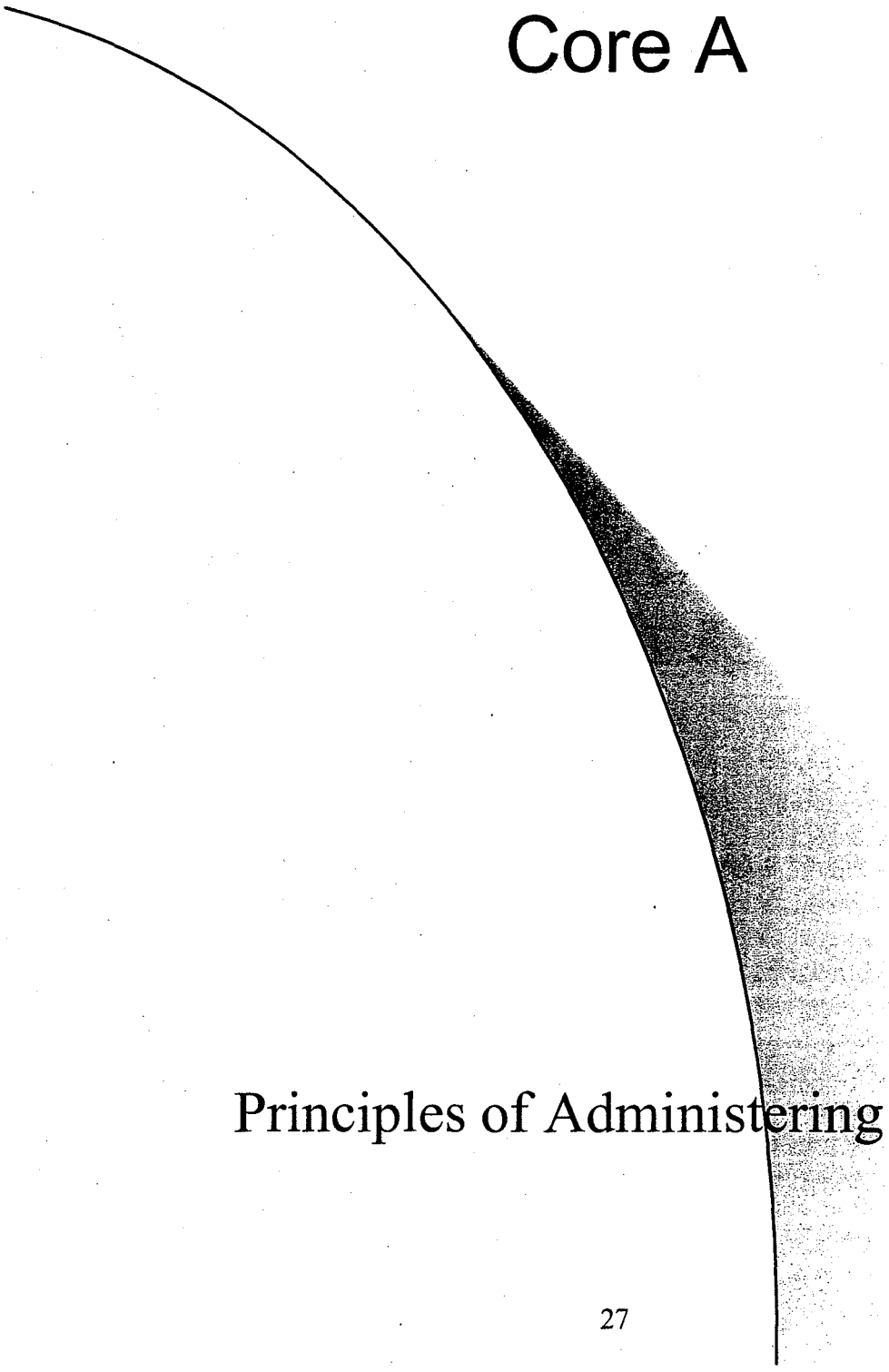
Living in the Community
Core A



Lesson 3

Principles of Administering Medications

PRINCIPLES OF ADMINISTERING MEDICATIONS

Key Terms

Cardiotonics

Controlled substances

Incident report

Preparing and administering medication requires staff to be diligent at all times. Proper handling and dispensing of medication ensures that the individual is receiving the correct medication. There are specific guidelines that must be followed in the event that a medication is not given at the correct time or a medication needs to be destroyed. It is also important for the staff to be aware of the guidelines for controlled substances, storing medications, and maintaining medical asepsis.

Preparing and Administering Medications

Medication sheets, medication logs or MAR (medication administration records) are used to record each individual's medication. Refer to your agency's policy regarding medication sheets. Medications should always be checked at least three (3) times prior to administration. Compare the medication to the order before you pour it. Compare the medication to the order after you pour it. Compare the medication to the order before you administer it. Using medication sheets as a preparation and administration guide enables the staff and the individual to chart immediately. Charting must be done as soon as the medication is given. **Never chart until after you have given the medication.**

General Considerations when Administering Medications

Staff must follow several safety precautions that will help to avoid errors when preparing medications:

- Wash your hands before administering medication. Individuals should also wash their hands if they will be handling their own medication. Using aseptic technique when administering medications helps reduce the transfer of microorganisms from one person to another.
- Good lighting should be available when preparing medications.
- Work alone and avoid distractions and interruptions while preparing drugs. Do not leave medications unattended during preparation; if you must leave, place the medications in a locked area.
- Read the label three (3) times.
- Make sure that the information on the medicine sheet corresponds exactly to the label on the individual's medication. If it does not, ask the staff nurse for further instructions and check your agency policy.

- Never administer a medicine from an unlabeled or illegibly-labeled container. Never re-label medication yourself, notify the staff nurse.
- Some agencies may prepare medicine boxes weekly for their individuals. Follow your agency's policy.
- Medications can be given within one/half hour of the prescribed time and still be effective. Follow your agency's policy.
- Before giving a medication that is more than one/half hour late, refer to your agency's policy.
- Never borrow medication from one individual to give to another.
- Check the expiration date. Do not give outdated or discolored drugs.
- Never return an unused dose of medicine to its container. Refer to agency policy.
- Always remember to **date** and **sign** the medication sheet each time you administer a medication.

The following safety precautions will prevent errors when administering medications if followed correctly:

- Identify the individual: ask the individual their name; check the individual's picture ID; ask another staff member.
- Remain with the individual while he/she swallows the medication. Do not leave medications for the individual to take later, unless you are directed to do so by the interdisciplinary team.
- Always check the medication sheet to make sure the medication has not already been given.
- Medication must be given by the person who pours it.
- If an individual expresses doubt or concern about a dosage of medication, you must make certain that no mistake has occurred as the individual may be right. Compare the original physician's order with the label on the medication. If there is still doubt, check with the staff nurse.
- Observe for any undesirable effects of medications. If you notice any symptoms or hear any complaints that are unusual, check with the staff nurse before administering more medication to the individual. Remember that side effects may occur up to several hours after the medication has been given.

Medication sheets are kept in a flip carrier or notebook. They are used to prepare medication. Medication sheets are stored in medication area and used to compare each medication with the order before the medication is administered. Medication sheets are used to record medication orders. Follow the agency policy and ask the staff nurse for further instruction

Medications such as cardiac glycosides (digitoxin, digoxin) are frequently carried in a separate cup so they are separate from other medications if they need to be withheld due to slow pulse rate.

Keep good notes about medications withheld, refused, and as needed (PRN) medications.

Omitted or Refused Drugs:

Omission of a medication should be reported as soon as it is discovered. The doctor or staff nurse will determine

if the dose should still be given. Drugs may be omitted for legitimate reasons, such as suspected allergy or NPO for diagnostic tests. Be sure to chart the omission on the individual's chart according to agency policy.

When an individual refuses medications you must listen to the reason; if it is a refusal due to nausea or other possible adverse effects, check with your staff nurse. Always explain to the individual why it is important that he/she take the medication and that it was ordered by his/her physician. If the individual still refuses, again ask for advice from your staff nurse; it is the individual's right to refuse treatment, including medication, and to receive information about the medical consequences of his/her refusal from the nurse or physician.

If a medication is omitted due to refusal, chart the omission on the medication sheet and chart the reason for refusal and your notification of the staff nurse.

Omission of medication for other reasons might include:

- Inability of individual to swallow medication.
- Physician's order for nothing by mouth (NPO).
- For individuals on certain heart medications (ex. cardiotonics), pulse below 60 unless otherwise ordered by physician.
- Individual has alcohol on his/her breath or appears under the influence. Contact the staff nurse for further instructions.
- Chart an omission on medication record and include the reason for omission.
- Notify the staff nurse when a medication is omitted.

Sometimes the individual is absent from the facility. When the individual is away from the facility, medications are sent along. Medications are prepared for each scheduled time of administration, packaged, labeled and sent with the individual. Refer to the agency policy on how to chart the administration of medication when the individual is away from the facility.

Additional observations that staff should make include comments by individual; signs or symptoms observed; consultation with staff nurse. Remember to date and sign every entry on the individual's chart.

Individuals may have standing orders. Policies regarding standing orders are agency specific. Check with your staff nurse. Standing orders are used for over-the-counter medications. Examples are aspirin, Maalox, some cough medications.

Medication Errors

Violation of "reasonable care," often results from not following the "six rights" of medication administration. Refer to Lesson 5 for more in-depth information about medication administration.

The "**six rights**" of medication administration are:

(1) Give the Right Medication

(2) Give the Right Dose

(3) Give medication to the Right Individual

(4) Give medication by the Right Route

(5) Give medication at the Right Time

(6) Provide the Right Documentation

Errors in medication administration can be caused by a lack of concentration; lack of knowledge; failure to follow correct procedure; poor communication; performing a job beyond your scope of duty.

As a staff member you have responsibilities regarding medication errors. You must truthfully reporting an error may prove to be less harmful if reported immediately and immediate action can be taken and is better legally than trying to cover it up. The Individual can be protected from harmful effects by immediate action. Situation can be reviewed and similar errors avoided in the future. The FIRST thing to do if you make or discover a medication error is REPORT IT TO YOUR STAFF NURSE. The staff nurse will notify the physician and receive orders. The staff nurse will probably tell you to observe the individual and complete an incident report.

Always observe the individual for undesirable effects. Check the drug information source book for desired action, adverse effects, and toxic effects of the medication that was administered. Watch for general symptoms, such as nausea, vomiting, difficult breathing, dizziness, itching, hives, drowsiness, and others listed in the drug information source book under the administered drug. Record and report all information that is pertinent to the individual's care.

An incident report must be completed by whoever is the most familiar with the situation, usually the person who committed or discovered the error. Report is sent to the staff nurse or the agency director, and is not put on the chart. It will be signed by the individual's physician. Follow your agency's policy. Incident reports are reviewed periodically by the agency director and the staff nurse, who design plans that will avoid future incidents. Answer all of the questions on the incident report form.

In the individual's chart you must describe the incident (medication error) on the individual's chart. Note when the staff nurse and physician were notified (time and date). Chart your observations.

The individual may or may not be informed of the error. The staff nurse must be notified of the medication error immediately. A physician will decide if the individual is to be informed. A physician or designated staff person informs the individual. This decision is not the responsibility of the person administering the medication.

Self Medication

Some individuals will be self-administering their own medications. See Supplemental Lesson 2. or follow your agency policy.

Safety Precautions for Controlled Substances

Controlled Substance Act of 1970--established five schedules for all controlled substances (drugs that are addictive or habit forming). A reference chart for the five controlled substance schedules is included at the end of the lesson. The Controlled Substance Act requires special precautions:

- Controlled substances must be accounted for by the agency, and must be kept double locked and counted regularly. Special accountability forms that are used to record the use of controlled substances are required by agency policy and federal guidelines.

- Controlled substances are counted a minimum of once a month. Follow the agency policy.
- Wasted or contaminated (dropped) controlled substances must be disposed of following agency policy.
- Follow your agency's policy for disposal of discontinued tranquilizers and/or psychotropics.

Storage of Medications

Medications must be kept in a locked cabinet. Medicine storage areas are always kept locked when not in use. Each home will have a storage cabinet used to store tablets, capsules, and powders. Topical medication or those for instillation must be stored separately from orals to avoid contamination and errors in administration. Many medications are stored in dark bottles that prevent their exposure to light. Some medications must be refrigerated in a locked box. Examples of refrigerated medications include insulin, suppositories and liquid antibiotics. The pharmacist will mark the label "refrigerate" if a medication must be kept cool. Medications are never stored in an area easily accessible to the public.

Key Points about Maintaining Medications

Labels on medications are kept clean and readable. If the label is not readable, notify the staff nurse, do not re-label the medication. A pharmacist must re-label medications. Never administer a medication from a container that has an unreadable label. Keep medications securely capped to maintain their potency—chemical changes can occur when medication is exposed to air. Do not use outdated medications—before giving medications always check the expiration date on each medication. Report to the staff nurse changes in consistency, odor, or color of a medication. (Follow agency policy). If any of these changes are observed, do not administer the medication. Give any changed medication to the staff nurse or pharmacist.

Medication Dispensing, Ordering and Disposal Procedures

The doctor writes an order or co-signs telephone order taken by the staff nurse. The medication order is then sent to the pharmacist to be filled (follow your agency policy). The medication is delivered by the pharmacy or picked up at the pharmacy and stored in the designated medication area. The amount may be a single dose, or one to several days' supply. The individual's medication——individual's own container labeled according to the doctor's order. Unit-dose packaging--each dose sealed, labeled and dated.

Each agency will have specific guidelines for ordering, receiving and discontinuing medications, the transfer of an individual's medication when leaving, the disposal of contaminated or unused medication and what to do when an individual refuses medication. Please refer to your agency's guidelines and policies.

Definitions of Key Terms

Cardiotonics--Medications used to strengthen the activities of the heart.

Controlled substance--A drug that is addictive or habit forming.

Incident report--Written account of an error in documentation or medication administration, injury to an individual, or injury to a staff member or a visitor.

Resource/Reference #2

CONTROLLED SUBSTANCE SCHEDULES

Definition	Examples
Schedule I Drugs with a high potential for abuse and no currently accepted medical uses. There is a lack of accepted safety for use of the drug	heroin, marijuana, quaalude, PCP, LSD, Methamphetamine, other research drugs
Schedule II Drugs that have a medical use but have a high potential for abuse. Every refill requires a new written order from the physician. Abuse of the drug may lead to severe psychological and physical dependence.	morphine, codeine, Percodan, cocaine, Oxycontin, Demerol, mscontin, Fentanye, Dilaudid, ms-c, Dexedrine, Roxicet, methadone, Ritalin, Tylox, Oxycodone
Schedule III Drugs often used in medical treatment with a moderately high potential for abuse. Abuse of the drug may lead to moderate or low physical dependence or high psychological dependence.	medications combined with codeine, Tylenol with codeine, anabolic steroids "body building drugs, Secobarbital, Benzphetamine, Ketamine
Schedule IV Drugs with moderate potential for abuse. Abuse of the drug may lead to limited physical dependence or psychological dependence.	Halcion, Meridia, Phenobarbital, Ambien, Valium, Sonota, Dalmane, Librium, Xanax, Talacen, Ativan, Versed, Restoril
Schedule V Drugs with a low potential for abuse that still require prescriptions. Abuse of the drug may lead to limited physical dependence or psychological dependence	Lomotil (diphenoxylate) Robitussin AC

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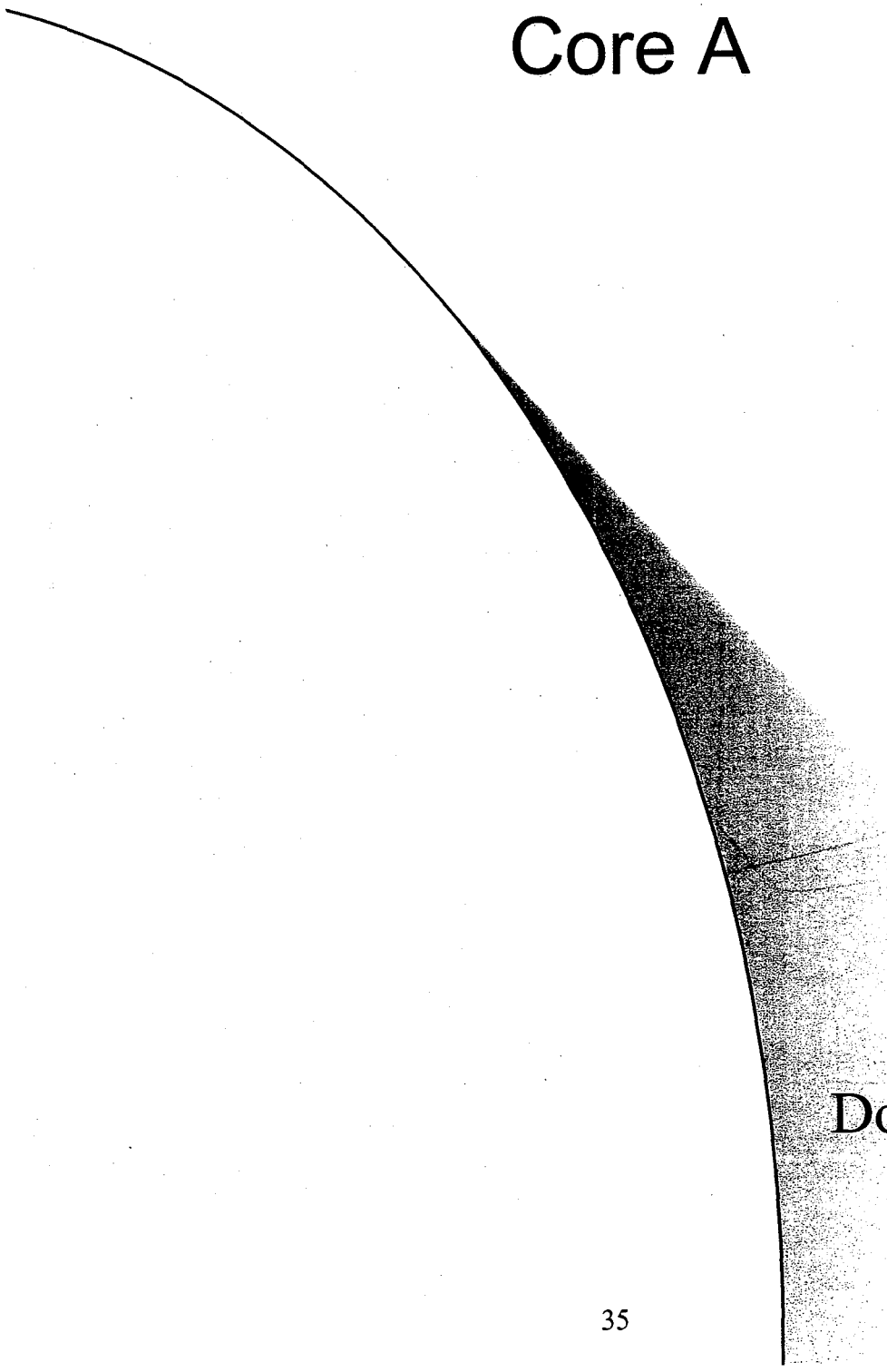

Lesson 4
Documentation

DOCUMENTATION

Key Terms	
Abdominal distention	Anorexia
Anuria	Apathetic
Aphasia	Blood pressure
Bradycardia	Bruise
Chills	Comatose
Constipation	Contracture
Convulsions	Cyanosis
Decubitus ulcer	Diarrhea
Dyskinesia	Dysphagia
Dyspnea	Dysuria
Edema	Emaciated
Emesis	Excoriation
Feces	Fever
Flushing	Hemiplegia
Hives	Inflammation
Insomnia	Jaundice
Laceration	Lethargic
Nausea	Nystagmus
Obese	Oliguria
Orthopnea	Pallor
Paraplegia	Petechia
Polyuria	Pulse
Quadriplegia	Range of motion
Rash	Respiration
Sclera	Sediment
Somnolence	Syncope
Tachycardia	Tinnitus
Tremor	Turgor
Vertigo	Voiding

The chart provides a medical profile of each individual and is admissible as evidence in court. It is very important that documentation be done accurately and immediately after the administration of any medication.

It is also important that when charting, all staff members chart in the same manner. When all staff members are consistent in what and how they chart, a more accurate picture of the individual's health is given.

A doctor's order is required before any member of the staff can administer a medication. The medication order must contain eight basic parts for it to be valid. It is the responsibility of the personnel administering medications to follow the written orders. However, you have the right and responsibility to question any medication orders you are not comfortable following. When in doubt, contact your supervisor about the order.

Administering Medications Appropriately

The staff must be diligent in administering, charting and observing the effects of medication on an individual. The staff is expected to chart what they see, hear, smell, or touch, not what they think or feel. Refer to Resource/Reference #4 for examples. **Remember**: medications are charted after they are given, NOT BEFORE.

Every medication given must be charted for the correct individual and include the following information:

- Name and dosage of medication
- Time of administration
- Route of administration

The effects of PRN medication must be

charted after an appropriate period of time. For example, an hour or so after a pain medication is given, observe and chart the individual's level of pain. Chart medication omission according to agency policy (for example: with an "O" in the appropriate square on the medication sheet and your initials inside the "O") and chart the reason for omission on the back of the medication sheet.

Staff must have:

- Knowledge of expected drug actions. Chart the individual's response or lack of response to a medication.
- Knowledge of possible adverse effects
- Knowledge of agency policies for charting. Chart as soon as possible after a medication is administered. Sign your entry with your complete name or your first initial, last name. Routine medications are usually charted by putting your initials in the appropriate box on the medication record, and by signing your complete name and title in the appropriate space on the medicine sheet. Use the method designated by your agency.
- Ability to chart accurately and legibly. Chart in time sequence. Do not leave blank spaces or lines between entries.

Be accurate and concise. Always be sure the date of your entry is correct and include the time if it is significant to the care of the individual.

- Ability to spell correctly. If you use medical terminology, be sure it is spelled correctly and accurately describes what you observe, and use only approved abbreviations. Refer to Resource/ Reference #3 for examples.

REMEMBER: IF IT IS NOT CHARTED AND LEGIBLE, IT IS NOT CONSIDERED DONE!

Medication Orders

Staff passing medications needs to familiarize themselves with each medication that is to be given. Each medication must have the following information:

1. Individual's name
2. Name of medication
3. Route of administration
4. Frequency of administration (may include time of day)
5. Dosage
6. Duration (for how long, number of doses)
7. Doctor's signature
8. Miscellaneous information (number of refills, take on an empty stomach, do not take with milk products, etc.)

A medication may be ordered for a specific time or number of doses. For example Achromycin 250 mg. q6h x 28 doses; or Septra Tab qd x 14 days. If unsure of how long or how often to give a medication, contact the staff nurse immediately. Medication may not be stopped unless discontinued by the physician.

Abbreviations and routes of administration are discussed in the following chart. These can be used as additional resource/reference material to the abbreviations used by your agency.

Observations to Chart – Report any Deviations from Normal to the Staff Nurse

1. Vital Signs

	Chart the following	Examples
Temperature	Actual thermometer reading Area of the body used for measuring the temperature	98.6 axillary (AX) 98.6 rectal (R) 98.6 oral (O)
Respirations	Rate of respiration per minute Dyspnea Orthopnea Apnea	
Pulse	Rate per minute Regularity	
Blood pressure	Systolic/diastolic reading Position of individual when blood pressure is taken Limb from which blood pressure is taken	BP 120/90 right arm – sitting.

2. General Appearance and Condition

	Chart the following	Examples
Skin Color	Pallor – Paleness of the skin Flushing – Redness of the skin Cyanosis – Bluish discoloration of the skin Jaundice – Yellowish discoloration of tissues and body fluids	
Skin Condition	Turgor – Normal fullness and elasticity of the skin Bedsores (decubiti) – An open wound Edema – Swelling Rashes/itching Lacerations – A wound made by tearing Bruises – Black and blue area Burns Inflammation/redness – Localized heat, redness, swelling and pain Dryness/wetness	3cm x 5cm x 1cm (length, width, depth) reddened area on coccyx. Redness decreases when individual turned on side.
Weakness	Loss of strength General or localized Unequal hand grips. Right hand stronger than left	
Eating Habits	Amount of food eaten Any difficulty in swallowing Difficulty in feeding self Food preferences	Individual prefers soft food. Lunch: ate ½ meat, all vegetables, ½ dessert, drank all liquids.
Sleep	Ability to sleep at night Severe drowsiness during the day Statements made by the individual about sleep habits	Individual stated difficulty sleeping last night due to another individual being noisy.
Weight	Accurate weight labeled in lbs. or kilos Report variance of three (3) or more pounds to staff nurse	

3. Gastrointestinal Tract

	Chart the following	Examples
Nausea and vomiting (emesis)	Color Frequency Amount of vomitus Consistency Times of nausea	Emesis of 100 cc green, thick liquid, 3:00 a.m.
Abdominal distention	Variation in size of the abdomen Whether the abdomen is soft, hard, or painful	Abdomen appears more distended, but remains soft.
Bowel movement (feces)	Amount Frequency Consistency Color	Individual expelled 100 cc tarry, liquid stool.
Mouth and gums	Bleeding Soreness Lesions or sores Ill-fitting dentures	Individual c/o soreness on right upper gum. States dentures "need to be adjusted."

4. Respiratory Tract

	Chart the following	Examples
Cough	Productive or non-productive Any difficulty breathing Breath odor- foul, sweet, fruity, alcohol	Individual has productive cough of thick, yellow sputum. Alcohol odor on breath.
Respirations	See Vital Signs	

5. Genitourinary Tract

	Chart the following	Examples
Urine (voiding)	Amount Color – redness, deep brown, pale yellow, dark yellow, amber Pain Difficulty in voiding Frequency	Individual voiding 50 cc concentrated urine every 30 minutes. Slight pain upon urination.
Discharge	Color of any discharge from vagina, urethra, penis Consistency of any discharge from vagina urethra	Thin, watery, clear discharge from vagina.

6. Musculoskeletal System

	Chart the following	Examples
Physical activity	Movement of limbs Ability to walk Involuntary movements Tremors – involuntary trembling or shaking Contractions Pain, swelling Exercises, including Range of Motion (ROM)	ROM to all extremities for 5 minutes.

7. Mental and Emotional State

	Chart the following	Examples
State of consciousness	Alert Lethargic – not alert, drowsy, sluggish Comatose Responsive	Individual arouses only to painful stimuli (sternal rub).
Emotional status – describe what the individual is doing which might indicate the individual is:	Apprehensive Fearful Nervous Distressed Withdrawn Happy Friendly Sad Depressed Apathetic – lack of concern or caring	Individual is pacing up and down the hall, wringing his hands, and talking to self for 30 minutes.

8. Nervous System

	Chart the following	Examples
	Changes in sensation or movement	
Changes in speech	Slurring Drooling Tremors of the tongue	
	Periods of vertigo, aphasia, syncope	
Convulsions – abnormal, uncontrolled movement of all or part of the body	Time convulsion occurred Part of the body affected Type Duration Injury (if any occurred)	15 second syncopal episode after being outdoors (T. 99) for 30 minutes BP 80/60, P. 120, R. 30.

9. Pain

	Chart the following	Examples
Time		
Area		
Type	Mild Steady Intermittent Sharp Dull Throbbing Sudden onset Gradual onset Severity	
Individual's statement regarding pain		Individual complaining of headache. Aspirin given. No relief in an hour.

10. Eyes

	Chart the following	Examples
Changes in vision	Blurred Double Decreased Change in pupil size Sensitivity to light Visual halo Inability to see Color of sclera – White tissue covering all of the eyeball except the cornea Recurrent headaches	Individual complained of double vision in right eye. Staff nurse notified.
Physical signs	Drainage Itching	

11. Ears

	Chart the following	Examples
Changes in hearing	Decreased hearing Presence of ringing in ear(s) Pain/pressure	Individual complained of ringing in right ear.
Physical signs	Drainage Itching	

Definitions of Key Terms

Abdominal distention--Enlarged abdomen.

Anorexia--Lack or loss of appetite for food.

Anuria--No urinary output.

Apathetic--Lack of concern or caring.

Blood pressure--The force exerted by the heart against the arterial walls when the heart contracts (systolic) or relaxes (diastolic).

Bradycardia--Slowness of the heartbeat; less than 50 beats per minute.

Bruise--Black and blue area caused by an injury to the surface of the skin.

Chills--Shivering or shaking.

Constipation--Difficult, incomplete or infrequent bowel movements.

Convulsions--Abnormal, uncontrolled movement of all or part of the body.

Cyanosis--A bluish discoloration of the skin caused by the lack of oxygen in the blood.

Decubitus ulcer--An open wound that is caused by the pressure of lying or sitting in one position
for a long period of time. Also called a pressure sore or bedsore.

Diarrhea--Frequent, loose bowel movements.

Dyskinesia--Abnormal movements of the body such as a dramatic onset of spasms, oculogyric crisis (begins with a stare, rolling of eyes, tilting of head, facial expressions), protrusion of the tongue, stiff neck, inability to swallow, stammering speech (dysarthria), labored breathing, and involuntary muscle movements.

Dysphagia--Difficulty in swallowing.

Dyspnea--Difficulty in breathing.

Dysuria--Painful or difficult urination.

Edema--Swelling caused by large amounts of fluid in the tissues.

Emaciated--Thin, underweight.

Emesis--Vomiting.

Feces--waste excreted from the bowels.

Fever--Body temperature above normal.

Flushing--Redness of the skin.

Hemiplegia--Paralysis on only one side of the body.

Hives--Red, swollen, itchy areas.

Inflammation--Localized heat, redness, swelling, and pain as a result of irritation, injury, or infection.

Insomnia--Inability to sleep.

Jaundice--Yellowish discoloration of tissues and body fluids with bile pigment caused by any of several pathological conditions in which normal processing of bile is interrupted.
Laceration--A wound made by tearing.

Lethargic--Not alert, drifts off into sleep, drowsy, sluggish.

Nausea--Feeling the need to vomit.

Nystagmus--A spasmodic, involuntary motion of the eyeball.

Obese--Extremely overweight.

Oliguria--Secretion of a diminished amount of urine in relation to the fluid intake.

Orthopnea--Inability to breathe except in an upright position.

Pallor--Paleness of the skin.

Paraplegia--Paralysis of the legs and lower part of the body; caused by spinal disease or injury.

Petechia--A small spot on the body surface caused by a minute hemorrhage.

Polyuria--Large amounts of urinary output.

Pulse--Rhythmical throbbing of the arteries caused by the heartbeat.

Quadriplegia--Paralysis of both arms and both legs.

Range of motion--Moving a joint its full range in an attempt to prevent muscle contractures and joint deformity.

Rash--A skin eruption, usually reddened and raised.

Respiration--Process of breathing.

Sclera--White tissue covering all of the eyeball except the cornea.

Sediment--Solid particles in the urine.

Somnolence--Drowsiness, sleepiness.

Syncope--A brief loss of consciousness.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 per minute.

Summary of Common Abbreviations for Medication Orders

Word Element	Refers to or Means	Word Element	Refers to or Means
a	before	O.D.	right eye
ac	before meals	O.S.	left eye
ad lib	as desired	OU	both eyes
AM, am	morning	oz	ounce
bid	twice a day	p	after
B/P	blood pressure	pc	after meals
c	with	per	by means of
CBC	complete blood count	PM, pm	afternoon, evening
cc	cubic centimeter	po, PO, per os	by mouth, orally
cm	centimeter	PRN, prn	whenever necessary
c/o	complained of	pt	pint
dr	dram	q	every
GI	gastrointestinal	qd	daily
g, gm, Gm	gram	qh	every hour
gr	grain	q2h	every two hours
gtt, gtts	drop(s)	q3h	every three hours
h, hr	hour	q4h	every four hours
hs, HS	at bedtime	qid	four times a day
IM	intramuscular	qod	every other day
IV	intravenous	qt	quart
kg, Kg	kilogram	RBC	red blood count
L	left	R	
L	liter	s	without
lb, #	pound	SC, subc, subq	subcutaneous
med, meds	medication(s)	ss, ss	one-half
mEq, meq	millequivalent	stat	immediately
mcg	microgram	supp	suppository
mg	milligram	tbsp, T, Tbs	tablespoon
ml	milliliter	tid	three times a day
NPO, npo	nothing by mouth	tsp, t	teaspoon
OD	Overdose	WBC	white blood count

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Lesson 5
Administering Medications

ADMINISTERING MEDICATIONS

Key Terms	
Atomizer	Auditory canal
Back sinus	Buccal
Capsules	Conjunctival sac
Creams	Elixirs
Dorsal recumbent position	
Emulsions	Enema
Fluid extracts	Inhalation
Inhaler	Inner canthus
Insertion	Instillation
Liniment	Lotions
Lozenges	Medicine dropper
Milks	Mucous membrane
Ointment	Outer canthus
Parenteral	Perineum
Powder	Reception
Rectum	Solution
Spirits	Sprays
Suppositories	Suspension
Syrup	Tablet
Timed-release	Tincture
Topical	Transdermal patch
Vagina	Volatile

Oral medications are a frequently used method of treatment in the agency. Accuracy in preparation and administration is essential if the individual is to receive the desired effect. Administering oral medications isn't always easy. Sometimes an individual doesn't want to take his/her medication. Sometimes an individual chokes easily or hides a tablet under his/her tongue and later throws it away. These and other similar problems must be handled daily by staff.

It is important to observe the other staff members as they give the medications to the individuals. This will allow you to gain valuable information on how the staff interacts with each individual. This will help to minimize the effect that staff changes may have on the individuals and enable all staff members to be consistent in their interactions with the individuals.

Observations while Administering Medications

Make observations continuously: before administration, during administration, and after administration.
Use all your senses: sight, hearing, touch, smell (Review the section on observations in Lesson 4.) Relate observations to possible medication reactions or adverse effects. If you suspect the individual is having an adverse effect or toxic effect, tell your staff nurse immediately. Make certain individual is safe from physical harm.

Factors that Influence Administration of Medications

There are many factors, which may influence how an individual may react to a medication. Some factors are:

- Activities of individual: may not be in the home, may be in the community or at work.

THE "SIX RIGHTS" OF MEDICATION ADMINISTRATION

1. **Right medication**: compare the label on the medication container with the individual's medication sheet.
2. **Right dose: compare** the order on the medication sheet with the label on the medication. If it is different, ask the staff nurse for further instructions.
3. **Right individual: compare** the name on the medication sheet with the individual's I.D. band (or other means of identifying individual).
4. **Right route: compare** the medication sheet and the label. Refer to Resource/ Reference #5 at the end of this lesson for examples.
5. **Right time: compare** the medication sheet and the label. Always chart the exact time administered. If not administered within 30 minutes prior to or after the prescribed time, you must chart the exact time you administered it.
6. **Right documentation: record** medication as soon as it is given.

- Desires and needs of individual--individual may not want to take medication, may be nauseated or not feeling well, etc.
- Ability to communicate with individual--individual may have a speech and/or hearing problem, there may be a language barrier, or the individual may be unable to communicate due to a change in his/her physical condition.
- Position of individual--may be unable to move self, in or attached to special devices, etc.
- Ability of individual to take medication--may have difficulty swallowing, feeding tube, etc.
- Abuse of other substances (alcohol, illegal drugs, etc.).

Follow-up on Administered Medication

Check on individual later to see if desired results were achieved. Check on individual later for any other symptoms which may be drug-related. Example--pulse and/or blood pressure for heart or blood pressure medication. Check individual later for delayed reaction. Example--skin rash, chilling, nausea, etc.

Medication Administration Checklists

Staff will be administering medications in a variety of forms: pill, cream or ointment, suppository, lotion, liniment, spray, drops, and liquid. The following checklists should be used as a guide while the techniques are being demonstrated to staff. The checklists may then be used to evaluate the ability of the staff member to perform the procedure. **Oral tablets, capsules, and liquid medication checklists are required to be taught to all staff and staff must receive a score of 100% before they may pass medications. The rest of the checklists will be taught according to agency policy and/or needs.**

Definitions of Key Terms

Atomizer--A device used to deliver a fine spray of medicine.

Auditory canal--Tubular passages or ducts that assist in hearing or in the sense of hearing.

Buccal--Medication is placed between the teeth and the mucous membrane of the cheek.

Capsules--Medication in small cylinder-like containers.

Conjunctival sac--Mucous membrane that lines the inner surface of the lower eyelid.

Creams--Medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments.

Dorsal recumbent position--Lying flat on the back with the legs parted, the knees bent, and the soles of the feet flat on the bed.

Elixirs--A water-alcohol solution which may contain sugar and flavoring.

Emulsions--Suspensions of oils, water and other substances.

Fluid extracts--A concentrated alcohol solution of a vegetable drug.

Inhalation--To draw in by breathing.

Inhaler--A device used to administer medication by the act of breathing in.

Inner canthus--The corner of the eyelid closest to the nose.

Insertion--Medication is placed into a specific area of the body, usually with the fingers.

Instillation--The process of administering a liquid - usually drop by drop.

Liniment--A solution used as a vehicle to distribute medication.

Lotions--Watery preparations that contain medication; are to be patted on, not rubbed in.

Lozenges--Flat, rounded discs made up of medication and sugar.

Medicine dropper--A small glass or plastic tube usually capped by a hollow rubber bulb at one end that is used for measuring and administering medication.

Milks--Bulky suspensions in water that are insoluble and must be shaken.

Mucous membrane--The inner lining of the mouth and labia minora.

Ointment--Mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature.

Oral--By mouth.

Outer canthus--The outer corner of the eyelid.

Parenteral--Introducing medication or food into the body by injection.

Perineum--The area between the anus and the posterior part of the external genitalia.

Powder--Solid medication that has been ground into fine particles and used in that form.

Reception--Method of introducing medicine into the body; by mouth, injection, rectally, inhalation, etc.

Rectum--The lowest or last, segment of the large intestine that ends at the anus.

Solution--Substance dissolved in water.

Spirits--An alcohol solution of a volatile substance.

Sprays--Medications administered by an atomizer.

Suppositories--A solid medication designed to melt within a body cavity other than the mouth.

Suspension--Fluid mixtures that need to be shaken; only stay together for a short period of time.

Syrup--Medication made with water, flavoring and sugar.

Tablet--Dried, powdered medication pressed into shape.

Timed-release--Medication that is designed to be slowly absorbed by the system so that it has a longer lasting effect.

Tincture--An alcohol solution of an animal or vegetable drug or chemical substance.

Topical--Pertaining to a particular spot; local.

Transdermal patch--Adhesive bandage containing medication.

Vagina--The canal leading from the vulva to the uterus in the female.

Volatile--Substances that evaporate easily at normal temperatures and pressures.

Routes for Administering Medications

ROUTE	HOW MEDICATION IS ADMINISTERED	TERM USED DO DESCRIBE ROUTE
Mouth	Client swallows the medication	Oral administration (po, per, os)
Respiratory tract	Client inhales the medication	Inhalation (puffs)
Injection	Injection of medicine into:	
	1. Subcutaneous tissue	Hypodermic or subcutaneous injection (S.C.)
	2. Muscle tissue	Intramuscular injection (I.M.)
	3. Under epidermis	Intradermal injection (I.D.)
	4. Vein	Intravenous injection (I.V.)
Placing on skin or mucous membrane	Inserting medication into:	
	1. Vagina	Vaginal administration
	2. Rectum	Rectal administration (suppository, supp)
	3. Eye	Eye instillation (opth, os, ou, od)
	4. Ear	Ear instillation (otic)
	5. Nose	Nasal instillation
	Medication is placed under tongue	Sublingual administration (S.L.)
	Medication is placed between teeth and mucous membrane of the cheek	Buccal
	Medication is placed on the skin	Topical application
	Medication is placed in direct contact with the mucous membrane	Instillation
	Area is flushed with medication	Irrigation
	Medication patch is applied to the skin	Transdermal patch

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Medication Administration Checklist

Task: **Oral Tablets or Capsules**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Have individual wash his/her hands.	____	____	____
5.	Obtain paper cups, a glass of water and if necessary, food to mix with the medication.	____	____	____
6.	Unlock the medication storage area.	____	____	____
7.	Check the label with the order to determine individual's medication and dosage ordered.	____	____	____
8.	Check the individual's drug supply.	____	____	____
9.	Select the medication ordered.	____	____	____
10.	Check the label with the order.	____	____	____
11.	Check the medication according to the six rights of administration.	____	____	____
12.	Remove the medication ordered from the container and put it in a paper cup or directly in the individual's hand.	____	____	____
	a. For unit dose, remove from the container.	____	____	____
	b. For a multi-dose bottle, remove the cap; without touching the medicine, pour required capsules or tablets into cap and then into the paper cup or directly into the individual's hand.	____	____	____
13.	Read the label again.	____	____	____
14.	Return medicine to the locked storage container.	____	____	____
15.	Mix the medication with food if necessary.	____	____	____
16.	Give individual a drink of water before administering medications.	____	____	____

		S	U	N/A
17.	Instruct individual on how to take medication.			
	a. For oral medications--swallow with more water			
	b. For buccal--dissolve between cheek and gum, do not swallow.			
	c. For sublingual--dissolve under tongue, do not swallow.			
18.	Administer medications to individual with water unless fluid is not indicated as in buccal or sublingual.			
19.	Wait for individual to swallow oral medications.			
20.	Observe for any immediate reactions to the medication.			
21.	Wash your hands.			
22.	Dispose of trash according to agency policy.			
23.	Chart medications administered and observations made.			

Comments: _____

_____

Medication Administration Checklist

Task: **Liquid Medications**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain a calibrated medicine cup.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Pick up the liquid medication with the label against your palm.	____	____	____
11.	Shake the bottle if necessary.	____	____	____
12.	Remove the cap and place the cap upside down on the work area.	____	____	____
13.	Hold the calibrated cup at eye level.	____	____	____
14.	Pour the medication in the cup so that the lowest point of the surface of the medication is at the desired dosage.	____	____	____
15.	Place the medication on the medicine tray.	____	____	____
16.	Replace the cap on the liquid medication.	____	____	____
17.	Read the label again. (Check #3)	____	____	____
18.	Wait for the individual to take the medication and observe for any immediate reactions to the medication.	____	____	____
19.	Wipe off the outside of the bottle without touching the lip area.	____	____	____
20.	Return the medication to the storage area.	____	____	____

	S	U	N/A
21. Chart the medications administered and the observations made.	____	____	____
22. Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Powdered Medications**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain a calibrated medicine cup and a spoon.	____	____	____
5.	Obtain a cup of water in the amount ordered for administration or food to mix with the medication.	____	____	____
6.	Unlock the medication storage area.	____	____	____
7.	Check the individual's drug supply.	____	____	____
8.	Select the medication ordered.	____	____	____
9.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
10.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
11.	Remove the medication ordered from the container.	____	____	____
	a. For unit dose, remove package from container.	____	____	____
	b. For a multi-dose container, measure amount ordered into a calibrated medicine cup.	____	____	____
12.	Read the label again. (Check #3)	____	____	____
13.	Return the medicine to the storage container.	____	____	____
14.	Mix the medication with the correct amount of water or food.	____	____	____

	S	U	N/A
15. Observe the individual taking the medication and observe for any immediate reactions to the medication.	____	____	____
16. Chart the medications administered and the observations made.	____	____	____
17. Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Crushing Tablets**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check for safety and effectiveness before altering the form of any medication. Some medications **cannot** be crushed.	____	____	____
2.	Check the medication sheets to see what medication is ordered.	____	____	____
3.	Be sure the order is valid; check the date that the order began.	____	____	____
4.	Wash your hands.	____	____	____
5.	Obtain paper cups, a glass of water and if necessary, food to mix with the medication,	____	____	____
6.	Obtain a mortar and pestle or a leverage-type crusher and an alcohol swab.	____	____	____
7.	Unlock the medication storage area.	____	____	____
8.	Check the individual's drug supply.	____	____	____
9.	Select the medication ordered.	____	____	____
10.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
11.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
12.	Place tablets to be crushed in a paper cup with a paper cup on top so the crushing apparatus does not touch the medications.	____	____	____
13.	Press down on the crusher or twist the pestle to crush the medication.	____	____	____
14.	Read the label again. (Check #3)	____	____	____
15.	Return the medicine to the storage container.	____	____	____
16.	Wipe the mortar and pestle or leverage-type crusher with an alcohol swab.	____	____	____

		S	U	N/A
17.	Mix the medication with food if necessary.	____	____	____
18.	Observe the individual taking the medication and observe for any immediate reactions to the medication.	____	____	____
19.	Return the mortar and pestle to the storage area	____	____	____
20.	Chart the medications administered and the observations made.	____	____	____
21.	Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Altering Capsules**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
2.	Check for safety and effectiveness before altering the form of any medication.	____	____	____
2.	Check the medication sheets to see what medication is ordered.	____	____	____
3.	Be sure the order is valid; check the date that the order began.	____	____	____
4.	Wash your hands.	____	____	____
7.	Obtain paper cups, a glass of water and if necessary, food to mix with the medication,	____	____	____
6.	Unlock the medication storage area.	____	____	____
7.	Check the individual's drug supply.	____	____	____
8.	Select the medication ordered.	____	____	____
9.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
10.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
11.	Hold the capsule over the paper cup.	____	____	____
12.	Twist the capsule apart and allow the powder to fall into the cup.	____	____	____
13.	Read the label again. (Check #3)	____	____	____
17.	Return the medicine to the storage container.	____	____	____
15.	Mix the medication with food if necessary.	____	____	____
16.	Observe the individual taking the medication and observe for any immediate reactions to the medication.	____	____	____
17.	Give the individual a drink of water and observe for any immediate reactions to the medication	____	____	____

		S	U	N/A
18.	Dispose of the empty capsule according to policy			
19.	Chart the medications administered and the observations made.			
20.	Wash your hands.			

Comments: _____

_____

Medication Administration Checklist

Task: **Applying a Lotion, Liniment, or Ointment**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain clean gloves to use when applying the medication.	____	____	____
5.	Obtain gauze squares or cotton balls, a bag or piece of paper for used materials and a tongue blade for ointments.	____	____	____
6.	Unlock the medication storage area.	____	____	____
7.	Check the individual's drug supply.	____	____	____
8.	Select the medication ordered.	____	____	____
9.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
10.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
12.	Provide privacy for the individual. Apply medication while the individual is in his/her private room and only expose the area that needs the medication .	____	____	____
12.	Read the label again. (Check #3)	____	____	____
13.	Put on the clean gloves.	____	____	____
18.	Prepare to administer the medication.	____	____	____
	a. Pour enough lotion or liniment on the gauze or cotton balls to cover all or a portion of the affected area.	____	____	____
	b. Squeeze or scoop ointment onto the end of the tongue blade.	____	____	____

		S	U	N/A
15.	Apply the medication.	____	____	____
	a. Swab or par the lotion gently on affected area. **DO NOT RUB**.	____	____	____
	b. Rub the liniment on the skin in a circular motion.	____	____	____
	b. Apply ointment with firm strokes forming a thin layer of medication over the area, as ordered.	____	____	____
16.	Observe the individual for any immediate reactions to the medication.	____	____	____
17.	Discard soiled gauze or cotton balls, tongue blades, and gloves appropriately.	____	____	____
18.	Return medication to medication area.	____	____	____
19.	Chart the medications administered and the observations made.	____	____	____
20.	Wash your hands.	____	____	____

Comments: _____

_____

_____

Additional Considerations:

1. Application of topical medication must be done with care and tenderness.
2. Do not apply more topical medication than is necessary.
3. Always keep skin warm and dry. Moisture facilitates the growth of germs.
4. All topical steroids are as potent as oral steroids.
5. Store topical medication correctly: put the caps back on, store in original containers, and refrigerate if directions indicate.
6. Topical application of acne medication:
   a. Usually sufficient to control superficial acne.
   b. Start treatment slowly; determine tolerance by applying a small amount of a low-concentration product to a small area of the skin.
   c. Only apply once or twice per day.
   d. Apply to dry skin, ½ hour after washing.
   e. Use soap and water to remove skin oils.

Medication Administration Checklist

Task: **Applying a Transdermal Patch**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain clean gloves to use when applying the medication.	____	____	____
6.	Obtain an alcohol sponge and a bag or piece of paper for discarding materials.	____	____	____
6.	Unlock the medication storage area.	____	____	____
7.	Check the individual's drug supply.	____	____	____
8.	Select the medication ordered.	____	____	____
9.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
10.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
13.	Provide privacy for the individual. Apply medication while the individual is in his/her private room and only expose the area that needs the medication .	____	____	____
12.	Read the label again. (Check #3)	____	____	____
13.	Put on the clean gloves.	____	____	____
19.	Using an alcohol sponge, clean the area carefully and allow it to **dry completely**.	____	____	____
15.	Open the package containing the patch.	____	____	____
16.	Remove the protective backing from the patch; do not touch the inside.	____	____	____

		S	U	N/A
17.	Place the exposed adhesive side on the skin site.	____	____	____
18.	Press firmly with the palm of your hand.	____	____	____
19.	Press around the outer edges to ensure adhesion.	____	____	____
20.	Observe the individual for any immediate reactions to the medication.	____	____	____
21.	Discard soiled gloves appropriately.	____	____	____
22.	Return medication to medication area.	____	____	____
23.	Chart the medications administered and the observations made.	____	____	____
24.	Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Instilling Liquid Eye Medication and Administering Ophthalmic Ointments**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain supplies.	____	____	____
	a. Cotton balls and tissues for liquid eye medications.	____	____	____
	b. Cotton balls or tissues, gauze sponge and sterile saline solution for ophthalmic ointments.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine individual's medication and dosage ordered. Make certain it is OPHTHALMIC medication. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Read the label again. (Check #3)	____	____	____
11.	Place the individual in the dorsal recumbent position in bed or sitting in a chair.	____	____	____
12.	Position the individual with the head tilted back so that the face is directed upward.			
13.	Prepare the affected eye for the ophthalmic ointment.	____	____	____
	a. Moisten a gauze sponge with saline or irrigating solution.	____	____	____
	b. Cleanse the eyelid and lashes with the gauze sponge.	____	____	____

		S	U	N/A
14.	Prepare the medication.	____	____	____
	a. Liquid eye medication – draw up the medication into the Eye dropper.	____	____	____
	b. Ophthalmic ointments – remove cap from ointment tube, invert upward and lay on table or tray.	____	____	____
15.	Pull down the lower lid to form a little pouch.	____	____	____
16.	Ask the individual to look up.	____	____	____
17.	Administer the medication.	____	____	____
	a. Liquid eye medication.			
	(1) Squeeze the dropper or bottle and instill the correct dosage onto the center of the lower extended eyelid without touching the eyedropper to the surface of the eye or lid.	____	____	____
	(2) Close the eye.	____	____	____
	(3) Press your finger on the inner canthus of eye for two minutes.	____	____	____
	b. Ophthalmic ointment.			
	(1) Spread the ointment from the inner to outer canthus along the conjunctival sac.	____	____	____
	(2) Twist the tube with a sideways motion of the wrist to stop the flow of ointment.	____	____	____
	(3) Ask individual to close eye for one to two minutes and roll the eyeball around to ensure entire eyeball is covered.	____	____	____
18.	Give the individual a tissue or cotton ball to wipe away excess.	____	____	____
19.	Observe the individual for any immediate reactions to the medication.	____	____	____
20.	Return medication to medication area.	____	____	____
21.	Chart the medications administered and the observations made.	____	____	____
22.	Wash your hands.	____	____	____

Comments: _____

_____

Additional Considerations:

1. The instillation of eye medication can be very uncomfortable for the individual. Be careful and gentle.
2. Make sure eye medications are at room temperature before administering.
3. Since eye medications can cause blurred vision, it is important that you take care of the individual's safety.
4. Put the individual into the correct position before administering the medications.
5. Give the individual a tissue to wipe away any excess medication.
6. Some individuals will not be able to tell you their eyes hurt. Watch for the following nonverbal signs:
    a. Tearing
    b. Drainage
    c. Glazed or fixed look
    d. Discoloring
    e. Cloudiness
    f. Itching

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Medication Administration Checklist

Task: **Administering Nasal Medication by Atomizer**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory NA = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain tissues	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine the individual's medication and amount required. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Check the label again. (Check #3)	____	____	____
11.	Prepare the nasal spray pump.	____	____	____
12.	Ask the individual to gently blow his/her nose to clean out nostrils.	____	____	____
13.	Ask the individual to bend slightly forward.	____	____	____
14.	Insert the atomizer into the correct nostril.	____	____	____
15.	Gently close the other nostril by pressing it toward center bone.	____	____	____
16.	If using an inhaler, hold it in position.	____	____	____
17.	If using an atomizer, compress container twice unless otherwise ordered.	____	____	____

		S	U	N/A
18.	Ask individual to sniff gently through the open nostril with mouth open at the same time the container is compressed.	____	____	____
19.	After administration, remove unit from nostril, and ask the individual to bend head slightly backward to allow the medication to spread over the back of the nose.	____	____	____
20.	Observe for any immediate reaction.	____	____	____
21.	Chart instillation of medication and your observations.	____	____	____
22.	Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Administering Nasal Medication by Dropper**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory NA = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain tissues	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
10.	Check the label with the order to determine the individual's medication and amount required. (Check #1)	____	____	____
11.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Check the label again. (Check #3)	____	____	____
11.	Position the individual so medication will flow to the appropriate site.	____	____	____
12.	Warm medication by holding it in your hand if it has been refrigerated.	____	____	____
13.	Shake medication if ordered on label.	____	____	____
14.	Pinch rubber bulb of medicine dropper and draw up prescribed amount of medication.	____	____	____
15.	Slowly place prescribed amount of medication into the nostril.	____	____	____
16.	Squeeze any unused medication into tissues.	____	____	____

		S	U	N/A
20.	Return dropper to bottle and secure.			
21.	Keep individual flat for five to ten minutes.			
19.	Observe for any immediate reaction.			
20.	Chart instillation of medication and your observations.			
21.	Wash your hands.			

Comments: _____

_____

Medication Administration Checklist

Task: **Administering Medication by Oral Inhaler**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory NA = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid.	____	____	____
3.	Wash your hands.	____	____	____
4.	Unlock the medication storage area.	____	____	____
5.	Check the individual's drug supply.	____	____	____
6.	Select the medication ordered.	____	____	____
7.	Check the label with the order to determine the individual's medication and amount required. (Check #1)	____	____	____
8.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
9.	Check the label again. (Check #3)	____	____	____
10.	Shake the inhaler well.	____	____	____
11.	Remove the cap from the mouthpiece.	____	____	____
12.	Check that canister is firmly and fully inserted into actuator	____	____	____
13.	Ask individual to breathe out fully through the mouth expelling as much air as possible from the lungs.	____	____	____
14.	Place the mouthpiece fully into the mouth while holding the inhaler in the upright position.	____	____	____
15.	Ask the individual to close lips around the mouthpiece.	____	____	____

		S	U	N/A
16.	Ask the individual to begin breathing deeply and slowly through the mouth.	____	____	____
17.	Fully depress the top of the metal canister with your index finger.	____	____	____
18.	Ask the individual to hold their breath as long as possible.	____	____	____
19.	Before the individual breathes out, remove the inhaler from the mouth and release your finger from the canister.	____	____	____
20.	Wait one minute and shake the inhaler again.	____	____	____
20.	Repeat steps 15 through 21 for each inhalation prescribed by the doctor.	____	____	____
22.	Observe for any immediate reaction.	____	____	____
23.	Cleanse the inhaler by removing the metal canister and cleaning the plastic case and cap by thoroughly rinsing in warm running water.	____	____	____
24.	After thoroughly drying the plastic case and cap, replace the canister into the case and replace the cap.	____	____	____
25.	Return medicine to the storage area.	____	____	____
26.	Wash your hands.	____	____	____
27.	Chart instillation of medication and your observations.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Administering Ear Medications**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
5.	Obtain cotton balls or tissues.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Read the label again. (Check #3)	____	____	____
13.	Position the individual.	____	____	____
	a. Ask the individual to lay his/her head down on the table with the affected ear up.			
	b. If the individual is unable to sit up, position the individual on the side opposite the affected ear.			
14.	Warm the medication to room temperature by holding the container in your hand or placing it in warm water.	____	____	____
15.	Pinch rubber bulb of medicine dropper and draw up prescribed amount of medication into ear dropper.	____	____	____
16.	Straighten the auditory canal by gently pulling the outer ear upward and backward and holding it in that position.	____	____	____

		S	U	N/A
17.	With your other hand, position the tip of the ear dropper just slightly into the opening of the ear canal, then point the tip upward and toward the inner ear canal.	____	____	____
18.	Gently and slowly instill the prescribed amount of medication into the ear canal.	____	____	____
17.	Return the dropper to the medication bottle when finished.	____	____	____
18.	Gently place a cotton ball in front of the opening to the ear canal to keep the medicine from escaping.	____	____	____
19.	Wipe away any excess medication from the surface of the outer ear or the individual's neck with a tissue.	____	____	____
20.	Ask the individual to remain in this position for 3-5 minutes and observe for any immediate reaction.	____	____	____
21.	Return medication to medication area.	____	____	____
22.	Chart the medications administered and the observations made.	____	____	____
23.	Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Administering Ear Medications**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid; check the date that the order began.	____	____	____
3.	Wash your hands.	____	____	____
6.	Obtain cotton balls or tissues.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine individual's medication and dosage ordered. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Read the label again. (Check #3)	____	____	____
19.	Position the individual.	____	____	____
	c. Ask the individual to lay his/her head down on the table with the affected ear up.			
	d. If the individual is unable to sit up, position the individual on the side opposite the affected ear.			
20.	Warm the medication to room temperature by holding the container in your hand or placing it in warm water.	____	____	____
21.	Pinch rubber bulb of medicine dropper and draw up prescribed amount of medication into ear dropper.	____	____	____
22.	Straighten the auditory canal by gently pulling the outer ear upward and backward and holding it in that position.	____	____	____

		S	U	N/A
23.	With your other hand, position the tip of the ear dropper just slightly into the opening of the ear canal, then point the tip upward and toward the inner ear canal.			
24.	Gently and slowly instill the prescribed amount of medication into the ear canal.			
17.	Return the dropper to the medication bottle when finished.			
21.	Gently place a cotton ball in front of the opening to the ear canal to keep the medicine from escaping.			
22.	Wipe away any excess medication from the surface of the outer ear or the individual's neck with a tissue.			
23.	Ask the individual to remain in this position for 3-5 minutes and observe for any immediate reaction.			
21.	Return medication to medication area.			
22.	Chart the medications administered and the observations made.			
23.	Wash your hands.			

Comments: _____

_____

Medication Administration Checklist

Task: **Administering a Vaginal Suppository**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid.	____	____	____
3.	Wash your hands.	____	____	____
4.	Obtain examination gloves, appropriate lubricant, a chux or bed protector, paper towels, bath blanket, and toilet tissue.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the ordered medication.	____	____	____
8.	Check the label with the order to determine the individual's medication and amount required. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Check the label again. (Check #3)	____	____	____
11.	Take the suppository from the container (unit-dose or quantity container) according to prescribed method.	____	____	____
12.	Provide privacy for the individual. Insert the vaginal suppository while the individual is in her private room and only expose the perineum.	____	____	____
13.	Place the individual in the dorsal recumbent position.	____	____	____
14.	Place the chux or bed protector under the individual's buttocks.	____	____	____
15.	Tear perforated end off wrapper and place suppository on medicine tray.	____	____	____
16.	Squeeze small amount of lubricant onto paper towel on medicine tray.	____	____	____
17.	Put on examination gloves.	____	____	____

		S	U	N/A
18.	Pick up suppository holding base of suppository between thumb, index, and middle fingers with the tip exposed approximately one-half inch.	____	____	____
19.	Pass exposed tip of suppository through lubricant on paper towel.	____	____	____
20.	Lift the drape between the individual's legs, exposing only enough of the individual to visualize the vaginal area.	____	____	____
21.	Gently insert the suppository into the vaginal opening.	____	____	____
22.	Using the index finger, gently push the suppository upward into the vagina so that the entire suppository is past the vaginal opening.	____	____	____
23.	When certain the suppository is in place, gently withdraw the insertion finger.	____	____	____
24.	Hold, or ask the individual to hold legs together for a few minutes to keep suppository from slipping out and until the urge to expel the suppository is gone. Individual must remain in bed for 15 minutes.	____	____	____
25.	Observe for any immediate reaction to the medication.	____	____	____
26.	Remove chux or bed protector.	____	____	____
27.	Remove gloves and wrap in paper towel.	____	____	____
28.	Chart insertion of suppository and your observations.	____	____	____
29.	Dispose of all soiled items according to agency policy.	____	____	____
30.	Wash your hands.	____	____	____

Comments: _____

_____

Medication Administration Checklist

Task: **Administering a Rectal Suppository**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps with **100% accuracy** to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory N/A = Not Applicable

		S	U	N/A
1.	Check the medication sheets to see what medication is ordered.	____	____	____
2.	Be sure the order is valid.	____	____	____
3.	Wash your hands, use hand sanitizer, and/or wear gloves.	____	____	____
4.	Obtain examination gloves, appropriate lubricant, a chux or bed protector, paper towels, bath blanket, and toilet tissue.	____	____	____
5.	Unlock the medication storage area.	____	____	____
6.	Check the individual's drug supply.	____	____	____
7.	Select the medication ordered.	____	____	____
8.	Check the label with the order to determine the individual's medication and amount required. (Check #1)	____	____	____
9.	Check the medication according to the six rights of administration. (Check #2)	____	____	____
10.	Take the suppository from the container (unit-dose or quantity container) according to prescribed method.	____	____	____
11.	Check the label again. (Check #3)	____	____	____
12.	Provide privacy for the individual. Insert the rectal suppository while the individual is in their private room and only expose the anal region.	____	____	____
13.	Place the individual in the dorsal recumbent position.	____	____	____
14.	Drape the bath blanket loosely over hip area to allow for space when inserting.	____	____	____
15.	Place the chux or bed protector under the individual's buttocks.	____	____	____
16.	Tear perforated end off wrapper and place suppository on medicine tray.	____	____	____
17.	Squeeze small amount of lubricant onto paper towel on medicine tray.	____	____	____

		S	U	N/A
18.	Put on examination gloves.	____	____	____
19.	Pick up suppository holding base of suppository between thumb, index, and middle fingers with the tip exposed approximately one-half inch.	____	____	____
20.	Pass exposed tip of suppository through lubricant on paper towel.	____	____	____
21.	Lift the drape between the individual's legs, exposing only enough of the individual to visualize the anal region	____	____	____
22.	Gently insert the suppository into the anal sphincter.	____	____	____
23.	Using the index finger, gently push the suppository upward so that it passes through the anal sphincter into the rectum.	____	____	____
24.	When certain the suppository is in place, gently withdraw the insertion finger.	____	____	____
25.	Hold, or ask the individual to hold buttocks together for a few minutes to keep suppository from slipping out and until the urge to expel the suppository is gone. Individual must remain in bed for 15 minutes.	____	____	____
26.	Remove gloves and wrap in paper towel.	____	____	____
27.	Observe for any immediate reaction.	____	____	____
28.	If suppository was given for elimination			
	a. Instruct the individual to withhold bowel movement at least 10 minutes, if possible. If individual is not in control, place on bed pan or take to bathroom after insertion to observe closely.	____	____	____
	b. Instruct individual to call you when ready for assistance to bathroom; when called, assist individual, give privacy, but **stay close at hand.**	____	____	____
29.	When individual is finished, assist with cleaning, as necessary.	____	____	____
30.	Remove chux or bed protector.	____	____	____
31.	Dispose of all soiled items according to agency policy.	____	____	____
32.	Wash your hands.	____	____	____
33.	Chart insertion of suppository and your observations.	____	____	____

Comments: _____

_____

Living in the Community
Core B

Lesson 6

Fundamentals of Pharmacology

FUNDAMENTALS OF PHARMACOLOGY

Key Terms	
Absorption	Adverse effect
Analgesics	
Antagonistic effect	
Capsules	Cumulative effect
distribute	Drug interaction
Excretion	Enteric-coated
Generic	Idiosyncrasy
Local action	Metabolism
Oral	
Physical dependency	Primary effect
Psychological dependency	
Secondary effect	Tolerance
Toxic effect	Trade name

Medication is an important part of health care for many individuals in group homes. The individuals and staff must be knowledgeable regarding the different names, uses, actions, and adverse effects of all medication that is being administered. In addition, each individual should participate in their medication program to the best of their abilities. Each individual reacts differently to medication. Factors such as health, age, sex, body size, and internal functions can and do alter the effectiveness of medications. Staff members must recognize the limits of their ability and knowledge, the limits of the ability of some individuals to communicate, and seek the advice and assistance of the staff nurse, pharmacist, or doctor when needed.

Reasons to Order Medication

- Maintain health – for example vitamins, other supplements
- Treat disease – for example antibiotics, digitalis, insulin
- Relieve symptoms – for example aspirin, Tylenol, Kaopectate, cough syrup, Sudafed
- Prevent disease – for example vaccines, immunizations
- Alter body processes – for example hormones, contraceptives, thyroid medicine
- Diagnose disease – for example barium, radioactive iodine, Mantoux TB testing

Naming Medications

The generic name is the official name of a drug. It is usually named after its chemical structure for example tetracycline. The generic name is not a patented name and therefore is not capitalized. The trade name carries the symbol ®, which means the name is registered or patented (owned) by an individual. Examples are Prozac® and Panmycin® (brand name for tetracycline).

Effects of Medication

There are two observable changes that may occur in the body when a medication is taken or applied. The first is a systemic action, which affects the entire body. The second is a local action, which affects a specific area

of the body. There are several effects that can occur from a single medication:

- Primary or desired effect
- Secondary effect
- Adverse effect
- Allergic effect or hypersensitivity
- Toxic effect
- Cumulative effect
- Tolerance
- Idiosyncrasy
- Psychological (emotional) dependency
- Physical dependency or addiction

A drug interaction can occur when an individual takes two or more medications.

- Antagonistic effect
- Enhancing effect which is sometimes beneficial and sometimes detrimental

Factors about Medications that Influence Effectiveness

Absorption occurs when medication moves from the site of administration into the bloodstream. The route of administration affects absorption. Oral medications are absorbed slowest. Sublingual (under the tongue) is faster than oral. Injectable drugs are absorbed faster and more completely than oral. Inhaled drugs are absorbed rapidly.

The form of an oral medication affects how fast it is absorbed. Oral drugs often must be taken with fluids to be absorbed. Liquid medications absorb more rapidly than solids. Sustained release tablets and capsules are designed to absorb slowly. Enteric-coated tablets are not absorbed until they reach the intestine.

Significant changes in body weight may change the dosage of medication required to produce a desired effect. Several factors may change the rate at which a medication is absorbed. Food may prevent some medications from being absorbed. One medication may delay or prevent another from being absorbed. Oral medication usually absorbs faster if the stomach is empty, although some medication is prescribed with food.

Metabolism is the process by which a substance is changed into a form that is more easily excreted by the body. The liver metabolizes most drugs, but the kidneys, lungs, and intestines help.

The amount of physical activity, chronic illness, pain, anxiety, age, and emotional factors may affect the body's response to medication. Different drugs are metabolized at different rates. If metabolism is decreased, then medication will accumulate in the blood and cells. If metabolism is increased, then more medication will be required to produce the same effect. Adverse effects will appear mainly in the liver and kidneys.

Excretion is the process by which a drug is eliminated from the body through the urine, feces, and lungs. The kidneys, through the urine, excrete most oral and parenteral medications. Some drugs are excreted in their original form; most are changed by metabolism before excretion. All medications excreted by the kidneys are dissolved in the urine relative to the amount of fluid intake. The intestines, through the feces, excrete some oral medications. The lungs through breathing excrete inhalant medications. .

Drinking fluids with oral medications increase the rate of absorption, metabolism, and excretion.

Drug Information

Complete information about a drug may be obtained by consulting one of the many drug resource books available. If you have further questions, contact your pharmacist or staff nurse. A sampling of the many drug information materials available are listed in the Print Resource section of Appendix I under Pharmacological. The charts "Examples of Medication Classifications" at the end of this lesson provide basic information on medications. The charts are not meant to be all inclusive as medications and their prescribed uses change frequently. Check with your nurse or pharmacist for clarification.

- Action of the drug is how the drug provides its therapeutic effect.
- Use describes what the drug is commonly prescribed for.
- Adverse effects are commonly observed effects that should be watched for.
- Nursing considerations are a listing of useful information including contraindications and precautions. Some suggestions for prevention and treatment are included.

ALLERGIC REACTIONS

What is anaphylaxis?

Anaphylaxis is a serious and rapid allergic reaction usually involving more than one part of the body, which if severe enough, can lead to death. Most of the time anaphylaxis is a life-threatening rapid allergic reaction requiring emergency medical treatment.

Causes

- Food: especially nuts, some kinds of fruits, food preservatives, fish, and less commonly spices.
- Drugs: especially penicillin, aspirin and other pain killers, anesthetic drugs, some intravenous infusion medications, and the dye used for x-rays.
- Latex: mainly found in rubber gloves, catheters, and other medical supplies. However, it may be found in many things encountered in daily life. Those who suffer from this type of allergy are usually health care workers or individuals who have occupational contact with latex. They may have anaphylaxis from bananas, avocados, kiwi fruit, figs, or other fruits and vegetables including potatoes and tomatoes.
- Bee stings: Stings typically cause faintness, difficulty in breathing, rash, and swelling. The rash and swelling may be of a body part that has not been stung. Very large swelling and redness of the area that has been stung does not mean that this person will progress to anaphylaxis with future stings.
- Unknown: A large number of people who suffer from this type of reaction have no known cause, despite all efforts. This is known as idiopathic anaphylaxis.
- Exercise may actually precipitate such a reaction. This may occur

after eating sometimes irregardless of what food has been eaten.

- Beta blocker medications are usually used for high blood pressure or heart disease. These medications can change mild reactions into severe anaphylactic reactions because they block the body's main defense against anaphylaxis.

Signs and Symptoms

- An itchy rash or hives
- Itchy watery eyes
- Faintness or loss of consciousness (usually associated with low blood pressure) is usually a late finding in children
- Generalized swelling
- Swelling of the throat causing difficulty in swallowing or breathing
- Shortness of breath and wheezing
- Vomiting
- Cramping and abdominal pain
- Diarrhea (may be bloody)
- Tingling sensation in the lips or mouth (usually associated with a food allergy)
- Cardiopulmonary arrest which can lead to death

The residential staff need not distinguish between fainting and/or anaphylaxis, but must know and follow agency or facility policy.

- An individual suffering from anaphylaxis will exhibit the following characteristics: pink skin color, fast heart rate, blood pressure remaining low while lying down, rash, swelling, difficulty breathing, abdominal pain, and diarrhea.
- An individual who has fainted will exhibit the following characteristics: pale skin color, slow heart rate, blood pressure that normalizes while lying down, and a history of fainting.

Body's Response

While some individuals develop symptoms immediately, usually those with food allergies, others may take up to an hour or more before symptoms occur. If proper treatment is administered to those with severe reactions, these individuals may recover quickly. However, a second wave may occur and require repeat treatment.

Treatment of Allergic Reactions

Histamine is released during an allergic reaction. Antihistamines, such as Benadryl, stop histamine from working. Benadryl tablets take about an hour to get into the bloodstream and will not work quickly enough for severe reactions.

If an individual is having a mild anaphylactic response it may not be necessary to treat but warrants medical evaluation. Adrenaline (epinephrine) in the form of an injection should be given as soon as possible in severe, life-threatening reactions.

Epinephrine is a quick acting hormone produced in the body in response to emergencies or stimulation. It causes our heart to beat faster, widens the air passages in the lungs, and

constricts our blood vessels. This is known as "fight or flight."

It is important that definite evidence of a reaction is occurring. The goal is to inject before the individual's life is in jeopardy. If the individual is improving prior to injecting, keep the epinephrine immediately available and seek immediate medical attention. **If death seems a possibility and/or deterioration continues, give the epinephrine and call 911. If in doubt, give the epinephrine and call 911.**

There are several different syringe kits available for treatment such as the Epipen or the AnaKit. The dose of epinephrine in most of the kits is 0.3mg for an adult or 0.15 for children. This is a small dose for an adult due to safety margin, and may require more than one dose in really severe reactions. This works in a vast majority of adults, but a doctor may advise you differently for certain individuals.

Epinephrine will usually wear off in 15 to 20 minutes, but may work longer when injected just under the skin. In most cases, one injection is all that is needed. Normal effects of the medication include trembling, palpitations, and a feeling of uneasiness or anxiousness. This is normal and should wear off soon. **Note:** Injecting epinephrine in the wrong place can be dangerous. Some individuals have accidentally injected the drug into their thumb when trying to figure out how the syringe worked or when trying to check why it did not work. This could shut off the supply of blood by constricting the blood vessels at the base of the finger or thumb. The result may progress to gangrene. Seek immediate medical attention.

Definitions of Key Terms

Absorption--The taking up of fluids or other substances by the skin, mucous surfaces, or absorbent vessels.

Adverse effect--Side effect of a medication; undesirable reaction.

Analgesics-- Medications that relieve muscle, joint and bone pain.

Antagonistic effect--An agent, such as a remedy or a drug, which tends to nullify the action of another agent.

Capsules--Medication in small cylinder-like containers.

Cumulative effect--Build-up of medication in the body due to slow excretion that could lead to a toxic effect.

Distribute--To divide and dispense in portions.

Drug interaction--The action of one medication interferes with the action of another; the effects of two or more medications.

Enteric-coated--Protective coating on medication that allows for protection of the stomach lining.

Excretion--Elimination of wastes, from the body, through the lungs, urine or feces.

Generic--Commonly available drugs that are not protected by trademark.

Idiosyncrasy--Unusual or unexpected effects from a medication.

Local action--Medication acting at the site of administration on the skin or mucous membrane.

Metabolism--The physical and chemical processes involved in the maintenance of life.

Physical dependency--State in which withdrawal of a drug produces specific symptoms such as muscle cramps, vomiting, or tremors.

Primary effect--Reason a medication was ordered.

Psychological dependency--An emotional need or craving for a drug.

Oral—Mouth.

Secondary effect--Additional effect of the medication besides the one for which it was intended.

Tolerance--The ability to withstand the effects of a drug, after single or multiple administrations, without showing adverse effects.

Toxic effect--Medications that are or have become poisonous to the body.

Trade name--The name, given be a manufacturer, by which a medication is known.

Supplemental Information for Lesson 6

Examples of Medication Classifications

1. Skin System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Dermatomucosal Medications				
Cleanse and medicate skin	Treat blemishes Prevent new blemishes Prevent scarring	**Topical** benzoyl peroxide (Benoxyl, Oxy-5, Dry and Clear) tretinoin (Retinoic acid) antibiotic lotions **Systemic** tetracycline prednisone ibuprofen	Peeling skin Allergic contact dermatitis	For benzoyl peroxide: Many preparations are available without prescription. Start with a 5% preparation, applying once a day in the morning. This drug inactivates retinoic acid. Do not use these two drugs at the same time.

2. Gastrointestinal System

Action	Uses	Examples	Adverse Effects
Antacids			
Neutralize acidity by chemical reaction	Treat indigestion, ulcers	Gaviscon Maalox Riopan Mylanta Di-Gel Gelusil	May cause mild constipation or diarrhea
Antidiarrheals			
Stop diarrhea	Treat diarrhea	bismuth subsalicylate (Pepto-Bismol) loperamide (Imodium kaolin/pectin mixtures (Kaopectate) diphenoxylate HCl (Lomotil)	Drowsiness Fatigue Rash Constipation and fecal impaction
Laxatives - Saline			
Increase fluid in the intestine	Promote bowel action	magnesium salts (Milk of Magnesia sodium biphosphate (Fleet Enema)	Diarrhea Cramping
Laxatives – Lubricants			
Make stool slippery	Treat constipation	Mineral Oil Haley's M.O. Glycerin suppository	Nausea Abdominal cramps Incontinence
Laxatives - Bulk			
Increase bulk in the stool	Promote bowel action	psyllium (Metamucil, Effersyllium) methylcellulose (Cologel) calcium polycarbophil (Mitrolan)	Nausea and vomiting Diarrhea Laxative dependence

2. Gastrointestinal System Continued

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Laxatives – Stool Softeners				
Soften fecal material	Treat constipation	docusate sodium (Colace, Doxinate) Sometimes combined with other drugs (Senokot-S, Doxidan, Dialose-Plus, Peri-Colace)	Mild cramping Laxative dependence	Give with milk or fruit juice. Do not crush medication
Osmotic Laxatives				
Retain fluid in the bowel	Stimulate the large bowel	Lactulose, lactitol	Flatulence Cramping Bloating	Must be taken 3 days before an effect is seen
		Magnesium salts	Rapid bowel evacuation	Used prior to surgery
		Phosphates (rectal enema) Sodium citrate (rectal enema)		
Stimulant Laxatives				
Stimulate bowel lining	Increase peristalsis, bowel training	bisacodyl (Dulcolax, Bisacodyl) senna (Senokot) Dulcolax Suppository	Diarrhea Cramping	Tablet must be swallowed without chewing.

3. Musculoskeletal System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Steroid medications				
Decreases inflammation	Treat arthritis, dermatitis, chronic respiratory conditions	dexamethasone (Decadron) prednisone (Deltasone, Meticorten) methylprednisolone (Medrol) hydrocortisone (Cortef) triamcinolone diacetate (Kenalog)	Weight gain from increase appetite and edema Mood swings Night sweats Increased blood sugar and electrolyte imbalance Masks symptoms of infection Slows healing Elevates blood pressure Ulcers Muscle weakness Hair loss Cushing syndrome Prolonged bleeding and bruising	Watch diabetic individuals for change in urine glucose or fasting blood sugar. Withdrawal symptoms occur if medication is stopped abruptly.
Nonsteroidal anti-inflammatory drugs (NSAID)				
Anti-inflammatory analgesic and antipyretic effects	Arthritis Bursitis Tendonitis Gout	indomethacin (Indocin) sulindac (Clinoril) fenoprofen calcium (Nalfon) ibuprofen (Motrin) meclofenamate (Meclomen) naproxen (Naprosyn) aspirin (A.S.A, Bayer, Ecotrin)	Nausea and vomiting Headaches Gastrointestinal bleeding Dizziness Heartburn Rashes Decreased appetite Prolonged bleeding and bruising Tinnitus	Observe individual for blood in the stool, which may indicate gastrointestinal bleeding. Blood will initially appear as black, not red in color.

4. Sensory System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Lubricants (Eye Medication)				
Soothe and lubricate dry eyes	Treat decreased tear production	artificial tears (Tears Naturale, Liquifilm Tears)	Localized irritation and burning sensation	Use with caution in individuals with glaucoma. Do not touch any surface of eye with end of dropper. Crust forming on the eyelids and eyelashes indicate an eye infection.
Ear Medications				
Relieve pressure Reduce inflammation Reduce pain in the ear	External otitis Pain	benzocaine (Auralgan) Cortisporin Otic	Irritation or itching	Do not rinse dropper after use. Insert cotton into the ear canal after applying the drops and allowing the drops to drain into the inner ear. Many of these medications are used in combination with oral antibiotics, analgesics, and anti-inflammatories – watch for drug interactions.

5. Urinary System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Urinary Antiseptics				
Prevent growth of disease-producing organisms in the urinary tract	Treat urinary tract infections	nalidixic acid (Negram) nitrofurantoin (Furadantin) nitrofurantoin macrocrystals (Macrodantin)	Drowsiness Headache Nausea and vomiting Dizziness Skin rash	Individual should avoid exposure to sunlight. May cause a false-positive Clinitest. Individual should report vision problems. Drink plenty of water (6-8 glasses per day). Avoid cola, caffeine

6. Cardiovascular System (Antihypertensives)

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Adrenergic Blockers				
Decrease blood pressure with effect on the nervous system	Treat hypertension	methyldopa (Aldomet) clonidine HCl (Catapres) atenolol (Tenormin) captopril (Capoten)	Dizziness Weakness Nausea and vomiting Hypotension	
Diuretics				
Decrease blood pressure and increase urinary output	Treat congestive heart failure Hypertension Severe edema	spironoloactone (Aldactone) chlorothiazide (Diuril, Hydro DIURIL) methyclothiazide (Enduron) furosemide (Lasix) Aldactazide and Dyazide (combinations containing hydrochlorothiazide)	Dizziness Weakness Nausea and vomiting Hypotension	Watch for symptoms of decreased potassium levels. Include potassium rich foods in the diet.

7. Respiratory System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Antihistamines				
Combat the effects of histamine, which is released by the body in an allergic reaction	Treat motion sickness and allergic reactions	diphenhydramine (Benadryl) chlorpheniramine (Chlor-Trimeton, Teldrin) promethazine (Phenergan) trimeprazine (Temaril) terfenadine (Seldane) Dimetapp Extentabs	Drowsiness (most common) Dizziness Loss of appetite Dry mouth Urinary retention	Do not give with alcohol or other depressants. Individuals can develop a tolerance to the medication.

8. Endocrine System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Oral Contraceptives				
Inhibit ovulation	Regulation of menstrual cycle Prevent pregnancy	Estrogen with progestogen (Ovral, Norinyl, Ortho-Novum)	Headache Weight gain Hypertension Thrombophlebitis Edema Breast tenderness Vaginitis Nausea	

9. Nervous System

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Stimulants – Caffeine				
Increase mental and physical alertness and activity	Increase activity	Coffee Caffeine drinks Some aspirin compounds	Nervousness Headache Insomnia	Sudden discontinuation may cause headaches and irritability. Psychological dependence or tolerance may develop.
Depressants - Analgesics				
Decrease sensitivity of nervous system	Relieve pain	morphine sulfate (Duramorph, Epimorph) codeine meperidine HCl (Demerol) oxycodone HCl (Tylox, Percocet, Percodan)	Constipation Nausea and vomiting	Addictive. A bowel management system should be followed.
Depressant - Non-narcotic Analgesics				
Decrease sensitivity of nervous system	Relieve pain	propoxyphene (Darvon) Darvocet N-100 Talacen	Dizziness Confusion Nausea	
Depressant – Analgesic-antipyretics				
Decrease sensitivity of nervous system	Relieve pain and normalize body temperature	acetylsalicylic acid (A.S.A) acetaminophen (Tylenol)	Bleeding Stomach distress Dizziness Tinnitus	
Anti-Parkinson's Medications				
Relieve symptoms of Parkinson's Disease	Relieve tremors and muscular weakness Treat extrapyramidal effects of major psychotropics	Benztropine mesylate (Cogentin) Trihexyphenidyl HCl (Artane) Levodopa (Larodopa, Dopar) Levodopa-carbidopa (Sinemet) Amantadine HCL 9Symmetrel)	Incoherence Hallucinations Nausea Heart irregularities Constipation	

Task: **Administering an EpiPen**

Staff Member: _____ Date: _____

Staff Nurse: _____

Directions: Complete the following task under the direct supervision of the staff nurse. Do this task only after it has been demonstrated to you. You must complete all applicable steps satisfactorily to successfully pass this demonstration.

S = Satisfactory U = Unsatisfactory NA = Not Applicable

		S	U	N/A
1.	Observe that the individual is having a severe allergic reaction.	____	____	____
2.	Obtain the individual's EpiPen.	____	____	____
3.	Pull off the gray safety cap.	____	____	____
4.	Place the black tip on the outer thigh **(always apply to the thigh)**	____	____	____
5.	Using a quick motion, press hard into the **thigh** until the Auto-Injector mechanism functions.	____	____	____
6.	Hold in place and count to 10.	____	____	____
7.	Remove the EpiPen unit.	____	____	____
8.	Massage the injection site for about 10 seconds.	____	____	____
9.	Dispose of the EpiPen in a sharps container or place a penny in the bottom of the plastic tube, slip the EpiPen into the tube and close it. Return the used EpiPen to the staff nurse for proper disposal.	____	____	____
10.	Wash your hands.	____	____	____
11.	Observe the individual for any adverse effects.	____	____	____
12.	Chart the EpiPen administration.	____	____	____

Comments: _____

_____

Living in the Community
Core B

Lesson 7
Inflammation and Infection

INFLAMMATION AND INFECTION

Key Terms	
Antibiotics	Arthritis
Bacteria	Fungi
-itis	Immunity
Infection	Inflammation
influenza	Lymph
Otitis	Pustules

The body has ways of protecting itself from injury and disease. These defenses can be quite effective, but sometimes require assistance from medicines. This section will examine the role of the immune system in inflammation and infection.

Immunity refers to the security a body has against any particular disease or poison. This power can be acquired both through immunization and from prior infection, and allows a body to resist and/or overcome an infection to which other people may be susceptible. The body is equipped to defend itself against injury and disease through the immune system. The immune system includes the lymphatic system, white blood cells, and antibodies. If any part of the immune system does not work properly, the body's ability to defend itself against disease is weakened.

Inflammation is caused by the body attempting to remove physical, chemical, or disease causing organisms. The signs and symptoms of redness, swelling, heat, pain, and loss of function may be interpreted as the problem, but they are actually indications that the body is doing its job. When the body is injured (e.g., ankle sprain), affected by irritating substances (e.g., an insect bite), or is suffering from overuse, it reacts with inflammation. The increased circulation brings white bloods cells to the affected area to ingest bacteria and dead tissue which results in pus. The pain is a result of the swelling pressing on nerve endings, and is an additional sign that the body is doing its job.

Additionally, the body can sometimes attack itself, which can result in inflammation. Examples of inflammation include arthritis, which results in pain, stiffness, and swelling in joints, and otitis, which is an inflammation of the ear and is usually caused by infection. Treatment may be required with analgesics, steroids, anti-inflammatory drugs, or antibiotics.

Infection occurs when disease-causing microorganisms invade the body. The results of infection depend on how the tissues react to the presence of these microorganisms, and the strength of the immune system. Infection occurs when these organisms enter the body through skin breaks, mucous membranes, and infected food or water. The single most important way to prevent the spread of infection is through proper hand washing techniques.

When the body becomes infected with microorganisms such as bacteria,

they begin to multiply and spread from the infected tissue to other parts of the body through the blood, the lymph system, and tissue. The immune system will react by sending specialized white blood cells to fight the microorganisms. This can result in the symptoms of inflammation, increased body temperature, pain, discharge, and decrease in function. Sometimes the body can fight the infection itself, but other times it will require medication to treat the infection or relieve its symptoms.

There are several common infectious diseases, which the body may not be able to fight alone. An example is strep throat, which is caused by the streptococcus bacteria. The symptoms of strep throat include fever, pain upon swallowing, and a throat that may contain whitish pustules or red streaks. Strep throat is treated with antibiotics and soothing gargles.

Another infectious condition that usually requires treatment is influenza, or the flu. The flu is caused by an airborne virus, and results in fever, headache, extreme fatigue, dry cough, sore throat, runny or stuffy nose, and muscle aches. Immunization can help prevent or lessen the severity of the flu. Treatment consists of relieving the symptoms.

Pneumonia is an infection that can rarely be conquered by the body itself. With a number of causes (virus, bacteria, aspiration, stasis, or secondary infection), pneumonia can be a serious and even deadly disease. Symptoms may include difficult and painful breathing, cough, fever, chills, shortness of breath, and yellow-green sputum or sometimes a rust-colored sputum. Treatment of pneumonia depends on the cause and may require bed rest and medication. Diagnostic testing may include a chest x-ray or sputum culture. Immunization may prevent some types of pneumonia.

Fungi can cause infections such as athlete's foot and ringworm. Symptoms of athlete's foot include itching and watery blisters between toes, as well as scaling and cracking of the skin. This condition is treated with antifungal powders, ointments, or oral medications. This is a preventable condition; care should be given to the treatment of feet to prevent athlete's foot. Keep feet dry, wear absorbent socks, avoid standing barefoot on public floors, and **disinfect the shower after each use.** Ringworm is also caused by a fungus and manifests itself on the scalp with small bald areas covered with dry, grayish scales, or on the body with circular or oval areas with tiny bumps around the edges. Again, ointments or antibiotics may be used to treat this condition.

Antibiotics are a large class of medications that kill or prevent the growth of specific germs. Because antibiotics are such a large group of medications, there is no way to make an inclusive list of trade names. However, some of the more common antibiotics include Amoxil, Augmentin, Rocephin, Zithromax, Keflex, Ceclor, and Biaxin. Penicillin is also an antibiotic. Adverse effects of antibiotics include sensitivity to the sun, nausea and vomiting, and allergic reactions such as hives, rashes, and anaphylactic shock. It is important to administer antibiotics at the exact times ordered to maintain adequate amounts of medication in the blood at all times, and they are most effective if given one to two hours after eating.

Tetracyclines should not be given with antacids and milk. Finally, it is extremely important to complete the entire prescription of antibiotics, even if symptoms have improved or even disappeared. Diminished symptoms do not indicate an elimination of the infectious organism. Ending use of the antibiotic before the end of the prescription can leave weakened organisms in the body, which can mutate to become resistant to antibiotics. Antibiotic-resistant germs can pose a serious threat to people and must be prevented by thoroughly administering prescribed antibiotics.

Definitions of Key Terms

Antibiotics--Substances produced by certain fungi, bacteria, and other organisms that are effective in inhibiting the growth of or destroying microorganisms--penicillin.

Arthritis--Inflammation of a joint.

Bacteria—One-celled microorganisms which have no chlorophyll, multiply by simple division, and can be seen only with a microscope. Some bacteria cause diseases such as pneumonia, tuberculosis, and anthrax, and others are necessary for fermentation, nitrogen fixation, and so on.

Fungi—Any of a large group of thallophytes, including molds, mildews, mushrooms, rusts, and smuts, which are parasites on living organisms or feed upon dead organic material.

Immunity--Resistance of the body to a particular disease.

Infection--Activity of disease-producing bacteria, virus, or fungus in the body and the reaction of the body to the microorganisms and their products.

Inflammation--Localized heat, redness, swelling, and pain as a result of irritation, injury, or infection.

Influenza--An acute highly contagious infection. Flu.

Lymph—A clear, yellowish fluid resembling blood plasma, found in the lymphatic vessels.

Otitis—Inflammation of the ear.

Pustules—Small elevations of the skin containing pus (i.e., a blister or a pimple)

Supplemental Information for Lesson 7

Signs and Symptoms of Illness

Definition	Indications	Intervention
Diarrhea		
Frequent passage of watery bowel movements	May be due to diet, inflammation, irritation of the mucosa of the intestines, gastrointestinal infections, certain drugs, or emotional distress	Temperature of 100° or more must be reported. Clear liquid diet for 24 hrs. if stools are frequent. Avoid caffeine and fruit Encourage proper hand and body hygiene.
Drug Toxicity		
Occurs when a medication has accumulated in the body exceeding therapeutic or beneficial levels. May occur with first dose or be cumulative. May also be related to dehydration, constipation, or an infection	Observe a change in behavior; symptoms are usually related to the desired effect of the medication, only exaggerated.	Changes in individual's behavior should be reported **immediately**. Medications should be withheld until the nurse establishes if toxicity is present
Fever		
Elevation of body temperature above normal levels. Oral temp. above 98.6° or 94.6° axillary is considered a fever.	Flushed and pink cheeks, "dull" eyes, decreased appetite, irritability, decreased physical activity, and/or thirst. Individual may complain of headache, dizziness, body aches, or chills.	Encourage fluids, limit physical activity, encourage light attire. Cool moist compress to the forehead may help. Check with nurse before administering medications.
Nausea		
Unpleasant sensation usually associated with a distinct revulsion to food.	Nonverbal indications may include cessation of physical activity, decreased appetite or refusal to eat, frequent swallowing, pale skin, sweating or irregular breathing. A sudden increase in physical activity or restlessness may indicate vomiting is imminent.	Abdominal firmness, rigidity, or responses of pain to a lightly touched stomach area should be reported. Restrict oral intake to clear liquids. Refusal of meds due to complaints of nausea should be reported to the nurse.

Vomiting		
Sudden forceful expulsion of stomach contents through the mouth and/or nose.	Assist as needed. Provide privacy and a calm soothing attitude. Casually observe the vomitus to determine the character and quantity. For example, vomitus could be "a small amount of odorless, frothy, clear liquid" or a "large amount of foul smelling, brownish liquid, coffee grounds in appearance. Encourage individual to rinse mouth and swallow a small sip of water.	Contact the nurse for any of the following : Vomiting with: --temp of 100°or greater --abdominal rigidity or extreme tenderness --interruption of a medication schedule --appearance of coffee grounds material or with presence of bright red blood --headache or changes in behavior, mobility and/or vision

First Aid Training

It is important that all staff be trained in a variety of basic first aid techniques. Information is available from a variety of sources on this topic including your local Red Cross and public library. The following web sites may also be useful:

Rescue 411. 1 Sept. 2003. (http://www.library.advanced.org/10624/index.html)

1UpHealth. 1Sept., 2003. (http://www.1uphealth.com)

All staff should be trained in the following areas:

- Choking (Heimlich maneuver)
- Trauma
- Broken bones
- Severe bleeding
- Burns
- Poisoning
- Seizures
- Objects in the eye
- Objects in the ear

Living in the Community
Core B

Lesson 8
Psychotropic Medications

PSYCHOTROPIC MEDICATIONS

Key Terms	
Antianxiety	Anticonvulsant
Antidepressant	Antipsychotic
Controlled substance	Physical dependence
Psychoactive drugs	
Psychological dependence	
Psychosis	Psychotropic

Adults and children with mental retardation and developmental disabilities (MR/DD) may have a "dual diagnoses" – a psychiatric diagnosis along with a diagnosis of a developmental disability. Any psychiatric illness may coexist with MR/DD. Some illnesses may be based on the individual's experiences. For example, they may have been abused and develop post-traumatic stress disorder, or may experience a major depression after the death of a parent. Some illnesses may develop as a result of their physical disabilities, such as seizure disorders. Some may simply occur, such as schizophrenia. Often, there may be multiple reasons for an illness.

Medicines may be prescribed for a specific illness (for example, depression) or to help control behavior, so that the individual functions better in his/her environment. Medications must, however, always be given in an effort to benefit the individual – never to just sedate them for the benefit of the caregiver.

A wide variety of medications may be prescribed, but they must be given as part of a comprehensive treatment plan. Routine labs to monitor various blood levels and/or organ functioning, that is, kidneys, liver, and so on, may be indicated. Medications which may be prescribed include antidepressants, antipsychotics, anxiolytics, hypnotics, stimulants, anticonvulsants, and mood stabilizers. While medications may often be helpful, they may also have side effects. For example:

- Antianxiety drugs may produce drowsiness, impaired concentration, loss of coordination, fatigue, and mental slowing or confusion
- Anticonvulsant drugs may produce allergic reactions, drowsiness, irritability, nausea, rash, physical clumsiness, and in children hyperactivity
- Stimulants may produce insomnia, depression, irritability, weight loss, and anxiety
- Antipsychotic drugs may produce drowsiness, restlessness, muscle spasms, tremors, dry mouth, blurred vision, involuntary movements, and weight gain
- Antidepressant drugs may produce drowsiness, fatigue, agitation, dizziness, trouble sleeping, blurred vision, constipation, diarrhea, difficulty urinating, nausea, changes in appetite, anxiety, headache, increased sweating, weight gain, and tremors

When an individual is prescribed a medication, it is important for caregivers to

have an idea of what side effects may occur with that medication. No one can know all possible side effects, so it is also important for caregivers to be alert to unexpected changes in the individual's behavior that suggest a side effect may be occurring. With limited coping and verbal skills, these individuals may not recognize a side effect or may have difficulty explaining it to a caregiver. Caregivers, who are in frequent contact with the individual, have a special role to play in documenting and giving feedback to the doctor or nurse that prescribed the medication.

It is important to remember that over-the-counter medications, dietary supplements, and herbal medications may have side effects or interact with an individual's medications. Non-psychiatric prescription medications (such as high blood pressure medications) may also have psychiatric side effects.

Another important thing to keep in mind is that many medications may also cause physical and mental changes when they are stopped abruptly. The individual may experience withdrawal symptoms. This means it is important for individuals to take their medications regularly, as prescribed, without interruption. Stocks of an individual's medications should always be checked to make sure they won't run out before their next appointment or on a weekend or holiday. When medications are stopped, it is often best to gradually decrease the amount taken (taper) over a period of time.

This should be done as directed by the psychiatrist, neurologist, or other health professional. Individuals often take more than one medication. They may see more than one doctor or nurse. It is essential that every health professional prescribing medication to an individual knows what medications they might already be taking. It is also important for the medical team to know what the individual's experience has been with medications in the past. Often the individual's caregivers are much better equipped to give this information than the individual is. Thorough and accurate documentation is essential.

Sometimes individuals may have allergic reactions to medication. This is often an emergency. Prescribers must be notified immediately, and the reaction needs to be documented for future reference.

It is important that everyone involved in an individual's care knows about their treatment – and this includes appropriate family members.

The individual must also participate in their own treatment to the best of their abilities. Efforts should be made to educate the individual as to the reasons why they are taking medication and the possible side effects that may occur. Caregivers need to be prepared to provide calm support if problems develop.

Always remember that an individuals' behavior is influenced by many things:

- The environment they live in
- Their memories and coping skills
- Their physical limitations and

illnesses
- Their cognitive abilities
- Psychiatric illnesses
- Their educational level and problem solving skills

Changes in behavior can mean many things. For example, an aggressive outburst might be because an individual is in physical or mental pain. It is essential that caregivers stay attuned to what is going on in the individual's life and to know how he or she normally copes with stress. Remember that all changes, whether good or bad, may be stressful. Sometimes making changes in the environment may prove quite useful and relieve symptoms and stress without the use of medications.

A caregiver's careful and detailed description of the individual's usual behaviors and level of functioning and how these have changed is essential to the accurate diagnosis and treatment of an illness.

All treatments must be specifically prescribed for the individual. Two people may react quite differently to a given medication or medical treatment. Some may need smaller doses. Others may take larger doses. One individual might experience one side effect much more strongly than the next. *One size never fits all.*

Maintaining consistency is very important in the treatment of individuals with MR/DD. Medications that are given only as needed, (PRN), may actually be disruptive to an individual's stability. The skillful treatment of an individual requires the attention of each and every member of the multidisciplinary treatment team. Conditions must be accurately diagnosed; medications may be prescribed; side effects must be recognized and documented; changes may be made to the living and social environment; the individual must be educated to the best of their abilities; their families must be involved in the process so that they may help with compliance; watch for side effects, and report changes to the rest of the treatment team.

Communication, trust, and effectiveness are the watchwords that guide the team.

Definitions of Key Terms

Antianxiety drugs--Minor tranquilizers, used to treat anxiety, also used for prevention and treatment of convulsions.

Anticonvulsants--Medications used to stop or prevent convulsions or seizures.

Antidepressants--Alleviate the symptoms of depression.

Antipsychotics--Major tranquilizers used to control symptoms of psychoses and organic brain syndrome; change behavior but do not cure the disease.

Controlled substance--A drug that is addictive or habit forming.

Physical dependency--State in which withdrawal of a drug produces specific symptoms such as muscle cramps, vomiting, or tremors.

Psychoactive drugs--Drugs which alter the individual's psychological functions and behavior.

Psychological dependency--An emotional need or craving for a drug.

Psychosis--Any severe mental disorder, with or without organic damage, characterized by deterioration of normal intellectual and social functioning and by partial or complete withdrawal from reality.

Psychotropics--Drugs that are used to modify behavior.

Supplemental Information for Lesson 8

The following fourteen statements (Kalachnik, et.al., 1998) should be used as guidelines as the interdisciplinary team thinks about the treatment of an individual who has been placed on a psychotropic medication.

DO treat any substance prescribed to improve or stabilize mood mental status, or behavior as a psychotropic medication. This includes herbal or nutritional substances when they are used in this manner.

DON'T use psychotropic drugs excessively, for convenience, as a substitute for meaningful psychosocial services, or in quantities that interfere

with the quality of a life activity.

DON'T use psychotropic medication unless a coordinated multidisciplinary care plan has been approved and is in place.

DO use psychotropic medication based on a psychiatric diagnosis or a specific behavioral-pharmacologic hypothesis and only after conducting complete diagnostic and functional assessments.

DO obtain written informed consent from the individual or guardian and establish a therapeutic partnership involving all decision-makers.

DO track and document the effects of the treatment by accurately measuring behaviors, and quality of life.

DO monitor for side effects and document using standardized assessment instruments.

DO monitor for tardive dyskinesia if antipsychotic or other dopamine blocking medications are prescribed.

DO conduct clinical and data reviews on a regular and systematic basis.

DO strive to use the lowest optimal effective dose.

DO avoid frequent drug and dosage changes unless truly needed and approved by the physician and team.

DO keep the psychotropic medication regimen as simple as possible in order to encourage compliance and minimize side effects.

DO minimize the following practices as possible:

- Long-term PRN (as needed) orders
- Use of long-acting sedative-hypnotics (e.g., chloral hydrate)
- Long-term use of short-acting sedative hypnotics (e.g., temazepam)
- Long-term use of benzodiazepine antianxiety medications (e.g., lorazepam, diazepam)
- High antipsychotic medication doses
- Long-term use of anticholinergic medication (e.g., benztropine)

DO evaluate drug and monitoring practices through a peer or interdisciplinary team group.

References

Kalachnik, J.E., Leventahl, B.L., James, D.H., Sovner, R., Kastner, T.A., Walsh, K., Weisblatt, S.A., Klitzke, M.G. (1998). In Reiss, S. & Aman, M.G. (eds.). *Psychotropic Medications and Developmental Disabilities: The International Consensus Handbook.* Ohio State University Nisonger Center

FUNCTIONAL BEHAVIORAL ASSESSMENT

An individual with emotional and/or behavioral problems is one of the greatest challenges staff can face. We all know that individuals with behavioral issues are capable of contributing to society in important ways. We also know that helping them reach their potential can be frustrating and difficult. However, we have many effective strategies that can be used to help the individuals learn new and positive ways to function in the community.

Behavior is a form of communication. Thoroughly assessing the communicative intent of the behavior will help determine the environmental, social, or academic barriers and will facilitate the design of an intervention plan that supports the individual in learning skills ad strategies to replace the negative behavior.

A Functional Behavioral Assessment (FBA) is a means of systematic collection and analysis of data that will vary in length and scope depending upon the severity of a individual's behavior. Results and analysis of the data collection are used in developing the individual's behavioral intervention plan. A FBA identifies patterns in the individual's behavior and the purpose or function of the behavior.

An FBA brings together a team of persons who are important in the day-to-day life of the individual to assess the current status and to effectively plan the supports necessary to increase appropriate behaviors. This team interaction is called for when a consistent pattern of negative or inappropriate behavior diminishes the individual's opportunity to participate in the community. It is assumed that, prior to initiating an FBA, multiple individualized strategies have been attempted with limited success.

An FBA is predicted on a strength-based model that considers the whole individual. Counselors, families, educators (if in school) and the individual share information and strategically plan for success. It is unwise for any one person to attempt to complete an assessment. The knowledge about the individual collected by each team member is valued and imperative. The FBA informs the team about the elements which support and negate success. This information is then used to build a plan of action that focuses on the successful interactions and environments. The importance of team based assessment and planning cannot be overstated.

The FBA focuses on the reasons for behaviors that are disruptive. Factors associated with emotional disorders and behavioral problems are described below. It is important to recognize that the individual cannot be penalized for behaviors they are unable to control. Behavior related to a biological factor or hyperactivity related to a neurological condition, for example, may require adjustments to the environment or

instructional strategies rather than imposing expectations that cannot be met.

- **Biological Factors**. Certain biological conditions have been associated with emotional disorders and behavioral problems, as there appear to be genetic links to depression and schizophrenia, as well as nutritional deficits, certain physical illnesses and injuries, and some neurological conditions.
- **Environmental Factors**. The environment in which individuals live can either help or hurt healthy development, just as a individual's behavior may have both positive and negative influences upon other house members.
- **School Factors**. Generally individuals with emotional disorders or behavior problems tend to "underachieve." Learning problems are a disadvantage in any environment, particularly since many of these individuals have not developed adequate social skills by the time they enter school, and poor social skills often result in social rejection by both peers and teachers. This may lead to further disinterest in school and even greater underachievement.
- **Community Factors**. Individuals may be exposed to stressors within their community. Exposure to crime and violence has been linked to a tendency to behave in ways associated with emotional disorder and behavior problems.

The team meeting is a consensus building opportunity. The facilitator should ensure that all voices are heard and respected. This meeting sets the tone of care for the individual's success. The FBA is a strength-based process, building on what the individual is able to do successfully today and outlining the objectives for increased success in the future.

The behavior specialist for your agency will provide you with forms to document the different types of information that might be collected on the individual. The forms are designed to increase participation of all team members, to support the team in maintaining a positive focus, and to allow the team to progress effectively and efficiently through the FBA process. The information gathered will be the basis for the development of a realistic and individual specific intervention plan.

Types of Information to be Gathered

The FBA team will decide which methods, tools, and information is needed to begin to understand why the challenging behaviors occur. It will be necessary to gather this information from multiple sources, across a range of settings, activities and situations. Functional assessments are typically completed through interviews or questionnaires and direct observation. Information

gathering usually involves indirect and direct methods.
Indirect methods include:

- Review of records – general information, medical assessments, academic assessments, evaluation data, discipline referrals, social history and intervention history.

Direct observation involves:

- Observing and recording the individual's behavior and events in the environment while the behavior is occurring.
- Data should be collected at various times in various settings, continuing until discernable patterns emerge.
- Data can describe the frequency, intensity and duration of the behavior.

Glossary of Medicines

Possible Treatment Use	Functional Category	Generic Name	Brand Name
Adjustment Disorders Generalized Anxiety Disorder Tourrette Syndrome	anxiolytics	alprazolam lorazepam buspirone hydrochloride prazepam clorazepate dipotassium diazepam quazepam meprobamate temazepam flurazepam hydrochloride halazepam triazolam propranolol hydrochloride chlordiazepoxide hydrochloride midazolam hydrochloride nitrazepam oxazepam Estazolam	Xanax Ativan BuSpar Centrax Tranxene Valium Doral Equanil, Miltown Euhypnos, Restoril Dalmane Paxipam Halcion Inderal Librium Versed Mogadan Serax, Serapax ProSom
Attention-Deficit Hyperactivity	stimulants	methylphenidate Dextroamphetamine	Ritalin Dexedrine
ADHD, enuresis Depressive disorders, generalized anxiety disorder, panic disorder, self-injurious behavior,	antidepressants	amitriptyline doxepin desipramine amoxapine protriptyline clomipramine hydrochloride nortriptyline hydrochloride buproprion hydrochloride trazodone hydrochloride doxepin hydrochloride fluoxetine hydrochloride fluvoxamine imipramine hydrochloride isocarboxazid maprotiline hydrochloride phenelzine sulfate nefazodone nialamide tranylcypromine sulfate paroxetine hydrochloride sertraline hydrochloride trimipramine maleate venlafaxine hydrochloride	Elavil Doxepin Norpramin Asendin Vivactil Anafranil Aventyl, Pamelor Wellbutrin Desyrel Sinequan Prozac Luvox Tofranil Marplan Ludiomil Nardil Serzone Niamid Parnate Paxil Zoloft Surmontil Effexor

Glossary of Medicines (continued)

Aggression (chronic & organic), self-injurious behavior	beta blockers	propanolol	Inderal
		metoprolol succinate	Reglan
		metoprolol tartrate	Toprol XL
		trimolol maleate	Timoptic
	Buspirone	buspirone hydrochloride	BuSpar
Aggression, mania	anticonvulsants	carbamazepine	Tegretol
		valproic acid	Depakene
		clonazepam	Klonopin
		mesoridazine besylate	Serentil
		molindone hydrochloride	Moban
		thiothixene	Navane
		olabzapine	Zyprexa
		perphenazine	Trilafon
		pimozide	Orap
		promazine hydrochloride	Sparine
		reserpine	Serpasil
		risperidone	Risperdal
		trifluoperazine hydrochloide	Stelazine
		chlorpromazine hydrochloride	Thorazine
		Triflupromazine	Vesprin
Hyperactivity, sleep problems, Tourrette syndrome	clonidine	clonidine hydrochloride	Catapres
Mania, panic disorder, sleep problems	benzodiazepines	chlordiazepoxide	Librium
		diazepam	Valium
		clonazepam	Klonopin
		Alprazolam	Xanax
Mania	lithium	lithium carbonate	Eskalith
		lithium citrate	Cibalith-S
Obsessive-Compulsive Disorder	clomipramine	clomipramine hydrochloride	Anafranil
	fluoxetine	fluoxetine hydrochloride	Prozac
	Paroxetine	paroxetine hydrochloride	Paxil
Sleep problems	melatonin	hormone	

DIFFERENTIAL DIAGNOSIS OF MOVEMENT DISORDERS

	PARKINSONISM / ACUTE EPS	TARDIVE DYSKINESIA	TICS	MANNERISMS / STEREOTYPED	LITHIUM TREMOR
TIME OF APPEARANCE	5-30 days after treatment started. Can be immediate with IM antipsychotic. Can occur with increased dose.	Peak is after 3-5 years of treatment. Occurs when drug is decreased or stopped usually.	Can occur before or after medication is initiated.	Can occur before or after medication is initiated.	Within first week of therapy, but may occur at any time.
ETIOLOGY	Dopamine blockade from drugs.	Dopamine receptor sensitivity from drugs.	Encephalopathy or genetic	Mannerisms: Psychosis or personality trait. Stereotype: Usually associated with psychosis (Catatonia).	Inhibition of acetylcholine synthesis and release. Potentiates neuroleptic-induced blockage.
CHARACTERISTICS OF MOVEMENTS	Slowed movements absence of voluntary movements, decreased blink, decreased arm swing, drooling, resting tremor, shuffling gait, mask like face, loss of balance, cramping or rigidity of muscles, inner restlessness.	Rapid, involuntary movements. Becomes worse when activity is increased. Especially common are purposeless movements of the face, hands, and legs. Movements are fairly constant and rhythmic.	Vocal or motor, involuntary, frequent. Other neurological signs often present.	Mannerisms: Bizarre purposeless acts peculiar to an individual. May be incorporated into a goal-directed behavior. Example: One short step for every 3 regular steps. Stereotypes: Constant repetition of any action. Example: Writing same work over and over; rubbing body part constantly.	Intention or essential tremor of hands usual site. Also muscle twitching and weakness occur.
TREATMENT	Increase caffeine intake; Anti-Parkinson drugs; lower dose of neuroleptic; discontinue neuroleptic; switch to anti-cholinergic neuroleptic.	Increase neuroleptic; drug holiday; switch to different neuroleptic, other medications such as neurotransmitter precursors.	Neuroleptics usually suppress, Haloperidol commonly used.	Neuroleptics or no treatment. Behavior modification can be used.	Reduce Lithium dose, reduce caffeine intake, and beta blockers such as Inderal.
PROGNOSIS	Usually complete remission. May resolve on its own. Some Individuals may have persistent smacking and sucking.	1/3 improve, 1/3 remain the same, 1/3 worsen with treatment. Some improvement usually seen if off drugs. When first taken off drugs, movements may worsen for awhile. Some have irreversible movements.	May be persistent despite treatment.	Stereotypes more likely to improve than mannerisms with neuroleptic treatment.	Usually improves.
INDIVIDUAL SUBJECTIVE COMPLAINTS	Acute discomfort, awareness of dystonias and Often not painful unless severe. Individual often askathisia. Slowed movements may be misdiagnosed as psychotic, depression or catatonia.	Often not painful unless severe. Individual often aware of movements, but denies that he/she has them. May try to hide movements.	Aware of movements, utterances, but not control over them.	Sometimes aware of movements, sometimes not. Can probably exert some control over them.	Can be troublesome, especially for those who use hands and fingers for fine motor movements. May complain of often dropping objects.

Examination Procedure

(For Tardive Dyskinesia)

Either before or after completing the Examination Procedure, observe the client unobtrusively, at rest (e.g., in the living room).

The chair to be used in this examination should be hard, firm, and without arms.

1. Ask individual whether there is anything in his/her mouth (i.e., gum, candy, etc.) and if there is, to remove it.

2. Ask individual about the current condition of his/her teeth. Ask individual if he/she wears dentures. Do teeth or dentures bother individual now?

3. Ask individual whether he/she notices any movements in mouth, face, hands, or feet. If yes, ask to describe and to what extent they currently bother individual or interfere with his/her activities.

4. Have individual sit in chair with hands on knees, legs slightly apart, and feet flat on floor. (Look at entire body for movements while in this position).

5. Ask individual to sit with hands hanging unsupported: if male, between legs, if female and wearing a dress, hanging over knees. (Observe hands and other body areas).

6. Ask individual to open mouth. (Observe tongue at rest within mouth). Do this twice.

7. Ask individual to protrude tongue. (Observe abnormalities of tongue movement). Do this twice.

8. Ask individual to tap thumb, with each finger, as rapidly as possible for 10-15 seconds; separately with right hand, then with left hand. (Observe facial and leg movements).

9. Flex and extend individual's left and right arms (one at a time). (Note any rigidity).

10. Ask individual to stand up. (Observe in profile. Observe all body areas again, including the hips).

11. Ask individual to extend both arms outstretched in front with palms down. (Observe trunk, legs, and mouth).

12. Have individual walk a few paces, turn, and walk back to chair. (Observe hands and gait). Do this twice.

Resource/Reference #7

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

INDIVIDUAL NAME: _____ RATER: _____ DATE: _____

INSTRUCTIONS: Complete the Examination Procedure before assessing movement ratings.
MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously.

CODE: *0 – None; 1 = Minimal, may be extreme normal; 2 = Mild; 3 = Moderate; 4 = Severe*

		(Circle One)
FACIAL AND ORAL MOVEMENTS:	1. MUSCLES OF FACIAL EXPRESSION. e.g., movement of forehead, eyebrows, periorbital area, cheeks; include frowning, blinking, smiling, grimacing.	0 1 2 3 4
	2. LIPS AND PERIORAL AREA. e.g. puckering, pouting, smacking.	0 1 2 3 4
	3. JAW. e.g. biting, clenching, chewing, mouth opening, lateral movement.	0 1 2 3 4
	4. TONGUE. Rate only increase in movement both in and out of mouth, NOT ability to sustain movement.	0 1 2 3 4
EXTREMITY MOVEMENTS:	5. UPPER (arms, wrists, hands, fingers) include choreic movements,(i.e., rapid, objectively purposeless, irregular, spontaneous), athetoid movements (i.e. slow, irregular, complex, serpentine). DO NOT include tremor (i.e., repetitive, regular, rhythmic).	0 1 2 3 4
	6. LOWER (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	0 1 2 3 4
TRUNK MOVEMENTS:	7. NECK, SHOULDERS, HIPS. e.g., rocking, twisting, squirming, pelvic gyrations	0 1 2 3 4
GLOBAL JUDGEMENTS:	8. SEVERITY OF ABNORMAL MOVEMENTS	0 1 2 3 4
	9. INCAPACITATION DUE TO ABNORMAL MOVEMENTS	0 1 2 3 4
	10. INDIVIDUAL'S AWARENESS OF ABNORMAL MOVEMENT- RATE ONLY INDIVIDUAL'S REPORT	No Awareness ---------- 0 Aware, no distress ---------- 1 Aware, mild distress ---------- 2 Aware, moderate distress -----3 Aware, severe distress -------- 4
DENTAL STATUS:	11. CURRENT PROBLEMS WITH TEETH AND/OR DENTURES	No ---------- 0 Yes ---------- 1
	12. DOES INDIVIDUAL USUALLY WEAR DENTURES?	No ---------- 0 Yes ---------- 1

Resource/Reference #7

ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)

INDIVIDUAL NAME: *Joe Green* RATER: R.Y. DATE: 1-15-2020

INSTRUCTIONS: Complete the Examination Procedure before assessing movement ratings.
MOVEMENT RATINGS: Rate highest severity observed. Rate movements that occur upon activation one less than those observed spontaneously.

CODE: *0 – None; 1 = Minimal, may be extreme normal; 2 = Mild; 3 = Moderate; 4 = Severe*

		(Circle One)
FACIAL AND ORAL MOVEMENTS:	13. MUSCLES OF FACIAL EXPRESSION. e.g., movement of forehead, eyebrows, periorbital area, cheeks; include frowning, blinking, smiling, grimacing.	0 **(1)** 2 3 4
	14. LIPS AND PERIORAL AREA. e.g. puckering, pouting, smacking.	**(0)** 1 2 3 4
	15. JAW. e.g. biting, clenching, chewing, mouth opening, lateral movement.	**(0)** 1 2 3 4
	16. TONGUE. Rate only increase in movement both in and out of mouth, NOT ability to sustain movement.	0 **(1)** 2 3 4
EXTREMITY MOVEMENTS:	17. UPPER (arms, wrists, hands, fingers) include choreic movements, (i.e., rapid, objectively purposeless, irregular, spontaneous), athetoid movements (i.e. slow, irregular, complex, serpentine). DO NOT include tremor (i.e., repetitive, regular, rhythmic).	**(0)** 1 2 3 4
	18. LOWER (legs, knees, ankles, toes) e.g., lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion of foot.	**(0)** 1 2 3 4
TRUNK MOVEMENTS:	19. NECK, SHOULDERS, HIPS. e.g., rocking, twisting, squirming, pelvic gyrations	**(0)** 1 2 3 4
GLOBAL JUDGEMENTS:	20. SEVERITY OF ABNORMAL MOVEMENTS	**(0)** 1 2 3 4
	21. INCAPACITATION DUE TO ABNORMAL MOVEMENTS	**(0)** 1 2 3 4
	22. INDIVIDUAL'S AWARENESS OF ABNORMAL MOVEMENT- RATE ONLY INDIVIDUAL'S REPORT	No Awareness ---------- **(0)** Aware, no distress ---------- 1 Aware, mild distress --------- 2 Aware, moderate distress -----3 Aware, severe distress -------- 4
DENTAL STATUS:	23. CURRENT PROBLEMS WITH TEETH AND/OR DENTURES	No ---------- **(0)** Yes ---------- 1
	24. DOES INDIVIDUAL USUALLY WEAR DENTURES?	No ---------- 0 Yes ---------- **(1)**

Abnormal Involuntary Movement Scale (AIMS) Graph

1) Complete the AIMS scale for the individual. 2) Transfer the scores the AIMS scale to the corresponding box found on the top section of the graph sheet. 3) Code: 0 = none; 1 = minimal; 2 = mild; 3 = moderate; 4 = severe. 4) Total the scores for the top section. 5) Plot the total on the graph in the middle of the page. 6) Place your initials in the rater box.

DATE												
Muscles of facial expression												
Lips and perioral area												
Jaw												
Tongue												
Upper Extremity												
Lower Extremity												
Trunk Movements												
TOTAL												

AIMS Total

20

10

6

0

Severity (0-4)												
Incapacitation (0-4)												
Awareness (0-4)												
Problems? Teeth/Dentures Yes/No												
Dentures? Yes/No												
Rater												

Living in the Community
Core B

Lesson 9
Developmental Disabilities

DEVELOPMENTAL DISABILITIES

Key Terms	
Adaptive behavior	Disability
Intelligence	Supports

Definitions of Disability

Staff in group homes will work with many different individuals with disabilities. What is a disability? A disability refers to personal limitations that represent a substantial disadvantage when attempting to function in society. A disability should be considered within the context of the environment, personal factors, and the need for individualized supports. *(American Association on Mental Retardation, 2002)* The population typically in need of supports and services includes individuals with developmental disabilities such as autism, mental retardation, and cerebral palsy. Additional diagnoses may also include epilepsy and/or psychiatric disorders. It is important for staff to be familiar with the different types of disabilities, but it is more important for staff to learn how to provide appropriate care and services for the individuals.

The reason people with disabilities are often given labels, is so they are able to access medical, educational, and human services systems and supports. The laws, funding sources, services, and supports provided are all driven by disability categories (i.e., severe, profound, or labels such as mentally retarded, autistic, seriously mentally ill, or medically fragile). What people with disabilities and their families want is quality care from those paid to help them. Quality life supports and outcomes are what individuals, families, and caregivers are striving to achieve.

Using the Federal Laws as a basis, Indiana has defined developmental disability broadly with a focus on the supports people need to succeed in life. A physical or mental impairment (other than a sole diagnosis of mental illness) that originates before age 22, is expected to continue indefinitely, requires an intensive interdisciplinary plan of habilitative services leading to greater functional independence, and includes substantial limitations in at least three of the following areas requiring intervention:

- Self-care
- Language
- Learning
- Mobility
- Self-direction
- Capacity for independent living
- Economic self-sufficiency

Services & Supports

Currently, best practices in disability related services and supports suggest that providers use a person-centered delivery model that is driven by a person centered planning process. The Indiana Bureau of

Developmental Disability Services emphasizes services that utilize "person-centered planning, and the development of personal skills and outside supports needed for individuals to live independently and be fully included in the community."

This way of thinking about services and supports has tremendous impact on the way you carry out your job responsibilities. For some of the individuals you work with, plans will need to include services and supports around taking medications at home, in the community, and at the work place. This means that whoever is responsible for supporting a person with a disability in reaching the outcomes of their entire plan, needs to be familiar with the ideas behind person centeredness and be able to implement them in their work.

Understanding your own thoughts and feelings about people with disabilities and how services and supports should be delivered is a first step toward implementing this model.

Types of Developmental Disabilities

Mental Retardation

Mental Retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical skills. *(American Association on Mental Retardation (AAMR), 2002)*

When using the AAMR definition, classification, and systems of supports, team members must:

- Evaluate limitations in present functioning within the context of the individual's age peers and culture
- Take into account the individual's cultural and linguistic differences as well as communication, sensory, motor, and behavioral factors
- Recognize that within an individual, limitations often coexist with strengths
- Describe limitations so that an individual's plan of needed supports can be developed
- Provide appropriate personalized supports to improve the functioning of a person with mental retardation

Levels of mental retardation

Intelligence refers to a general mental capacity. It involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience. It is important to remember, however, that an IQ score is only one aspect in determining if a person has mental retardation. Significant limitation in adaptive behavior skills and evidence that the disability was present before age 22 are two additional elements that are critical in determining if an individual has mental retardation.

- Mild (IQ of 70 and below) - Affects about 10 out of every 1,000 persons.
- Moderate (50 and below) - Affects about 3 out of every 1,000 people.
- Severe/profound (30 and below) - Affects about 1 out of every 1,000 people.

Some major contributors to mental retardation include:

1. Infection and intoxication during pregnancy

- Fetal Alcohol Syndrome - alcohol crosses the placenta and remains in the fetus's bloodstream depressing the central nervous system functions in the fetus. It is thought that as little as 3 ounces of pure alcohol can harm the fetus.
- Lead poisoning - ingestion of lead paint, breathing in large amounts of lead (switching to unleaded gas was a specific attempt by the government to control this).
- Rubella or German measles - in the first three months of pregnancy can cause visual and/or hearing impairment, mental retardation and birth defects in the fetus.
- Encephalitis – inflammation of the brain.

2. Trauma
   - Injury during delivery.
   - Lack of oxygen at birth.
   - High levels of X-rays during the pregnancy.
3. Deficiency in metabolism or nutrition
   - Phenylketonuria (PKU) - caused by the inability of the body to convert a common dietary substance - phenylalanine - to tyrosine. This causes abnormal development of the brain. Many states require that testing for this deficiency is done before the infant leaves the hospital. If the proper diet is followed, retardation can be prevented.
   - Galactosemia - caused by the inability to metabolize galactose. Treatment includes following a milk-free diet.
4. Gross brain disease - caused by tumors and other diseases that result in mental deterioration.
5. Unknown causes during pregnancy
   - Microcephalus - characterized by a small head with a sloping forehead. It can be a genetic disorder or be caused by an infection such as rubella.
   - Apert's syndrome - narrowing of the skull which inhibits the proper development of the brain. Surgery may sometimes prevent retardation.
6. Chromosomal abnormalities
   - Down Syndrome - 47 chromosomes instead of 46; some level of retardation, and a variety of hearing, skeletal and heart problems; higher incidence in children born to mothers over the age of 35; physical characteristics include protruding tongue, flat face, malformed feet and hands, short height, and a tendency toward obesity.
7. Gestational disorders - premature delivery, low birth weight.
8. Social factors – social and family interaction, such as child stimulation and adult responsiveness.
9. Educational factors – availability of family and educational supports that promote mental development and increases in adaptive skills. Also, factors present during one generation can influence the outcomes of the next generation.

Cerebral Palsy

Cerebral Palsy (CP) is a condition characterized by paralysis, weakness, coordination problems, and other motor dysfunction due to brain damage. It is estimated that at least 40% of individuals with cerebral palsy have normal intelligence. CP

can be caused by anything that occurs before, during or soon after birth that results in oxygen deprivation, poisoning, cerebral bleeding, or direct trauma to the brain. The characteristics of CP vary according to the individual. CP can affect all four limbs, only the legs, the legs to a greater extent than the arms, or just one-half of the body. There are four types of motor disability:

- Spasticity - muscles involuntarily contract when they are suddenly stretched.
- Athetosis - involuntary, jerky, writhing movements.
- Ataxia - awkward fine and gross motor movements.
- Mixed types – some combination of the above.

Spina Bifida

Spina Bifida is a congenital midline defect resulting from the failure of the bony spinal column to close completely during fetal development. Since the cord does not completely close, the nerves below the site of the defect may be damaged causing paralysis. Spina bifida may also result in other conditions such as meningitis or hydrocephalus. Spina bifida by itself does not usually cause retardation. Surgery is usually performed in early infancy. Individuals with spina bifida may need to use braces, crutches, and wheelchairs to get around.

Pervasive Developmental Disorders

Individuals with pervasive developmental disorders (PDD) exhibit a disturbance in multiple areas of development. PDD is divided into autistic disorder, Asperger's disorder, Rhett syndrome, childhood disintegrative disorder, and PDD NOS (includes atypical autism). Mental retardation is present in up to 80% of the people with PDD. An exception is individuals with Asperger's disorder where by definition there is no delay in language and cognitive ability.

Autism is a life long developmental disability, which appears during the first three years of life and is four times more common in boys than girls. Characteristics shown by an individual with autism may include:

- Severe impairment in relating to family and other people.
- Delayed and deviant language development characterized by inappropriate use of language and peculiar speech patterns (echoing words or phrases).
- Behaviors ranging from repetitive body movements (finger flecking, twirling) to ritualistic behaviors (lining up toys or furniture in a particular order).

At this time there is probably no single underlying cause for autism, probably there are multiple causes. Research in this area continues and at this time the primary causes could involve some form of brain abnormality or biochemical imbalance that impairs perception and understanding.

Attention-Deficit Hyperactivity Disorder

ADHD is the current term for a specific developmental disorder seen in both children and adults. This disorder comprises deficits in behavioral inhibition, sustained attention, resistance to distraction, and the regulation of one's activity level to the demands of a situation (hyperactivity or restlessness).

Individuals with ADHD may exhibit the following (Barkley & Murphy):

- Impaired response inhibition, impulse control, or the capacity to delay gratification
- Excessive task-irrelevant activity or activity poorly regulated to the demands of the situation
- Poor sustained attention or persistence of effort to tasks
- Remembering to do things
- Delayed development of internal language (the mind's voice) and rule following
- Difficulties with regulation of emotions, motivation, and arousal
- Diminished problem-solving abilities, ingenuity, and flexibility in pursuing long-term goals
- Greater than normal variability in their task or work performance

References

Barkley, R. A. & Murphy, K.R. (1998). Attention-Deficit Hyperactivity Disorder: A Clinical Workbook (2nd ed.). Guilford Press.

Mental Retardation Fact Sheet. http://www.aamr.org/Policies/faq_mental_retardation.shtml

For more information about Indiana developmental disability definitions: http://www.state.in.us/fssa/servicedisabl/ddguide/general.html

For more information on services and supports in Indiana: http://www.state.in.us/fssa/servicedisabl/ddguide/residential.html

Definitions of Key Terms

Adaptive behavior—The collection of conceptual, social and practical skills that people have learned so they can function in their everyday lives. Significant limitations in adaptive behavior impact a person's daily life and affect the ability to respond to a particular situation or to the environment.

Disability—Personal limitations that represent a substantial disadvantage when attempting to function in society. A disability should be considered within the context of the environment, personal factors, and the need for individualized supports.

Intelligence—General mental capability. It involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly, and learn from experience.

Supports—Evaluation of the specific needs of the individual and then the suggesting of strategies, services and assistance that will optimize individual functioning. The support approach also recognizes the individual needs and circumstances will change over time.

Supplemental Information for Lesson 9

Tips for Providing Person Centered Services and Supports

*Value each person as a **person first**, not a disability label.*

Put yourself in the person's place. How would you want to have someone talk to you? Do you like to be talked about or with? Do you like it when people talk about you as "4 eyes", "the heavy one", "the bald guy with glasses"? Often, people with disabilities are thought about as their labels, rather than their names. Remember each of us is a person first. For a person with a disability, the disability is only one part of who they are as fellow human beings. Talk **to** people not **about** them. Share information with the person about their wellness, health, and medications.

Sometimes, professionals in our field carry out their practices based on stereotypes associated with the labels themselves rather than getting to know an individual person and what they are good at and need support with. Get to know the uniqueness of each individual you support; recognize their gifts and capacities. When you understand what a person likes, is good at, and is interested in, you can figure out ways to help them direct their own wellness and health care with the supports they need.

Think Holistically

Sometimes we tend to consider ourselves specialists. After all, we have gone to school to learn the knowledge and skills we need to do our specific job. This can lead to thinking of a person in terms of our specific job, rather than as a whole person. Remember what you do with a person is only one part of their lives. Make sure that you recognize how and when your work is related to other parts of the person's life.

Value and empower the person, their family, and other members of their network.

Work collaboratively with the person and your team to ensure the person's vision is met and quality services and supports are provided. Ask yourself if the person feels that he or she can share their ideas and support needs, and preferences with you and the team? Do they have enough information so that they are truly informed about their choices? Can the person and their family decide the type and amount of supports they use? Taking medications is a very complex and personal task. Making sure that the person is fully informed will support them in learning to participate as fully as they are able in the process.

*Do with, **not** for or to*

Historically, human services were created to help people with disabilities have a better quality of life. Sometimes in the efforts to make lives better, we have done things **to** people (like sterilization) or **for** people (like make them take a medication they don't want to take) rather than teach them how to do things for themselves. Systems have created learned helplessness in many individuals with disabilities.

Work with an individual and their family to figure out the best supports for them, in learning as much as they can about their own healthcare and the impact that it

has on their lives. Remember, **every person** can participate actively (partial participation is good!), in their wellness and healthcare if we are creative in designing purposeful activities and supports they need to succeed.

The following table compares some of the new and old ideas and is meant to "jog your thinking" about what you do everyday at work.

Traditional Ways of Thinking	**Innovative Ways of Thinking**
Something is wrong with this person and the label tells me what it is. My job is to help them be more normal.	This person has lots of abilities, interests and preferences, individual learning styles, and unique support needs.
Services for people with disabilities are already in place according to perceived disability label and cognitive, physical, and cognitive capacity. I must provide services and supports exactly the way they have always been provided.	I can design creative, individualized meaningful and purposeful, learning activities and supports using abilities, etc., as my building blocks.
I am responsible only for one part of the person (i.e., making sure that a person takes the right medication at the right time).	Every part of a person and their life circumstances influences all other parts. I am responsible for making sure my team members know how our work fits together to support the whole person and the quality of life. For example, a person who works at Kmart may need to take their seizure medication at the store during work hours.
My job is to do everything for the person (i.e., give them medication).	I can teach the person how to do things for themselves, with the support they need to succeed (i.e., self-medication). I can be creative in deciding how a person can participate partially in an activity (i.e., gaze at the pill bottle when asked if they are ready to take their medication for seizures).

Muscular Dystrophy

Muscular Dystrophy is a hereditary disease characterized by progressive weakness caused by the degeneration of muscle fibers. Its cause is not known at this time. Symptoms exhibited will depend on the type of muscular dystrophy and may include muscles being replaced by fatty tissue, weakness in the shoulders and arms, and physical mobility becoming impaired. There is no known cure; can be associated with early death.

Tourette and other Tic Disorders

These disorders are characterized by motor movements and vocalizations that are rapid, sudden, not rhythmic, recurrent, and usually frequent. Individuals with these disorders may feel that their urges to move or vocalize are irresistible, but they can usually suppress them for certain lengths of time. Swearing occurs infrequently. Diagnosis of these disorders is difficult especially in individuals with mental retardation.

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Living in the Community Supplemental Lessons

Supplemental Lesson 1
Self-Medication

SELF-MEDICATION

Teaching an individual to self-medicate must be an individualized process based on the individual's functioning level. The process used to teach an individual to self-medicate will vary between the homes that serve the developmentally disabled and the homes that serve the mentally ill.

When teaching an individual to self-medicate, the individual's learning style and abilities must be considered. The individual may be able to remember drug names and match the written name to the name on the bottle. Some individuals may need cues concerning shape or color of the drug to be able to locate the correct drug. It is important to encourage each individual, no matter what his/her functioning level, to participate in learning about his/her medication.

Steps to Self-Administration

The following steps are only suggestions and should be adapted to meet the needs of your individuals. Additional information related to self-administration of medication. If the individual is in a day program, the medication counter will be checked daily. The nurse or designated staff member will fill the medication counter weekly. Eventually, the individual will be responsible for handling the bottle of medication and filling own medication counter. Depending on the individual's ability, the medication counter may be filled on a daily basis until the individual is ready to be responsible for a week's medication.

Level 1	Staff nurse or designated staff member will fill the individual's weekly medication box or pill counter with the week's medication. The medication box must be labeled with the name of each medication, who ordered it, when it was ordered, the dosage required, and the time when the medication should be taken.
	Individual will be informed of the times to report for medication and reminded as necessary.
	Staff member will supervise individual taking medication out of container.
	Staff member will question the individual as to the name of the medication being taken.
	Staff member will question the individual why the medication is being taken.
	Staff member will observe the individual taking the medication and chart observation.
	A black circle will be put around the time area if the medication is late and a red circle will be used if the medication is missed.

Level 2	Staff nurse or designated staff member will fill the individual's weekly medication box or pill counter with the week's medication. Medication box must be labeled with the name of each medication, who ordered it, when it was ordered, the dosage required, and the time when the medication should be taken.
	Individual will report to staff member at assigned times, will be given medication container and medication sheet and will be expected to take medication as prescribed.
	Individual will initial medication sheet.
	Staff member will check medication containers and medication sheet. Late and missed medication will be noted on the sheet.
Level 3	Staff nurse or designated staff member will fill individual's weekly medication box or pill counter with the week's medication. Medication box must be labeled with the name of each medication, who ordered it, when it was ordered, dosage required, and the time when the medication should be taken.
	Individual will keep medication in own room.
	Individual will initial medication sheet.
	Individual will report to staff when medication has been taken.
	Staff will chart that individual reported taking medication.
	Staff will count pills weekly, or as needed, to check accuracy of individual reporting.

Steps to Learning Medication

Choosing the correct medication:

- Memorization--individual will memorize the name of the drug and the dosage. This will take repeated practice and as the individual's medication changes, will have to be re-taught.
- Color code the top or back of the prescription bottle. The individual can look at the medication sheet which will also be color coded and match the name of the medication to the correct bottle.
- Place a picture of the medicine on the back of the bottle and on the medication sheet. The individual can look at the medication sheet and match the picture to the bottle.
- Number the bottle and the medication sheet. The individual can match the numbers.

Selecting the correct amount of medication:

- Memorization--individual will memorize the name of the drug and the dosage. This will take repeated practice and as the individual's medication changes, will have to be re-taught.
- Use a pill counter or medication box.
- Place the number needed on the back of the bottle and the individual can match to the medication sheet.

Encouraging participation:

- Include medication information on communication books and boards so that the individual can interact with the staff at medication time.
- Develop a calendar, daily schedule, or weekly schedule for the individuals to keep track of whether or not they took their medication. Develop a non-food reward system to encourage 100% participation.

Teaching Self-Administration

The following task analyses are geared toward the lower functioning individual who will need supervision while handling medication. Sample #1 is for the individual who is just learning how to self-medicate. Sample #2 is for the individual who is more advanced in the technique. Sample #3 is for the individual who is independent. These are just samples and should be adapted to meet individual individual's needs.

Sample #1

The individual will:
Come to the medication area when asked.
Locate a drinking glass.
Fill the drinking glass with water.
Listen to the name of the first medication to be taken.
Repeat the name of the medication.
Listen to the amount of medication to be taken.
Repeat the amount of medication to be taken.
Listen to a description of the medication.
a. Color
b. Shape
State reason for taking medication.
Take the medication.

Sample #2

Inform the individual it is time to take his/her medication.
Ask the individual to come to the medication storage area.
The individual will:
Locate a drinking glass.
Fill the drinking glass with water.
Locate personal medication storage container.
Open container.
Locate medication sheet.
Match the time on the medication sheet with the clock.
Listen to the name of the first medication to be taken. Repeat the name of the first medication to be taken.
Listen to the amount of medication to be taken.
Repeat the amount of medication to be taken.
Listen to a description of the medication.
a. Color
b. Shape
State reason for taking the medication.
Locate the medication according to the name and description.
Match the name on the medication to the medication sheet.
Open the medication.
State the name of the medication.
State the amount of medication to be taken.
Remove the correct dosage.
Place correct dosage on the tray.
Close the medication container.
State the name of the medication.
State the amount of medication to be taken.
Take the medication.
Locate the medication sheet.
Find the correct medication.
Find the correct time.
Initial the medication sheet.
Place medication into medication storage container.
Return the medication sheet to storage area.

Sample #3

The individual will:
Locate a drinking glass.
Fill the drinking glass with water.
Locate personal medication storage container.
Open container.
Locate medication sheet.
Match the time on the medication sheet with the clock.
Locate the name of the medication to be taken on the medication sheet.
State the name of the medication.
State the amount of medication to be taken.
Locate the medication.
Match the name on the medication to the medication sheet.
Open the medication.
State the name of the medication.
State the amount of medication to be taken.
Remove the correct dosage.
Place correct dosage on the tray.
Close the medication container.
State the name of the medication.
State the amount of medication to be taken.
Take the medication.
Locate the medication sheet.
Find the correct medication.
Find the correct time.
Initial the medication sheet.
Place medication into medication storage container.
Return the medication sheet to storage area.

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Living in the Community Supplemental Lessons

Supplemental Lesson 2
Diabetes

DIABETES

Management of Diabetes

Diabetes is caused by the partial or complete failure of the islets of Langerhans to produce insulin, which results in abnormally large amounts of sugar (glucose) collecting in the bloodstream. The glucose does not enter the cells of the body and so is not used as fuel. Symptoms include increased appetite, weight loss, development of diabetic ketoacidosis, frequent urination, increased amounts of urine, and thirst.

There are two types of diabetes. Insulin Dependent Diabetes Mellitus (IDDM) Type I usually occurs in younger people. The cells in the pancreas failing to produce and release insulin cause it. Diet is low in sugar and high in protein and carbohydrates. Treatment is with injectable insulin. Carbohydrates must be replenished by medication in lacking in the diet.

Non-Insulin Dependent Diabetes Mellitus (NIDDM) Type II usually occurs after age thirty-five. It is caused by the cells in the pancreas failing to produce enough insulin or the insulin being produced is ineffective. NIDDM type II can often be controlled by a carefully balanced diet, oral hypoglycemic medications and/or insulin.

Antidiabetic Agents

Action	Use	Examples	Adverse Effects
Insulin			
Replace insulin in the body when it is not produced by the islets of Langerhans	Treat diabetes	insulin zinc suspension (Lente Insulin) protamine zinc insulin suspension (Iletin PZI) isophane insulin suspension [NPH] (Humulin, Iletin NPH) regular insulin concentrated (Regular Iletin) prompt insulin zinc suspension (Semilente)	Perspiration Irritability Drowsiness Skin irritation at site of injection Urticaria Hypoglycemia

Action	Use	Examples	Adverse Effects	Nursing Considerations
Oral Hypoglycemics				
Stimulate islets of Langerhans cells to produce insulin and lower blood sugar.	Treat Type II diabetes, sometimes given along with insulin in Type I	acetohexamide (Dymelor) chlorpropamide (Diabinese) Tolbutamide (Orinase) glyburide (Diabeta, Micronase) tolazamide (Tolinase) glipizide (Glucotrol)	Renal impairment Sulfonamide sensitivity Liver dysfunction Skin rash Nausea and vomiting Heartburn Hypoglycemia	These drugs interact with many others. Be aware of what other medications the individual is taking and watch for signs and symptoms of drug interactions. Watch the individual for hypoglycemia Report any change in the urine test to the staff nurse. Administer hypoglycemics ½ hour before a meal.

Drawing Insulin

1. Assemble all supplies
   a. bottle of insulin
   b. alcohol swabs
   c. insulin syringe
2. Wash your hands
3. Mix the insulin
   a. Slowly roll the bottle between your hands
   b. NEVER shake the bottle
4. Inspect the bottle of insulin
   a. Insulin should appear uniformly cloudy after mixing (This is for NPH and other cloudy long-lasting insulin).
   b. Do not use if the insulin material remains at the bottom of the bottle after mixing.
   c. Do not use if clumps are floating in the mixture.
   d. Do not use if particles on the bottom or sides give the bottle a frosted appearance.
5. Clean the rubber stopper on the insulin bottle with an alcohol swab.
6. Draw air into the syringe by pulling out on the plunger to the approximate dose.
7. Insert the needle into the rubber stopper on the upright bottle and push the plunger down.
8. Turn the bottle and syringe upside down.
9. Slowly pull the plunger down about five units past the dose.
   a. If there are no bubbles – push the top of the plunger tip up to the line, which marks the exact dose.

b. If there are air bubbles – flick or tap the syringe at the bubble with your finger. When the bubble goes to the tip of the syringe, push the plunger tip up to the exact dose.

10. Remove the syringe from the bottle, place cap over the needle and place on a flat surface.

Injecting Insulin

Site selection is very important. Insulin should be injected into the subcutaneous tissue between the fat layer under the skin and the muscles, which lie below that. Possible sites include the upper outer area of the arms; the front and side areas of the thighs; the buttocks; just above the waist on the back; and the abdomen, except the area around the navel and at the waistline.

If the individual is going to be running, jogging or exercising during the day, the legs should not be used as an injection site. If the individual is going to be performing tasks that require heavy lifting do not use the arms as an injection site that day. If an injection site has developed unusual bumps and dimples it should not be used for two weeks. If after the two weeks the bumps are still there, the site cannot be used again. The fat has atrophied.

Site rotation is a system of choosing a pattern of injection sites that will help the individual choose different sites for each injection. Rotation of sites will help to avoid a spot that might still be tender from a recent injection.

Injecting Insulin

1. Clean the injection site with an alcohol swab
2. Pinch up a large area of skin
3. Insert the needle into the skin at a 90-degree angle making sure the needle is all the way in
4. Quickly push the plunger all the way down
5. Hold the alcohol swab near the needle tip and pull the needle straight out of the skin
6. Dispose of all supplies according to agency policy
7. Chart injection and rotation site used

Diabetic Reactions

Hypoglycemia (low blood sugar) is caused by an insulin reaction from too much insulin, an increase in exercise and/or a decrease in food intake. Symptoms include:

- Early symptoms are headache, nervousness, paleness, irritability, moody, profuse perspiration, blurred vision, numbness of extremities, giddiness, hunger, drowsiness, confusion
- Late symptoms are loss of consciousness, coma, and convulsions.

At the first sign, take sugar immediately (2 teaspoons or 2 packs

granulated sugar; ½ to 1 cup fruit juice; or 1 candy bar)

Hyperglycemia (high blood sugar) is caused by ketoacidosis, poor diet, emotional stress, refusal or neglect to take medication.

- Early symptoms are dry hot skin, drowsiness, breath smelling fruity, low blood pressure, vomiting, thirst, large amount of sugar in the urine, high blood sugar
- Late symptoms include Kussmaul breathing (deep and fast), unconsciousness, coma, and death.

Monitoring Medication Response

Urine tests detect ketones by using Ketostix and Dia-stix. To test for sugar use a Tes-tape, a strip of tape dipped into urine. If glucose is present, the tape will turn green or blue. The Clinitest uses ten drops of water that are placed in a test tube with five drops of urine and a Clinitest tablet. The color of the solution is compared to a chart to determine the amount of sugar in the urine. Clinistix are plastic strips that are dipped into urine and compared to a color chart. Dia-stix is similar to Clinistix.

Regular urine testing before meals and at bedtime provides the necessary information for proper adjustment of insulin dosage. Accuracy is improved if the bladder is emptied first and then the urine to be tested is collected 30 minutes later. The sugar content of the second collection is more representative of the current blood sugar level.

Blood tests are also used to monitor sugar levels. Fasting blood sugar (FBS) involves the individual drawing blood in the morning after eight hours without food. Postprandial glucose is blood tested for sugar after two hours without food. Monitoring of blood for sugar levels is the method of choice for managing diabetes. Blood sugar strips such as Chemstrip bG and Visidex II may be used for this purpose; or a Glucometer. Observe, chart and record the individual's dietary intake. Some individuals will need carbohydrate replacements. Report uneaten items to the staff nurse.

Interactions with Over-the-Counter Medications

An individual with diabetes should avoid products containing sugar since sugar adds calories; products containing alcohol; liquid medications tablets or capsules should be used instead; oral decongestants which can raise blood sugar; and aspirin on large doses.

The following list contains a few examples of medications that might be used and is not meant to be all-inclusive.

- Cough medications – Colorex expectorant, Hytuss tablets
- Sore throat products – Chloraseptic spray, salt water gargles
- Decongestants – Afrin, Neo-Synephrine
- Fever reducers/pain relievers – Tylenol, Datril
- Cold and allergy medications – Chlo-Trimetron, use face masks
- Antidiarrheals – Pepto-Bismol, Kaopectate
- Laxatives – Konsyl, Agoral

- Vitamins – TheraGran Liquid, Tri-Vi-Sol Drops
- Antacids – Di-Gel, Mylanta
- Nausea/Vomiting – Bonine, Dramamine

Interactions with Prescription Medications

Examples of drugs that can raise blood glucose are Lithium, estrogens, caffeine, morphine, nicotine, corticosteroids, Epinephrine-like drugs, Phenytoin.

Examples of drugs that can decrease blood glucose are ethyl alcohol, insulin, sulfonylureas, anabolic steroids, fenfluramine salicylates in large doses.

Health Care

Individuals with diabetes must take extra precautions with all aspects of their health care. When caring for their skin, individuals should avoid scratches, punctures and other injuries. Individuals should wear gloves if participating in an activity that might injure their hands. They should avoid getting sunburned. All injuries should be treated promptly. If injuries do not start to heal within 24 hours, or if they become infected, contact the staff nurse.

Feet should be checked daily for sores, changes in color, temperature, shape and signs of infection. Toenails should be clipped straight across. Contact the staff nurse concerning the removal of corns and calluses. The individual should avoid going barefoot, using hot water bottles, heating pads, etc. on their feet.

The individual should have a sick-day plan. Check with the staff nurse. The individual should always take their medication. Encourage the individual to drink fluids. Monitor blood glucose as necessary.

Additional Information Concerning Diabetes

Know which individuals are on insulin so that you can observe dietary intake and reactions to the medication. Oral hypoglycemic agents are primarily used in adult-onset diabetics. Use all of your senses to observe and monitor these high-risk individuals. Observe their skin condition closely. Diabetic medications along with cardiovascular medications should have priority in administration if important medications need to be given before others. Goals of drug treatment are to:

- Normalize carbohydrate, protein and fat metabolism
- Control blood sugar
- Eliminate acidosis
- Prevent hypoglycemia (insulin shock)
- Promote normal growth

Living in the Community Supplemental Lessons

Supplemental Lesson 3
Substance Abuse

SUBSTANCE ABUSE

Key Terms	
Alcohol	Caffeine
Cocaine	Marijuana
Metabolize	

Individuals who are taking over-the-counter and/or prescribed medications must be aware of the interactions that can occur between those medications and alcohol, marijuana, cocaine, and caffeine. Staff must also be aware of these interactions. A chart listing the interaction effects of alcohol and other drugs is included.

If you suspect an individual is under the influence of alcohol or an illegal substance and it is time for the client to receive medication, **do not** administer the medication to the individuals. Contact the staff nurse immediately for further instructions.

Alcohol

Alcohol is a drug. Alcohol can produce feelings of well being, sedation, intoxication, unconsciousness, and death. Alcohol affects the metabolic process when drugs are forced to compete with alcohol for processing by the body; one or both are metabolized more slowly. The effect of alcohol and/or the drug is exaggerated because it remains active in the blood for an extended period of time. Adverse effects of alcohol include:

- Liver damage resulting from prolonged drinking which can reduce the metabolism of many drugs, causing a normal dose to be unexpectedly potent.
- Barbiturates or sedatives will have less effect in heavy drinkers during periods of sobriety. Excessive drinking has increased the body's ability to metabolize these drugs. Heavy drinkers will begin to take larger doses of these drugs, because the usual dose will have little effect. Results of taking the large dose and then drinking can be fatal.
- The combination of downers, alcohol and diazepam (Valium) being used to combat a cocaine crash can cause delay withdrawal of up to ten days. This may lead to the possible onset of delayed or "unexpected" seizures and improper diagnosis because of the delay.

Marijuana

Physical effects of marijuana include a faster heartbeat and pulse rate, bloodshot eyes, and a dry mouth and throat. Mental effects include impaired or reduced short-term memory, altered sense of time, and a reduced ability to do things that require concentration.

Marijuana affects several different systems of the body.

- Reproductive system – influences levels of some hormones related to sexuality; irregular menstrual cycles; temporary loss of fertility.
- Cardiovascular system – increases the heart rate as much as 50 percent; can cause chest pain.

- Respiratory system – irritates the lungs and damages the way they work; when combined with nicotine, can cause cancer and emphysema.

Cocaine

Cocaine is addictive. Immediate effects include dilated pupils and increased blood pressure, heart rate, breathing rate and body temperature. The effects begin within a few minutes and peak in about 15 to 20 minutes and disappear within an hour. Long-term effects include depression, hallucinations, and signs of psychosis. Early signs of trouble are increased irritability, short temper and paranoia.

Effects on the systems of the body include:

- Cardiovascular system – moderate doses can overtax the heart and may be fatal. Regular use can cause heart palpitations, angina, arrhythmia, and even a heart attack.
- Brain – overstimulates the neurotransmitters.

Combining cocaine with depressants such as heroin, barbiturates, or sedatives may result in the build-up of either drug to seriously toxic levels. Combining cocaine with other stimulant can be especially dangerous. Mixing local anesthetics and cocaine is also hazardous.

Caffeine

Caffeine has several immediate effects on the body including:

- an increase in heart rate and breathing
- an increase in blood pressure
- an increase in body temperature
- a quickening of the overall body processes
- an increase in the speed in which you react to stimuli
- an increase in stomach acids
- a decrease in the body's ability to burn sugar
- an increase in urine production
- an increase in sensitivity to sensory stimuli

Caffeine is included in many over-the-counter and prescription drugs because it is a mild stimulant; it offsets the drowsiness other ingredients in the medicine cause and it gives you a lift and helps you feel better. Physical problems include: headaches, loss of appetite, loss of weight, diarrhea, frequent loose stools, stomach upset, muscle tremors, heart palpitations, rapid breathing, ringing in the ears, sleeping problems. Emotional problems associated with caffeine are: mood changes, emotional upset, feelings of nervousness, agitation, anxiety or depression, exaggerated or unnecessary concern.

Definitions of Key Terms

Alcohol—A colorless, volatile, flammable liquid derived from fermentation of sugars and starches and used, either pure or denatured , as a solvent and in drugs, cleaning solutions, explosives, and intoxicating beverages.

Caffeine--A white, bitter, crystalline substance that has stimulant effects and constricts blood vessels in the brain.

Cocaine—A colorless or white crystalline narcotic extracted from coca leaves and used medically as a local anesthetic.

Marijuana—The dried flower clusters and leaves of the hemp plant especially when taken to induce euphoria.

Metabolize—To undergo change in the body..

Living in the Community Supplemental Lessons

Supplemental Lesson 4

The Nervous System and Seizure Disorders

THE NERVOUS SYSTEM AND SEIZURE DISORDERS

Key Terms	
Analgesic	Anesthetic
Ans	Anticonvulsant
Depressant	Epilepsy
Hypnotic	Neuron
Sedative	Stimulant
Tic douloureaux	

Review of the Structures and Functions of the Nervous System

The nervous system is divided into four parts: the brain, spinal cord, nerves and the autonomic nervous system. The two main functions for the nervous system are to carry and coordinate impulses from the outside world (external) and the body (internal) to the brain; and carry the brain's responses (reactions) to the body in reaction to impulses.

Additional Information Concerning the Nervous System

When working with an individual who is receiving medication for nervous system disorders, speak in short, simple sentences; be prepared to give frequent explanations; approach the individual in a calm, unhurried manner; and listen to the individual's fears and concerns. There are five major special considerations that the staff must follow for individuals taking nervous system medications:

- Safety
- Activity
- Respite
- Structured environment
- Support

When working with an individual who has seizures it is important to help the individual maintain a healthy self concept and maintain independence. Individuals with seizure disorders should carry an ID card and medical information with them at all times. Individuals should always go swimming with a buddy. Individuals should avoid working at great heights; working around moving machinery; large amounts of caffeine; alcohol; becoming overly tired and activities that require a great deal of spinning.

Staff should encourage the individual to brush and floss their teeth after every meal and snack. If circumstances during the day do not permit brushing after the noon meal, encourage the individual to floss. A disclosing agent may be used which will leave a mild stain on all the places where plaque remain. A water pick, or dental stimulators may also be used. Poor dental care will increase the chances of gum tissue overgrowth that is frequently painful, embarrassing, and must sometimes be corrected with oral surgery.

Major Nervous System Disorders

Disorder	Cause	Symptoms	Example	Treatment
Slow or non-functioning nerves or brain cells	Unknown	Poor respiration, Poor heartbeat		medication
Over-functioning nerves or brain cells	A sudden, abnormally excessive electrical discharge from the brain	Twitching, irregular movements, improper thought patterns, convulsions. Can last from a few seconds to several minutes.	Epilepsy. Grand mal (tonic-clonic seizures), Petit mal (absence seizures), psychomotor or temporal lobe epilepsy (complex partial seizures	Some of the common medications used to treat epilepsy are: phenobarbital (Luminal), ethosuximide (Zarontin), valproic acid (Depakene), carbamazepine (Tegretol), phenytoin (Dilantin).
Interference of impulse on nerve pathway	unknown	loss of motion, uncontrollable movements	Huntington's Disease, Myasthenia Gravis, Parkinson's Disease	medications help temporarily
Infections of nerves or brain cells	Infections from other parts of body or germs that attack nerve cells and interfere with nervous system structures	fever, general aches, weakness in extremities	Meningitis, Encephalitis, Poliomyelitis, Guillain-Barr Syndrome	medication
Inflamed nerves or brain cells	varied	nerves or brain cells irritated and swollen, may be constant or intermittent condition, almost always accompanied by pain	neuritis, neuralgia, Tic Douloureux, sciatica	medication to reduce pain and swelling

Selected Medications by Classification

1. Stimulant - Amphetamines

Action	Use	Examples	Adverse Effects	Special Considerations
increase mental and physical alertness and activity	weight reduction, control hyperactivity	amphetamine sulfate, dextroamphetamine sulfate (Dexedrin), methylphenidate HCl (Ritalin)	Restlessness Palpitations Tachycardia Hyperactivity	Do not give within six hours of going to sleep. Individual should void drinks with caffeine. Some amphetamines are controlled substances and can become habit-forming.

2. Depressants

Action	Use	Examples	Adverse Effects	Special Considerations
Sedatives				
decrease sensitivity of nervous system.	reduce physical and mental activity, control convulsions.	phenobarbital (Luminal)	Rash Nausea Dependence	
Hypnotics				
decrease sensitivity of nervous system	produce sleep	temazepam (Restoril) ethchlorvynol (Placidyl) flurazepam HCl (Dalmane) triazolam (Halcion)	Morning-after drowsiness Stomach upset	Individual may become dependent on the drug. Drug may have a cumulative effect.
Anesthetics				
decrease sensitivity of nervous system.	to cause loss of sensation, treat burns.	dibucaine HCl (Nupercainal Cream) lidocaine HCl (Xylocaine)	Drowsiness Palpitations	
Anticonvulsants				
decrease sensitivity of nervous system	stop or prevent convulsions or seizures.	phenytoin sodium (Dilantin) primidone (Mysoline, Sertan) haloperidol (Haldol) carbamazepine (Tegretol) valproic acid (Depakene, Depakote)	Swelling and redness of gums Drowsiness Dizziness Double vision Tremors Confusion	some of the drugs in this category may also be given parenterally by licensed personnel during a seizure.

Additional Information Concerning Commonly Ordered Medications

Action	Use	Adult Dosage	Adverse Effects	Special Considerations
Phenobarbital (Luminal) - Sedative				
Not completely known. Drug selectively blocks transmission of nerve impulses by impeding the transfer of sodium and potassium across cell membranes. This produces a sedative effect and suppresses the spread of nerve impulses that are responsible for epileptic seizures.	A mild sedative to relieve anxiety or nervous tension and as an anticonvulsant to control grand mal epilepsy and all types of partial seizures.	As a sedative--15 to 30 mg 2-4 times per day As an anticonvulsant--100 to 200 mg given as a single dose at bedtime Total daily dose should not exceed 600 mg. Actual dosage and administration schedule must be determined individually by the individual's physician.	**Expected--** drowsiness, impaired concentration, mental and physical sluggishness. **Unexpected--** allergic reactions (skin rash, hives), dizziness, unsteadiness, impaired vision, double vision, nausea, vomiting, diarrhea	If used as an anticonvulsant, drug should not be discontinued abruptly. Sudden withdrawal can cause repetitive seizures. Gradual reduction in dosage should be made over a period of time.
temazepam (Restoril) - hypnotic				
produces a calming effect by enhancing the action of a nerve transmitter.	a sedative used to induce sleep.	15 - 30 mg at bedtime Total dosage should not exceed 90 mg.	**Expected--** drowsiness, lethargy, and unsteadiness **Unexpected—** allergic reactions, dizziness, slurred speech, nausea, indigestion	Do not discontinue abruptly if taken continually for more than 4 weeks. Using some over-the-counter drugs containing antihistamines (allergy and cold preparation, sleep aids) can cause excessive sedation in some persons. Avoid regular nightly use of any hypnotic. Restoril can produce psychological and/or physical dependence if used in large doses for extended periods of time.

Action	Use	Adult Dosage	Adverse Effects	Special Considerations
phenytoin (Dilantin) - anticonvulsant				
Not completely known but thought to promote loss of sodium from nerve fibers to lower and stabilize their excitability and thereby inhibit the spread of electrical impulses along nerve pathways	As an antiepileptic drug to control seizures, available in combination with phenobarbital as some seizure disorders require the combined actions of both drugs for effective control.	Initial dose 100 mg three times per day Increase dose with caution by 100 mg/week as needed and tolerated Once optimal maintenance dose is established, total daily dose may be taken once per day if capsules are used Total daily dosage should not exceed 600 mg	**Expected:** mild fatigue, sluggishness and drowsiness, discoloration of urine (pink to red to brown) -- this is not significant **Unexpected:** allergic reactions - skin rash, hives, headache, dizziness, nervousness, insomnia, muscle twitching, nausea, vomiting, constipation, overgrowth of gum tissues, excessive growth of body hair	Prompt action capsules and extended action capsules should not be substituted for each other; consult a physician Must not be stopped abruptly. Dosage schedule must be individualized. Drug must be taken at the same time each day for successful management of seizure disorders.
carbamazepine (Tegretol) - anticonvulsant				
Not completely known but thought to reduce excitability of certain nerve fibers in the brain.	For control of several types of epilepsy.	Initially -- 200 mg/12 Hours Total daily dosage should not exceed 1200 mg and must be determined by the physician for each individual.	**Expected**: dry mouth and throat, constipation, impaired urination. **Unexpected:** allergic reactions (skin rash, hives, itching), headache, dizziness, drowsiness, unsteadiness, fatigue, blurred vision, confusion, ringing in ears, loss of appetite, nausea, vomiting, indigestion, diarrhea, hair loss, water retention, frequent urination.	Can cause serious adverse effects therefore should only be used after less hazardous drugs have proven ineffective Drug should not be discontinued suddenly. Should be taken at the same time every day.

Action	Use	Adult Dosage	Adverse Effects	Special Considerations
valproic acid (Depakene, Depakote) - anticonvulsants				
Not completely known. Thought to suppress spread of abnormal electrical discharges that cause seizures by increasing the availability of a nerve impulse transmitter.	effective management of epilepsy (petit mal, grand mal, myoclonic), sometimes used in combination with other anticonvulsants.	Initially--15 mg/kg/24 hours and is increased cautiously by 5-10 mg/kg/24 hours every seven days as needed and tolerated. Usual dose is 1000 mg - 1600 mg in divided doses. **Note**: Preferably taken one hour before meals. May be taken with or after food if needed to prevent stomach irritation.	**Expected:** drowsiness and lethargy **Unexpected:** allergic reaction, headache, dizziness, confusion, unsteadiness, slurred speech, nausea, indigestion, stomach cramps, diarrhea.	Valproic acid can impair blood clotting mechanisms. If injured or having surgery or dental work, inform physician or dentist that individual is taking this drug. Avoid aspirin. Over-the-counter medications containing antihistamines (allergy and cold medications, sleep aids) can enhance sedative effects of the drug. Avoid concurrent use with Klonopin (could result in continuous petit mal episodes). To avoid mouth and throat irritation the tablet should not be crushed and the capsule should not be opened. Syrup can be diluted in water or milk.

Definitions of Key Terms

Analgesics-- Medications that relieve muscle, joint and bone pain.

Anesthetics--Medications that cause a loss of sensation.

Anticonvulsants--Medications used to stop or prevent convulsions or seizures.

Autonomic Nervous System (ANS)--The division of the vertebrate nervous system that regulates involuntary action (intestines, heart, and glands) and makes up the sympathetic and parasympathetic nervous systems.

Depressants--Medications used to decrease mental and physical activity.

Epilepsy--Chronic disorder characterized by recurring seizures that last from a few seconds to several minutes and require specific medication for prevention and control.

Hypnotics--Medications used to produce sleep.

Neuron--A nerve cell.

Sedatives--A drug having a calming effect, relieves anxiety and tension, being replaced by tranquilizers (less likely to cause drowsiness or dependency.

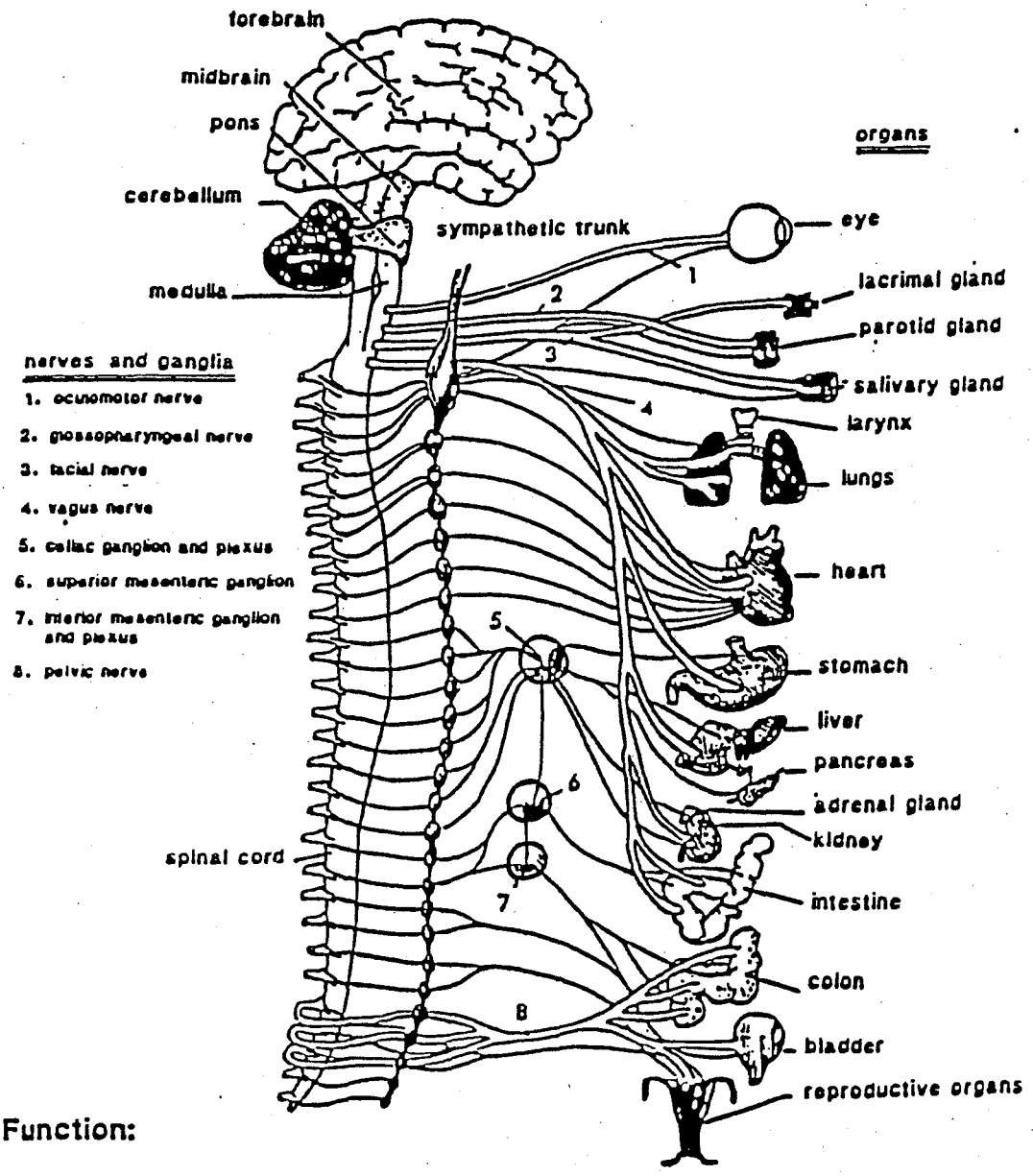
Stimulant--An agent that promotes the activity of a body system or function (example: amphetamines and caffeine).

Tic Douloureux--Spasm of a nerve in the face.

Epilepsy: Recognition and First Aid

SEIZURE TYPE	WHAT HAPPENS	WHAT TO DO	WHAT NOT TO DO
Convulsive Generalized Tonic-clonic (Grand Mal)	Seizure lasting one to three minutes; beginning suddenly with an involuntary cry, loss of consciousness and falling, violent convulsive movement of the head, trunk and extremities, and excessive salivation. May have loss of bladder and/or bowel control. Person awakens spontaneously, is dazed and confused. Person usually falls into a deep sleep that lasts several hours. Does not remember the episode.	❑ Look for medical identification. ❑ Protect from nearby hazards. ❑ Loosen ties or shirt collars. ❑ Place folded jacket under head. ❑ Turn on side to keep airway clear. ❑ Reassure when consciousness returns. ❑ If single seizure lasted less than 10 minutes, ask if hospital evaluation is needed. ❑ If multiple seizures, or if one seizure lasts longer than 10 minutes, take to emergency room.	❑ Don't put any hard object in the mouth. ❑ Don't try to hold the tongue. It can't be swallowed. ❑ Don't try to give liquids during or just after a seizure. ❑ Don't use oxygen unless there are symptoms of a heart attack. ❑ Don't use artificial respiration unless breathing is absent after muscle jerks subside, or unless water has been inhaled. ❑ Don't restrain.
Nonconvulsive Absence seizure (Petit mal)	Seizure lasting several seconds; consisting of sudden, momentary lapse of consciousness. During the seizure, person will have a blank stare and is unaware of surroundings but does not actually lose consciousness, fall, or convulse. May have a minor twitching of eyelid or facial muscle. Petit mals may recur more than 100 times a day. Person resumes normal functioning after each seizure and does not remember attack.	❑ No first aid necessary.	❑ Don't restrain.
Complex Partial (Psychomotor or Temporal Lobe)	Seizure consisting of sudden alterations in behavior. Person may walk about aimlessly, talk in an irrational manner, laugh, and engage in purposeless or inappropriate action. Begins with an "aura" when seizure ends, person is confused and does not remember seizure.	❑ Speak calmly and reassuringly to individual and others. ❑ Guide gently away from obvious hazards. ❑ Stay with the individual until completely aware of the environment.	❑ Don't grab hold unless sudden danger threatens. ❑ Don't try to restrain. ❑ Don't shout. ❑ Don't expect verbal instructions to be obeyed.

The Nervous System



Function:

1. Controls body activities
2. Coordinates body activities
3. Carries impulses to and away from brain

Living in the Community Supplemental Lessons

Supplemental Lesson 5
Nutritional Deficiencies

NUTRITIONAL DEFICIENCIES

Key Terms

Anaphylactic reaction
Aspiration
Dehydration
Hypokalemia
Iron deficiency anemia
Osteoporosis
Pernicious anemia

For the human body to grow and maintain health, specific substances must be present such as proteins, carbohydrates, fats, water, cellulose, vitamins and minerals. All of these substances are available in the foods we eat. Eating the foods necessary for good health is called nutrition. People can get sick if they fail to eat any substance needed for nutrition for a period of time. This illness is a "nutritional deficiency." People with a serious deficiency are said to have "malnutrition." If the foods needed to replace the missing nutrients cannot be eaten, the nutrients can be taken in medication form.

Food may become less attractive to an individual because they may lose their sense of taste and smell. Loss of teeth or ill-fitting dentures can take away much of the pleasure of eating.

Within the population, specific groups of persons may be at risk to develop inadequate nutrient intake. Chronic illness, disabilities such as arthritis, emotional problems, and poverty are all factors that can contribute to nutritional deficiencies.

Staff must understand nutritional needs, and be able to identify commonly ordered medications including their actions and effects, which are used to treat nutritional deficiencies.

Sources and Functions of Body Nutrients

Nutrients are those chemical substances found in the foods we eat that nourish the body. Types and best sources of nutrients:

- Carbohydrates — sugars and starches
- Fats - butter, oils, meat, fats, cheeses
- Proteins — meats, milk, eggs
- Vitamins — vegetables, meats, fruits, milk, eggs
- Minerals — milk, cheese, eggs, meats, vegetables
- Water - contained in all food and drink

The three major functions of nutrients are to supply heat and energy to the body (carbohydrates, fats, and proteins); build and repair body tissues (proteins), and regulate body processes (vitamins, minerals, and water). If nutrients are lacking in the diet, then either the diet must be changed, or nutrients must be given in the form of medication to prevent the individual from becoming ill.

Factors Relating to Nutritional Deficiencies

- Changes in the sensory system: loss of sense of smell, loss of sense of taste
- Changes in the gastrointestinal system: loss of teeth makes chewing difficult, reduced salivary function may cause individuals to prefer soft foods
- Changes in gastric acidity may cause impaired iron absorption.
- Dietary deficiencies: inadequate quantities of proteins, fruits, vegetables, fiber foods maintain gastrointestinal mobility, but excess leads to malabsorption of essential nutrients.
- Physical disabilities and immobility: crippling diseases (arthritis, blindness) makes preparing food difficult, illness and disability are stressful to the body and deficiencies may, therefore, occur more easily
- Emotional problems: the depressed, lonely or bereaved individual may reduce food intake and develop deficiencies, communication problems due to deafness and/or speech problems make if difficult for some individuals to make their needs known.

Common Nutritional Disorders Treated by Medication

Cause	Symptoms	Treatment
Pernicious anemia		
low iron level in the blood due to inability of stomach lining to absorb vitamin B (required for the formation of red blood cells).	low red blood cell count, fatigue, inflammation of the mouth	requires lifelong use of vitamin B.
Iron deficiency anemia		
low iron level in the blood due to inadequate diet or blood loss	low hemoglobin level, pallor, fatigue	oral iron and vitamin supplements
Osteoporosis		
Body is deficient in calcium, phosphorus, and vitamin D	bowed legs, deformed bones in children, and porous, easily broken bones in adults.	Treatment - increased intake of vitamin D, calcium, and phosphorus. Deficiencies can usually be treated by adequate diet (milk, fish oils, meats) and sun **Special note** - Overdoses of vitamin D can be dangerous. Can cause hardening of soft tissues and abnormality of bones

Cause	Symptoms	Treatment
Hypokalemia		
frequently a side effect of diuretics, potassium is not absorbed by the body	heart irregularity, flu-like symptoms, leg cramps	diet (bananas, milk, cereals, meat), often treated with potassium replacement medications
Dehydration		
inadequate fluid intake, diseased such as diabetes, diuretics, vomiting, diarrhea, fever	poor skin turgor, constipation, fever, decreased urine output, increased pulse.	encourage individual to drink fluids, intravenous fluids may be necessary, water is essential for body functions, clear liquid diets may be ordered for short periods of time.

Selected Medications by Classification

1. Vitamins

Action	Uses	Adverse Effects	Nursing Considerations
Beta Carotene (Vitamin A)			
Necessary for growth and repair of body tissues, vision, reproduction and integrity of immune system	Lactating females, infections, and severe vitamin A deficiency	Usually only seen with toxicity, headache, vomiting, hair loss, dry mucous membranes, joint pain and blurred vision	decreases effects of oral anticoagulants, chronic intake of 50,000 IU or single dose of 600,000 IU can cause toxicity, in pregnant women avoid doses exceeding recommended daily allowances
thiamine HCl (vitamin B_1)			
necessary for carbohydrate metabolism	treat alcoholism, gastrointestinal disease, cirrhosis	hypotension nausea sweating anaphylactic reaction diarrhea restlessness	store in an air tight, light-resistant, non-metal container
Riboflavin (Vitamin B_2)			
Necessary for carbohydrate, fat and protein metabolism.	Riboflavin deficiency or adjunct to thiamine treatment for polyneuritis	High doses may make urine bright yellow	Riboflavin deficiencies are usually accompanies other vitamin B complex deficiencies and may require multivitamin therapy.

Action	Uses	Adverse Effects	Nursing Considerations
Niacinamide (vitamin B_3, nicotinic acid)			
Necessary for fat metabolism	Lowers cholesterol, treat Meniere's Disease, vasodilator	Headache Facial flushing Itching Jaundice Postural hypotension	Give with meals and cold liquids.
Pyridoxine HCl (vitamin B_6)			
Required for amino acid metabolism	Used in combination with isoniazid (INH) therapy which causes B_6 deficiency	Drowsiness	Do not give to an individual receiving levodopa
Folic Acid (vitamin B9)			
Maturation of red blood cells and amino acid metabolism	Megaloblastic or macrocytic anemia secondary to folic acid or other nutritional deficiency, liver disease, alcoholism, intestinal obstruction, supplement used during pregnancy to help prevent neural defects	Rash Itching Red skin Allergic bronchospasm	Contraindicated in normocytic, refractory, or aplastic anemias. Don't mix with other medications in a syringe when administering IM injections.
Cobalamin (Vitamin B_{12})			
formation of red blood cells, DNA synthesis	Macrocytic anemia, megaloblastic anemia, B_{12} deficiency due to inadequate diet, subtotal gastrectomy	Blood clots Transient diarrhea Itching Anaphylaxis	Use cautiously with individuals who have cardiac problems. May cause low serum potassium levels, fluid overload, pulmonary edema, congestive heart failure and high blood pressure. Infection may reduce therapeutic response. Don't mix with other medications in a syringe when administering IM injections.
Ascorbic acid (vitamin C)			
Necessary for collagen formation and tissue repair	Burns, increase healing of fractures and wounds, may prevent viral infections	Diarrhea Renal calculi	
Biotin			
Energy metabolism, production of fatty acids of antibodies, of digestive enzymes, and in niacin metabolism.	dermatitis, anemia, depression,	No known toxicity	Do not take more than recommended amount.

Action	Uses	Adverse Effects	Nursing Considerations
Inositol			
Cell membrane integrity, help emulsify fats	High blood cholesterol, eczema	None identified	Do not take more than recommended amount
Vitamin D			
Maintenance of calcium and phosphorus homeostasis, bone mineralization, dental development	Dialysis patients, osteoporosis, rickets, and hypocalcemia	Headache Dizziness Weakness Dry mouth Metallic taste Anorexia Nausea Constipation Frequent urination High blood calcium levels	May cause hypercalcemia-induced cardiac arrhythmias. Use cautiously in cardiac patients. Dry mouth, nausea, vomiting, metallic taste, and constipation can be early signs of toxicity.

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Vitamin E				
Maintains integrity of cell membranes, acts as an antioxidant.	Vitamin E deficiency, elevated blood cholesterol levels		Muscular weakness Fatigue Nausea Diarrhea Gastrointestinal disturbance	Increases effects of oral anticoagulants, intake of doses of 800IU or greater have caused adverse effects. Mega doses may cause thrombophlebitis.
Vitamin K				
Promotes hepatic formation of active prothrombin	Hypothrombinemia (usually associated with oral anticoagulants)		Dizziness Transient hypotension after IV administration Nausea Sweating Bronchospasm Anaphylaxis	Monitor prothrombin time to determine effectiveness, report side effects to the doctor
Multivitamin products (combination of vitamins and minerals)				
Source of vitamins and minerals	Supplement diet	Becotin-T (contains several B vitamins and vitamin C) Multicebrin (contains vitamins B, C, E, A, & D) Theragram (contains vitamins A, B complex, C, D, & E)	Itching Diarrhea Nausea	Do not crush medication.

2. Minerals

Action	Use	Examples	Adverse Effects	Nursing Considerations
Iron products				
replaces iron	treat iron deficiency anemia	ferrous sulfate (Feosol, Slow-Fe)	Nausea Insomnia Constipation Diarrhea	Dilute liquid preparations in juice or water. May cause black, tarry stools. Chart color and amount of stool. Do not crush medications. Do not give with antacids
Potassium products				
replaces and maintains potassium levels	treat potassium deficiency	potassium chloride (Micro-K, K-Tab, K-Lor, K-Lyte/Cl)	Listlessness Mental confusion Cardiac arrhythmias GI irritation	Administer during or after meals with a full glass of juice or water. Completely dissolve powders before administering. Do not crush solid form of medication
Calcium				
reduces acid load in the gastrointestinal tract, replaces calcium	treat osteoporosis and dyspepsia	calcium carbonate (Tums) Caltrate (combination calcium + vitamin B) Os-Cal	calcium deposits form in joints	do not give with milk or milk products

Tube Feedings

Tube feedings are used to maintain adequate nutritional status (alone or as a supplement to oral or parenteral nutrition), or as a treatment for malnutrition. Routes of administration:

- Transnasally—used for short-term feeding, food is supplied directly into the stomach through tubes that have been inserted through the nostrils.
- Gastrostomy--food is administered through a surgical opening directly into the stomach. Usually well tolerated by individuals who are on long-term therapy.

- Jejunostomy--food is supplied though a surgical opening through the abdominal wall into the jejunum which is the part of the small intestine that extends from the duodenum to the ileum. Used for long-term and short-term therapy.

Types of formulas:

- Complete formulas—-contain all six necessary nutrients— carbohydrates, fat, protein, vitamins, minerals, and trace elements.
- Incomplete formulas—-lack one or more necessary nutrients and may require supplementation.

Methods of feeding:

- Bolus--feeding is rapidly instilled by a bulb or plunger syringe. The feeding is administered over a few minutes, four to six times daily. Can cause bloating, cramping, nausea, diarrhea and aspiration.
- Intermittent, slow gravity-drip feedings--given four to six times per day, generally well tolerated.
- Continuous infusions--administered by gravity or by way of a pump. The feeding is generally administered over 16 to 24 hours.
- Information concerning complications that can arise during tube feedings can be found on the chart **Common Problems of Tube Feedings** located at the end of this

- **Information concerning medication administration:**
- Flushing the feeding tube

(1) Flush the tube with 30 ml of warm water before giving any drugs.

(2) Flush the tube with 5 ml warm water between drugs.

(3) Flush the tube with 30 ml of warm water before resuming feeding.

- Flushing clears the tube, helps propel the drug into the gastrointestinal tract and warns you if the tube is clogged.
- Crushing medication for feeding tubes:

(1) Crush only some forms and only when absolutely necessary.

(2) Do not crush enter-coated or time-release tablets of capsules. This can contribute to clogging.

(3) Crush suitable tablets to a fine powder and dissolve in a small amount of warm water.

(4) If the individual is on multiple drugs, be sure and give each one separately.

Definitions of Key Terms

Anaphylactic reaction--Life-threatening allergic reaction caused by an allergen. Characterized by respiratory problems, fainting, itching, welts on the skin.

Aspiration--The taking of foreign matter (such as food) into the lungs during the respiratory cycle.

Dehydration--Excessive loss of water from the body.

Hypokalemia--An abnormally low level of potassium in the blood.

Iron deficiency anemia--Low iron levels in the blood due to inadequate diet or blood loss.

Osteoporosis--Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Pernicious anemia--Vitamin B_{12} deficiency.

Common Problems of Tube Feeding

Factors to Assess to Determine How Individual is Tolerating the Feeding	Possible Causes of Problems	Corrective Measures
Gastrointestinal Function		
Vomiting	Feeding too soon after intubation	Allow individual to relax and rest after tube is inserted
	Improper location of tip of feeding tube	Repositioning of tube by qualified heath care professional
	Rapid rate infusion	Administer slowly
	Excessive volume: 1. Air 2. Formula	Be sure feeding tube container does not run dry before feeding is completed Check with physician regarding number and size of feedings
	Position of individual	Position on right side for ½ hour following feeding – reverse Trendelenburg or semi-Fowler's
Applies to both vomiting and diarrhea	{Food injection or poisoning {Anxiety	Check sanitation of formula and equipment Explain procedures: provide reassurance and other related type of support: provide privacy
Diarrhea	Rapid rate of infusion	Administer slowly – very slowly if formula is cold
	High osmolality of formula or high concentration of formula	Adapt individual to formula gradually
	Lactose intolerance	Contact physician regarding change of formula
Constipation	High content of milk formula Lack of fiber Inadequate fluid intake	Contact physician regarding: 1. Change in formula 2. Laxatives 3. Increasing fluid
Fluid and Electrolyte Balance		
Dehydration	Rapid infusion of carbohydrate > hyperglycemia > osmotic diuresis > dehydration	Administer slowly: exogenous insulin sometimes needed
	Excess protein and electrolytes in formula Inadequate food intake	Change formula and/or increase fluid according to physician's orders
Edema	Excessive sodium in formula	Check with physician about change in formula
Nutritional Adequacy		
Under nutrition (gradual weight loss)	Inadequate number of calories to meet energy requirements	Check to see if individual is receiving prescribed amount of formula: estimate individual's caloric intake Check with physician regarding increasing the volume, concentration, or number of feedings given
Over nutrition (gradual gain of undesirable weight)	Excessive caloric intake	Check with physician regarding decreasing the volume, concentration, or number of feedings given
Under nutrition (inadequate intake of protein and/or micronutrients leading to biochemical or clinic signs of deficiency)	Amount of standard formula needed to maintain weight is too low to meet requirements for essential nutrients	Check with physician regarding providing appropriate nutrient supplements

SOURCE: Ames, S. W. & Kneisl, C. R. (1988). *Essentials of Adult Health Nursing.* Menio Park: Addison-Wesley, p. 870.

Living in the Community Supplemental Lessons

Supplemental Lesson 6
The Gastrointestinal System

THE GASTROINTESTINAL SYSTEM

Key Terms	
Antiemetics	Cirrhosis
Constipation	Diarrhea
Duodenum	Dyspepsia
Fecal impaction	Gallbladder
Hepatitis	Liver
Pancreas	Pyorrhea
Systemic infection	

Review of the Structures and Functions of the Gastrointestinal System

The digestive system digests or changes food into a form the body can use for maintenance, repair, energy, growth and homeostasis; provides a place for liquid nutrients to be absorbed; eliminates waste products of the digestive process.

The gastrointestinal system is divided into two parts:

- Alimentary canal or tract - passageway for food. it is a continuous tract from the mouth to the rectum approximately 30 feet in length.
- Accessory organs - aid in the digestion of food.

Structures of the alimentary canal include the:

- Mouth (oral cavity) which is the normal entrance for food. It contains six pairs of salivary glands. The enzymes in saliva begin breaking down food for digestion.
- Throat (pharynx) is where swallowing takes place here. Joined to the esophagus.
- Esophagus is the muscular tube covered with mucous membrane. Propels food toward stomach.
- Stomach is the muscular pouch that excretes enzymes, hydrochloric acid and other juices for digestion. Located in the upper left side of the abdomen, below the diaphragm. Peristaltic action churns and mixes food with gastric juice, breaking it down for absorption. Food remains in stomach 3-5 hours (depending on type and amount).
- Small intestine is the muscular tube approximately 1 1/2" in diameter and 20 feet long. It is the area where digestion is completed. Products of digestion absorbed into bloodstream through the small intestine. Contents reach the large intestine approximately three hours after stomach is emptied. Unabsorbed food moves into large intestine be peristaltic action.
- Large intestine is the muscular tube approximately 1 1/2" in diameter and five feet long. Water is absorbed from unused food. Contents are stored until eliminated form the body as feces through the rectum.

Accessory organs of the digestive system include the:

- Teeth - break up food for digestion.
- Tongue which is a soft, muscular, flexible organ. Contains taste buds. Directs food for chewing and helps push food from the mouth to the throat for swallowing.
- Salivary glands produce saliva to keep the mouth moist. Contain ptyalin to assist in carbohydrate digestion.
- Pancreas is the small gland located behind the stomach. Secretes important enzymes into the small intestine to aid digestion. Secretes insulin - a hormone that is necessary to metabolize (use) sugar.
- Liver is the highly vascular organ located in the upper right of the abdomen. Veins from digestive organs carry nutrients to the liver first. Liver changes nutrients to usable chemicals for the body and stores them for use when needed. Bile is secreted by the liver into the gall bladder. Bile aids in the digestions of fats.
- Gall bladder is located behind the liver. Stores bile from the liver until it is needed for the digestion of fat.

Additional Information about the Gastrointestinal System

Fluid intake is important to facilitate proper bowel movement. Bulk producing or forming laxatives can cause obstructions if not given with enough liquids. When giving gastrointestinal medication, monitor for any change in mouth odor. Monitor for signs of stomach cramps, decrease in appetite, and enlarged abdomen. Individual may become dependent on the laxatives.

Disorders of the Gastrointestinal System

1. Disorders of the mouth

Cause	Symptoms	Treatments
Tooth decay		
poor oral hygiene	loss of appetite, inability to eat meat which can cause anemia, and abscesses which can cause systemic infection	daily mouth care, dental work
Pyorrhea		
poor oral hygiene	loss of teeth due to bone infection	special mouthwash and mouth care

2. Disorders of the stomach

Cause	Symptoms	Treatments
Nausea and vomiting		
infectious disease, allergy, reactions to medications	Symptomatic of many diseases	antiemetics are sometimes used
Dyspepsia		
changes in the lining of the stomach, change in the amount of gastric secretions	heartburn, feeling of fullness in the stomach, irritability	medications
Ulcer--found in stomach or small intestine (duodenum area)		
repeated irritation of the stomach lining or duodenum until a sore (ulcer) forms.	intolerance to certain foods, dyspepsia, bleeding may occur if the ulcer is near a blood vessel, perforation (a hole) may occur and the stomach contents may leak into the area outside the stomach.	medications
Motion Sickness		
irregular motion, especially up and down motion	nausea and vomiting, loss of balance, often experienced while on a moving boat, train, airplane, or car.	antiemetics and antihistamines

3. Disorders of the intestines

Cause	Symptoms	Treatments
Diarrhea		
infection, allergy, medication, tumor	cramping, gas formation, body fluids are lost rapidly, dehydration	antidiarrheal medications
Constipation		
inactivity, poor diet, change in diet, medication	stool may become hard, making elimination painful, impaction may occur with diarrhea leaking around the impaction.	medications, increase fiber in diet according to physician's order
Irritable colon		
unknown, possibly stress	alternate diarrhea and constipation, bloating, cramping, weight loss	anticholinergic medications are sometimes used, stool softeners, laxatives (avoid irritant laxatives)

4. Disorders of the liver

Types	Causes	Symptoms	Treatments	Prevention
Viral hepatitis				
Type A infectious Type B - serum Type non-A, non-B - post-transfusion	ingestion of contaminated food, contaminated needles, contact with infected human blood, serum, feces, semen, or secretions, or blood transfusions	generalized, fever usually present	medication, fluids, rest	- gamma globulin B given to persons who have been exposed to disease to prevent type B hepatitis, follow universal precautions procedures.
Chemical hepatitis				
	exposure to toxic chemicals or drugs	occur within 24-48 hours for chemical toxicity, or 2-5 weeks for drug toxicity. Symptoms resemble those of viral hepatitis.	remove the chemical or drug from the body.	
Cirrhosis				
	alcoholism, previous liver disease	loss of appetite, fatigue, weight loss, fever, jaundice	includes vitamins, good diet, no alcohol.	

Selected Gastrointestinal Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Antacids				
neutralize acidity by chemical reaction	treat indigestion, ulcers	Gaviscon Maalox Riopan Mylanta DiGel Gelusil	may cause mild constipation or diarrhea.	chart amount and consistency of stools.
Antiflatulants				
decreases gas formation	treat indigestion	simethicone (Mylanta, Mylicon)	belching, flatus	tablets must be chewed.
Digestants				
replace digestive enzymes	assist with digestion	pancrelipase (Pancrease)	Nausea Diarrhea, which occurs with increased doses.	

Action	Use	Examples	Adverse	Nursing

			Effects	Considerations
Antidiarrheals				
stop diarrhea	treat diarrhea	bismuth subsalicylate (Pepto-Bismol) loperamide (Imodium) kaolin/pectin mixtures (Kaopectate) diphenoxylate HCl (Lomotil)	drowsiness fatigue rash constipation and fecal impaction	monitor for constipation.
Laxatives - Saline laxatives				
increase fluid in intestine	promote bowel action	magnesium salts (Milk of Magnesia)	diarrhea cramping	monitor for diarrhea.
Laxatives – Bulk laxatives				
increases bulk in the stool	promote bowel action	psylliuin (Metamucil, Effersyllium) methylcellulose (Hydrolose) Fiberall Peridium	nausea and vomiting diarrhea laxative dependence	Encourage the individual to eat foods that contain natural laxatives such as bran, fresh fruit and vegetables. When you are ready to give the laxative, mix the powder with 8 oz. of fluid then administer.
Stool Softeners				
soften fecal material	treat constipation	docusate sodium (Colace, Doxinate) docusate calcium (Surfak) Sometimes combined with other drugs (Senokot-S, Doxidan, Dialog Plus, Peri-Colace)	mild cramping laxative dependence	Give with milk or fruit juice. Do not crush medication.
Lubricants				
make stool slippery	treat constipation	Mineral Oil Haley's M.O. Glycerin suppository		may interfere with the absorption of some vitamins.
Stimulant laxatives				
stimulate bowel lining	Increase peristalsis Bowel training	bisacodyl (Dulcolax, Bisacodyl) senns (Senokot) Dulcolax Suppository	diarrhea cramping	tablet must be swallowed without being chewed.

Action	Use	Examples	Adverse Effects	Nursing Considerations
Antiemetics				
inhibit nausea and vomiting	treat nausea, vomiting	prochlorperazine maleate (Compazine) trimethobenzamide HCl (Tigan) scopolamine (Transderm-Scop) metoclopramide HCl (Reglan) dimenhydrinate (Dramamine, Travamine) meclizine HCl (Aritivert, Bonamine, Bonine)	drowsiness dizziness dry mouth	monitor blood pressure for hypotension.
Anticholinergics (antimuscarinics)				
decrease the secretion of digestive juices and peristaltic action. May act on other systems	treat dyspepsia, ulcers, irritable bowel	methantheline (Banthine) clidinium bromide and chlordiazepoxide HCl (Librax Capsules) belladonna leaf (Belladonna) methscopolamine bromide (Pamine) dicyclomine HCl (Bentyl)	headache drowsiness confusion; agitation urinary retention blurred vision	Monitor vital signs. Monitor urinary output.
Miscellaneous Gastrointestinals				
lessens production of gastric juices	prevent duodenal ulcers or ulcer	cimetidine (Tagamet) ranitidine (Zantac) famotidine (Pepcid)	mental confusion dizziness headaches liver dysfunction	Encourage individual not to smoke. Monitor diet. Administer only at prescribed times. Administer only one of these medications at a time.
Carafate				
works by adhering to the ulcerated area	treat ulcers		dizziness sleepiness constipation	dissolve the tablet in water.

Definitions of Key Terms

Antiemetics--Drugs used to treat and prevent nausea and vomiting.

Cirrhosis--Chronic liver damage caused by previous disease.

Constipation--Difficult, incomplete or infrequent bowel movements.

Diarrhea--Frequent, loose bowel movements.

Duodenum--The first portion of the small intestine.

Dyspepsia--Indigestion.

Fecal impaction--A collection of "putty-like" or hardened feces in the rectum.

Gallbladder--Sac in which the bile from the liver is stored.

Hepatitis--Inflammation of the liver.

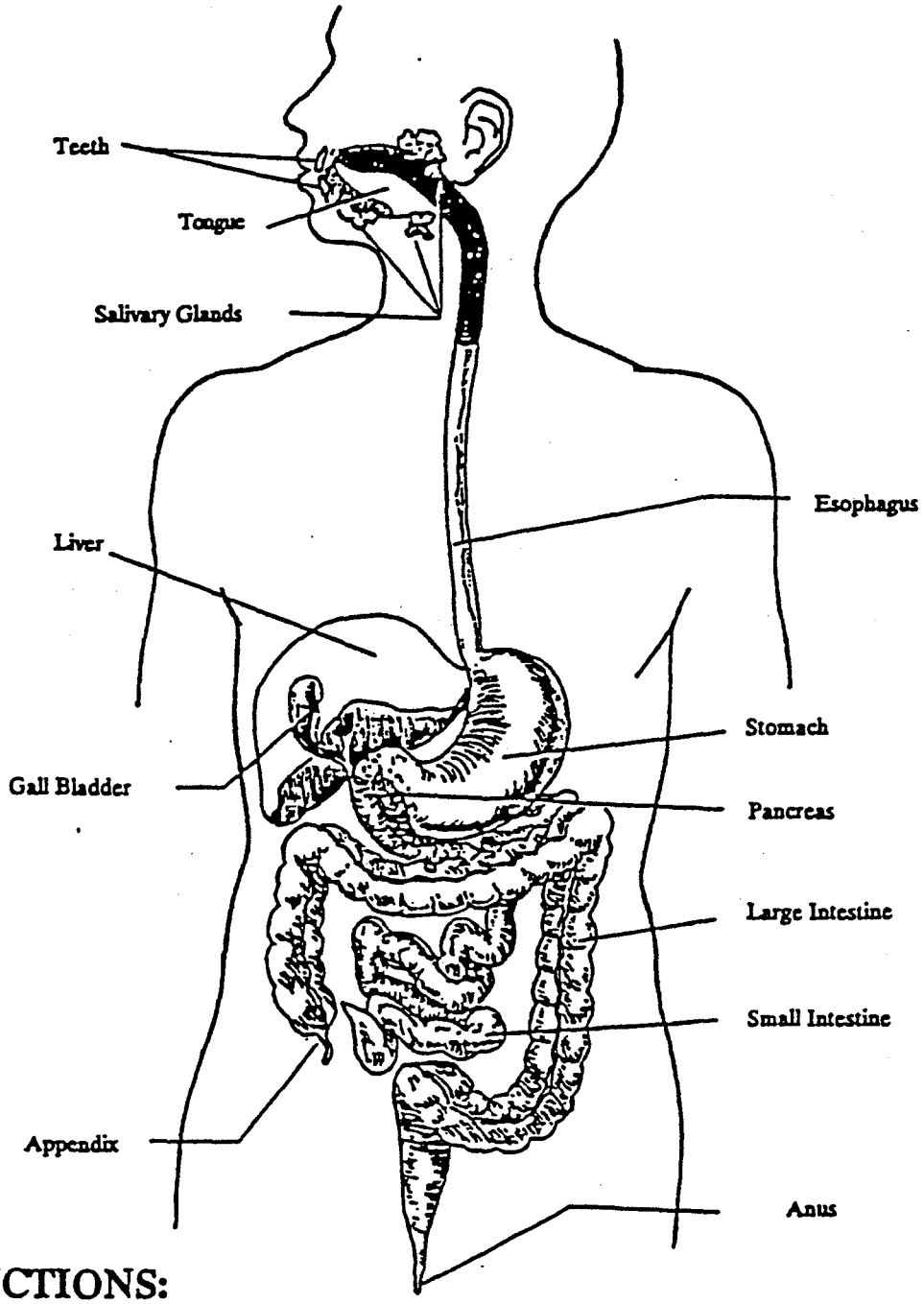
Liver--Organ of the body that secretes bile and causes changes in many of the substances in the blood.

Pancreas--A large gland that secretes digestive enzymes and the hormone insulin.

Pyorrhea--Inflammation of the gum and tooth sockets leading to loosening of the teeth.

Systemic action/infection--Affecting the entire body.

GASTROINTESTINAL SYSTEM



FUNCTIONS:

1. Ingests food
2. Prepares food for use by the body
3. Excretes wastes

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Living in the Community Supplemental Lessons

Supplemental Lesson 7
The Musculoskeletal System

THE MUSCULOSKELETAL SYSTEM

Key Terms

Analgesics
Anti-inflammatory
Arthritis
Fracture
Muscle relaxant
Muscle spasm
Nonsteroidal anti-inflammatory agents (nsaia)
Osteoporosis
Range of motion

Muscles and bones support and protect the internal organs and give shape to the body. Injury, disease, and aging may make it necessary for people to have medications ordered specifically for the treatment of muscle or bone problems.

Staff must understand how muscles and bones work and be able to identify medications, including their actions and effects, which are commonly ordered to treat musculoskeletal disorders.

Review of the Structures and Functions of the Musculoskeletal System

The musculoskeletal system consists of 206 bones. Muscles are attached to bones by tendons and to other muscles by tendons. Muscles are able to stretch and contract and are controlled by nerves. Bones are joined together with a joint. Some joints move freely (elbow, hip). Other joints move only slightly or not at all (pelvis, skull). Bones are living tissue — contain a lot of calcium, which makes them hard. Bones and muscles provide movement, support, and protection of internal organs and body shape.

Additional Information about the Musculoskeletal System

Observe the individual's body alignment while in bed, in a chair, or while standing. Observe the individual for any skin breakdowns. Promote comfort and prevent contractions by proper turning and ambulation, and by ensuring correct posture in wheelchairs. Help the individual do range of motion (ROM) exercises when necessary. Observe the individual's nonverbal signs of musculoskeletal pain: facial gestures, tightening of the muscles, favoring an area of the body, limping, tentative movement. Observe the individual for swollen, reddened, or hot joints. Good body posture, ROM, and proper medication will help keep the individual comfortable and mobile. Exercise is necessary to maintain mobility, although it may be painful, especially in the morning. The individual's mobility will improve with movement. Analgesics and anti-inflammatory drugs are sometimes given for months or years. Adverse effects can be severe - watch the individual closely.

Major Musculoskeletal Conditions

Cause	Symptoms	Treatments
Arthritis		
Rheumatoid — occurs in younger population, cause unknown Osteoarthritis - occurs in older population, also known as degenerative arthritis	pain and swelling in joints, decreased mobility	medication, exercise, heat to joints, surgery
Muscle spasm		
irritation of muscle	sudden pain and knotting of muscles	massage, heat, medication
Muscle strain		
injury	pain, swelling	rest, medication, elevation of injured limb
Gout		
increased uric acid levels, usually caused by diet	pain and swelling in joints, can be acute or chronic	medication, diet
Fractures		
accidental injury or disease conditions such as cancer or osteoporosis	pain, swelling, discoloration, abnormal position or movement	casting or surgery
Osteoporosis		
inadequate calcium absorption	bones are brittle and are easily broken, sometimes with less than normal amount of stress on bones	medication, treatment of fractures if necessary

Selected Musculoskeletal Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Muscle relaxants				
reduce transmission of impulses from the spinal cord to the skeletal muscles	to treat acute, painful musculoskeletal conditions	Carisoprodol (Soma) methocarbamol (Robaxin, Delaxin) Parafon Forte — combination muscle relaxant and analgesic Cyclobenzaprine (Flexeril)	drowsiness headache weakness nausea anorexia gastrointestinal upset	Caution individual not to use alcohol. Withdrawal symptoms may occur if the drug is stopped abruptly. Weakness may cause increased incidence of falls.
Analgesics				
alter both perception of and often emotional response to pain	treat muscle spasm and strain, arthritis, gout	Acetaminophen (Tylenol) Propoxyphene HCl (Darvon) meperidine (Demerol) morphine Duramorph, Epimorph) Aspercreme aspirin (A.S.A.) Codeine ibuprofen (Motrin) Bromptoms Tylenol with codeine	gastritis, ulcers dizziness headache sedation constipation rashes respiratory depression tinnitus (with a.s.a.) nausea and vomiting increased bleeding tendencies (with a.s.a.)	Possible gastrointestinal bleeding. Observe individual for bloody stools. Possibly addictive. Check respiratory rate before administering potent analgesics and report to staff nurse if rate is less than 12 per minute.

Action	Use	Examples	Adverse Effects	Nursing Considerations
Anti-inflammatory - Steroid medications				
decreases inflammation	arthritis, dermatitis, chronic respiratory conditions	Dexamethasone (Decadron) prednisone (Deltasone, Meticorten) methylprednisolone (Medrol) hydrocortisone (Cortef) triamcinolone diacetate (Kenalog)	Weight gain from increased appetite and edema Mood swings Night sweats Increased blood sugar and electrolyte imbalance Masks symptoms of infection Slows healing Elevates blood pressure Ulcers Muscle weakness Hair loss Cushing Syndrome Prolonged bleeding and bruising	Observe individual closely for signs of infection Watch diabetic individuals for change in urine glucose or fasting blood sugar. Withdrawal symptoms occur if stopped abruptly. Administer with food. Report any complaints (especially those that are new) to the staff nurse.
Nonsteroidal anti-inflammatory agents (NSAIA)				
anti-inflammatory analgesic and antipyretic effects	arthritis, bursitis, tendonitis, gout	Indomethacin (Indocin) sulindac (Clinoril) fenoprofen (Nalfon) ibuprofen (Motrin) meclofenamate (Meclomen) naproxen (Naprosyn) (g) aspirin (ASA, Bayer, Ecotrin)	nausea and vomiting headaches gastrointestinal bleeding dizziness heartburn rashes decreased appetite prolonged bleeding and bruising tinnitus	Check with staff nurse before giving aspirin with NSAIA medications. Give with food. Observe for blood in the stool which may indicate gastrointestinal bleeding

Definitions of Key Terms

Analgesics--Medications that relieve muscle, joint and bone pain.

Anti-inflammatory--Medications used to reduce swelling, pain, and tenderness caused by inflammation.

Arthritis--Inflammation of a joint.

Fracture--Broken bone.

Muscle relaxant--Medication that helps muscle tissue relax and be less tense and painful.

Muscle spasm--Condition of the muscles in which there is a sudden and violent tightening of the muscle.

Muscle strain--Condition in which the muscle is stretched.

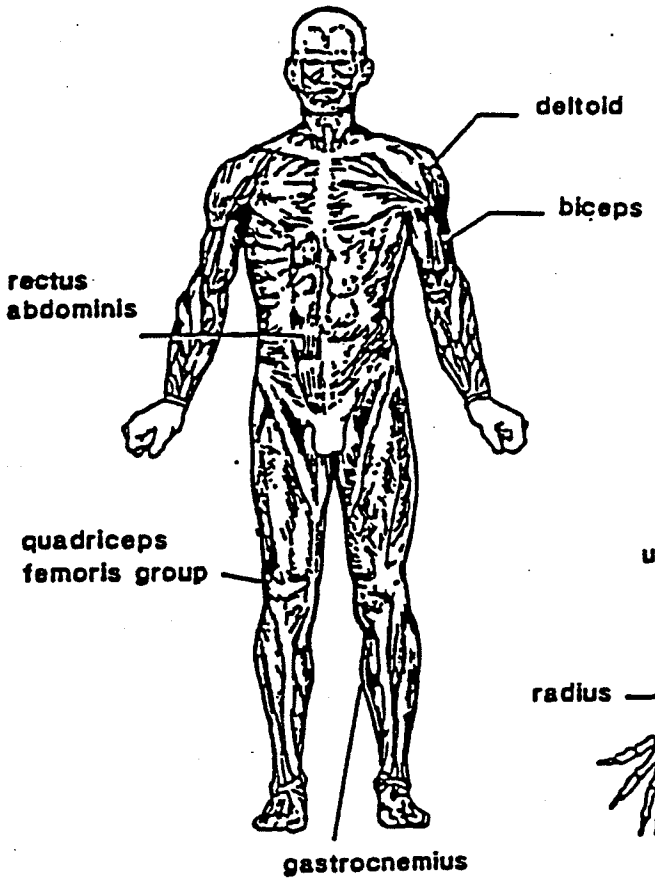
Nonsteroidal anti-inflammatory agents (NSAIA)--Medications used to reduce symptoms of inflammation.

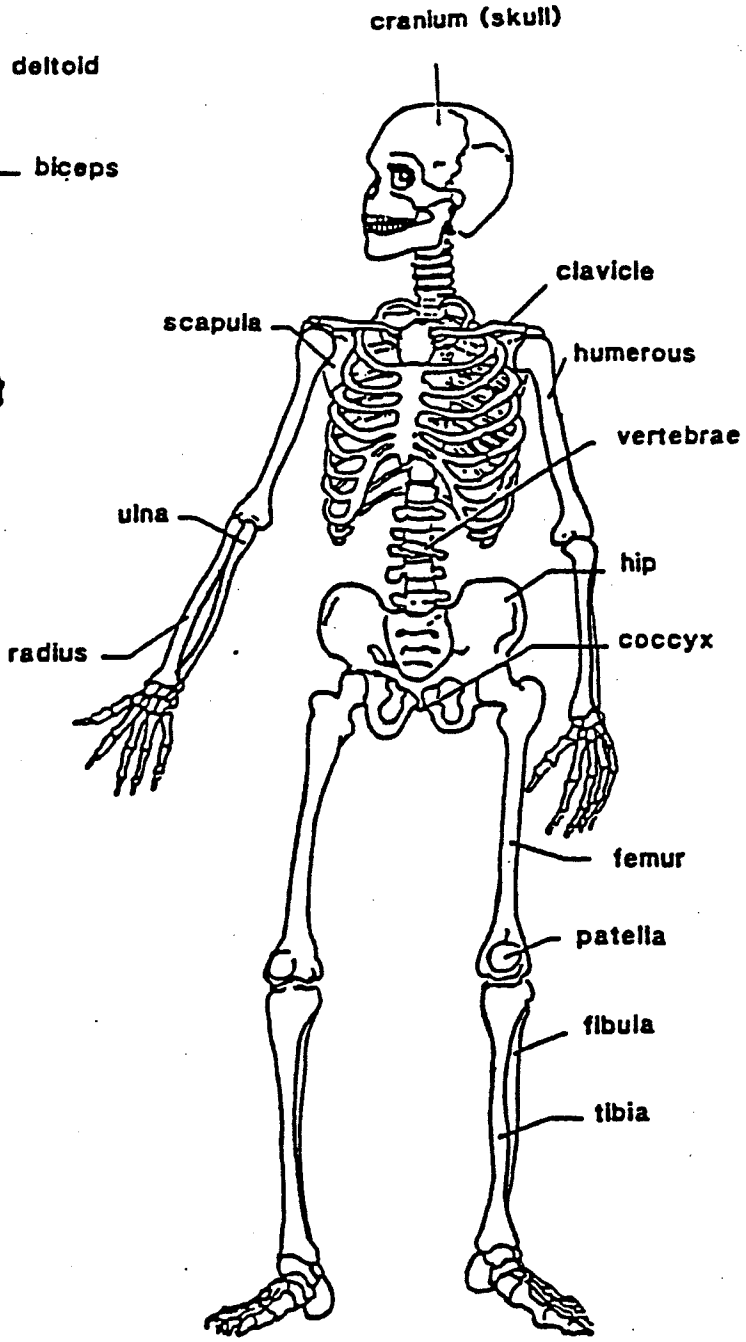
Osteoporosis--Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces. Causes brittleness.

Range of motion--Moving a joint its full range in an attempt to prevent muscle contractures and joint deformity.

Sprain--Wrenching of a joint, with partial rupture of its ligaments. More severe than a strain and requires longer recuperation.

The Musculoskeletal System





Function:

1. Support
2. Protection
3. Movement
4. Shape

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Living in the Community Supplemental Lessons

Supplemental Lesson 8
The Skin and Sensory System

THE SKIN AND SENSORY SYSTEMS

Key Terms	
Burns	Dermis
Decubitis ulcer	eczema
Epidermis	Pediculosis
Psoriasis	Scabies
Topical	Urticaria

The skin is the largest organ of the body. It functions as a protective covering for all other body parts and contains sensing devices for heat, cold, pain and texture.

The skin can be affected by injury, irritation, disease and the aging process making medications necessary in some instances. With the aging process, there is loss of fatty tissue which serves as heat insulation. Individuals must be observed carefully for skin disorders, particularly those who are confined to wheelchairs or beds or who are incontinent.

People are affected by their environment through special areas that receive impulses (sensations) from the outside world. These special areas are called sensory organs and receive sensations in the form of sound, sight, smell, taste, balance and touch. Staff must understand how the skin and sensory organs work and be able to identify commonly ordered medications, their actions and effect that are used to treat the systems.

THE SKIN

Review of the Structures and Functions of the Skin

The thickness of skin varies from 1/30 to 1/3 of an inch. The skin is the thinnest on the face; thickest on the palms of the hands and the soles of the feet. The epidermis is the outer layer which protects the inner layer. Old cells are constantly rubbed off of this layer. The dermis is the inner layer. It is sometimes called the "true skin." The dermis is composed of live cells, nerve endings, blood vessels, sweat glands, hair sacs with hairs, oil glands, some fat cells, and pigment for the skin. The fingers and toe nails are an extension of the skin. Directly beneath the skin "subcutaneous" is a thick area of fat cells.

Functions of the skin:

- Protects all underlying structures.
- Receptor of sensations of heat, cold, pain, and texture (through nerves connected to the skin).
- Absorbs substances.
- Excretes waste products (through perspiration).
- Helps control temperature of the body.
- Defends against disease-producing organisms.

Common Skin Disorders

Cause	Symptoms	Treatment
Dermatitis		
allergic response to food, drugs, insect stings, inhalants, plants	rash that causes itching	medications for symptoms
Scabies		
mites that burrow under the skin. Contamination occurs from infested bed clothing, undergarments, or close body contact with an infested person	itching that gets worse at night, tiny thread-like blisters which generally appear between fingers, on wrists, and inside elbows; lesions may occur under arms, around the waist	cream or lotion topical medications
Pediculosis		
lice which infest different body areas, usually spread by direct body contact by using contaminated personal articles, such as hats, combs, or bedding	itching of scalp or body, small red bumps on shoulders, trunk, or buttocks.	medicated shampoo, ointment or lotion containing a pediculicide. Clothes, sheets, and other personal articles must be laundered to prevent reinfestation
Athlete's foot		
highly contagious fungus found in warm damp places such as shower rooms, and public baths	scaling and blistering between toes, burning and itching	antifungal powder, ointment, or spray
Psoriasis		
genetic tendency, possible effect of trauma, onset influenced by environmental factors, such as stress, may be accompanied by arthritic symptoms. Is common in individuals who have Parkinson's Disease	skin has red patches covered with silvery scales that have a tendency to shed. Skin surfaces may have pinpoint bleeding.	topical medications, ointments to soften and remove the scales, oral medications may be ordered if symptoms are severe.
Eczema		
allergic reaction, may flare up in response to extremes in humidity or temperature, sweating, or psychological stress	itching, crusting of broken vesicles on the skin	remove cause of irritation, topical medications to control itching.
Burns		
accidental injury	First degree burn - skin area is red. Second degree burn - skin is blistered. Third degree burn - skin may appear charred or pearly white	dependent upon degree and type of burn.
Decubitus ulcer		
continuous pressure on body areas, which leads to decreased blood circulation to tissues	Stage I - reddened areas. Stage II - blistered area or break in the skin. Stage III - tissue invasion and necrosis. Stage IV - muscle and bone involvement	the best treatment is **prevention:** turn bedridden individuals at least every two hours, according to facility policy

Selected Skin Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Local Anti-infectives				
destroy bacteria or fungus	treat athlete's foot, infection	Tolnaftate (Aftate, Tinactin) neomycin (Neocin) clotrimazole (Lotrimin)	Itching, rashes	wear gloves when applying
Scabicides and Pediculicides				
destroy parasites	kill scabies, mites, and lice	Lindane (Kwell) Pyrethrins (A-200 Pyrinate)	skin irritation	may apply to skin or hair, may require repeat applications in seven to ten days.
Anti-inflammatory Steroids				
reduce inflammation	treat dermatitis	Betamethasone Valerate (Valisone) Flurandrenolide (Cordran) triamcinolone acetonide (Aristocort, Kenalog)	burning, itching, and dry skin	Steroid contain steroids. Refer to Supplemental Lesson 7. Use gloves when applying. Watch diabetic individuals for change in urine glucose or fasting blood sugar. Withdrawal symptoms occur if stopped abruptly
Antipruritics and local anesthetics				
relieve localized itching and pain	treat hemorrhoids, sunburn, and poison ivy	Benzocaine (Solarcaine, Americaine) Dibucaine (Nupercainal) Caladryl lotion	Sensitization to medication	monitor for inflammation and infection.

Protectants				
cover and protect the skin	reduce irritation and friction, irritation from urine and stool, provide sunburn protection	Petrolatum (Vaseline) talc vitamins A and D ointment paraobenzoic acid (PreSun, RV Paba Lipstick) zinc oxide (Desinex) (Desitin)	No adverse effects	monitor for inflammation and infection.
Debridement medications				
enzymatic destruction of necrotic tissue	treat decubitus ulcers	lytic enzymes (Elase, Travase) collagenase hydrogen peroxide (Santyl)	hypersensitivity to the medication	**can be applied only by licensed personnel**

Definitions of Key Terms

Burns--Injury to the skin by strong chemicals, electricity, high temperatures, or radiation.

Decubitus ulcer—An open wound that is caused by the pressure of lying or sitting in one position for a long period of time. Also called a pressure sore or bedsore.

Dermis--A layer of skin.

Eczema--A non-contagious inflammation of the skin, marked mainly by redness, itching, and the outbreak of lesions that discharge fluid and become encrusted and scaly.

Epidermis--The outer protective layer of the skin.

Pediculosis--A contagious infestation of the hair, body, and pubic area caused by lice.

Psoriasis--A chronic, non-contagious disease characterized by inflammation, reddened lesions, and white scaly patches.

Scabies--A contagious skin condition caused by mites that burrow under the skin; characterized by tiny, thread-like blisters that itch.

Topical--Pertaining to a particular spot; local.

Urticaria--A skin condition characterized by intensely itching welts and caused by an allergic reaction - hives.

THE SENSORY SYSTEM

Key Terms	
Cataracts	Conjunctivitis
Keratitis	Miotics
Mydriatics	Sensory system

Review of the Structures and Functions of the Sensory System

There are five structures that make up sensory system: eyes, ears, nose, tongue, and skin (hot and cold sensation, touch). The sensory system connects outside sensations to the proper nerves, producing visual images, sound, odors, tastes, temperature, pain, textures.

Sensory System Disorders

1. Eye Disorders

Cause	Symptoms	Treatment
Conjunctivitis		
irritation, allergies, bacteria	redness, itching, swelling, tearing	systemic or local medication
Glaucoma		
an obstruction, or overproduction of fluid in the eye	mild aching in the eye, loss of peripheral vision, perception of halos around lights, inability to see well at night	use of medications to decrease intraocular pressure
Cataracts		
secondary infection, congenital disorder, reaction to drugs, or chemical toxicity	gradual blurring of vision, milky white pupil	surgery, lens implantation or corrective glasses

2. Ear disorders

Cause	Symptoms	Treatment
Impacted ear canal		
wax build-up in the ear canal, or foreign object	pain hearing loss	medication, irrigation, or extraction of foreign object by physician
Swimmer's ear		
bacteria, fungus	pain, fever, itching, partial hearing loss, possible discharge	medication
Otitis media		
respiratory, viral, or throat infections	pain, fever, dizziness, nausea, vomiting, drainage	antibiotics
Meniere's Syndrome		
chronic disturbance of inner ear with specified cause undetermined	dizziness, ringing in the ears, nausea, and vomiting. Loss of hearing as disease progresses	education to relieve symptoms

Selected Sensory System Medications by Classification

1. Eye medications

Action	Use	Examples	Adverse Effects	Nursing Considerations
Miotics				
decrease eye pressure	to treat glaucoma	pilocarpine HCl (Pilocar)	Headache Perspiration Salivation Night blindness Blurred vision	Place inside the lower lid, not directly on the eye. Monitor blood pressure
Mydriatics				
dilates pupil	facilitates eye examination	atropine sulfate	Dry mouth Blurred vision	Place inside the lower lid, not directly on the eye.
Beta blocker				
lowers intraocular pressure	to treat glaucoma	timolol maleate (Timoptic Solution)	Eye irritation Blurred vision Reduced heart rate and blood pressure Confusion	
Lubricants				
soothes and lubricates dry eyes	treat decreased tear production	artificial tears (Tears Naturale, Liquifilm) Lacri-Lube	localized irritation and burning sensation	Use with caution in glaucoma individuals. Do not touch any surface of the eye with the end the dropper. Crust may form on eyelids and eyelashes.

2. Ear medications

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Miscellaneous				
relieve pressure; reduce inflammation and congestion in the ear	otitis media, otitis externa	benxocaine (Auralgan) Cortisporin Otic	irritation or itching	Do not rinse dropper after use. Insert cotton into the ear canal after applying the drops. Many of these medications are used in combination with oral antibiotics, analgesics and anti-inflammatories: Watch for drug interactions.
Wax control agents				
soften and dissolve ear wax	prevent wax build-up	carbamide oxide (Debrox)	Pruritus Erythema	Use with caution if the ear is draining. Use with caution for more than four days in a row. The ear often requires irrigation to facilitate removal of the wax.
Antibiotics and steroids may be given to treat ear inflammation and infection				

Definitions of Key Terms

Cataracts--The lens or capsule of the eye loses its transparency or translucency causing partial or total blindness.

Conjunctivitis--Inflammation of the mucus membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball.

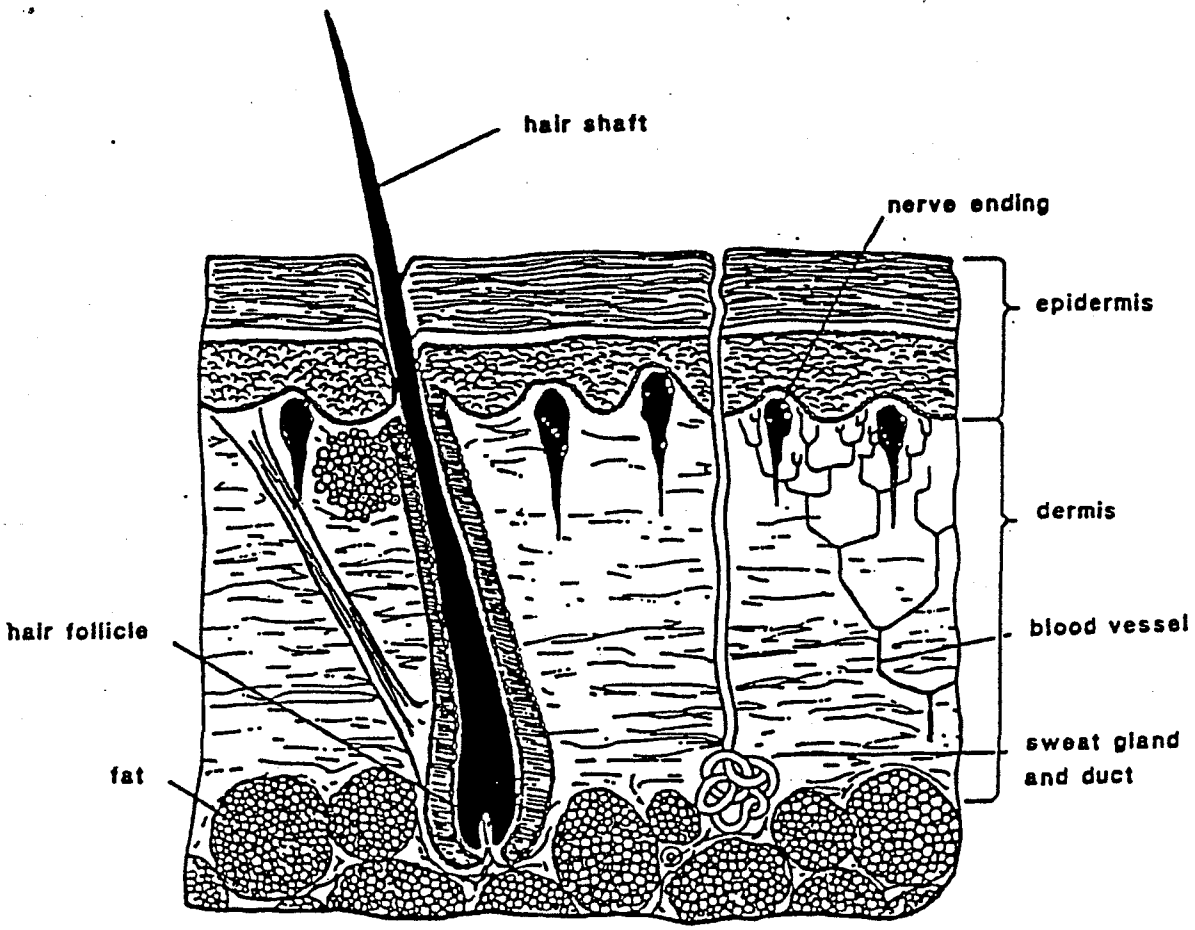
Keratitis--Inflammation of the cornea.

Miotics--An agent that causes contraction of the pupil of the eye.

Mydriatics--A drug that produces dilation of the pupils.

Sensory system--Receives outside sensations and relates these sensations to the proper nerves.

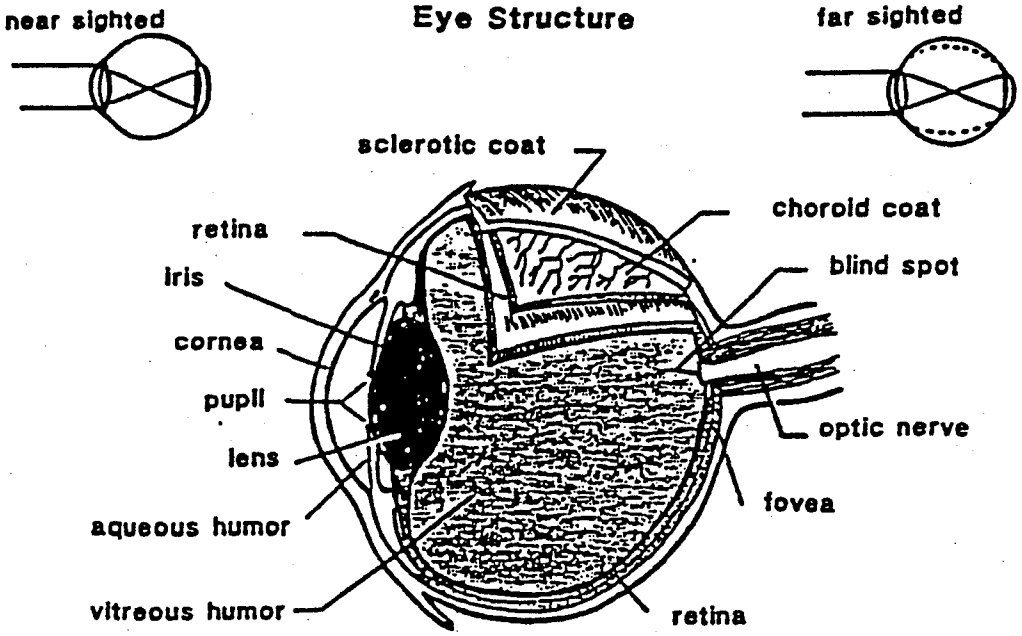
The Integumentary System



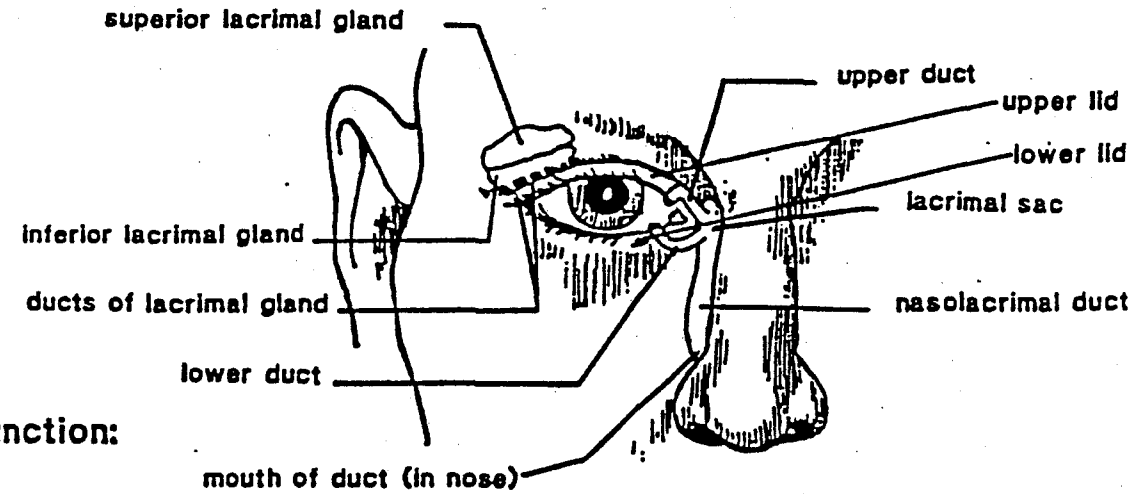
Function:

1. Protects the body
2. Regulates temperature
3. Discharges waste
4. Manufactures vitamin D
5. Makes human appearance presentable

The Sensory System



Lacrimal Apparatus

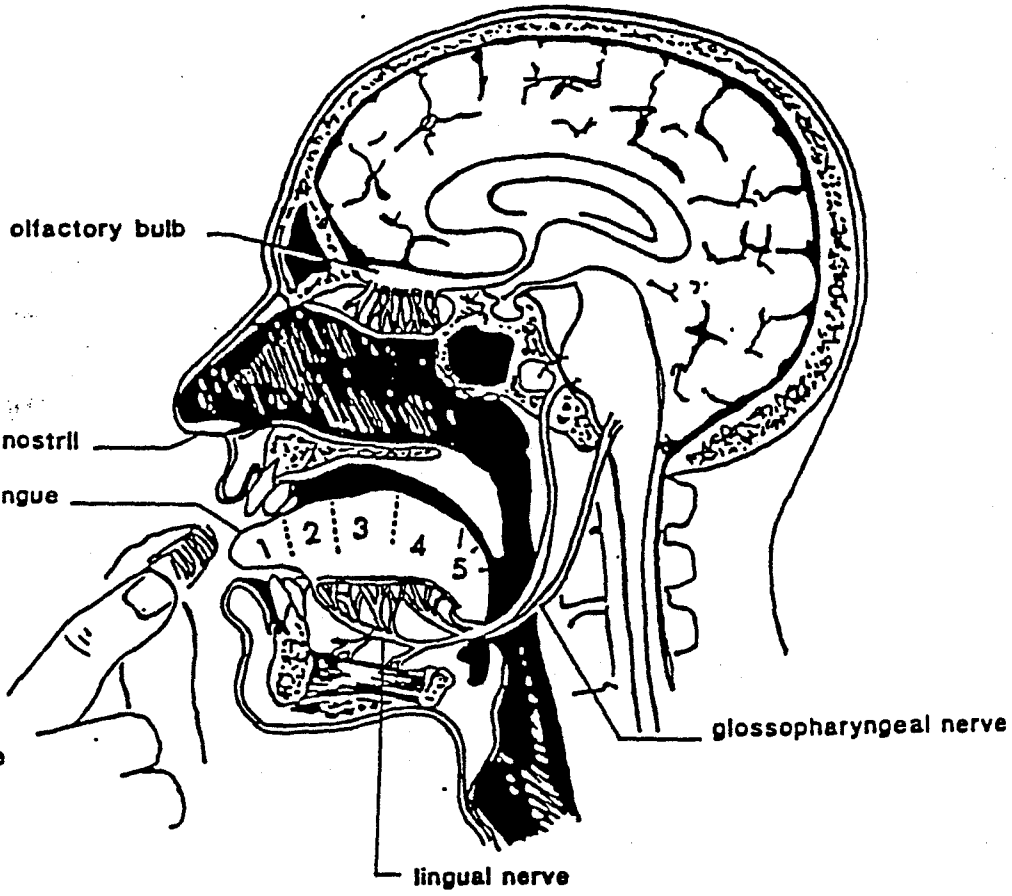


Function:

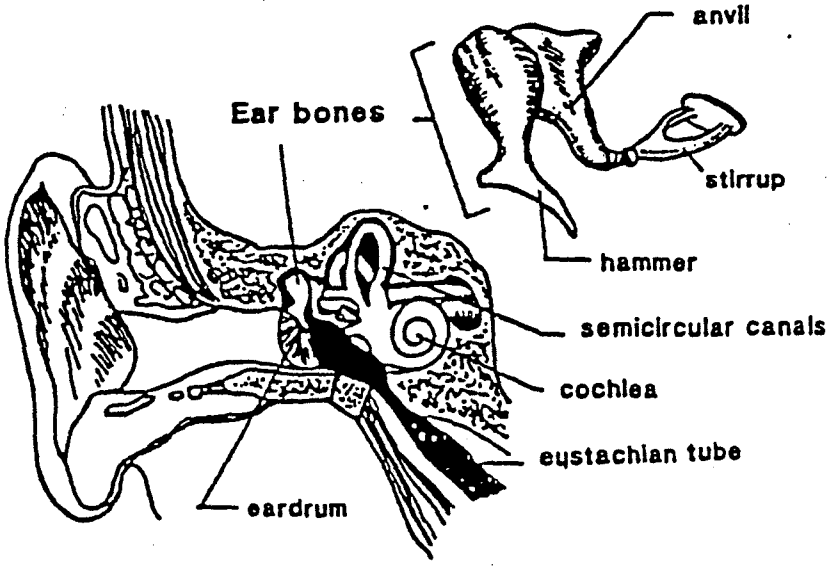
1. Vision

The Sensory System

Taste, Smell, and Hearing



1. Sweet
2. Salt
3. Sour
4. Bitter
5. Papillae



Function:

1. Hearing
2. Balance

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Living in the Community Supplemental Lessons

Supplemental Lesson 9
The Urinary and Male Reproductive System

THE URINARY AND MALE REPRODUCTIVE SYSTEMS

Key Terms	
Bulbourethral glands	Cystitis
Chronic kidney failure	Edema
Epididymis	Incontinence
Penis	Perineal
Prostate	Pyelonephritis
Scrotum	Testicales
Seminal vesicles	Vas deferens

The male reproductive system and the urinary system are discussed together because the urethra of the male is used by both the male reproductive and urinary systems and sometimes disorders of one system will affect structures of body systems. The female reproductive system is discussed in Supplemental Lesson 12. The urinary system, which includes the kidneys, urinary bladder and urethra, filters (cleans) the blood and eliminates excess fluids and toxins from the body.

The male reproductive system, which includes the penis, testicles, scrotum, epididymis, vas deferens, seminal vesicles, prostate gland and bulbourethral glands produces male hormones and sperm cells.

Injuries, disorders and aging may interfere with the filtration and elimination (voiding) processes of the urinary and the male reproductive systems. Medications may help restore partial or complete functioning of these systems.

Staff must understand how the urinary and male reproductive systems work and be able to identify commonly ordered medications, including their actions and effects, to treat genitourinary disorders.

Review of the Structures and Functions of the Urinary and Male Reproductive Systems

The urinary system is composed of two kidneys, two ureters, a urinary bladder and the urethra. The kidneys are bean-shaped organs located on either side of the spinal column in the small area of the back. The kidneys are very complex structures - each kidney contains over one million tiny filters. Every drip of blood passes through the kidney approximately 4-6 times per day for the purpose of filtering (cleaning). Removes excess liquids and unused substances from the blood and takes to the outside as waste (urine).

The ureters are small, thin tubes, about 10-12 inches long, which carry urine away from the kidney. One end is attached at the center of the kidney, the other end to the urinary bladder in the pelvis.

The bladder is a hollow, sac-like structure in the pelvis for holding urine. Person usually has the desire to empty bladder when 250-300 cc are collected. Muscle walls distend to hold 500 cc or more.

The urethra is a tube through which urine passes from the bladder. Where the urethra is connected to the bladder, there is a tight muscle that opens and closes releasing

urine. Two major functions of the urinary system:

- Filter (clean the blood through the kidneys.
- Eliminate excess fluids and unused substances in the fluid.

There are eight major structure of the male reproductive system.

- Testicles - also called testes contain the sex glands of the male - located in the pelvis cavity before birth, move down (descend) into the scrotum at birth or shortly thereafter. Full of tiny structures that produce male sex hormones - testosterone. Also have structures that produce sperm cells for reproduction.
- Scrotum - sac-like structure located behind the penis which holds testicles.
- Epididymis - coiled structure that stores and matures sperm cells.
- Vas deferens (ductus deferens) - tube that carries sperm to seminal vesicles.
- Seminal vesicles - pouch-like structures behind bladder where sperm is stored.
- Prostate gland - doughnut shaped structure below the bladder (surrounding urethra), adds alkaline substance to sperm.
- Bulbourethral glands - small structures about halfway between the bladder and end of penis that secrete sperm protectant.
- Penis - cylinder-shaped vascular structure on outside of body, houses external portion of urethra, male organ of copulation (intercourse).

The male reproductive system functions to produce hormone (testosterone) necessary to have male secondary sex characteristics, begins in puberty, slows down with aging process. It also produces sperm necessary for reproduction.

Additional Information for the Urinary System

Incontinent individuals must be kept clean and dry. Individuals with catheters must be given frequent and/or additional perineal care. Cleanse the head of the penis thoroughly with water after catheter care and
do not leave foreskin retracted. Cleanse female individuals from front to back for perineal care and following elimination. Encourage fluids for individuals with urinary tract infections (UTI) unless otherwise ordered. Provide bladder training according to facility policy. Observe and chart the color, concentration, odor, consistency and amount of urine. Observe for reddened areas on perineal area. Treat the individual with respect.

Common Disorders of the Urinary Tract and Male Reproductive Systems

Cause	Symptoms	Treatments
Cystitis		
bacteria	cloudy urine, frequent urination, burning and painful urination, sometimes fever and chills if severe, voiding small amount, feeling of urgency to void	antibiotics, urinary antiseptics, cranberry juice, Vitamin C, increase fluid intake
Pyelonephritis		
may result from infection elsewhere in the body; frequently responsible for renal failure	chills, fever, nausea, cloudy urine, back pain, decreased urine output, more pronounced in acute phase	medication, possible kidney dialysis in chronic or severe acute stage.
Edema		
inability of the body to rid itself of fluid due to kidney or heart failure.	swelling of hands, feet, legs; inability to breathe with exertion or when lying down	diuretic drugs
Benign prostatic hypertrophy (BPH)		
enlargement of the prostate gland, associated with aging and cancer	difficult, painful urination, dribbling, frequent urination of small amounts, inability to urinate.	surgical removal of all or part of the prostate gland, trans-urethral resection (TUR), medication
Urinary incontinence		
decrease in muscle tone due to disease processes or medication, decreased bladder capacity	frequent bed wetting, inability to control urine flow	bladder training, medication surgery
Urinary retention		
BPH, bladder or prostate cancer, medication	inability to empty bladder	medication, catheterization, surgery

Selected Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Urinary antiseptics				
prevent growth of disease-producing organisms in the urinary tract	to treat urinary tract infection	nalidixic acid (NegGram) nitrofurantoin (Furadantin) nitrofurantoin macrocrystals (Macrodantin)	Drowsiness Headache Nausea and Vomiting Dizziness Skin rash	Avoid overexposure to sunlight. Tell individual to report vision problems. May cause a false-positive Clinitest
Systemic Anti-infectives (Sulfa drugs), which are often used to treat UTI, are discussed in Core Lesson 7.				
Diuretics				
congestive heart failure, hypertension, severe edema	to decrease blood pressure and increase urinary output	chlorothiazide (Diuril) furosemide (Lasix) hydrochlorothiazide (Hydro Diuril) spironolactone (Aldactone) methyclothiazide (Enduron) Aldactazide and Dyazide (combinations which contain hydrochlorothiazide)	Hypotension Weakness Nausea and Vomiting Dizziness	Check blood pressure at least weekly. Observe for symptoms of decreased potassium levels
Androgens				
replacement of male hormones	promote weight gain, treat an enlarged prostate gland due to malignancy, and treat breast cancer	testosterone (Androgen, Oreton-Methyl)	Edema Change in Appetite Increased serum cholesterol Male characteristics appear in females	Shave female individuals as necessary. Observe for edema.

Selected Medications by Classification Continued

Action	Use	Examples	Adverse Effects	Nursing Considerations
Urinary Tract Analgesics				
decrease pain from urinary tract infections	treat symptoms of urinary tract infections (UTI) and cystitis, and relieve pain, urgency, frequency, and burning associated with urination	phenazopyridine HCL (Pyridium) Azo Gantanol	Produces a harmless reddish-orange discoloration of the urine. Nausea and Vomiting May alter urine glucose results in some tests	Use Glucometer for more accurate urine glucose test results. Discoloration in the urine will stain clothes and linens. Medication works quickly; some relief will be felt within one hour of administration
Urinary Muscle Relaxants				
directly affects the smooth muscles of the urinary tract	prevent urinary retention, neurogenic bladder	flavoxate HCl (Urispas) bethanechol chloride (recholine) Pyridium Plus	Dysuria Tachycardia Dry mouth Blurred vision Frequency Urgency Incontinence Diarrhea Abdominal Cramps	Do not give with food - give only on an empty stomach. Given only for retention that is **NOT** due to an obstruction.

Definitions of Key Terms

Bulbourethral glands--Small structures about halfway between the bladder and the end of the penis that secrete sperm protectant.

Chronic kidney failure--Reduction in kidney function.

Cystitis--Inflammation of the urinary bladder.

Edema--Swelling caused by large amounts of fluid in the tissues.

Epididymis--Coiled structure that stores and matures sperm cells.

Incontinence--Loss of bladder and/or bowel control.

Penis--Cylinder-shaped vascular structure on the outside of the male body. Houses the external portion of the urethra, and is the male organ of copulation.

Perineal--The area between the thighs that includes the anus and vulva in the female and the anus and penis in the male.

Prostate--Doughnut-shaped gland, in the male, composed of muscular and glandular tissue that surrounds the urethra at the bladder and adds alkaline substance to sperm.

Pyelonephritis--Inflammation of both the kidney and the lining of the pelvis.

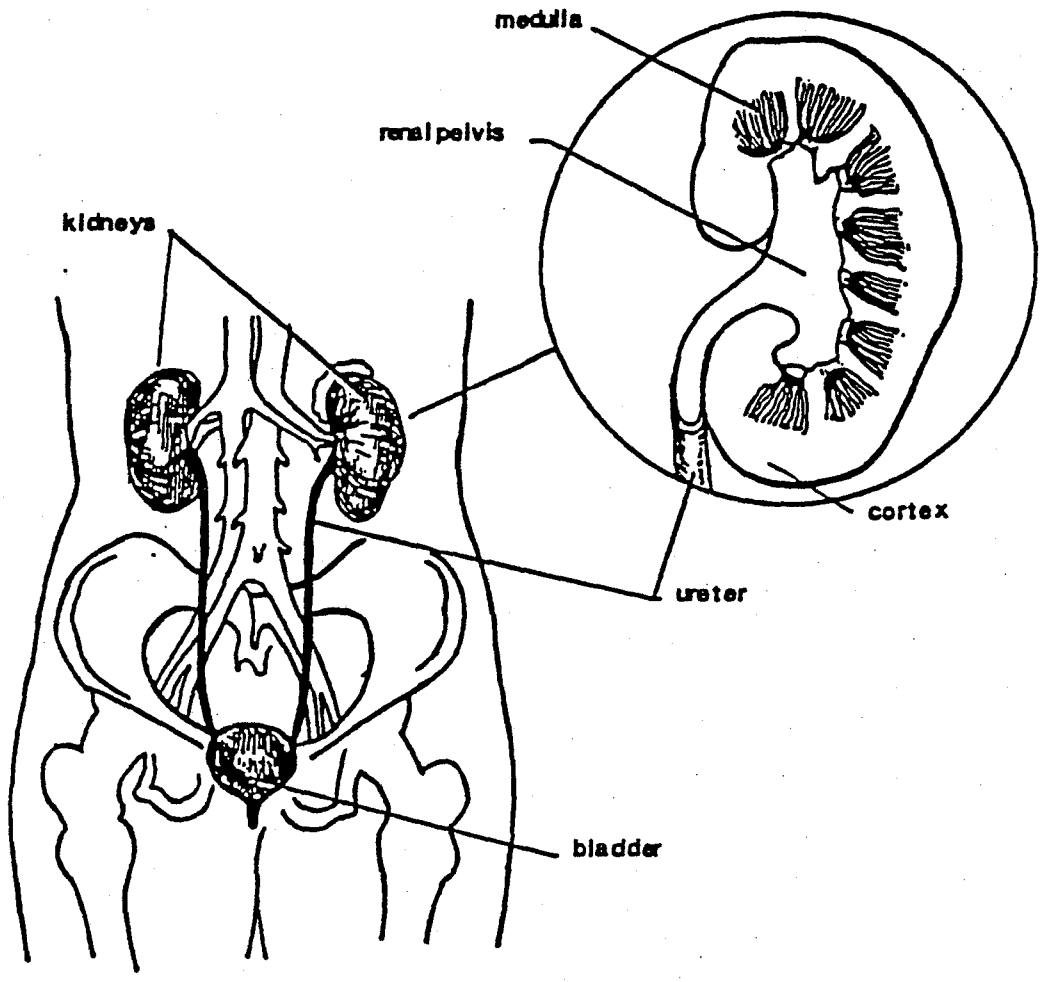
Scrotum--Sac-like structure, located behind the penis, which holds the testicles.

Seminal vesicles--Pouch-like structures, behind the bladder, which store sperm.

Testicles--Also called testes, produce testosterone and sperm cells for reproduction.

Vas deferens (ductus deferens)--Tube that carries sperm to the seminal vesicles.

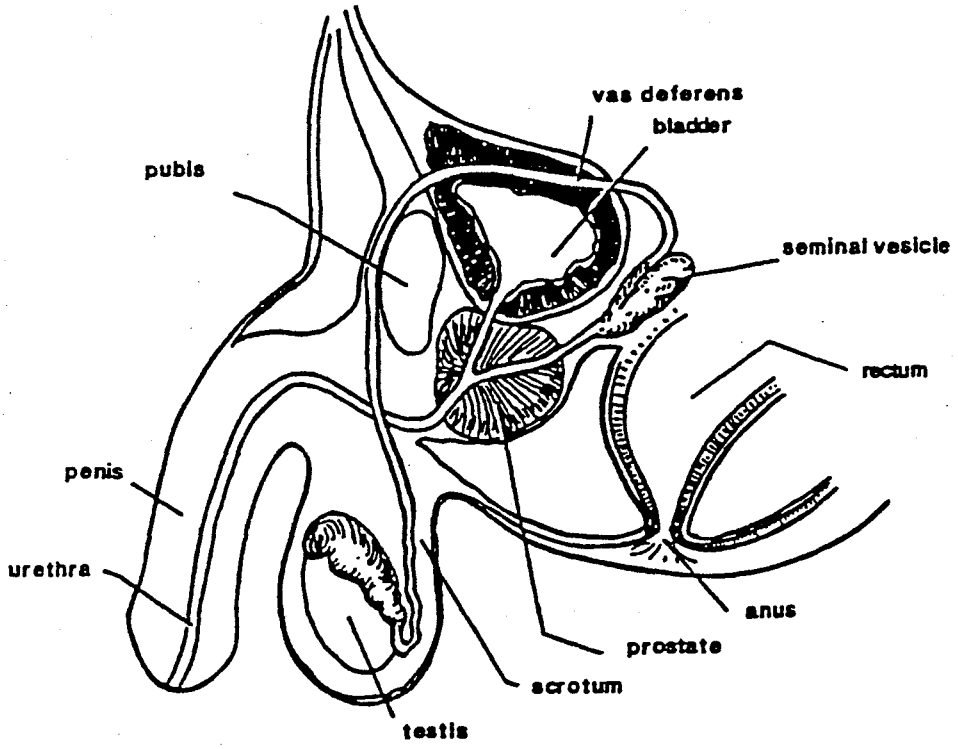
The Urinary System



Function:

1. Produces urine
2. Removes wastes from blood stream

The Male Reproductive System



Function:

1. Produce male hormones
2. Produce male sex cells

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Living in the Community Supplemental Lessons

Supplemental Lesson 10
The Cardiovascular System

THE CARDIOVASCULAR SYSTEM

Key Terms	
Angina	Arrhythmia
Arteriosclerosis	Atherosclerosis
Electrolytes	Hematemesis
Hemoptysis	Hypertension
Hypotension	Ischemia
Phlebitis	Syncope
Tachycardia	Thrombosis
Thrombophlebltis	

The cardiovascular system, which contains the heart, blood vessels and blood, supplies the body with all vital substances needed for life and is the system by which waste products are removed from cells. The circulatory system must function for the body to live. Diseases, injuries and the aging process may interfere with the circulatory system. Medications may sometimes be helpful in restoring partial or complete functioning.

Staff must understand how the cardiovascular system works and be able to identify commonly ordered medication, including their actions and effects, used to treat cardiovascular disorders.

Review of the Structures and Functions of the Cardiovascular System

The cardiovascular system is composed of the heart, blood vessels and blood.

- The heart is about the size of a fist. It lies in the center of the chest, slightly to the left. It is hollow inside; divided into four chambers or compartments - two upper (atria); two lower (ventricles). The heart is made of muscle that contracts and extends - works like a pump. The right side pumps blood to the lungs, left side pumps blood to the rest of the body. it works continuously, rests between beats. Pulse is the number of heart beats, can be felt in any artery. Blood pressure is the force of heartbeat, which pushes blood through the arteries
- Blood vessels are made up of arteries - carry blood to all cells. Veins - carry blood back to the heart. Capillaries - vessels that carry supplies to cells, pick up wastes from cells.
- Blood is pumped through the body by the heart. It is circulated through blood vessels. An average adult has about 4-6 quarts. Plasma - liquid portion of the blood, is 90% water, contains three kinds of cells: red blood cells (RBC) - carry iron, in the form of hemoglobin, which binds to oxygen; white blood cells (WBC) - fight infection, protect other cells from germ invasion; platelets - hold substance that is essential to clot formation, help prevent hemorrhage.

The cardiovascular system functions to pump the blood (heart); provide a pathway for the blood (blood

vessels); carry essentials to body cells via blood; carry wastes away from body cells via blood. The effectiveness of the circulatory systems depends on the rate, rhythm, and force of heart and the elasticity of blood vessels.

Additional Information for the Cardiovascular System

Follow the doctor's orders when administering cardiovascular drugs. Individuals who are on anticoagulant therapy must be observed closely. Elevate their legs at night and intermittently throughout the day. The individual should wear support stocking if recommended by the physician. Watch the individual's sodium intake. Watch for medication interactions. Individuals with chronic heart failure may become congested. Do not give them mucous-producing liquids. Monitor the urinary output and weight of individuals who are taking diuretics for chronic heart failure. Use all of your senses when observing the individual's response to cardiovascular medications. Check blood pressure and pulse routinely.

Major Circulatory Disorders

Cause	Symptoms	Treatments
Myocardial Ischemia		
lack of adequate oxygen supply to the heart	shortness of breath, chest pains	medications and rest
Angina Pectoris		
myocardial ischemia	pain in chest and left arm, flushing and perspiration, sudden attack of vertigo, can be aggravated by smoking	usually relieved by vasodilator drugs
Coronary Occlusion (heart attack, M.I.)		
blockage in any artery that supplies blood to the heart muscle. Destroys heart and can cause death (myocardial infarction). Severity depends on size and location of blocked heart vessel.	crushing chest pain, shortness of breath, anxiety, indigestion, shock, collapse.	medication, rest, hospitalization
Congestive Heart Failure		
heart muscle weakness, hypertension, changes in heart valves due to disease, heart contractions are inadequate to pump blood to all body parts.	edema (swelling) in feet and legs, cough and shortness of breath, fatigue, tachycardia.	cardiotonics and diuretics
Heart Arrhythmias		
inability of impulse center to function properly, sometimes follows coronary occlusion, toxic effect of other drugs (digitalis).	irregularity in rate and rhythm of heart, syncope, may exhibit tachycardia (rapid heart rate) or bradycardia (heart rate below 60).	medication, rest

Cause	Symptoms	Treatments
Shock		
collapse of the blood vessels resulting in poor blood supply to entire body, dilation of the blood vessels, blood loss (hemorrhage).	rapid heart beat, pallor, perspiration, light-headedness, chills, fainting, hypotension.	medications, keep the individual warm, move the individual to the Trendelenburg position. Shock is a medical emergency, the physician may place the individual in the hospital.
Arteriosclerosis/Atherosclerosis		
build up of plaque deposits in blood vessels which causes narrowing of the vessel.	pale or blue skin color, muscle cramping, decreased circulation which may result in pain in the extremities or ulcers (sores) to develop on legs and feet.	medication, exercise, monitor diet
Hypertension (high blood pressure)		
kidney disease, adrenal gland tumors, brain disease, heart disease, aggravated by obesity and smoking, usually cause is unknown.	dizziness, headache, palpitations, fatigue, tinnitus, systolic pressure above 140, diastolic pressure above 90.	medication, exercise, weight control,
Cerebral Vascular Accident (CVA)--stroke		
blood clot, ruptured blood vessel in the brain, hypertension	depend on which area of the brain is affected, weakness or paralysis, inability to speak or read, loss of memory, unconsciousness.	medications, physical/speech therapy
Thrombophlebitis		
injury, surgery, abnormal blood clotting	pain, redness, tenderness, swelling of the affected limb	medication, rest

Selected Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Cardiotonics				
slows and strengthens the heart action.	as maintenance therapy in congestive heart failure, atrial fibrillation, atrial flutter.	digitoxin (Crystodigin) (2) digoxin (Lanoxin)	fatigue loss of appetite dizziness agitation irregular heart beat	Take pulse before administering cardiotonic drugs. **Precaution:** If pulse is below 60, hold medication and report to the charge nurse immediately

Action	Use	Examples	Adverse Effects	Nursing Considerations
Antiarrhythmics				
regulate heart rate and rhythm	angina and arrhythmias	propranolol (Inderal) quinidine (CinQuin, Cardioquin) procainamide HCl (Pronestyl)	nausea vomiting confusion hypotension	Administer one hour before or two hours after meals with a full glass of water. Administer at prescribed times. Check pulse routinely.
Antihypertensives - Adrenergic blockers				
decrease blood pressure by having an effect on the nervous system	treat hypertension	methyldopa (Aldomet) clonidine HCl (Catapres) atenolol (Tenormin)	dizziness weakness nausea and vomiting hypotension	check blood pressure each week
Antihypertensives - Diuretics				
decrease blood pressure and increase urinary output.	treat congestive heart failure, hypertension, severe edema	spironolactone (Aldactone) (chlorothiazide (Diuril, Hydrodiuril) methyclothiazide (Enduron) (furosemide (Lasix) Aldactazide and Diazide (combinations containing hydrochlorothiazide	dizziness weakness nausea and vomiting hypotension	Check blood pressure each week. Watch for symptoms of decreased potassium levels such as irritability, confusion, cardiac arrhythmias, severe muscle weakness and sometimes paralysis
Vasodilators				
dilate blood vessels and improve blood supply to the heart	treat angina pectoris and decreased circulation to the brain and extremities	nitroglycerin (Nitro-Bid) nicotinic acid papaverine (Cerespan, Pavacen) isoxsuprine HCl (Vasodilan) cyclandelate (Cyclospasmol)	perspiration flushed face hypotension headache	Do not get the nitroglycerin on your skin. Monitor the individual's blood pressure and pulse rate

Action	Use	Examples	Adverse Effects	Nursing Considerations
Anticoagulants				
decrease blood clot formation	thrombophlebitis, abnormal clot formation	aspirin (A.S.A.) heparin (Coumadin) warafin (Coumadin)	gastrointestinal bleeding blood in stool or urine bleeding gums bruises on arms or legs hemoptysis	Report any signs of bleeding to charge nurse. The physician must watch the individual's blood clotting ability carefully; these drugs can be very dangerous
Calcium Blockers				
reduce constriction of heart muscles and increase blood supply to correct arrhythmias	treat angina and arrhythmias	verapamil HCl (Calan, Isoptin) nifedipine (Procardia)	dizziness slow pulse hypotension chest pain constipation	Give only at prescribed times. Monitor the individual's blood pressure prior to administration.

Definitions of Key Terms

Angina--Any disease in which spasmodic and painful suffocation or spasms occur.

Arrhythmia--A change in the time or force of the rhythm of the heartbeat.

Arteriosclerosis--Thickening and hardening of arterial walls caused by calcium build-up that interferes with blood circulation.

Atherosclerosis--A deposit or degenerative accumulation of cholesterol and lipoid material in the arteries.

Electrolytes--Chemical elements in the blood and body that are important for muscle function.

Hematemesis--Vomiting blood.

Hemoptysis--Coughing up blood.

Hypertension--High blood pressure.

Hypotension--Low blood pressure.

Ischemia--Temporary decrease in the amount of blood being delivered to a part of the

body; mainly due to the contraction of the blood vessel.

Phlebitis--Inflammation of a vein.

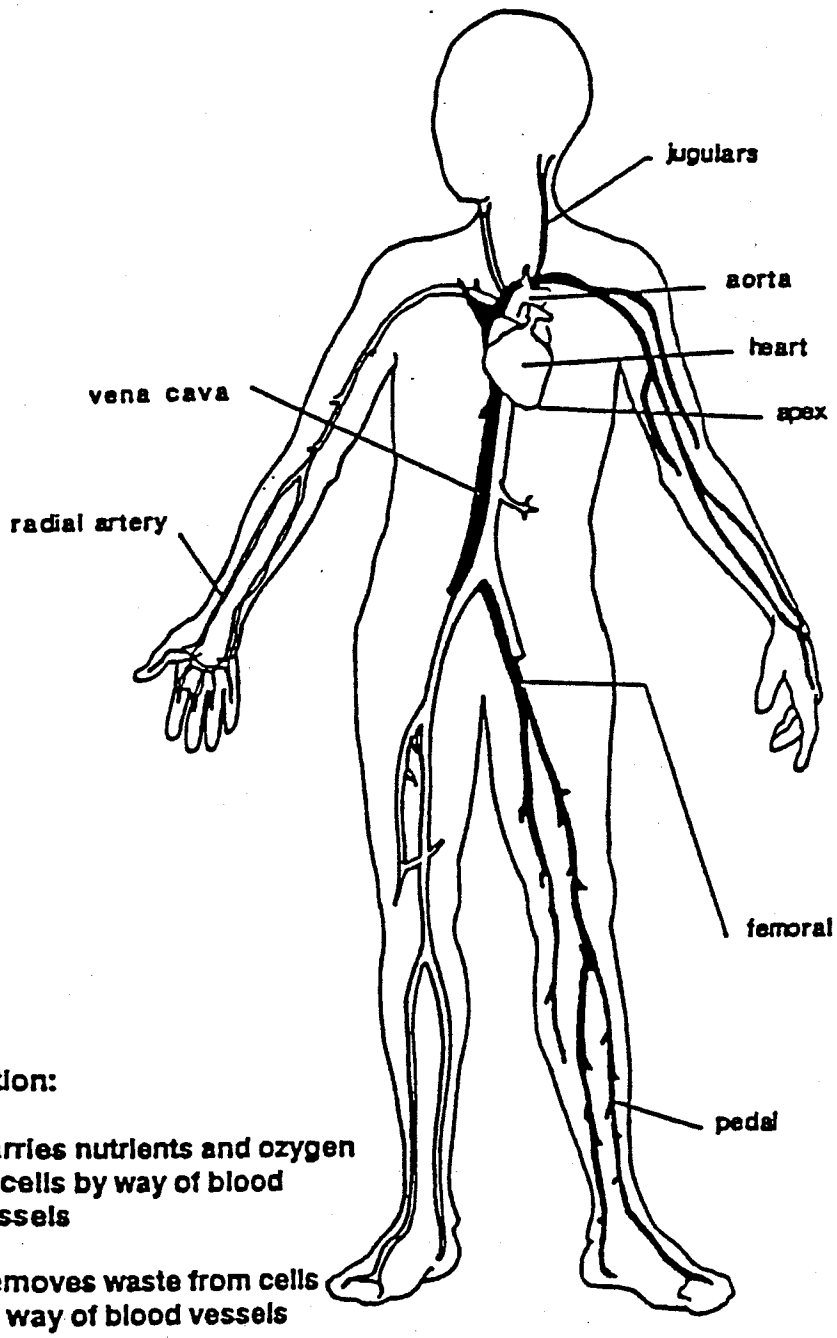
Syncope--A brief loss of consciousness.

Tachycardia--Excessively rapid heartbeat, usually applied to a pulse rate above 100 per minute.

Thrombosis--The formation of blood clots.

Trendelenburg position--Lying on the back with the pelvis higher than the head, inclined at a 45 degree angle.

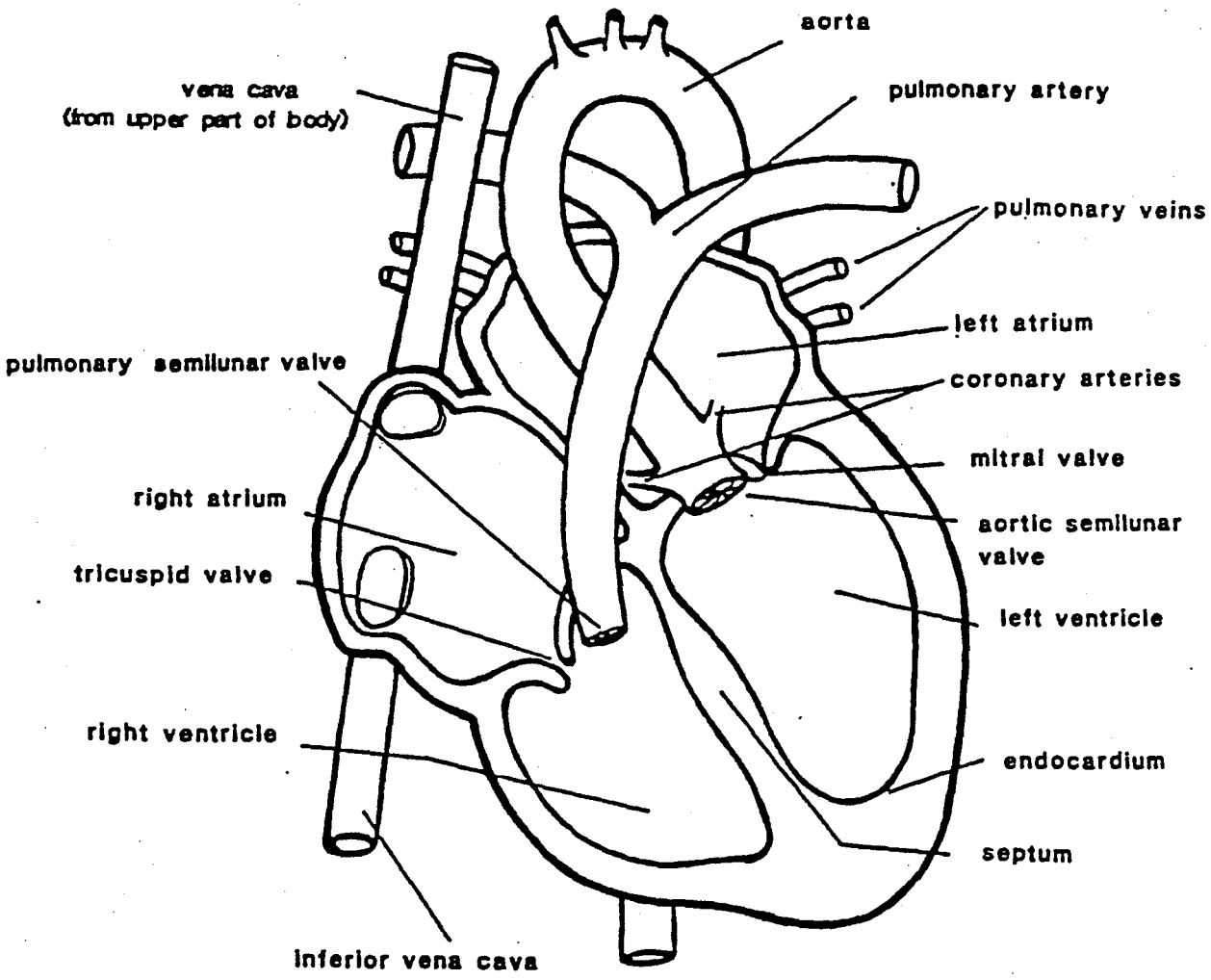
The Cardiovascular System



Function:

1. Carries nutrients and ozygen to cells by way of blood vessels
2. Removes waste from cells by way of blood vessels

The Heart



Function: 1. Pumps blood through the blood vessels

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Living in the Community Supplemental Lessons

Supplemental Lesson 11
The Respiratory System

THE RESPIRATORY SYSTEM

Key Terms

Allergen	Allergic reaction
Anaphylactic reaction	
Antihistamines	Antitussives
Asthma	Bronchitis
Chronic Obstructive Lung Disease (COLD)	
Chronic Obstructive Pulmonary Disease (COPD)	Common cold
Emphysema	Expectorant
Histamine	Pneumonia
Rhinitis	Tuberculosis

The respiratory system, which includes the larynx, trachea, bronchi and lungs, is the means by which we breathe. Breathing brings oxygen into the body and removes waste products. Medications are frequently given to help correct breathing difficulties such as chronic diseases of the respiratory tract.

Staff must understand how the respiratory system works, and be able to identify commonly ordered medications including their actions and effects, that are ordered to treat breathing disorders.

Review of the Structures and Functions of the Respiratory System

The respiratory system consists of air passageways which include the nose which has two sides, or flares. The throat which is called the pharynx and has three parts:

- Nasal - where the throat joins with the nose.
- Oral - where the throat joins with the mouth.
- Laryngeal - where the throat joins the passage to the lungs.

The larynx is cartilaginous and muscular, it forms the upper part of the trachea and contains the vocal cords. The trachea (windpipe) in adults is approximately five inches long and one inch in diameter. The bronchi are two passageways branching off the trachea into each lung. The lungs are inside the rib cage there is a right and left lung. Each lung has thousands of little air sacs called alveoli, which absorb oxygen and give off carbon dioxide. Pleura covers the lungs and lines the chest cavity with a protective covering.

Accessory structures to the respiratory system include the diaphragm which is a dome-like muscle below the lungs which acts like bellows to draw fresh air in and push waste products out. Muscles between the ribs allow the chest to expand and contract when breathing.

Functions of the respiratory system include bringing oxygen into the body which is distributed to every cell via the blood. Oxygen is carried to the body cells (hemoglobin) which is contained in red blood cells. The normal range of hemoglobin in adults is 12—15 gm per 100 ml of blood. The respiratory system also takes carbon dioxide and other wastes out of the body. Rate and depth of breathing depends upon the

"respiratory center" located in the brain — can be triggered by activity, illness, and medications. Average respiratory rate for an adult is 12-16 respirations per minute. Average respiratory rate for children (1-8 years) is about 20 respirations per minute.

Modes of administering respiratory medications include:

- Oral--by mouth, most commonly used method
- Inhalation--by breathing in
- Parenteral--by injection
- Rectal--by suppository
- Sublingual--under the tongue
- Nebulization--mist to lining of the nose and/or throat

Additional Considerations for the Respiratory System

Individuals with chronic lung problems may be on a comprehensive regime of medication management, oxygen therapy, nutrition, progressive exercise, and education. Narcotics and barbiturates depress respiration, so these medications are not used with COPD individuals. Individuals with asthma usually exhibit continuous wheezing, dyspnea, and coughing. Fatigue is often associated with chronic lung conditions. Administer medications slowly and monitor individuals closely. Individuals with chronic lung diseases may sometimes be treated with corticosteroids. These individuals are at a higher risk for peptic ulcers. Approximately 25% of COPD individuals will have a peptic ulcer at some time. Avoid giving mucous-producing liquids to individuals who are congested.

Disorders of Respiratory System

Causes	Symptoms	Treatments
Abnormal respirations and respiratory arrest		
obstruction, infections, decrease in the amount of respiratory surface available for exchange of oxygen and carbon dioxide	restlessness, confusion, respiratory rate increased or decreased, cyanosis may or may not be present, coughing, increased heart rate, perspiration, coma, death.	stimulate breathing, improve gas exchange, medication to treat symptoms as well as causes.
Asthma		
allergies, infection, emotional tension, or combination of all three.	mild wheezing to severe dyspnea with particular difficulty exhaling; flaring nostrils, increased pulse, prolonged attack places considerable strain on heart.	medication to dilate bronchiolus
Bronchitis		
germs, irritants such as dust, smoke, pollutants, cold weather	dry cough followed by thick mucous, productive cough.	antibiotics, medications to relieve bronchospasm (bronchodilators), expectorants

Cause	Symptoms	Treatments
Pulmonary Emphysema		
smoking, recurrent, inflammation, infection	chronic cough, loss of appetite, barrel chest, pursed lip breathing, cyanosis of extremities and clubbing of fingers, shortness of breath	antibiotics, bronchodilators, breathing treatments
COLD (Chronic Obstructive Lung Disease) or COPD (Chronic Obstructive Pulmonary Disease)		
emphysema, chronic bronchitis, asthma, or a combination of these disorders.	dyspnea with minimal exertion, productive cough, frequent respiratory infections, barrel chest, severe respiratory failure	incurable, but condition may improve with breathing exercises, bronchodilators, and expectorants.
Rhinitis		
allergies, irritants, germs, pollens (hay fever).	sneezing, runny nose, congestion.	medications to relieve symptoms
Common cold		
virus	muscular aches, stuffy nose, congestion	incurable, medications to relieve symptoms.
Pneumonia		
primary—virus or bacteria; secondary- complication of other diseases, aspiration of food, fluid, or gastric contents	cough, rusty sputum, fever, cyanosis, moist respirations	bed rest and medication
Tuberculosis (TB)		
inhalation of droplets from an infected person; spread through the air	none for 6-8 weeks, then fatigue, weakness, loss of appetite, weight loss, night sweats, low grade fever	medications (drug therapy), isolation till non-contagious, TB skin test for close associates to detect infection, possible chest x-rays.
Allergic reactions		
allergens cause body cells to release a substance called histamine. Common allergens are: Foods - eggs, strawberries, shellfish Contact — wool, poison ivy Breathing - rag weed, dust Medications — morphine, sulfa drugs, penicillin Insect bites - bees, spiders (this allergy is an emergency because it can cause anaphylactic shock).	histamine causes various reactions (swelling, hives, rhinitis, difficulty breathing, nausea, vomiting, diarrhea). An extreme reaction may cause anaphylactic shock and death	antihistamines

Selected Respiratory Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Respiratory Stimulants				
inhalation of drug triggers the respiratory center of the brain; increases the rate and depth of respiration.	treat fainting	spirits of ammonia (smelling salts)	irritates lining of the nose nausea	Don't hold the medication too close to the individual's nose
Cough medications - Antitussive				
depress the cough by depressing the activity of the cough center in the brain or by local action.	treat coughs	Codeine (controlled substance) Dextromethorphan (Benylin-DN, Tussi-Organidin-DM, Robitussin-DM) benzonatate (Tessalon)	drowsiness nasal congestion nausea	After taking cough syrup, the individual should not receive fluids for 15 minutes
Cough Medications - Expectorants				
clear the respiratory tract by liquefying mucous	cause productive coughing	Robitussin terpin hydrate (ETH) Potassium iodide (SSKI)	gastric irritation nausea and vomiting	Many over the counter cough and cold preparations contain ammonium chloride and should therefore be taken with water
Bronchodilators				
relax bronchial muscles and open the breathing passages.	treat asthma, bronchitis, and chronic lung disease	Aminophylline theophylline (Elixophyllin) terbutaline sulfate (Brethine) isoetharine HCl 1% (Bronkosol) metaproterenol sulfate (Alupent) beclomethasone dipropionate (Vanceril)	Withdrawal symptoms may occur if medication is discontinued. restlessness dizziness palpitations nausea hypertension	Individual may become frightened, anxious, manipulative, or demanding while on the medication. Drugs in combinations may cause increased adverse effects. The doctor must be notified if medication is withheld because of nausea. Observe for drug interactions

Action	Use	Examples	Adverse Effects	Nursing Considerations
Antihistamines				
combat the effects of histamine, which is released by the body as an allergic reaction.	treat motion sickness and allergic reactions	diphenhydramine (Benedryl) chiorpheniramine (Chlor-Trimeton, Teldrin) promethazine (Phenergan) trimeprazine (Temaril) terfenadine (Seldane) Dimetapp Extentabs	drowsiness (most common) dizziness loss of appetite dry mouth urinary retention	Use with caution with individuals who have cardiac conditions. Use with caution with men who have prostate conditions. Do not give to individuals with respiratory conditions. Do not give with alcohol or other depressants. The individual can develop a tolerance to the medication.
Nasal Decongestants				
shrinks mucous membrane and relieves nasal swelling and congestion	treat allergies, hay fever, and cold symptoms	naphazoline HCl (Privine) oxymetazoline HCl (Afrin) phenylephrine HCl (Neo-Synephrine, Coricidin Nasal Mist) pseudoephedrine HCl (Sudafed)	Prolonged use can: cause irritation. perforate the nasal septum. cause rebound nasal congestion	Individual can build up tolerance to the medication
Combination Products				
preparations containing more than one product to produce more than one effect	treat coughs and allergies, to relieve pain	Sinutab Actifed Ornade	drowsiness dry mouth	May cause elevated blood pressure. Over-the-counter medications are potent; use with caution. Rebound symptoms can occur if given more often than indicated

Action	Use	Examples	Adverse Effects	Nursing Considerations
Oxygen Therapy				
treat conditions such as COPD, CHF, hypoxia	relieve shortness of breath	Oxygen Stored in three forms: Gas, liquid, Concentrator Administered two primary ways: by nasal cannula, mask	Hyperventilation Hypoventilation	Individuals with chronic lung disease should use lower liter flow rates. Mask should not be used at less than 5 liters per minute. Dries out the mucous membrane — good mouth care must be given. Individuals, visitors, and staff must not smoke in areas where oxygen is being used. Can be given in an emergency situation with licensed nurse approval.
Tuberculin Medications				
reduce growth or kill the bacteria that cause TB	treat the active disease	rifampin (Rifadin) ethambutol HCl (Myambutol) isoniazid [INH] (Rimifon, Rolazid	Fatigue/drowsiness Numbness in extremities Nausea Confusion Headache Vision problems Anorexia Rash	Can turn urine, feces, sputum, sweat, or tears to a harmless red-orange color. Administer with caution to individuals who have a history of alcoholism and liver disease. Watch for signs of hepatitis (jaundice). Monitor the individual for weight loss. Give with food if the individual complains of nausea. Store the medication in a light-resistant container. The individual will probably be taking a combination of these drugs

Action	Use	Examples	Adverse Effects	Nursing Considerations
Tuberculin Testing				
produce an allergic reaction to tuberculin bacteria	check for contact with the bacteria: Negative results mean lung tissue has not been in contact with TB bacteria. Positive results mean lung tissue has been exposed to the TB bacteria, but it does not necessarily mean the person has tuberculosis	**Tine** Used in schools, but not accepted in health care facilities because it gives too many false-positive readings. Give a PPD as a follow-up test if the individual tests positive with Tine. **Mantoux or PPD** Accepted test for health care workers and individuals in long-term care. Given be a nurse, injected just under the skin. Required annually, unless the test has been positive in the past. Follow-up a positive test with a CXR. **Chest X-ray (CXR)** Used for persons with a positive PPD to diagnose the disease, and after an initial positive reaction, to rule out an active disease. After two negative CXR and a doctor's statement, repeat CXR only if symptoms occur		

Definitions of Key Terms

Allergen--A substance that causes a hypersensitive reaction (an allergy).

Allergic reaction--Sensitivity to any substance contacted by touch, inhalation, ingestion, or injections such as poison ivy, pollen, insect bites, foods, or medications; causes sneezing, itching, swelling, difficulty in breathing.

Anaphylactic reaction--Life-threatening allergic reaction caused by an allergen. Characterized by respiratory problems, fainting, itching, welts on the skin.

Antihistamines--Drugs that are used to reduce the effects associated with histamine production in allergies and colds.

Antitussives--Medications that relieve coughing.

Asthma--A chronic respiratory disease, often from allergies, and accompanied by labored breathing, chest constriction, and coughing.

Bronchitis--Inflammation or swelling of the bronchial tubes.

Chronic Obstructive Lung Disease (COLD)--Chronic airway obstruction.

Chronic Obstructive Pulmonary Disease (COPD)--Chronic airway obstruction.

Common cold--Communicable viral disease.

Emphysema--A condition of the lungs resulting in labored breathing and increased susceptibility to infection.

Expectorant--Medication that assists in liquefying the mucus to make it easier to cough up.

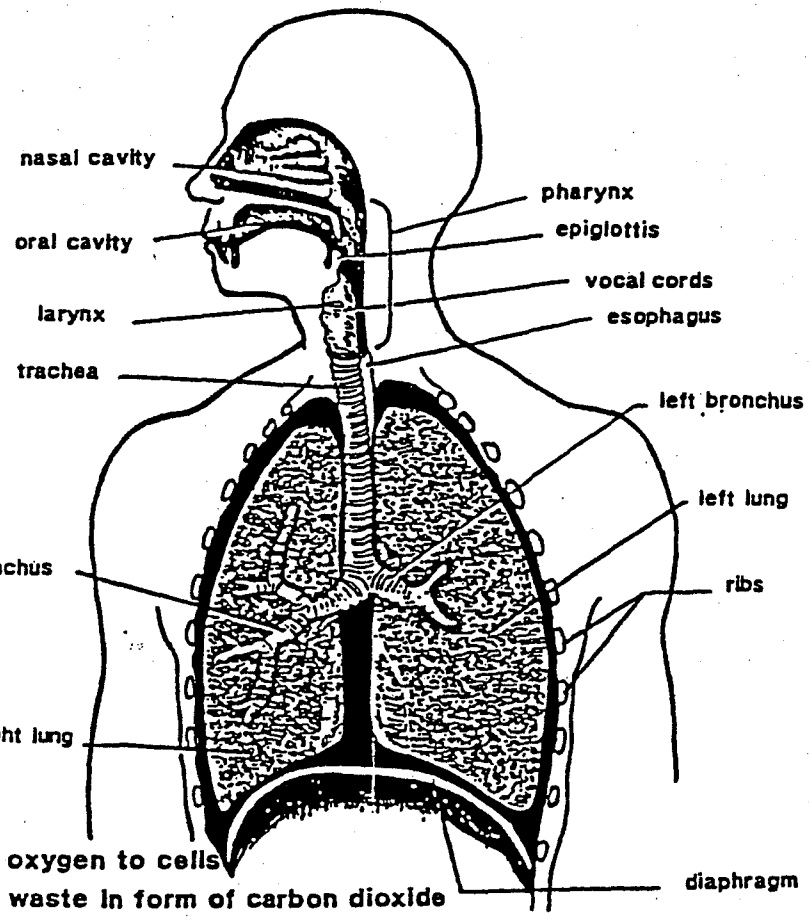
Histamine--A white crystalline compound found in plant and animal tissue. It is a stimulator of gastric secretion, and is used medicinally as a vasodilator to increase the blood supply to the brain.

Pneumonia--An acute or chronic disease marked by inflammation and infection in the lungs.

Rhinitis--Inflammation and swelling of the lining of the nose.

Tuberculosis--Communicable acute or chronic infection caused by mycobacterium tuberculosis.

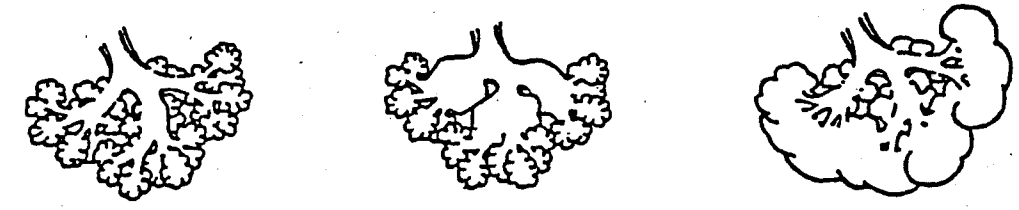
The Respiratory System



Function:

1. Provides oxygen to cells
2. Removes waste in form of carbon dioxide

Chronic obstructive pulmonary disease



normal bronchioles and alveolar sacs | enlarged bronchioles | distended alveolar sacs

Living in the Community Supplemental Lessons

Supplemental Lesson 12
The Endocrine and Female Reproductive Systems

THE ENDOCRINE AND FEMALE REPRODCUTIVE SYSTEMS

Key Terms	
Androgens	Estrogen
Hormone	Labia
Mons pubis	Vestibule area

The female reproductive system and the endocrine system are discussed at the same time because of the interaction between the endocrine system and the ovaries.

The endocrine system has eight kinds of glands: the pineal, pituitary, parathyroids, thyroid, thymus, adrenals, islets of Langerhans and gonads. These glands, situated throughout the body, secrete liquid substances called hormones. Hormones are the chemical regulators of cell activity within the body.

The female reproductive system has two ovaries, two fallopian tubes, the uterus, vagina, external genitalia and breasts. The system stabilizes the female physically and emotionally, provides female sex cells and a place to conceive and nourish a baby.

Disorders, injuries and aging processes that interfere with the endocrine or female reproductive systems may be treated with medication. Staff must understand how these systems work, and be able to identify commonly ordered medications, including their actions and effects, which are used to treat endocrine or female reproductive disorders.

Review of the Structures and Functions of the Endocrine System

Structures of the endocrine system (for further information refer to the chart **Common Disorders of the Endocrine Glands** located at the end of this lesson) include: pineal gland, pituitary gland (master gland), thyroid gland, parathyroid glands, thymus gland, adrenal glands, pancreas, testes (male gonads), and the ovaries (female gonads). Functions of the endocrine system: the endocrine glands secrete hormones that are the chemical regulators of all cell activity. Produce hormones which can either excite or inhibit physiological processes.

Review of the Structures and Functions of the Female Reproductive System

The female reproductive system is made up of internal and external structures. The internal structures are:

- Two ovaries located in the pelvis, one on either side of the uterus. Size and shape of an almond, contain all the available egg cells. At puberty, two hormones from the pituitary gland stimulate the ovaries to release estrogen. Estrogen, the hormone released form the ovaries, controls the female secondary sex characteristics. It also controls the maturation of approximately one egg each month, which matures in a sac-like structure that ruptures and releases the egg from an alternate ovary each month. The hormone

progesterone, which is produced by the sac-like structure, will help the egg divide if the egg is fertilized by sperm. If the egg is not fertilized by sperm, it is discharged from the body during menstruation. Cycle recurs monthly.

- Two fallopian tubes which are attached to the upper sides of the uterus, projecting outward. Small fingerlike projections on the ends of each fallopian tube lift the mature egg from the abdominal cavity when it is released from the ovary. The egg is transported through the fallopian tube toward the uterus. Fertilization usually takes place in the fallopian tubes.

- Uterus is a muscular pear-shaped organ capable of stretching twenty times its normal size. The inner lining becomes saturated with blood. A fertilized egg attaches itself to the lining in the uterus where development of the fetus will occur. If a fertilized egg does not attach, then the lining and blood is discharged each month, which is called menstruation.

- Vagina is the opening from the uterus to the outside of the body, sometimes called the birth canal. The organ used during intercourse. The lining of the uterus is shed through the vagina during menstrual flow. Vaginal infections can be contracted from organisms entering from the outside. An infection entering through the vagina can spread into the uterus, the fallopian tubes and the pelvic cavity.

External structures:

- Genital area contains four structures. The mons-pubis - fatty pad over the pubic bone, covered with hair after puberty. The labia - two lip-like structures or folds of skin that cover and protect the urinary and vaginal openings, extends downward toward the rectum. The clitoris - located inside the upper junction of the labia, a small structure of erectile tissue. The vestibule area - area into which the vagina and urethra open to outside of the body.

- Chest area contains the breasts - modified glandular structures that contain the mammary glands and the mammary glands - stimulated by hormones during pregnancy to produce milk after childbirth.

The major functions of the female reproductive system are:

- The production of hormones
- Stabilize the female physically and emotionally.
- Provide a place for conception (fertilization).
- House and nourish a developing baby.

Common Disorders of the Endocrine and Female Reproductive Systems

1. Disorders of the endocrine glands - for additional disorders, see the chart of "Common Disorders of the Endocrine Glands."

Cause	Symptoms	Treatments
Hypothyroidism		
underproduction of the thyroid gland	fatigue, unexplained weight gain, dry skin, sensitivity to cold.	medication, thyroid hormone replacement.
Hyperinsulinism		
overproduction of the pancreas	low blood sugar, fatigue, headaches, hunger, confusion	diet.

2. Common disorders of the female reproductive system

Cause	Symptoms	Treatments
Vaginitis		
poor hygiene, changes in vaginal lining after menopause	whitish vaginal discharge, foul odor, burning and itching of genital area, especially around the vaginal opening	Keep area clean and dry, use medicated vaginal creams, jellies, suppositories and douches. Can be resistant to treatment
Breast cancer		
unknown, estrogen suspected, many victims began menses early, menopause late, and experience constant stress	lump, dimpling, or indented areas in breast tissue, fluid oozing from nipples, orange peel appearance of skin, change in breast size or shape	surgery, x-ray radiation, chemotherapy
Menopause		
usually occurs between age 45 and 52, age of onset influenced by nutritional, cultural or genetic factors. The physiologic mechanisms that trigger onset are unknown	vary; mucous membranes become dry, pubic hair thins turning gray or white and may disappear, pelvic muscles atrophy, breasts become pendulous and decrease in size and firmness, sexual activity may increase in some women as the need for contraceptives disappears, some women experience "hot flashes" - sweating and occasional chills	Low-dose estrogen therapy, Vaginal creams, counseling to Assist the woman in coming to Terms with the changes that are Occurring.

Selected Medications by Classification

Action	Uses	Examples	Adverse Effects	Nursing Considerations
Adrenal cortex hormones				
decreases inflammation	treat allergies, arthritis, dermatitis	prednisone eltasone) dexamethasone (Decadron) methylprednisolone (Medrol)	Moon face Fluid retention Depression Increased blood sugar Hair loss Night sweats Thin, shiny skin	May mask infection. Serious reactions such as decreased blood pressure, fatigue, depression, anorexia, and rebound inflammation, may occur if the medication is stopped suddenly. Administer with food.
Thyroid hormones				
affect how the body cells use food substances, also affect growth and development	replacement therapy for when thyroid is not producing enough hormones	levothyroxine sodium (Synthroid) liotrix (Euthroid)	Nervousness Insomnia Palpitations Sweating Tremors Chest pains	Report chest pains Immediately. Onset is gradual – full effect in about three weeks. Administer as a single dose, preferably before breakfast

Gonadal hormones

Actions	Uses	Treatments	Adverse Effects	Nursing Considerations
Estrogen				
maintain normal menstrual cycle and secondary sex characteristics	replacement therapy for symptoms of menopause, treat symptoms of prostate and breast cancer and osteoporosis	Diethylstilbestrol (DES) Premarin (congrated estrogen) Esterderm patch	Depression Hair loss Thrombophlebitis Breast tenderness Leg cramps Increase in blood pressure	Check the individual's blood pressure regularly. Usually given cyclically (on 25 days, off 5 days).
Androgens				
maintain male secondary sex characteristics and stimulate repair of body tissues	treat symptoms of several types of cancers	testosterone (Histerone, Malogen, Oreton)	Headache Depression Growth of facial hair Edema Weight gain	Watch a diabetic individual for symptoms of hypoglycemia. Bedridden individuals should be given range of motion exercises to prevent the loss of calcium from the bone. Check the individual's weight regularly

Oral contraceptives				
inhibit ovulation	prevent pregnancy	estrogen with progestogen (Ovral, Norinyl, Ortho-Novum)	Headache Weight gain Hypertension Thrombophlebitis Edema breast tenderness Vaginitis Nausea	Adverse effects often decrease after three months. Administer with food at bedtime to decrease nausea.

Definitions of Key Terms

Androgens--Male hormones.

Estrogen--Female hormones.

Hormone--A chemical substance secreted into the body fluids by an endocrine gland, which has a specific effect on the activities of other organs.

Labia--Folds of skin or mucus membrane that surround the vagina.

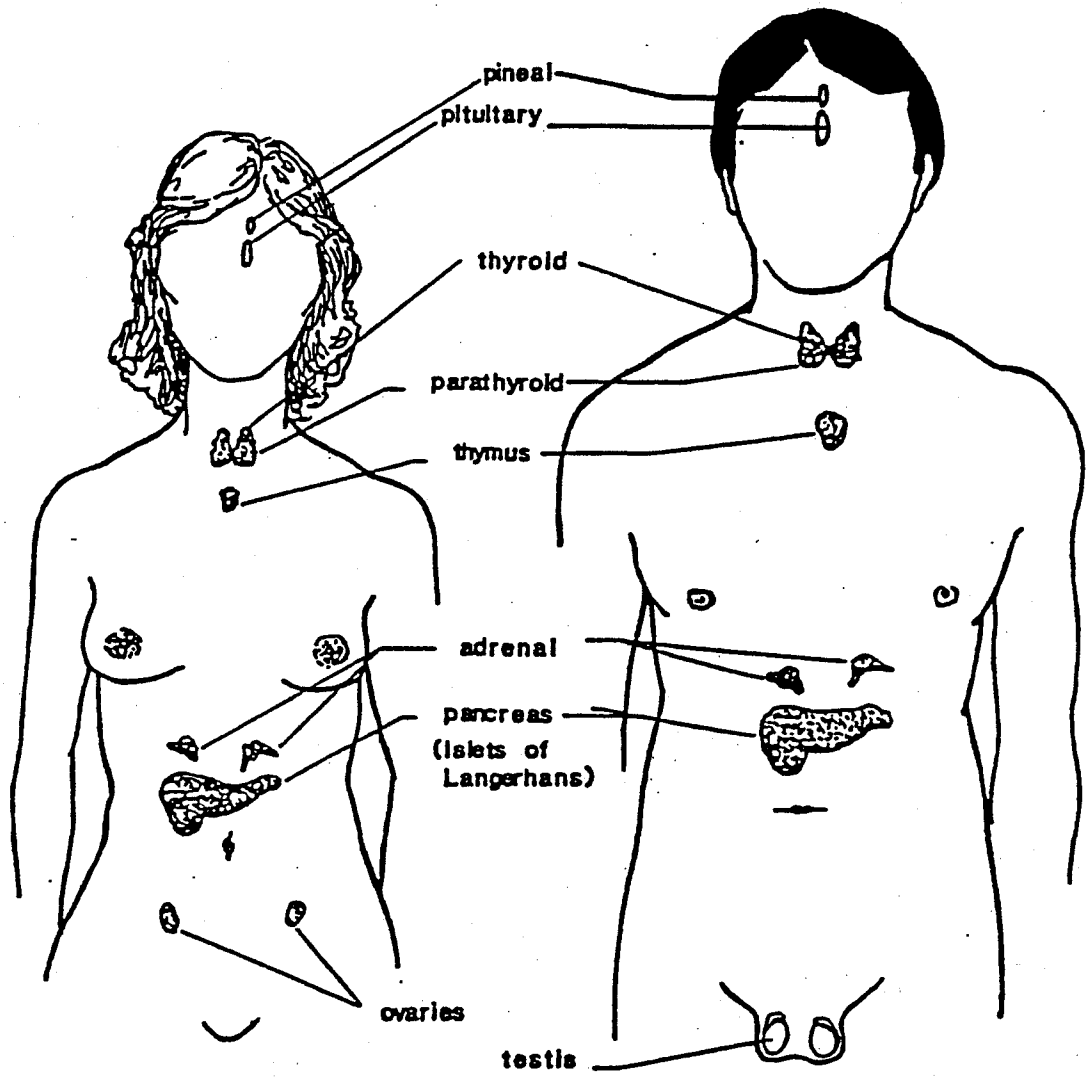
Mons pubis--Soft fatty tissue covering the joint of the pubic bones.

Vestibule area--Contains the opening to the urethra.

COMMON DISORDERS OF THE ENDROCRINE GLANDS

Gland	Hormone	Function	Overproduction	Treatment	Underproduction	Treatment
Pituitary	Contains 6 hormones	Stimulate other hormones responsible for growth	Hyperpituitarism skeletal overgrowth (gigantism), formulation of new bone	Curb production of hormone, surgery, replacement of needed hormones	Hypopituitarism dwarfism, pubertal delay, diabetes insipidus	Replacement of hormone
Thyroid	Thyroid	Energy metabolism	Hyperthyroidism enlarged thyroid gland (goiter), nervousness, weight loss, sweating, diarrhea	Surgery, antithyroid medications	Hypothyroidism fatigue, forgetfulness, sensitivity to cold, unexplained weight gain, dry skin, puffy face, hands, and feet	Thyroid hormone replacement, iodine and potassium
Pancreas (islets of Langerhans	Insulin	Transports sugar into cells for use as energy	Hyperinsullnism low blood sugar (hypoglycemia), fatigue, nervousness, irritability, trembling, headaches, hunger, confusion	Diet high in protein, low in carbohydrates	Hypoinsullnism (hyperglycemia), diabetes mellitus, increased urination, thirst, visual disturbances, weight loss, hunger	Oral hypoglycemic medications, insulin, diet
Adrenal	ACTH, cortcosteroids, catechoismines	Regulation of sugar, salt, sex, B/P, CNS activity, and energy metabolism	Cushings Syndrome moon face, stretch mark on skin, buffalo hump, sugar in urine, protruding abdomen, edema upper legs	Radiation, drug therapy, surgery	Addisons Disease anemia, weight loss, dehydration, thinning of hair, tremors, bronze coloring of skin	Corticosteroid replacement
Parathyroids	Parathyroid hormone (PTH)	Maintain adequate level of calcium in body fluids	Kidney failure, kidney stones, bone tenderness, bones easily broken, muscle weakness, skeletal deformities	Surgery, medication, peritoneal dialysis	Tetany, convulsions, muscle spasms, paralysis, difficult breathing, death from exhaustion	Large doses of calcium, I.V. large doses of vitamins
Testes (male gonads)	Testosterone, androsterone	Stimulate development of male sex characteristics at puberty, maintain sperm production, influence other hormonal activities	Before puberty, early maturation of secondary sex characteristics before age 10	Depends on cause, medication, surgery to remove tumor	Hypogonadism, before puberty, no maturation of secondary sex characteristics in adulthood, slow regression of secondary sex characteristics	Hormonal replacement
Ovaries (female gonads)	Estrogens, progesterone	At puberty, development of secondary sex characteristics, stimulates other hormones, menstruation	Early development of secondary sex characteristics before age 9	Depends on cause	Menopause (cessation of menstruation)	Hormonal replacement
Pincal	None known	No know function	No known function	No known function	No known function	No known function

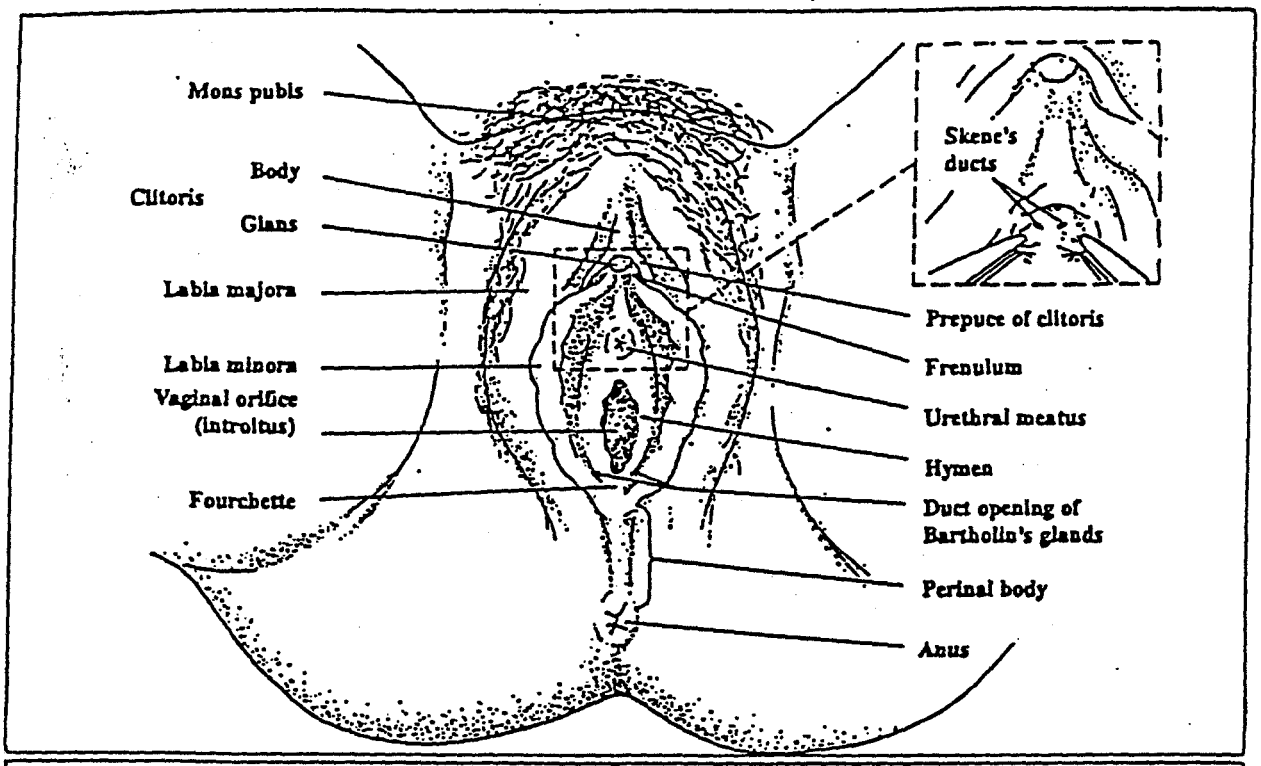
The Endocrine System

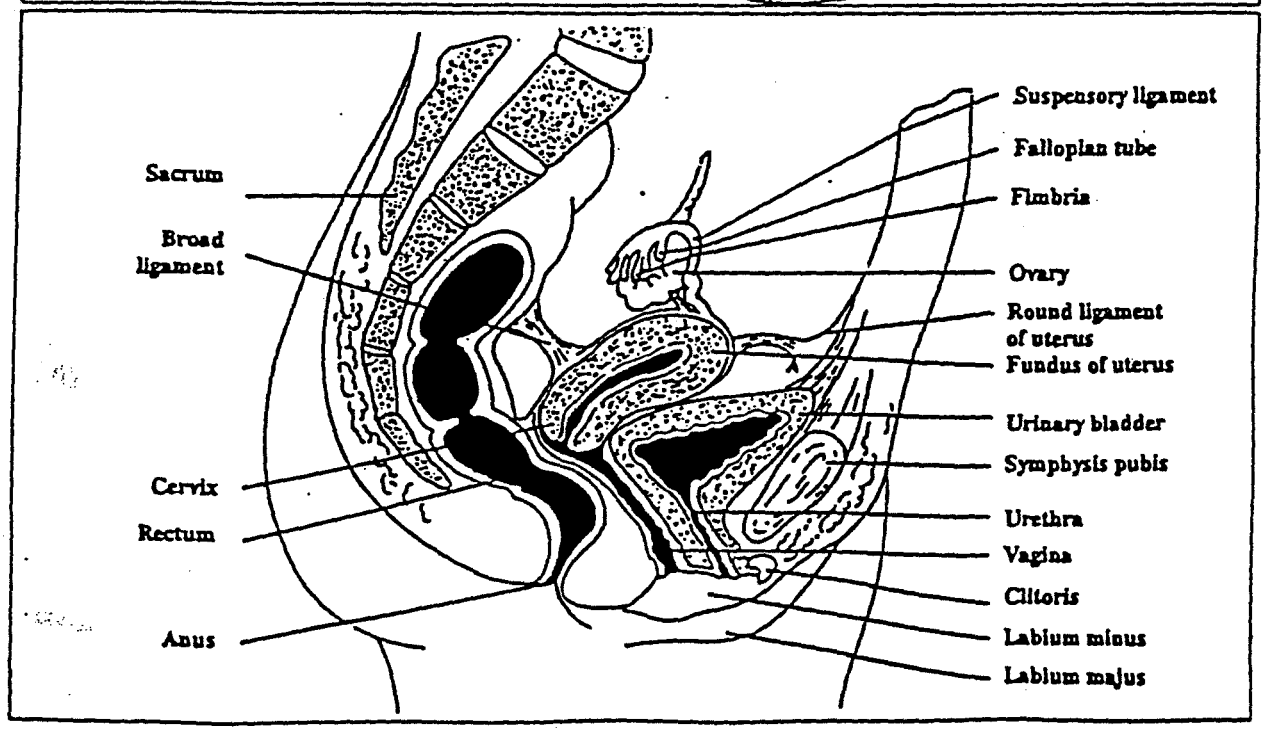


Function:

1. Secrete hormones to regulate body processes of growth and development
2. Regulates body functions, metabolism, and reproduction

FEMALE ANATOMY





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Living in the Community Supplemental Lessons

Supplemental Lesson 13
The Immune System

THE IMMUNE SYSTEM

Key Terms

Immunity	Infectious hepatitis
Rubella	Tetanus

The body is equipped to defend itself against injury and disease through the immune system. An important part of this defense is the lymphatic (lymph) system, which is one part of the system of absorbent vessels which drain the lymph from various body tissues and return the lymph to the blood stream. The lymph system also filters out foreign particles and bacteria, and produces antibodies, which defend the body against disease-producing organisms.

One way the body protects itself is through the immune system. Immunity refers to the security a body has against any particular disease or poison. Immunity is the power which an individual acquires (actively or passively) to resist and/or overcome an infection to which most or many other people are susceptible.

Process of Immunity

Active immunity (long lasting) is naturally acquired by contracting a disease, such as measles, mumps, chicken pox, and producing antibodies to ward off the disease. It can also be artificially acquired by injecting the body with attenuated disease causing microorganisms, which stimulate the body to produce antibodies.

Passive immunity (short term) is naturally acquired by passing antibodies from the mother's blood stream to the baby. It can also be artificially acquired by ingesting antibodies from an immunized animal or human to prevent disease in persons who haven't developed their own antibodies.

Common Non-Immune Conditions for which Medications or Preparations May be Helpful

Cause	Symptoms	Treatment	Prevention	Complications
Hepatitis B				
virus - fecal or oral route	loss of appetite, nausea, fever, jaundice, loss of weight and strength		hepatitis B vaccine, universal precautions	
Tetanus - "Lockjaw"				
specific bacteria growing at the site of injury, especially around puncture wounds	stiff jaw, difficulty swallowing, stiff neck, irritability, headache, fever, hills, muscle spasms, convulsions, and possibly death		active acquired immunity with periodic booster shots.	
Rubella - "German Measles"				
virus	Flat pink spots that start behind the ears and spread to the forehead and then over the body, merging, often in a few hours, so that the skin merely looks flushed. Swollen glands high up on the back of the neck which may stay swollen for weeks. Incubation period is 14-21 days		active acquired immunity	Can cause birth defects in unborn children if mother contracts virus during the first three months of pregnancy. Warn anyone who is in the early stages of pregnancy who might have contact with the individual
Polio				
virus	Fever, sore throat, headache, vomiting, stiff neck, paralysis	medication	active acquired immunity	
Measles				
virus	Runny nose; reddened, watery eyes; cough; fever which gradually rises; spots which look like grains of salt appear on the inside of the cheeks about day 3 or 4; rash appears day 4 or 5 as small dark red spots starting behind the ears spreading and becoming blotchy over the face and body.	antibiotics, eye medication	active acquired immunity	acute conjunctivitis, sore throat, bronchitis, pneumonia, inflammation of the brain leading to encephalitis
Mumps				
virus	swollen, painful gland(s) running from behind the ear to beneath the jaw bone; dry mouth; acute stinging pain on swallowing anything acidic; swelling changing the whole shape of the face. Incubation period is 14-28 days	rest, pain relievers, fluids	deafness, mumps meningitis	active acquired immunity

Tuberculin Testing

Tuberculin testing is very important as there has been an increase in the number of cases of tuberculosis in recent years. The tuberculin test produces an allergic reaction to tuberculin bacteria. It is used to check for contact with tuberculin bacteria. A negative result means lung tissue has not been in contact with TB bacteria. A positive result means lung tissue has been exposed to the TB bacteria, but it does not necessarily mean the person has tuberculosis.

There are three different types of tests which might be used.

- Tine is used in schools, but not accepted in health care facilities because it gives too many false-positive readings. Give a purified protein derivative (PPD) as a follow-up test if the individual tests positive with the Tine.
- Mantoux or purified protein derivative (PPD) is accepted test for health care workers and individuals in long-term care. Given by nurse--injection just under the skin. Required annually, unless the test has been positive in the past. Follow up a positive test with a chest x-ray.
- Chest X-ray (CXR) is used for persons with a positive PPD to diagnose the disease, and after an initial positive reaction to rule out an active disease. After two negative CXR's and a doctor's statement, a repeat CXR is needed only if symptoms occur.

Selected Medications by Classification

Action	Use	Examples	Adverse Effects	Nursing Considerations
Vaccines and toxoids				
Stimulate the body to produce its own immunity (antibodies).	prevention of disease	tetanus toxoid measles, mumps, and rubella vaccine (MMR) pneumococcal (Pneumovax-23) influenza virus (Fluogen)	Allergic reaction Pain and swelling at the site of the injection. Rash Fever Flu-like symptoms Convulsions	Reaction may occur in individuals who are allergic to feathers, chickens, or eggs
Immune serum				
Gives immediate protection against a disease	prevention, given exposure to hepatitis B	hepatitis B immune globulin (HyperHep)	Fever Rash Headache	Caregiver should receive immunization if exposed to hepatitis B.

Definitions to Key Terms

Immunity--Resistance of the body to a particular disease.

Infectious hepatitis--Contagious infection of the liver.

Rubella--Known as German Measles; an acute infectious disease spread by droplet infection.

Tetanus--Known as Lockjaw; an acute infectious disease often caused by puncture wounds. Often fatal.

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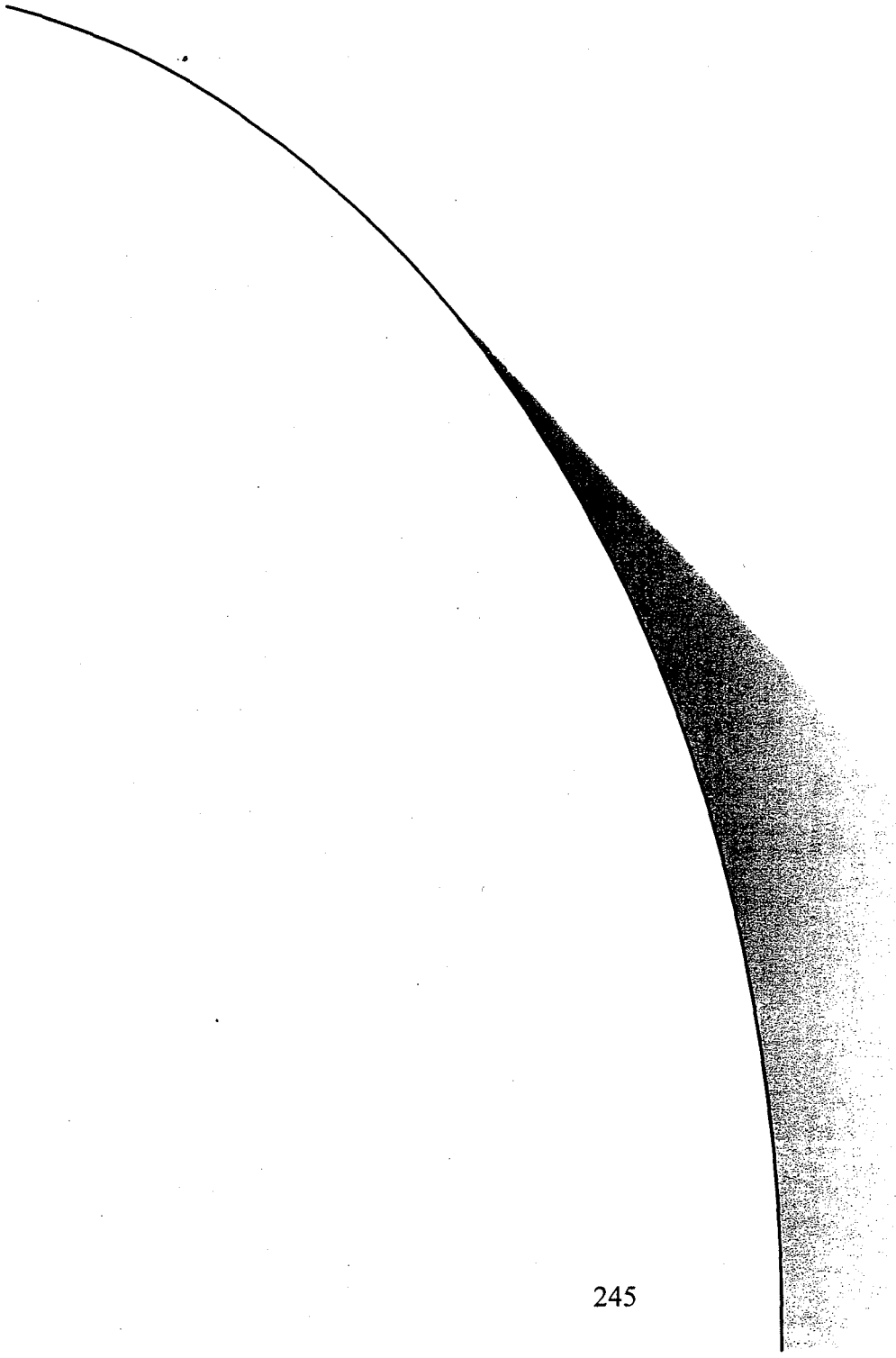
Living in the Community



Glossary

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Glossary

The definitions below reflect the ways in which these words are used in the text.

Abbreviation: A shortened form of a word or phrase

Abdominal distention: Enlarged abdomen

Abscess: A localized collection of pus in any part of the body, formed by tissue disintegration and surrounded by an inflamed area

Absorption: The taking up of fluids or other substances by the skin, mucous surfaces, or absorbent vessels

Acetylcholine: Chemical present in many organs and tissues of the body that has important physiological functions, i.e., transmission of a nerve impulse across a synapse - neurotransmitter

Adhesion: Sticking together

Adverse effect: Side effect of a medication; undesirable reaction

Affective psychosis: Psychotic reaction in which a person exhibits wide swings in emotional feelings

AIDS: Acquired Immune Deficiency Syndrome is a disease that affects the body's ability to fight infection -- AIDS is spread through the body fluids of an infected person by sexual intercourse (vaginal, anal, oral), sharing IV needles, infected mothers passing the disease to the fetus, transfusion of blood or blood products -- Can be spread through blood tinged stools or urine

Akathisia: Motor restlessness-inability to sit or lie down quietly: Continuous movement of the hands, mouth, picking at self, rocking in a chair, and drumming fingers, pacing the floor, rocking when standing

Akinesia: Fatigue and weakness of the arms and legs: Apathetic, disinclined to initiate or to expend energy to complete a task

Allergen: A substance that causes a hypersensitive reaction (an allergy)

Allergic effect: Sensitivity to any substance contacted by touch, inhalation, ingestion, or injections such as poison ivy, pollen, insect bites, foods, or medications; causes sneezing, itching, swelling, difficulty in breathing

Amniocentesis: Test that analyzes the watery liquid in which the embryo is suspended to determine any genetic defects in the fetus

Analgesics: Medications that relieve muscle, joint and bone pain

Analgesics: Medications that relieve muscle, joint and bone pain

Anaphylactic reaction: Life-threatening allergic reaction caused by an allergen – Characterized by respiratory problems, fainting, itching, welts on the skin

Androgens: Male hormones

Anemia: A condition in which the blood is deficient either in quantity or in quality

Anesthetics: Medications that cause a loss of sensation

Angina: Any disease in which spasmodic and painful suffocation or spasms occur

Anorexia: Lack or loss of appetite for food

Antagonistic effect: An agent, such as a remedy or a drug, which tends to nullify the action of another agent

Antianxiety drugs: Minor tranquilizers, also used for prevention and treatment of convulsions

Antibiotics: Substances produced by certain fungi, bacteria, and other organisms that are effective in inhibiting the growth of or destroying microorganisms: penicillin

Anticonvulsants: Medications used to stop or prevent convulsions or seizures

Antidepressants: Alleviate the symptoms of depression

Antiemetics: Drugs used to treat and prevent nausea and vomiting

Antihistamines: Drugs that are used to reduce the effects associated with histamine production in allergies and colds

Anti-inflammatory: Medications used to reduce swelling, pain, and tenderness caused by inflammation

Antipsychotics: Major tranquilizers, used to control symptoms of psychoses and organic brain syndrome; change behavior but do not cure disease

Antiseptic: A substance that inhibits the growth of germs: Antiseptic solutions are used as cleaning agents to prevent the spread of infection

Antitussives: Medications that relieve coughing

Anuria: No urinary output

Anxiety neurosis: Frequent feeling of uneasiness or fear with no apparent cause – associated with somatic symptoms and without organic disease

Apathetic: Lack of concern or caring

Aphasia: Defect or loss of the power of expression (speech, writing, or signs), or of comprehending spoken or written language, due to injury or disease of the brain centers

Apnea: Temporary suspension of respiration

Apothecary: A system of measures historically used by the person who prepares and sell drugs and medicines

Arrhythmia: A change in the time or force of the rhythm of the heartbeat

Arteriosclerosis: Thickening and hardening of arterial walls caused by calcium build-up that interferes with blood circulation

Arthritis: Inflammation of a joint

Aseptic: Free of infection Often refers to proper hand washing and other measures taken to prevent the spread of infection

Aspiration: The taking of foreign matter (such as food) into the lungs during the respiratory cycle

Assault and battery: The threat to use force upon another person and the carrying out of the threat

Assay/bio-assay: Technique by which strength and purity of medication are measured

Asthma: A chronic respiratory disease, often from allergies, and accompanied by labored breathing, chest constriction, and coughing

Atherosclerosis: A deposit or degenerative accumulation of cholesterol and lipoid material in the arteries

Athlete's foot: A contagious fungus infection of the feet

Atomizer: A device used to deliver a fine spray of medicine

Atrophy: The emaciation or wasting of tissues, organs or the entire body

Auditory canal: Tubular passages or ducts that assist in hearing or in the sense of hearing

Autism: A severely incapacitating life-long developmental disability, characterized by bizarre behavior and serious developmental delays in social and communication areas, that usually appear before age 3

Autonomic Nervous System (ANS): The division of the vertebrate nervous system that regulates involuntary action (intestines, heart, and glands) and makes up the sympathetic and parasympathetic nervous systems

Bioavailable: When a drug is circulating free in the bloodstream and is ready for action or use

Blood pressure: The force exerted by the heart against the arterial walls when the heart contracts (systolic) or relaxes (diastolic)

Brachial pulse: The pulse taken on the inside of the forearm at the elbow

Bradycardia: Slowness of the heartbeat; less than 50 beats per minute

Bronchitis: Inflammation or swelling of the bronchial tubes

Bruise: Black and blue area caused by an injury to the surface of the skin

Buccal: Medication is placed between the teeth and the mucous membrane of the cheek

Bulbourethral glands: Small structures about halfway between the bladder and the end of the penis that secrete sperm protectants

Burns: Injury to the skin by strong chemicals, electricity, high temperatures, or radiation

Bursitis: Inflammation of a bursa, usually at the shoulder, elbow, or knee joints

Caffeine: A white, bitter, crystalline substance that has stimulant effects and constricts blood vessels in the brain

Capsules: Medication in small cylinder-like containers

Carbohydrates: Sugars, starches, and cellulose

Carcinogen: A cancer-causing substance

Cardiotonics: Medications used to strengthen the activities of the heart

Cataracts: The lens or capsule of the eye loses its transparency or translucency causing partial or total blindness

Central nervous system: The part of the nervous system (brain and spinal cord) where sensory impulses are transmitted and from which motor impulses originate

Cerebral palsy: Number of abnormal conditions, generally present at or near the time of birth, that affect the control of the motor system due to brain dysfunction

Chemotherapy: The treatment of a disease with chemicals

Chills: Shivering or shaking

Chronic kidney failure: Reduction in kidney function

Chronic Obstructive Lung Disease (COLD): Chronic airway obstruction

Chronic Obstructive Pulmonary Disease (COPD): Chronic airway obstruction

Cirrhosis: Chronic liver damage caused by previous disease

Clean: Fresh, unused and free from disease-causing organisms

Code of Ethics: A voluntary set of rules that influence relationships between people

Common cold: Communicable viral disease

Competent: Well-qualified or capable

Conjunctival sac: Mucous membrane that lines the inner surface of the lower eyelid

Conjunctivitis: Inflammation of the mucus membrane that lines the inner surface of the eyelid and the exposed surface of the eyeball

Constipation: Difficult, incomplete or infrequent bowel movements

Contaminated: Exposed to disease-causing organisms Dirty

Contracture: Permanent shortening of a muscle that produces a deformity

Controlled substance: A drug that is addictive or habit forming

Convulsions: Abnormal, uncontrolled movement of all or part of the body

Creams: Medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments

Cumulative effect: Build-up of medication in the body due to slow excretion that could lead to a toxic effect

Cyanosis: A bluish discoloration of the skin caused by the lack of oxygen in the blood

Cystic fibrosis: A hereditary disease that affects many organs in the body, especially the lungs, resulting from a dysfunction of the pancreas

Cystitis: Inflammation of the urinary bladder

Daydream: A dreamlike musing or fantasy while awake

Decubitus ulcer: An open wound that is caused by the pressure of lying or sitting in one position for a long period of time: Also called a pressure sore or bedsore

Dehydration: Excessive loss of water from the body

Depressants: Medications used to decrease mental and physical activity

Depression: A lowering or decrease of activity functioning with the following symptoms: lack of interest in life, insomnia, loss of appetite due to inability to cope with one's life

Dermis: A layer of skin

Diabetes: A disorder of carbohydrates, protein, and fat metabolism that prevents the body from properly converting foods into energy for carrying out vital functions

Diarrhea: Frequent, loose bowel movements

Diastolic pressure: The force of the blood in the arteries when the heart is relaxed and filling with blood: Diastolic reading (the bottom number) is within normal range between 60-90 mm Hg

Dirty: Exposed to disease-causing organisms: Contaminated: No longer clean

Disinfectant: Substance used to destroy microorganisms

Distribute: To divide and dispense in portions

Dopamine: Chemical present in many parts of the body that has important physiological functions, i.e., transmission of a nerve impulse across a synapse – neurotransmitter: Dopamine is a product of norepinephrine

Dorsal recumbent position: Lying flat on the back with the legs parted, the knees bent, and the soles of the feet flat on the bed

Down syndrome: A chromosomal abnormality that leads to mild or moderate retardation and a variety of hearing, skeletal and heart problems

Drug interaction: The action of one medication interferes with the action of another; the effects of two or more medications

Duodenum: The first portion of the small intestine

Duty of Care: Performance of services that meet common standards

Dyskinesia: Abnormal movements of the body such as a dramatic onset of spasms, oculogyric crisis (begins with a stare, rolling of eyes, tilting of head, facial expressions), protrusion of the tongue, stiff neck, inability to swallow, stammering speech (dysarthria), labored breathing, and involuntary muscle movements

Dyspepsia: Indigestion

Dysphagia: Difficulty in swallowing

Dyspnea: Difficulty in breathing

Dysuria: Painful or difficult urination

Eczema: A noncontagious inflammation of the skin, marked mainly by redness, itching, and the outbreak of lesions that discharge fluid and become encrusted and scaly

Edema: Swelling caused by large amounts of fluid in the tissues

Electrolytes: Chemical elements in the blood and body that are important for muscle function
Elixirs: A water-alcohol solution which may contain sugar and flavoring

Emaciated: Thin, underweight

Emesis: Vomiting

Emphysema: A condition of the lungs resulting in labored breathing and increased susceptibility to infection

Emulsions: Suspensions of oils, water and other substances

Encephalitis: A disease accompanied by high fever and inflammation of the brain that can produce mental retardation

Enteric-coated: Protective coating on medication that allows for protection of the stomach lining

Epidermis: The outer protective layer of the skin

Epididymis: Coiled structure that stores and matures sperm cells

Epilepsy: Chronic disorder characterized by recurring seizures that last from a few seconds to several minutes and require specific medication for prevention and control

Estrogen: Female hormones

Excoriation: A scratch on the skin, usually covered with a scab

Excretion: Elimination of wastes, from the body, through the lungs, urine or feces

Expectorant: Medication that assists in liquefying the mucus to make it easier to cough up

Fat: A white or yellowish tissue which forms soft pads between various organs of the body -- serves to smooth and round out bodily contours and furnishes a reserve supply of energy

Fecal impaction: A collection of "putty-like" or hardened feces in the rectum

Feces: waste excreted from the bowels

Fetal alcohol syndrome: A possible cause of mental retardation related to drinking alcohol during pregnancy

Fever: Body temperature above normal

Fluid: A liquid or a solid (such as jello) that is measured as a liquid

Fluid balance: Taking in approximately the same amount of fluid as one eliminates

Fluid extracts: A concentrated alcohol solution of a vegetable drug

Flushing: Redness of the skin

Flutter: Very rapid rhythmic contractions of the heart muscles

Fracture: Broken bone

Friction: The rubbing of one thing against another: For example, when you wash your hands aseptically you create friction by rubbing them together in a brisk, back-and-forth motion

Galactosemia: An inherited condition that results in mental retardation which is caused by an inability to metabolize the galactose in milk

Gallbladder: Sac in which the bile from the liver is stored

Generic: Commonly available drugs that are not protected by trademark

Graduated container: A container divided into equal parts that is used to measure liquids

Half-life: The time required by living tissue, an organ or an organism to eliminate by biological processes half the quantity of a substance taken in

Hematemesis: Vomiting blood

Hemiplegia: Paralysis on only one side of the body

Hemoptysis: Coughing up blood

Hepatitis: Inflammation of the liver

Hg: The symbol for mercury

Histamine: A white crystalline compound found in plant and animal tissue: It is a stimulator of gastric secretion, and is used medicinally as a vasodilator to increase the blood supple to the brain

Hives: Red, swollen, itchy areas

Hormone: A chemical substance secreted into the body fluids by an endocrine gland, which has a specific effect on the activities of other organs

Hyperglycemia: An abnormally high level of sugar in the blood

Hypertension: High blood pressure

Hypnotics: Medications used to produce sleep

Hypoglycemia: An abnormally low level of sugar in the blood

Hypokalemia: An abnormally low level of potassium in the blood

Hypotension: Low blood pressure

Idiosyncrasy: Unusual or unexpected effects from a medication

Immunity: Resistance of the body to a particular disease

Incident report: Written account of an error in documentation or medication administration, injury to a resident, or injury to a staff member or a visitor

Incontinence: Loss of bladder and/or bowel control

Infection: Activity of disease-producing bacteria, virus, or fungus in the body and the reaction of the body to the microorganisms and their products

Infectious hepatitis: Contagious infection of the liver

Inflammation: Localized heat, redness, swelling, and pain as a result of irritation, injury, or infection

Influenza: An acute highly contagious infection: Flu

Inhalation: To draw in by breathing

Inhaler: A device used to administer medication by the act of breathing in

Inner canthus: The corner of the eyelid closest to the nose

Insertion: Medication is placed into a specific area of the body, usually with the fingers

Insomnia: Inability to sleep

Instillation: The process of administering a liquid - usually drop by drop

Insulin: A preparation derived from the pancreas of the pig, ox, or developed from semi-synthetic human insulin that is used in the medical treatment of diabetes

Inunction: Medication is rubbed into the skin

Iron deficiency anemia: Low iron levels in the blood due to inadequate diet or blood loss

Irrigation: The mucous membrane is flushed with medication

Ischemia: Temporary decrease in the amount of blood being delivered to a part of the body; mainly due to the contraction of the blood vessel

Jaundice: Yellowish discoloration of tissues and body fluids with bile pigment caused by any of several pathological conditions in which normal processing of bile is interrupted

Keratitis: Inflammation of the cornea

Ketoacidosis: Result of fat being used for energy resulting in an acidotic state: Form of acidosis in which sodium, potassium, and ketone bodies are lost in the urine; found in clients who have diabetes mellitus

Kilogram: A unit of mass equal to 1,000 grams in the metric system

Labia: Folds of skin or mucus membrane that surround the vagina

Laceration: A wound made by tearing

Lethargic: Not alert, drifts off into sleep, drowsy, sluggish

Libel: Any written statement that damages a person's character

Liniment: A solution used as a vehicle to distribute medication

Liver: Organ of the body that secretes bile and causes changes in many of the substances in the blood

Local action: Medication acting at the site of administration on the skin or mucous membrane
Lotions: Watery preparations that contain medication; are to be patted on, not rubbed in

Lozenges: Flat, rounded discs made up of medication and sugar

Malpractice: Improper, injurious or negligent professional treatment or care of a resident

Medical asepsis: Cleaning measures taken to prevent the spread of infection in a doctor's office, hospital, or long-term care agency

Medication: Any substance used in the diagnosis or treatment of disease or the relief of pain or other symptoms

Medicine dropper: A small glass or plastic tube usually capped by a hollow rubber bulb at one end that is used for measuring and administering medication

Metabolism: The physical and chemical processes involved in the maintenance of life

Metastasis: Transmission of a disease from an original site to one or more sites elsewhere in the body

Microorganisms: Living organisms that can be seen only through a microscope

Milks: Bulky suspensions in water that are insoluble and must be shaken

Milliliter (ml): A measurement of volume in the metric system that equals one thousandth of a liter: Also 1 milliliter (ml) = 1 cubic centimeter

Millimeter (mm): A metric measurement of length that equals one thousandth of a meter

Miotics: An agent that causes contraction of the pupil of the eye

Mons pubis: Soft fatty tissue covering the joint of the pubic bones

Mucous membrane: The inner lining of the mouth and labia minora

Muscle relaxant: Medication that helps muscle tissue relax and be less tense and painful

Muscle spasm: Condition of the muscles in which there is a sudden and violent tightening of the muscle

Muscle strain: Condition in which the muscle is stretched

Muscular dystrophy: One of the more common primary diseases of the muscle: It is characterized by weakness and atrophy of the skeletal muscles with increasing disability and deformity as the disease progresses

Mydriatics: A drug that produces dilation of the pupils

Nausea: Feeling the need to vomit

Negligence: Omission or neglect of any reasonable precaution, care, or action

Neuron: A nerve cell

Neurosis: Functional disorders of the mind or emotions due to unresolved conflict, without obvious organic lesion or change: The chief characteristic is anxiety, but may also involve phobias or other abnormal behavior symptoms

Neurotransmitters: Chemical substances that assist an electrical nerve impulse to travel across the synapse

Nonsteroidal anti-inflammatory agents (NSAIA): Medications used to reduce symptoms of inflammation

Norepinephrine: Chemical present in the adrenal glands

Nutrient: Any substance which provides nourishment

Nystagmus: A spasmodic, involuntary motion of the eyeball

Obese: Extremely overweight

Ointment: Mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature

Oliguria: Secretion of a diminished amount of urine in relation to the fluid intake

Ophthalmic medication: Medication that is used exclusively in the eyes

Oral: By mouth

Oral-hypoglycemics: Stimulate specialized cells in the pancreas to produce insulin

Orthopnea: Inability to breathe except in an upright position

Osteoporosis: Abnormal porousness of the bone caused by the enlargement of its canals or the formation of abnormal spaces: Causes brittleness

Ounce: Unit of weight equal to 1/16 of a pound (16 ozs - 1 lb)

Outer canthus: The outer corner of the eyelid

Pain tolerance: Amount of pain a person is able to withstand

Palliative: Affording relief, but not curing

Pallor: Paleness of the skin

Pancreas: A large gland that secretes digestive enzymes and the hormone insulin

Paranoia: Slower, progressive psychosis characterized by suspicions or ambition and delusions of persecution or of grandeur

Paraplegia: Paralysis of the legs and lower part of the body; caused by disease or injury to the spine

Parasites: Small, round white worms found in the stool and around the anus

Parenteral: Introducing medication or food into the body by injection

Parkinsonism: Varying degrees of loss of associated movements: Rigidity of limbs, tremors, gait and posture disturbances, drooling, and skin changes

Pathogen: Disease-causing organism

PDR: Physician's Desk Reference; includes trade and generic names, uses, side effects, interactions of drugs

Pediculosis: A contagious infestation of the hair, body, and pubic area caused by lice

Penis: Cylinder-shaped vascular structure on the outside of the male body: Houses the external portion of the urethra, and is the male organ of copulation

Perfusion: The injection of fluid into an artery in order to reach tissues

Perineal: The area between the thighs that includes the anus and vulva in the female and the anus and penis in the male

Peristaltic action: Wave-like muscular contractions that move the contents of the alimentary canal along

Pernicious anemia: Vitamin B_{12} deficiency

Perineum: The area between the anus and the posterior part of the external genitalia

Petechia: A small spot on the body surface caused by a minute hemorrhage

Phenylketonuria (PKU): A single-gene defect that can produce severe retardation because of the body's inability to breakdown phenylalanine, which when accumulated at high levels in the blood results in severe damage to the developing brain

Phlebitis: Inflammation of a vein

Phobia: A persistent, illogical, or intense fear of something

Physical dependency: State in which withdrawal of a drug produces specific symptoms such as muscle cramps, vomiting, or tremors

Pneumonia: An acute or chronic disease marked by inflammation and infection in the lungs

Polyuria: Large amounts of urinary output

Pound: Unit of weight equal to 16 ounces

Powder: Solid medication that has been ground into fine particles and used in that form

Primary effect: Reason a medication was ordered

Projection: Blaming personal failures or traits on someone else

Prostate: Doughnut-shaped gland, in the male, composed of muscular and glandular tissue that surrounds the urethra at the bladder and adds alkaline substance to sperm

Pruritis: Intense itching

Psoriasis: A chronic, non-contagious disease characterized by inflammation, reddened lesions, and white scaly patches

Psychoactive drugs: Drugs which alter the resident's psychological functions and behavior

Psychological dependency: An emotional need or craving for a drug

Psychosis: Any severe mental disorder, with or without organic damage, characterized by deterioration of normal intellectual and social functioning and by partial or complete withdrawal from reality

Psychotropics: Drugs that affect moods

Pulse: Rhythmical throbbing of the arteries caused by the heartbeat

Pyelonephritis: Inflammation of both the kidney and the lining of the pelvis

Pyorrhea: Inflammation of the gum and tooth sockets leading to loosening of the teeth

Quadriplegia: Paralysis of both arms and both legs

Radial pulse: The pulse taken at the inner part of the wrist

Range of motion: Moving a joint its full range in an attempt to prevent muscle contractures and joint deformity

Rash: A skin eruption, usually reddened and raised

Rationalization: To devise self-satisfying but incorrect reasons for one's behavior

Reasonable care: Doing only those things that you have been trained to do; acting as others would act in the same or similar situations

Reception: Method of introducing medicine into the body; by mouth, injection, rectally, inhalation, etc

Rectum: The lowest or last, segment of the large intestine that ends at the anus

Regression: Returning to an earlier less mature behavior pattern

Respiration: Process of breathing

Respiratory cycle: The process of taking in oxygen and expelling carbon dioxide from the lungs and respiratory tract: One breath

Rhinitis: Inflammation and swelling of the lining of the nose

Ringworm: A contagious fungus infection of the scalp or body

Rotary motion: Rubbing your hands together in a circular motion

Rubella: Known as German Measles; an acute infectious disease spread by droplet infection

Scabies: A contagious skin condition caused by mites that burrow under the skin; characterized by tiny, thread-like blisters that itch

Schizophrenia: Severe emotional disorder, characterized by misinterpretation, retreat from reality, experiences of delirium, hallucination; resident loses ability to tell fact from imagination

Sclera: White tissue covering the entire eyeball except the cornea

Scrotum: Sac-like structure, located behind the penis, which holds the testicles

Secondary effect: Additional effect of the medication besides the one for which it was intended

Sedatives: A drug having a calming effect, relieves anxiety and tension, being replaced by tranquilizers (less likely to cause drowsiness or dependency

Sediment: Solid particles in the urine

Seminal vesicles: Pouch-like structures, behind the bladder, which store sperm

Sensory system: Receives outside sensations and relates these sensations to the proper nerves

Serotonin: Chemical present in many parts of the body that has important physiological functions, i.e., transmission of a nerve impulse across a synapse - neurotransmitter

Sinus: Air cavities in the skull that open into the nasal cavities

Slander: A malicious statement or report

Solution: Substance dissolved in water

Somnolence: Drowsiness, sleepiness

Spasm: A sudden, violent, involuntary contraction of a muscle or group of muscles

Spirits: An alcohol solution of a volatile substance

Sprain: Wrenching of a joint, with partial rupture of its ligaments: More severe than a strain and requires longer recuperation

Sprays: Medications administered by an atomizer

Standard of Care: A description of conduct that illustrates what a reasonably prudent person would have done, or would not have done, under similar circumstances

Stasis: A stoppage of the flow of blood or other body fluids in part of the body

Sterile: Completely free from all living organisms; a state that can be achieved by special measures, such as subjecting objects to steam under pressure

Sterile tongue blade: Flat, wooden instrument that is free of germs

Stimulant: An agent that promotes the activity of a body system or function (example: amphetamines and caffeine)

Stomatitis: Inflammation of the mucous tissue of the mouth

Strain: An overstretching or overexertion of some part of the musculature

Strept throat: A severely inflamed and infected throat

Stress: Any circumstances, physical or mental, that causes strain or tension

Sublingual: Medication placed under the tongue

Suppositories: A solid medication designed to melt within a body cavity other than the mouth

Suspension: Fluid mixtures that need to be shaken; only stay together for a short period of time

Syncope: A brief loss of consciousness

Syrup: Medication made with water, flavoring and sugar

Systemic action/infection: Affecting the entire body

Systolic pressure: The force of the blood in the arteries when the heart is pumping blood out systolic readings (top number) is within the normal range between 100-140 mm Hg

Tablet: Dried, powdered medication pressed into shape

Tachycardia: Excessively rapid heartbeat, usually applied to a pulse rate above 100 per minute

Tardive Dyskinesia: Involuntary, repetitive useless movements such as spasms, oculogyric crisis, and protrusion of the tongue, stiff neck and inability to swallow that occur almost continuously during waking hours but cease during sleep

Temperature: A measurement of body heat: The normal temperature range is between 97.6 degrees and 99. 6 degrees Fahrenheit or between 36 degrees and 38 degrees Celsius

Testicles: Also called testes, produce testosterone and sperm cells for reproduction

Tetanus: Known as Lockjaw; an acute infectious disease often caused by puncture wounds: Often fatal

Thermometer: An instrument that measures body temperature: Different thermometers measure oral, rectal and axillary temperatures

Thrombophlebitis: Inflammation of a vein that results in the formation of a clot

Thrombosis: The formation of blood clots

Tic Douloureux: Spasm of a nerve in the face

Timed-release: Medication that is designed to be slowly absorbed by the system so that it has a longer lasting effect

Tincture: An alcohol solution of an animal or vegetable drug or chemical substance

Tinnitus: A sound in the ears, such as buzzing, ringing, or whistling

Tolerance: The ability to withstand the effects of a drug, after single or multiple administrations, without showing adverse effects

Topical: Pertaining to a particular spot; local

Toxic effect: Effects of medications that becomes poisonous to the body

Trade name: The name, given be a manufacturer, by which a medication is known

Tranquilizers: A drug that produces a calming effect, relieving anxiety and tension

Transdermal patch: Adhesive bandage containing medication

Tremor: Involuntary trembling or shaking

Trendelenburg position: Lying on the back with the pelvis higher than the head, inclined at a 45 degree angle

Tuberculosis: Communicable acute or chronic infection caused by mycobacterium tuberculosis

Tumor: A circumscribed, noninflammatory growth arising from existing tissue but growing independently of the normal rate or structural development of such tissue and serving no physiological function

Turgor: Normal fullness and elasticity of the skin

Universal precautions: Treatment of all blood and bodily fluids as if they were contaminated (blood and bodily fluid isolation), proper disposal of needles

Urticaria: A skin condition characterized by intensely itching welts and caused by an allergic reaction - hives

Vagina: The canal leading from the vulva to the uterus in the female

Vas deferens (ductus deferens): Tube that carries sperm to the seminal vesicles

Vasodilators: Drug that increases the blood supply to the brain and other parts of the body

Vertigo: Dizziness

Vestibule area: Contains the opening to the urethra

Vital signs: Temperature, pulse, respiratory rate and blood pressure

Voiding: Eliminating urine

Volatile: Substances that evaporate easily at normal temperatures and pressures

Withdrawal: The physiological readjustment that takes place upon the discontinuation of a medication

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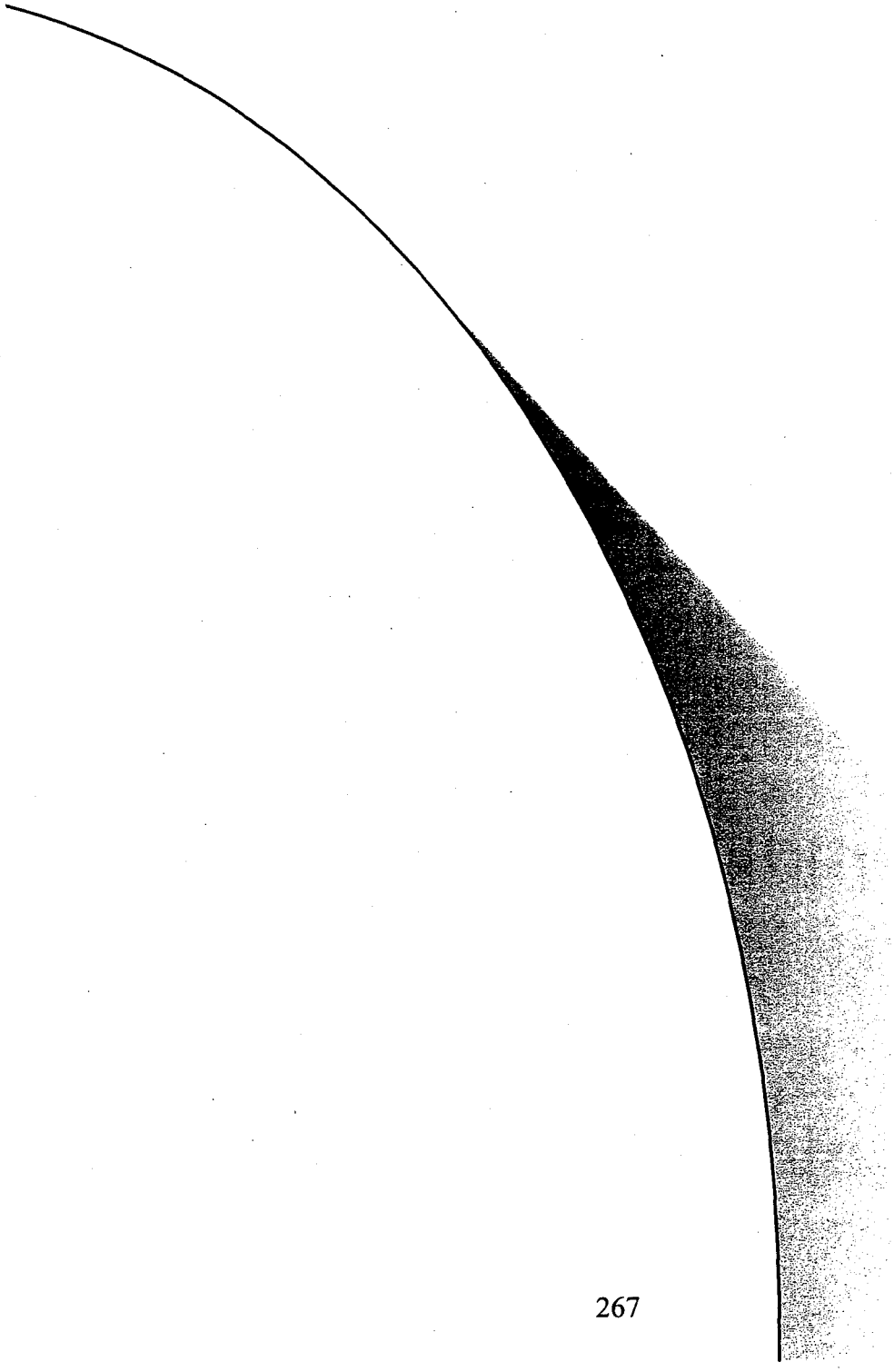
Living in the Community



Resources

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RESOURCES

A variety of print, audio and video resources are available from a variety of publishers. The resources listed below are examples of web sites, books and other materials that may be helpful when working with the curriculum. Education and Training Resources (ETR) is providing the listing for information purposes only and does not endorse any of the listings.

DICTIONARIES

Dorland's Illustrated Medical Dictionary, 29th ed. Philadelphia: Saunders, 2000 - Considered to be the "dean" of medical dictionaries. Unabridged, comprehensive and authoritative, it is updated every few years.

Merriam-Webster's Medical Desk Dictionary from Medscape http://www.medscape.com/ - Must register with Medscape website to use their resources. Click on Medical Professional, and then go to the bottom of the page to the search form. Fill in your term, and then click on the Dictionary button.

Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, 6th ed. Philadelphia: Saunders, 1997. $29.00 - Designed for use by nurses and allied health professionals, this is on a level accessible to the layperson. Some line drawings.

Mosby's Medical, Nursing, and Allied Health Dictionary, 5th ed. St. Louis: Mosby, 1998. $31.95 - Similar to Miller-Keane but has extensive color illustrations (buy one or the other). Updated every four years.

NLM's Medline*plus* Dictionaries, http://www.nlm.nih.gov/medlineplus/dictionaries.html. Links to free medical dictionaries.

Stedman's Medical Dictionary, 27th ed. Baltimore: Williams & Wilkins, 2000. Similar to Dorland's and essentially equal in authority (buy one or the other). Published approximately every five years.

Xrefer.com, http://www.xrefer.com searches many reference dictionaries, including the **Concise Medical Dictionary** from Oxford University Press.

DRUGS

CenterWatch Clinical Trials Listing Service http://www.centerwatch.com/. Source of information on research on new drugs or new uses for existing drugs.

Complete Drug Reference. Yonkers, NY: Consumer Reports, 1999. $44.95 - Bookstore edition of USP DI Vol. II: Advice for the Patient. Features drug monographs written in lay language and larger type. Includes information about unlabeled uses. Updated annually.

drkoop.com Drug Checker http://www.drkoop.com. As the number of medications prescribed for simultaneous use increase, so does the risk of adverse reactions and interactions. Check for food-drug and drug-drug interactions and potential adverse reactions to drugs with this interactive drug checker.

Drug Information Site http://www.subscriberx.com/iqhealth/druginfostart.html - Resource for checking drug interactions, duplications, and allergic reactions for several drugs.

Food and Drug Administration http://www.fda.gov/default.htm. Consumer information from the federal agency that approves and regulates drugs and medical devices.

Gorman, Jack M. **Essential Guide to Psychiatric Drugs**, 3rd ed. New York: St. Martin's, 1998 - Presents data on specific drugs and offers informative descriptions of major psychiatric illnesses.

Griffith, H. Winter. **Complete Guide to Prescription & Nonprescription Drugs**. New York: Berkley, 1999. $16.95 - Comprehensive coverage of Rx and OTC drugs. Includes symptoms of overdosing and actions to take. Clear layout, simple language. Updated annually

Information on Drugs of Abuse (NIDA) http://www.nida.nih.gov/DrugAbuse.html. Information about drug abuse, prevention and consequences.

Mosby's Complete Drug Reference: Physicians' GenRx. St. Louis: Mosby, 1997. $77.00 - Similar to PDR (buy one or the other), but the index is more user friendly. Useful for comparing generic drugs and their alternatives. Updated annually.

PDR Family Guide to Prescription Drugs, New York: Crown, 1999. Approx. $30 - Translates the contents of the PDR into lay language. Detailed and informative, with a user-friendly layout.
Updated annually.

Physicians Desk Reference, Annual. Montvale, NJ: Medical Economics, annual - Lists many, but not all, Rx products marketed in the United States. Reproduces package inserts from drug manufacturers. Does not include unlabeled uses. Color product identification guide. Updated annually.

Prescription and Over-the-Counter Drugs. New York: Reader's Digest Association, 2001 - Describes how each drug works, recommended dosages, side effects (serious, common, less common), and interactions with food and other drugs. Color product identification guide. User-friendly format.

EVIDENCE BASED MEDICINE (EBM) RESOURCES

Evidence based medicine is an effort by medical professionals to consider the results of all relevant, high quality, scientific studies before recommending the most effective course(s) of patient care.

Ask NOAH About: Evidence-Based Medicine http://www.noah-health.org/english/ebhc/ebhc.html - Geared toward patients, librarians, educators, and nurses, this comprehensive portal provides links to the best online sources of evidence for consumers. Sections include EBM basics, types of evidence, research methods, statistical terms, special considerations, and evidence for consumers.

Cochrane Collaboration Consumer Network http://www.cochraneconsumer.com - Searchable by topic area, this site contains more than 400 consumer synopses of Cochrane systematic review abstracts (with links to the original abstracts) to help clinicians and consumers make informed health care decisions. A glossary of health care research terms is also available.

Consumer Versions of Clinical Practice Guidelines http://www.ahcpr.gov/consumer/ - The Agency for Healthcare Research and Quality links consumers to sixteen full-text clinical guidelines for patients from Health Services Technology Assessment Texts (HSTAT).

DISCERN http://www.discern.org.uk - Since 1996, this U.K. organization has worked to empower consumers and providers to better evaluate online health information. The full DISCERN instrument teaches how to determine a publication's reliability, and the Quick Reference Guide lists key points to consider while researching treatment options.

eMedicine World Medical Library http://www.emedicine.com - This site provides free, up-to-date, evidence-based information. Searches can be restricted to a consumer option for information from online textbooks and a growing collection of consumer treatment guidelines.

Summaries for Patients: Annals of Internal Medicine
http://www.annals.org/issues/v134n2/toc.html - Breakthrough research from select Annals of Internal Medicine articles is translated into everyday language. The American College of Physicians provides succinct explanations of studies' purposes, methodologies, findings, limitations, and care implications.

Medical Guides

Family medical reference library. 2000. New York: Dorling Kindersley. Gives clear, concise descriptions of the human body and how it works, as well as diseases and their symptoms.

Gray's Anatomy, 20th Edition, 1918. http://www.bartleby.com/. Select Gray's Anatomy from the Reference menu or use the link at the right of the page. Select an anatomical description and illustration from the table of contents or search by anatomical term.

Human Anatomy On-Line. http://www.innerbody.com/. A well illustrated and informative introduction to human anatomy.

Merck Manual of Medical Information, Home Edition. Rahway, NJ: Merck, 1999. $39.95 - Merck Manual in easy-to-understand language.

The Merck Manual of Diagnosis and Therapy. http://www.merck.com/pubs/mmanual/ - The online version of the popular medical reference work.

Family medical reference library. 2000. New York: Dorling Kindersley. Gives clear, concise descriptions of the human body and how it works, as well as diseases and their symptoms.

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The Merck Manual of Diagnosis and Therapy. http://www.merck.com/pubs/mmanual/ - The online version of the popular medical reference work.

PDR Family Guide: Encyclopedia of Medical Care
http://www.healthsquare.com/medcare2.htm. Includes the causes, symptoms, and care for diseases and health problems. Gives additional information for each condition: "What you should do ...," "Call your doctor if ...," and "If you're headed for the hospital ..." (what to expect and what to do after leaving the hospital).

MEDICAL MULTIMEDIA AND INTERACTIVE STUDY

Adam.com http://www.adam.com. Excellent source of images, including photographs, illustrations, MRIs, x-rays, and sonograms. The "health illustrated" series offers detailed visual information on procedures, surgeries, tests, and self-care. Also includes animations and video.

Anatomia Universa http://www.lib.uiowa.edu/hardin-www/mascagni/. Paolo Mascagni Anatomia Universa was original published between 1823 and 1832. Only 3 or 4 copies exist in the US. This site, created by the University of Iowa, scanned the individual plates and uses Quicktime to allow viewers to zoom in for more detailed views and to pan the illustrations.

Clip Art for Health Communication- From Johns Hopkins University http://www.hcmn.org/clipart/. A wide variety of drawings in color and black and white, with an emphasis on health education/public health subjects.

Consumer Medical Atlas http://app1.unmc.edu/nhs/atlas/indexuhs.html. This atlas links anatomy to specific medical conditions. Includes graphics, multimedia, 360 degree modelling, slides, and text.

iTV HealthScout http://healthscout.com. On demand short health videos. Offers low and high bandwidth MS Media Player or Quicktime choices for viewing.

Jonathan Tward's Multimedia Medical Reference Library http://www.kilim.com.tr/medical/mmreflib/. An excellent selection of nearly 19,000 multimedia health education materials from which to choose.

Martindale Health Science Guide http://www-sci.lib.uci.edu/HSG/HSGuide.html. One of the oldest directories of self-study and multimedia materials culled from academic and medical web sites.

MED*slides* http://medslides.com/ - You must register to use this, resources are mostly in Power Point format.

Medline*plus* Tutorials http://www.nlm.nih.gov/medlineplus/tutorials.html Excellent tutorials on a variety of consumer health concerns. Flash v.4 plug-in required.

National Eye Institute, National Institutes of Health Photograph and Image Catalog http://www.nei.gov/photo/

PHIL – Public Health Image Library Centers for Disease Control and Prevention http//phil.cdc.gov/Phil/default.asp

RamEx Ars Medica http://www.ramex.com/ is an international distributor of medical multimedia titles useful for medical reference, education training diagnosis, and reference.

Stanford Health Library Video Collection
http://www.med.stanford.edu/healthlibrary/resources/videos.html. Valuable information is offered, although hindered by a "talking head" lecture format. Some videos have a more engaging newsmagazine format.

Medical Web Sites

Argus Clearinghouse http://www.clearinghouse.net/. Argus rates directories based on their topic, completeness, and ease of use. A good gateway to hard to find topics.

CIC Healthweb Alphabetical List of All Subjects http://healthweb.org/subjABC.html. A catalog of professional level web sites organized by medical specialty, selected and maintained by librarians from a Midwestern academic health library consortium.

Emory University's Medweb http://WWW.MedWeb.Emory.Edu/MedWeb/. A searchable directory of a vast number of sites for health professionals.

Hardin Meta Directory of Internet Health Sources
http://www.lib.uiowa.edu/hardin/md/index.html. An index to other health directories on the web. A first stop when seeking health sites.

MENTAL HEALTH

American Psychological Association http://www.apa.org/psychnet/. Mental health information from the largest professional organization for psychologists.

Center for Mental Health Services http://www.mentalhealth.org. This consumer health web site is maintained by an agency of the Substance Abuse and Mental Health Services Administration of the federal government. Of special note is the School Violence Prevention resources, Kid's Area, Surgeon General's report on mental health, and survivor information.

National Alliance for the Mentally Ill (NAMI) http://www.nami.org/. Information from a prominent advocacy organization.

National Institute of Mental Health Public Information
http://www.nimh.nih.gov/publicat/index.cfm. Information from the federal agency charged with researching the nation's mental health issues and problems.

Treatments of Psychiatric Disorders, 3rd ed., 2 vols. Washington, DC: American Psychiatric Association, 2001 - Very comprehensive coverage of mental disorders and their diagnoses and treatments. Written for professionals but appropriate for a lay audience.

SENIOR HEALTH

Administration on Aging http://www.aoa.gov This web site covers many topics of interest to seniors.

CarePlanner http://www.careplanner.org/ If you are faced with helping someone decide what their caretaking options are in their golden years then this site may help. Nice decision support, and very private. From the Centers for Medicare and Medicaid Services.

GeroWeb http://geroserver.iog.wayne.edu/GeroWebd/GeroWeb.html Another helpful and content rich web site for seniors that includes health information. A site search engine speeds the user to relevant information.

Centers for Medicare & Medicaid Services, Medicare Information http://www.medicare.gov One of the most confusing and complicated aspects of senior health is dealing with Medicare. This site provides information for seniors. Spanish and Asian language pages are available.

CHILD HEALTH

AMA Adolescent Health On-Line http://www.ama-assn.org/ama/pub/category/1947.html. Specialty site devoted to the unique aspects of the health of 13-18 year olds.

HealthFinder for Kids http://healthfinder.gov/kids/ - A child oriented site from the creators of the Health and Human Services HealthFinder Web site.

KidsHealth.org http://www.kidshealth.org - Premier consumer health site for child health. Sponsored by the Nemours Foundation, a Dupont family fund devoted to the care of children through hospitals and pediatric clinics.

Our-Kids http://www.our-kids.org/ - Information and support for parents of children with special needs.

SPECIAL INTEREST GROUPS

Asian & Pacific Islander American Health Forum http://www.apiahf.org/. Information and links from a national advocacy group.

Black Health Net http://www.blackhealthnetwork.com/. A webzine format information site for African Americans.

Gay & Lesbian Health http://www.lgbtsig.org/resources.html. Resource links provided by the Lesbian, Gay, Bisexual and Transgendered Health Science Librarians Special Interest Group (SIG) of the Medical Library Association.

HealthFinder: Just for you http://www.healthfinder.gov/justforyou/. HealthFinder provides links to information based on "special health concerns based on age, gender, race, ethnic origin, or role in helping others care for their health.".

Resources for People with Disabilities
http://www.cclsweb.org/MidnightFiles/Disabilities/dismidnt.htm. This resource list links to nearly 100 web sites, and is provided by the authors of the acclaimed series, "Midnight at the Internet Cafe".

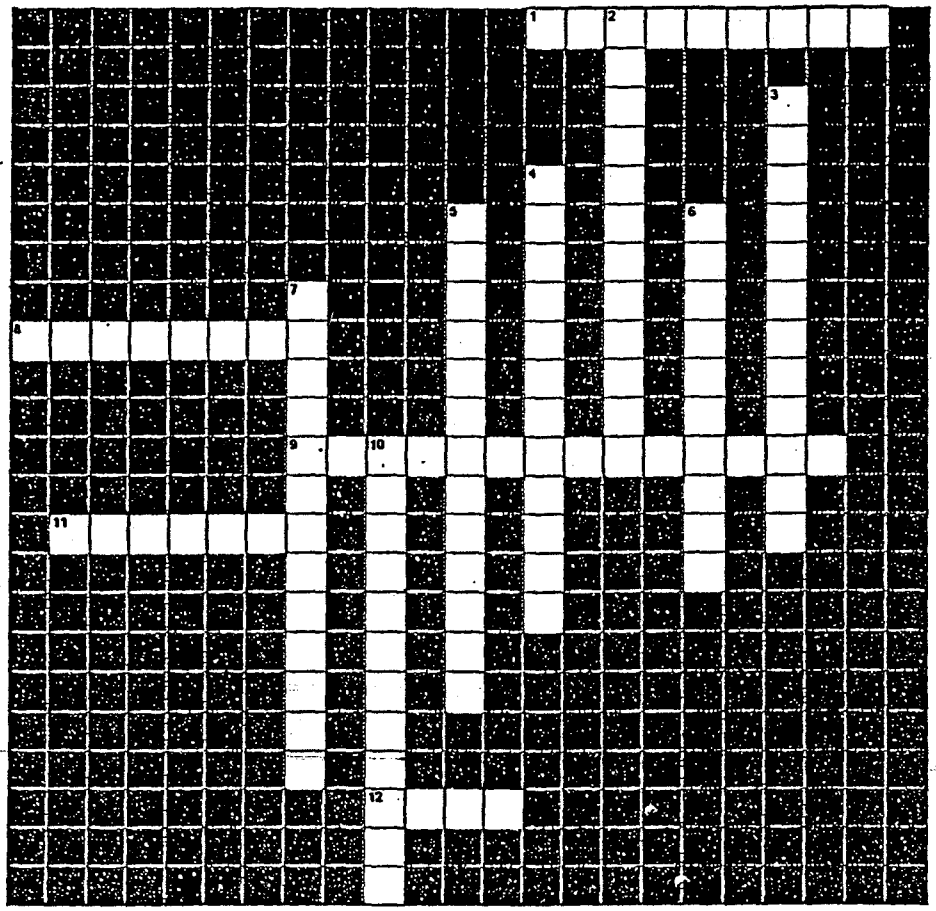
Office of Minority Health Resource Center http://www.omhrc.gov. Information from the federal agency responsible for promoting improvements in minority group health care.

END

Living in the Community

Vocabulary Activities

Instructions: Complete the crossword puzzle. Use the clues to help you solve the puzzle.

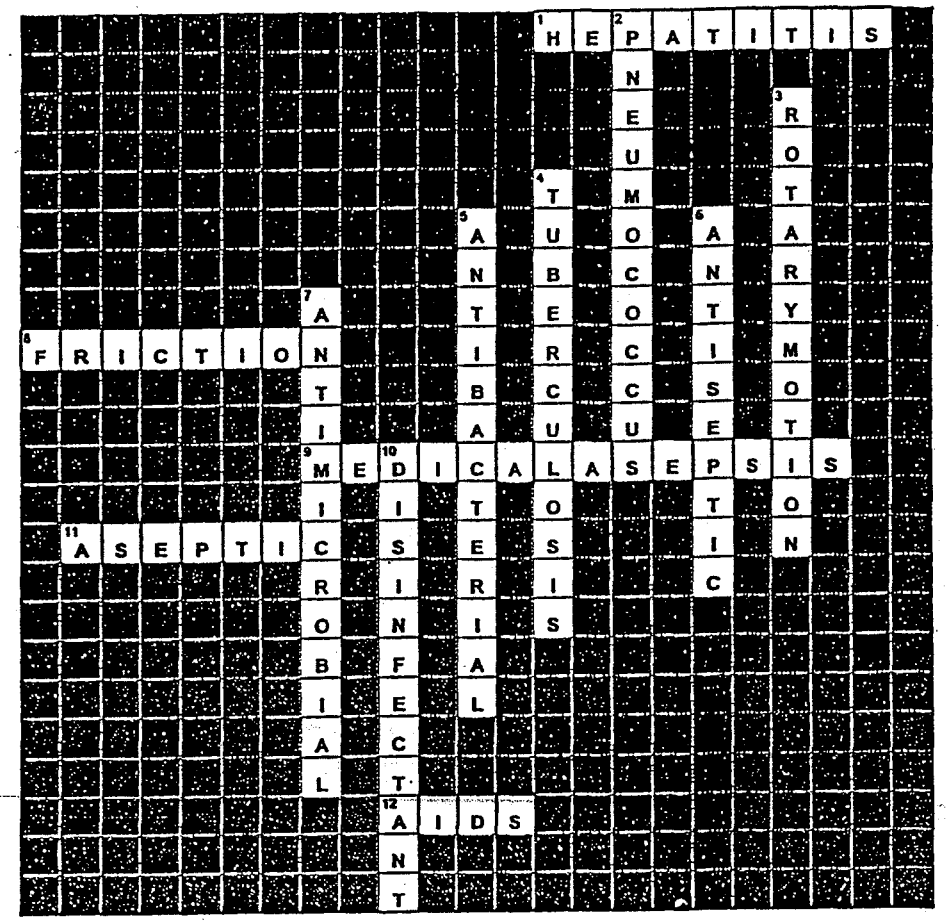


Across

1. inflammation of the liver marked by jaundice; caused by infections or toxic agents
8. the act of rubbing one thing against another
9. cleaning measures used to prevent the spread of infection a doctor's office, hospital, or long-term care facility
11. free from disease-producing microorganisms
12. Acquired Immune Deficiency Syndrome affects the body's ability to fight infections. It is spread through body fluids by vaginal, anal, oral sex, sharing IV needles, blood transfusions, mother to fetus

Down

2. bacteria that causes pneumonia
3. rubbing your hands together in a circular motion when washing them aseptically
4. communicable disease that manifests itself in lesions of the lung, bone and other bodily parts
5. counteracts bacteria
6. a substance that inhibits the growth of germs; antiseptic solutions are used as cleaning agents to prevent or inhibt the spread of infections
7. destroys or suppresses the grwoth of microorganisms
10. any substance or device that destroys the harmful bacteria, viruses, etc; to sterilize



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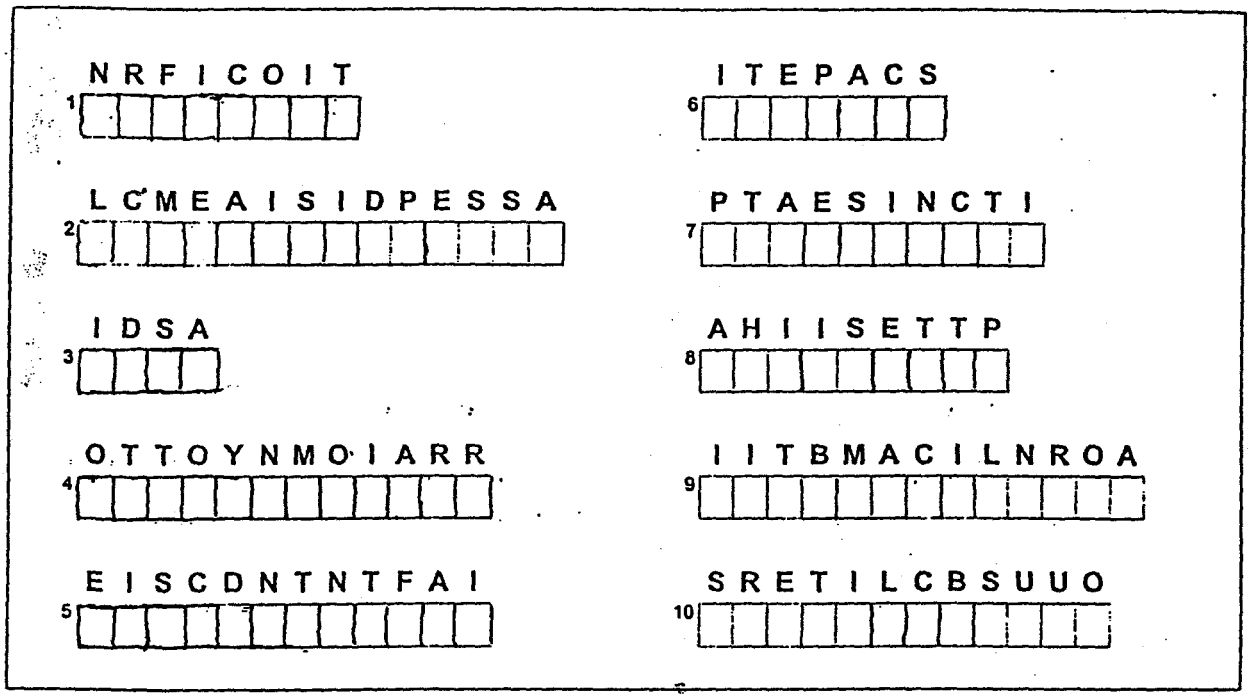
Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.



Clues

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10. communicable disease that manifests itself in lesions of the lung, bone and other bodily parts

N R F I C O I T
1 F R I C T I O N

I T E P A C S
6 A S E P T I C

L C M E A I S I D P E S S A
2 M E D I C A L A S E P S I S

P T A E S I N C T I
7 A N T I S E P T I C

I D S A
3 A I D S

A H I I S E T T P
8 H E P A T I T I S

O T T O Y N M O I A R R
4 R O T A R Y M O T I O N

I I T B M A C I L N R O A
9 A N T I M I C R O B I A L

E I S C D N T N T F A I
5 D I S I N F E C T A N T

S R E T I L C B S U U O
10 T U B E R C U L O S I S

Clues

1. the act of rubbing one thing against another
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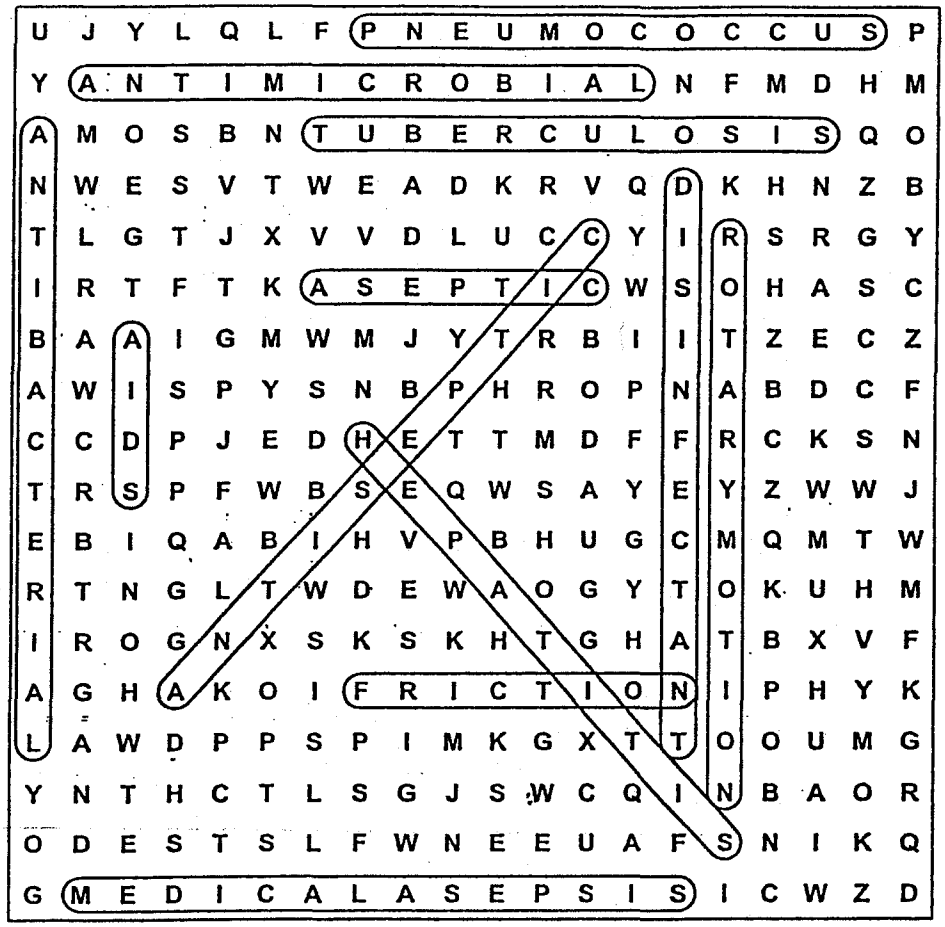
Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

U	J	Y	L	Q	L	F	P	N	E	U	M	O	C	O	C	C	U	S	P
Y	A	N	T	I	M	I	C	R	O	B	I	A	L	N	F	M	D	H	M
A	M	O	S	B	N	T	U	B	E	R	C	U	L	O	S	I	S	Q	O
N	W	E	S	V	T	W	E	A	D	K	R	V	Q	D	K	H	N	Z	B
T	L	G	T	J	X	V	V	D	L	U	C	C	Y	I	R	S	R	G	Y
I	R	T	F	T	K	A	S	E	P	T	I	C	W	S	O	H	A	S	C
B	A	A	I	G	M	W	M	J	Y	T	R	B	I	I	T	Z	E	C	Z
A	W	I	S	P	Y	S	N	B	P	H	R	O	P	N	A	B	D	C	F
C	C	D	P	J	E	D	H	E	T	T	M	D	F	F	R	C	K	S	N
T	R	S	P	F	W	B	S	E	Q	W	S	A	Y	E	Y	Z	W	W	J
E	B	I	Q	A	B	I	H	V	P	B	H	U	G	C	M	Q	M	T	W
R	T	N	G	L	T	W	D	E	W	A	O	G	Y	T	O	K	U	H	M
I	R	O	G	N	X	S	K	S	K	H	T	G	H	A	T	B	X	V	F
A	G	H	A	K	O	I	F	R	I	C	T	I	O	N	I	P	H	Y	K
L	A	W	D	P	P	S	P	I	M	K	G	X	T	T	O	O	U	M	G
Y	N	T	H	C	T	L	S	G	J	S	W	C	Q	I	N	B	A	O	R
O	D	E	S	T	S	L	F	W	N	E	E	U	A	F	S	N	I	K	Q
G	M	E	D	I	C	A	L	A	S	E	P	S	I	S	I	C	W	Z	D

Clues

1. free from disease-producing microorganisms
2. counteracts bacteria
3. the act of rubbing one thing against another
4. a substance that inhibits the growth of germs; antiseptic solutions are used as cleaning agents to prevent or inhibt the spread of infections
5. any substance or device that destroys the harmful bacteria, viruses, etc; to sterilize
6. rubbing your hands together in a circular motion when washing them aseptically
7. inflammation of the liver marked by jaundice; caused by infections or toxic agents
8. destroys or suppresses the grwoth of microorganisms
9. cleaning measures used to prevent the spread of infection a doctor's office, hospital, or long-term care facility
10. Acquired Immune Deficiency Syndrome affects the body's ability to fight infections. it is spread through body fluids by vaginal, anal, oral sex, sharing IV needles, blood transfusions, mother to fetus
11. bacteria that causes pneumonia
12. communicable disease that manifests itself in lesions of the lung, bone and other bodily parts



Clues

1. free from disease-producing microorganisms
2. counteracts bacteria
3. the act of rubbing one thing against another
4. a substance that inhibits the growth of germs; antiseptic solutions are used as cleaning agents to prevent or inhibt the spread of infections
5. any substance or device that destroys the harmful bacteria, viruses, etc; to sterilize
6. rubbing your hands together in a circular motion when washing them aseptically
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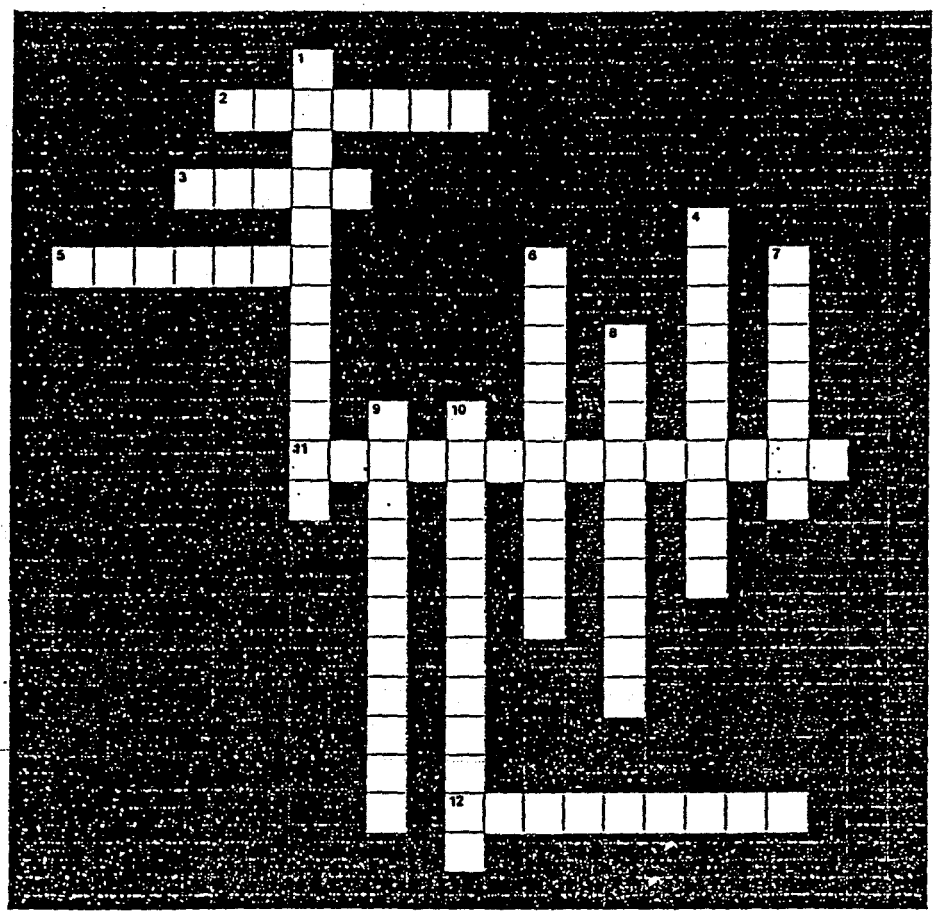
Instructions: Complete the crossword puzzle. Use the clues to help you solve the puzzle.

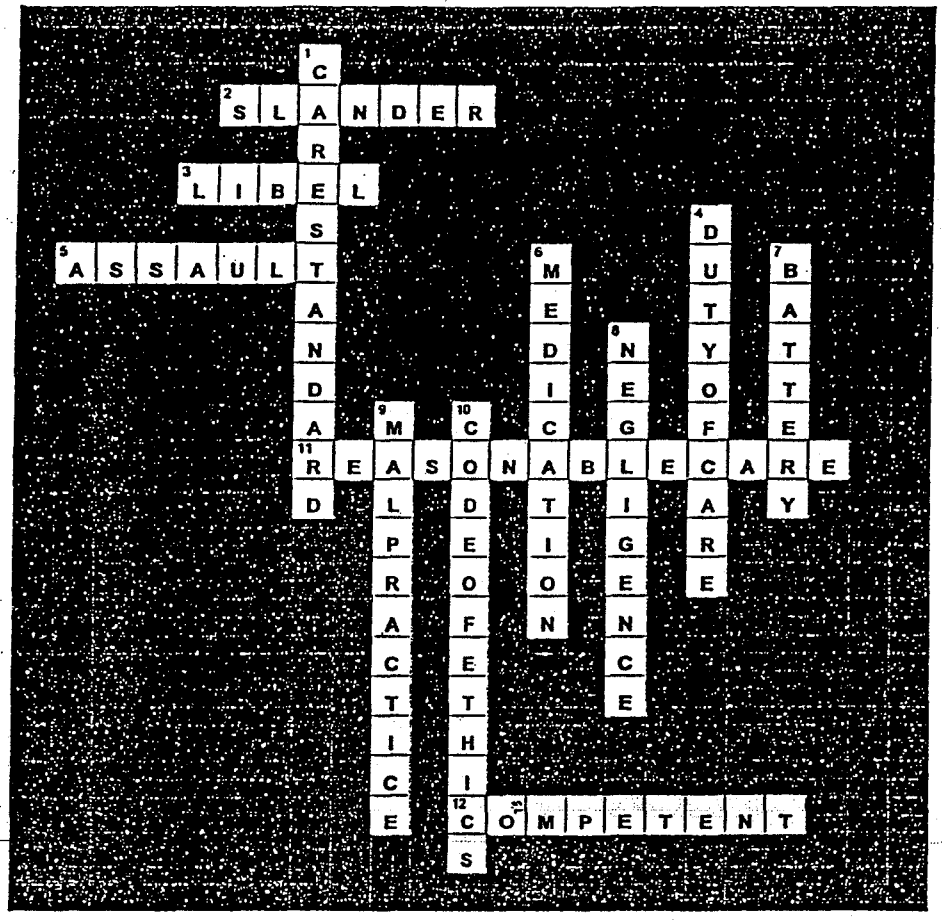


Across

2. A malicious statement or report
3. Any written statement that damages a person's character.
5. The threat ot use force upon another person
11. Doing only those things that you have been trained to do; acting as others would act in the same or similar situations
12. Well-qualified or capable

Down

1. A description of conduct that illustrates what a reasonably prudent person would have done, or would not have done under similar circumstances.
4. Performance of services that meet common standards.
6. Any drug or other substance used in treating disease, healing or relieving pain.
7. Any illegal touching or beating of another person either directly or with an object.
8. Omission or neglect of any reasonable precaution, care or action.
9. Improper, injurious or negligent treatment or care of a client by the professional staff.
10. A voluntary set of rules that influence relationships between people



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Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

J	A	G	J	X	D	P	A	R	H	D	U	T	Y	O	F	C	A	R	E
W	Y	Z	E	P	N	M	A	L	P	R	A	C	T	I	C	E	Y	I	L
I	F	B	T	P	E	C	G	V	C	G	H	O	N	M	E	X	L	Y	E
E	T	H	C	D	G	W	T	C	A	Q	J	Y	S	L	A	N	D	E	R
W	Z	A	D	Y	L	U	A	N	R	Y	C	A	H	Z	Z	I	M	W	P
O	O	K	T	A	I	S	H	M	E	D	O	P	R	X	O	A	E	P	U
I	G	T	T	F	G	S	V	I	S	P	M	Y	Y	X	W	K	D	K	R
W	Y	P	R	B	E	Y	X	V	T	J	P	S	S	B	P	F	I	Z	P
P	W	A	B	T	N	Y	F	X	A	M	E	I	D	K	Y	J	C	Y	E
H	O	H	S	E	C	I	W	R	N	W	T	X	A	W	G	P	A	Y	U
L	Z	Z	K	S	E	V	M	L	D	I	E	B	B	G	V	E	T	G	A
A	G	S	B	K	A	G	D	M	A	O	N	C	A	E	I	Q	I	W	N
Q	U	G	Q	Y	I	U	U	R	R	R	T	T	T	T	D	U	O	G	Q
M	E	C	P	O	C	M	L	F	D	D	K	M	T	S	X	K	N	Q	H
L	X	H	N	E	Y	Q	O	T	E	Y	J	F	E	R	M	C	H	W	Y
C	O	D	E	O	F	E	T	H	I	C	S	F	R	U	B	C	R	R	R
D	N	R	B	M	A	P	K	N	B	G	O	D	Y	R	S	O	A	U	A
T	Y	P	A	S	Y	W	J	Z	P	G	C	Z	J	Q	T	I	Q	S	F

Clues

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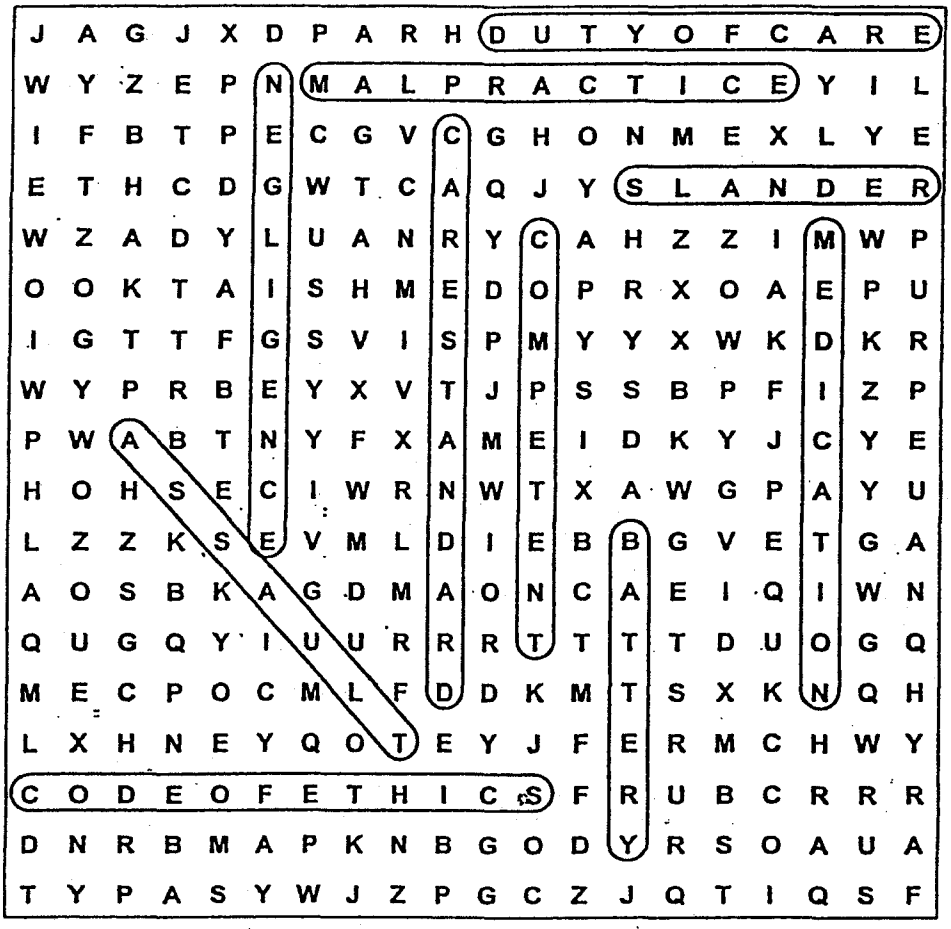
Core Lesson 2



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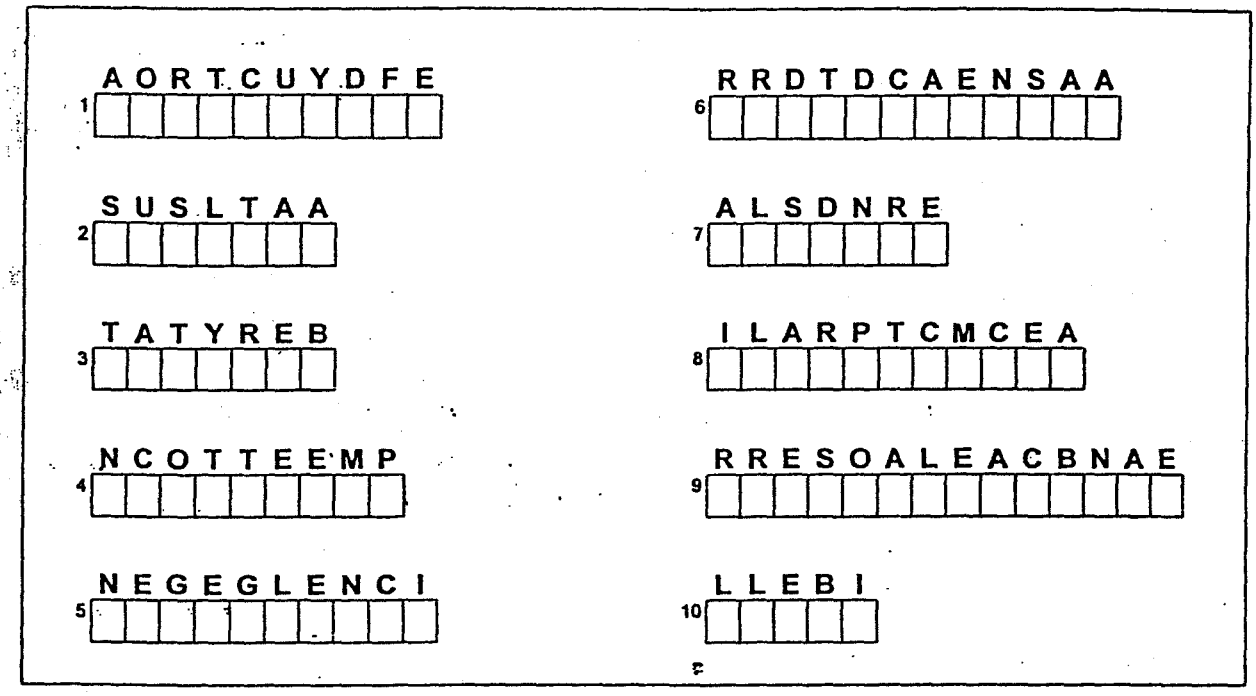
Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.



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A O R T C U Y D F E 1 D U T Y O F C A R E	R R D T D C A E N S A A 6 C A R E S T A N D A R D
S U S L T A A 2 A S S A U L T	A L S D N R E 7 S L A N D E R
T A T Y R E B 3 B A T T E R Y	I L A R P T C M C E A 8 M A L P R A C T I C E
N C O T T E E M P 4 C O M P E T E N T	R R E S O A L E A C B N A E 9 R E A S O N A B L E C A R E
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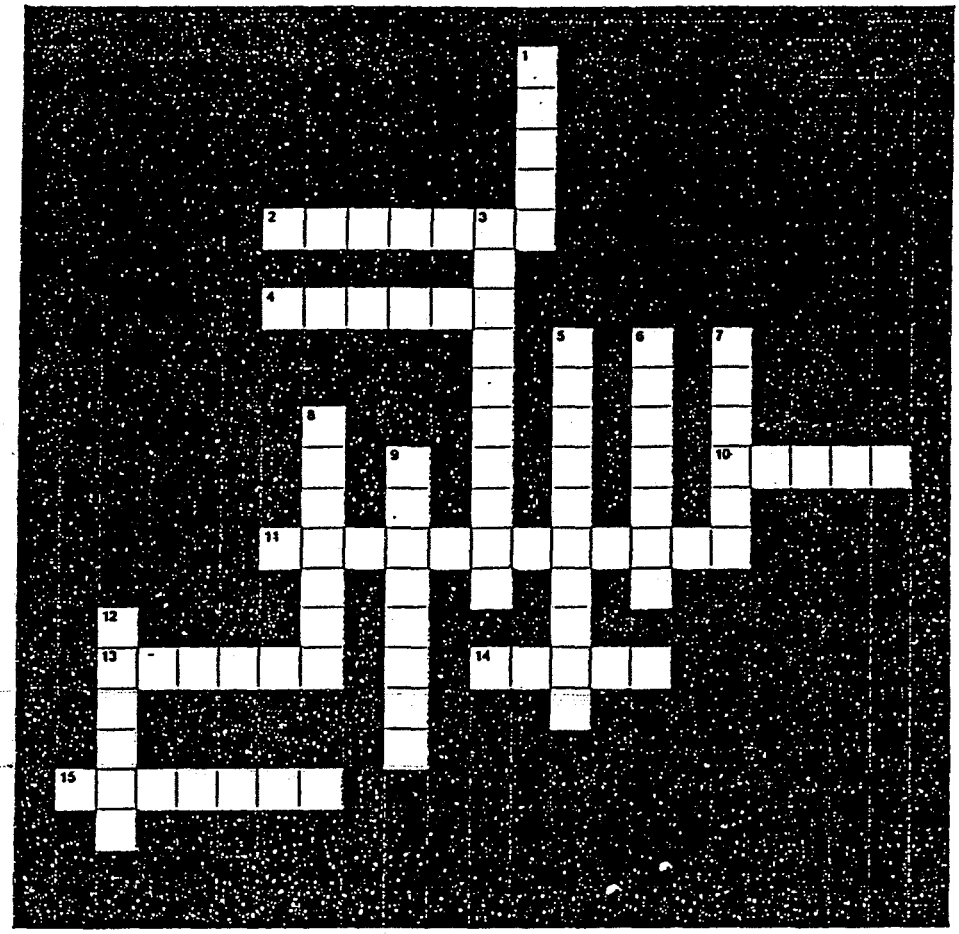
Instructions: Complete the crossword puzzle. Use the clues to help you solve the puzzle.



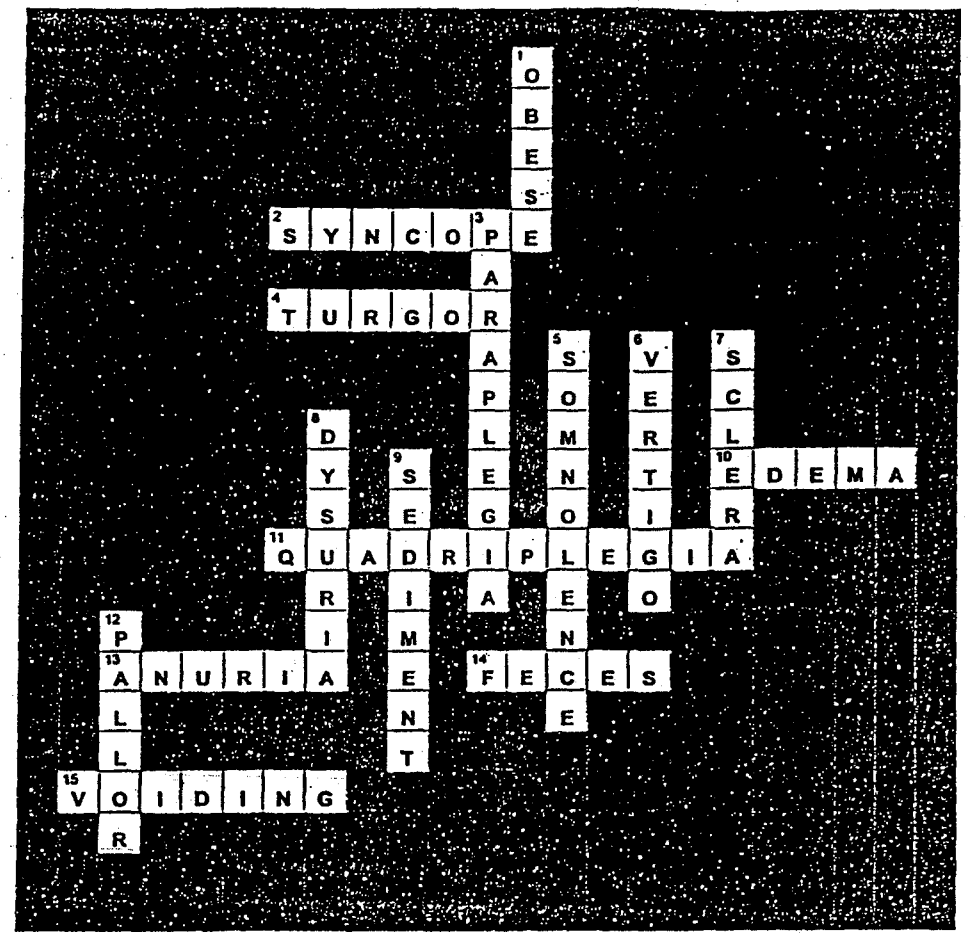
Across

2. a brief loss of consciousness
4. normal fullness and elasticity of the skin.
10. swelling caused by large amounts of fluid in the tissues.
11. paralysis of both arms and both legs
13. no urinary output
14. waste excreted from the bowels.
15. eliminating urine.

Down

1. extremely overweight
3. paralysis of the legs and lower part of the body, caused by disease or injury to the spine.
5. drowsiness; sleepiness
6. dizziness
7. white tissue covering all of the eyeball except the cornea.
8. painful or difficult urination.
9. solid particles in the urine
12. paleness of the sin

Core Lesson 4



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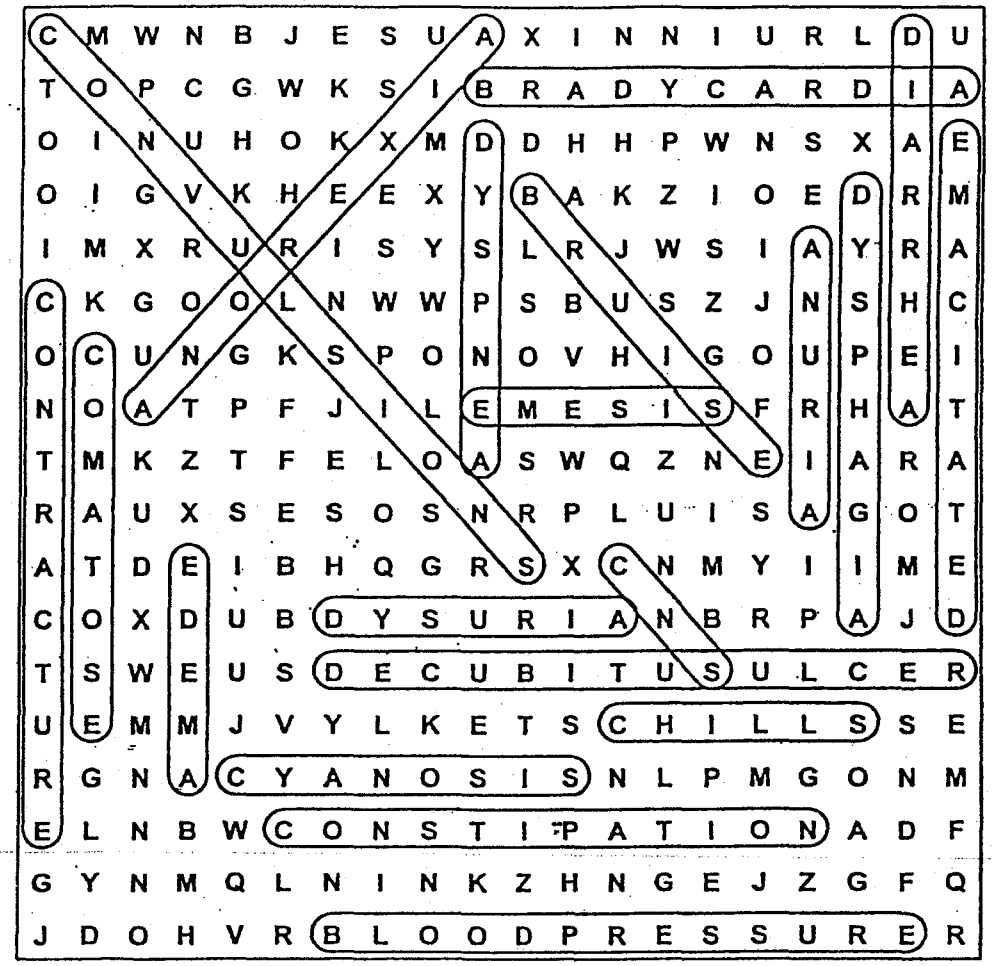
Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

C	M	W	N	B	J	E	S	U	A	X	I	N	N	I	U	R	L	D	U
T	O	P	C	G	W	K	S	I	B	R	A	D	Y	C	A	R	D	I	A
O	I	N	U	H	O	K	X	M	D	D	H	H	P	W	N	S	X	A	E
O	I	G	V	K	H	E	E	X	Y	B	A	K	Z	I	O	E	D	R	M
I	M	X	R	U	R	I	S	Y	S	L	R	J	W	S	I	A	Y	R	A
C	K	G	O	O	L	N	W	W	P	S	B	U	S	Z	J	N	S	H	C
O	C	U	N	G	K	S	P	O	N	O	V	H	I	G	O	U	P	E	I
N	O	A	T	P	F	J	I	L	E	M	E	S	I	S	F	R	H	A	T
T	M	K	Z	T	F	E	L	O	A	S	W	Q	Z	N	E	I	A	R	A
R	A	U	X	S	E	S	O	S	N	R	P	L	U	I	S	A	G	O	T
A	T	D	E	I	B	H	Q	G	R	S	X	C	N	M	Y	I	I	M	E
C	O	X	D	U	B	D	Y	S	U	R	I	A	N	B	R	P	A	J	D
T	S	W	E	U	S	D	E	C	U	B	I	T	U	S	U	L	C	E	R
U	E	M	M	J	V	Y	L	K	E	T	S	C	H	I	L	L	S	S	E
R	G	N	A	C	Y	A	N	O	S	I	S	N	L	P	M	G	O	N	M
E	L	N	B	W	C	O	N	S	T	I	P	A	T	I	O	N	A	D	F
G	Y	N	M	Q	L	N	I	N	K	Z	H	N	G	E	J	Z	G	F	Q
J	D	O	H	V	R	B	L	O	O	D	P	R	E	S	S	U	R	E	R

Clues

1. difficulty in breathing
2. swelling caused by large amounts of fluid in the tissues
3. an open wound that is caused by the pressure of lying or sitting in one position for a long period of time. Also called a pressure sore or bedsore
4. lack or loss f appetite for food
5. the brain and spinal cord are part of the central nervous system which transmits sensory impulses and from which motor impulses originate
6. shivering or shaking
7. a bluish discoloration of the skin, caused by lack of oxygen in the blood
8. difficult, incomplete or infrequent bowel movements
9. vomiting
10. the force exerted by the blood against the arterial walls when the heart contracts (systolic) or relaxes (diastolic)
11. painful or difficult urination
12. slowness of the heartbeat; less than 50 beats per minute
13. abnormal, uncontrolled movement of all or part of the body
14. thin, underweight
15. black and blue area caused by injury to the surface of the skin
16. cannot be aroused; unconsciousness
17. no urinary output
18. permanent shortening of a muscle that produces a deformity
19. difficulty in swallowing
20. frequent loose bowel movements



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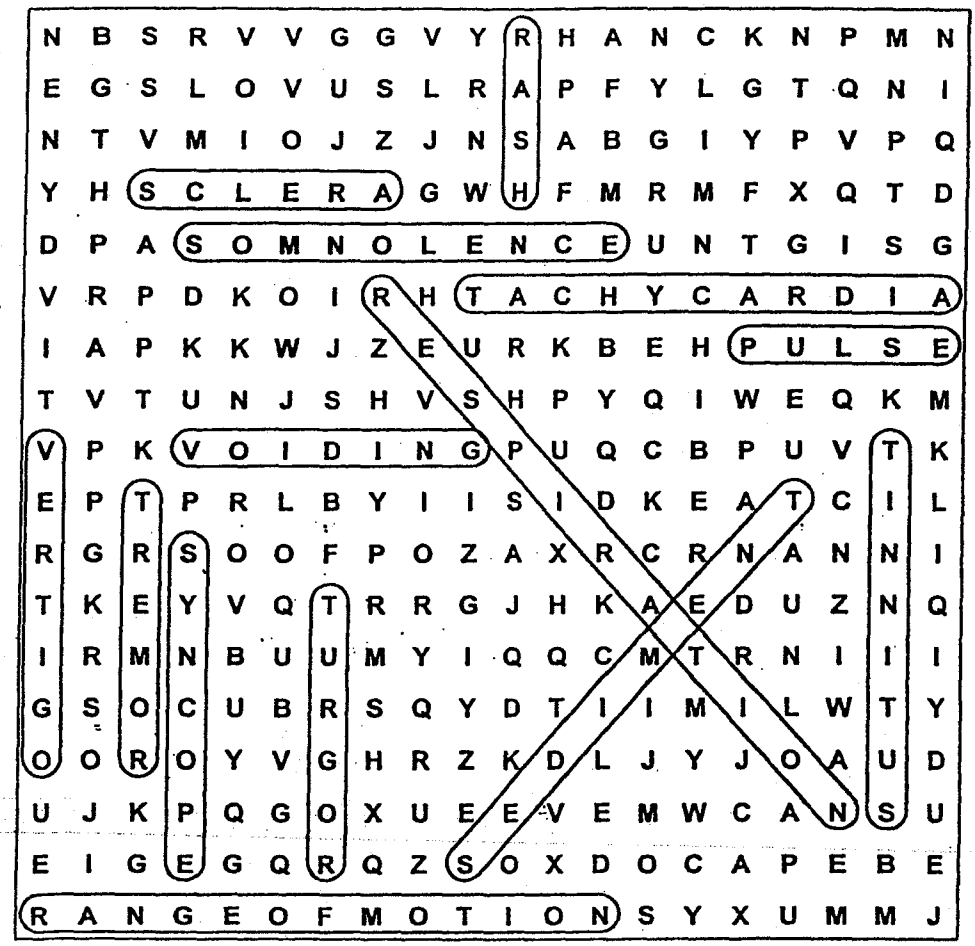
Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

N	B	S	R	V	V	G	G	V	Y	R	H	A	N	C	K	N	P	M	N
E	G	S	L	O	V	U	S	L	R	A	P	F	Y	L	G	T	Q	N	I
N	T	V	M	I	O	J	Z	J	N	S	A	B	G	I	Y	P	V	P	Q
Y	H	S	C	L	E	R	A	G	W	H	F	M	R	M	F	X	Q	T	D
D	P	A	S	O	M	N	O	L	E	N	C	E	U	N	T	G	I	S	G
V	R	P	D	K	O	I	R	H	T	A	C	H	Y	C	A	R	D	I	A
I	A	P	K	K	W	J	Z	E	U	R	K	B	E	H	P	U	L	S	E
T	V	T	U	N	J	S	H	V	S	H	P	Y	Q	I	W	E	Q	K	M
V	P	K	V	O	I	D	I	N	G	P	U	Q	C	B	P	U	V	T	K
E	P	T	P	R	L	B	Y	I	I	S	I	D	K	E	A	T	C	I	L
R	G	R	S	O	O	F	P	O	Z	A	X	R	C	R	N	A	N	N	I
T	K	E	Y	V	Q	T	R	R	G	J	H	K	A	E	D	U	Z	N	Q
I	R	M	N	B	U	U	M	Y	I	Q	Q	C	M	T	R	N	I	I	I
G	S	O	C	U	B	R	S	Q	Y	D	T	I	I	M	I	L	W	T	Y
O	O	R	O	Y	V	G	H	R	Z	K	D	L	J	Y	J	O	A	U	D
U	J	K	P	Q	G	O	X	U	E	E	V	E	M	W	C	A	N	S	U
E	I	G	E	G	Q	R	Q	Z	S	O	X	D	O	C	A	P	E	B	E
R	A	N	G	E	O	F	M	O	T	I	O	N	S	Y	X	U	M	M	J

Clues

1. eliminating urine.
2. normal fullness and elasticity of the skin.
3. excessively rapid heartbeat, usually applied to a pulse rate above 100 beats per minute.
4. involuntary trembling or shaking
5. solid particles in the urine
6. dizziness
7. drowsiness; sleepiness
8. a brief loss of consciousness
9. a skin eruption, usually reddened and raised.
10. rhythmical throbbing of the arteries caused by the heartbeat.
11. white tissue covering all of the eyeball except the cornea.
12. a sound in the ears, such as buzzing, ringing, or whistling.
13. process of breathing
14. moving a joint through its full range in an attempt to prevent muscle contractures and joint deformity.

Core Lesson 4



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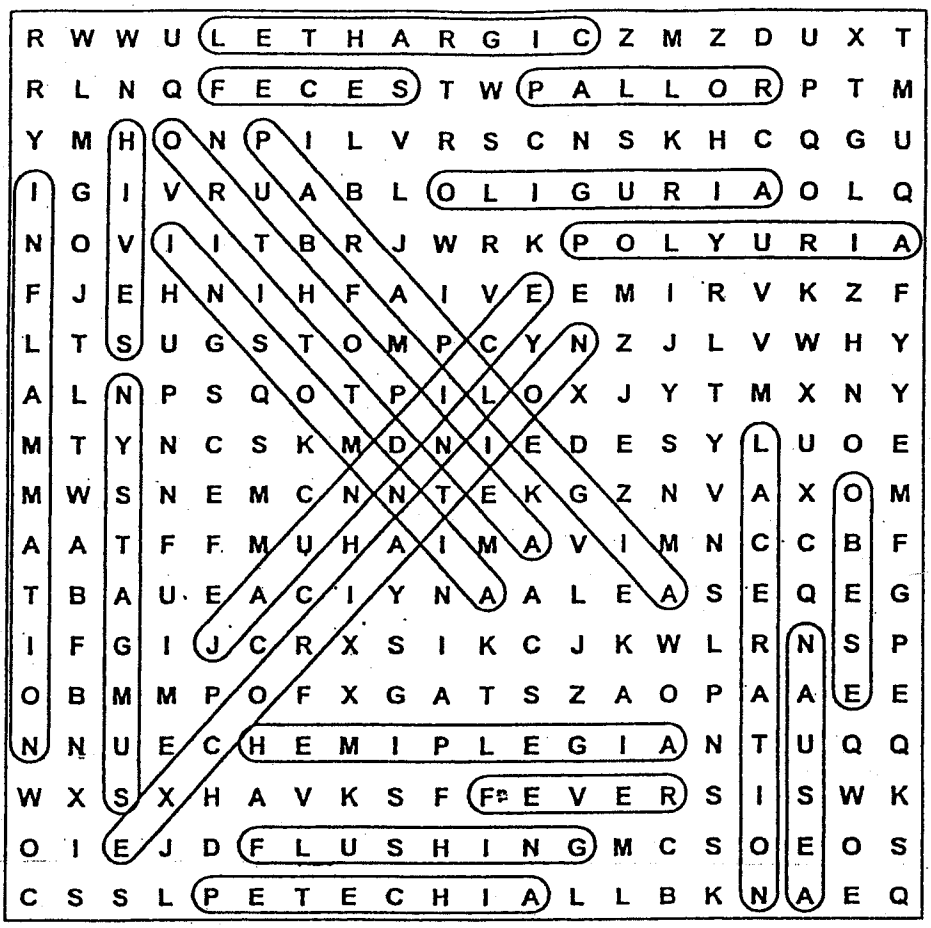
R	W	W	U	L	E	T	H	A	R	G	I	C	Z	M	Z	D	U	X	T
R	L	N	Q	F	E	C	E	S	T	W	P	A	L	L	O	R	P	T	M
Y	M	H	O	N	P	I	L	V	R	S	C	N	S	K	H	C	Q	G	U
I	G	I	V	R	U	A	B	L	O	L	I	G	U	R	I	A	O	L	Q
N	O	V	I	I	T	B	R	J	W	R	K	P	O	L	Y	U	R	I	A
F	J	E	H	N	I	H	F	A	I	V	E	E	M	I	R	V	K	Z	F
L	T	S	U	G	S	T	O	M	P	C	Y	N	Z	J	L	V	W	H	Y
A	L	N	P	S	Q	O	T	P	I	L	O	X	J	Y	T	M	X	N	Y
M	T	Y	N	C	S	K	M	D	N	I	E	D	E	S	Y	L	U	O	E
M	W	S	N	E	M	C	N	N	T	E	K	G	Z	N	V	A	X	O	M
A	A	T	F	F	M	U	H	A	I	M	A	V	I	M	N	C	C	B	F
T	B	A	U	E	A	C	I	Y	N	A	A	L	E	A	S	E	Q	E	G
I	F	G	I	J	C	R	X	S	I	K	C	J	K	W	L	R	N	S	P
O	B	M	M	P	O	F	X	G	A	T	S	Z	A	O	P	A	A	E	E
N	N	U	E	C	H	E	M	I	P	L	E	G	I	A	N	T	U	Q	Q
W	X	S	X	H	A	V	K	S	F	F	E	V	E	R	S	I	S	W	K
O	I	E	J	D	F	L	U	S	H	I	N	G	M	C	S	O	E	O	S
C	S	S	L	P	E	T	E	C	H	I	A	L	L	B	K	N	A	E	Q

Clues

1. paralysis of the legs and lower part of the body, caused by disease or injury to the spine
2. large amounts of urinary output
3. a scratch on the skin, usually covered with a scab
4. localized heat, redness, swelling and pain as a result of irritation, injury or infection
5. body temperature above normal
6. a wound made by tearing
7. paleness of the skin
8. yellowish discoloration of tissues and body fluids with bile pigment caused by any of several pathological conditions in which normal processing of bile is interrupted
9. inability to breathe except in an upright position
10. red, swollen, itchy areas
11. paralysis on only one side of the body
12. extremely overweight
13. not alert, drifts off to sleep, drowsy, sluggish
14. a spasmodic, involuntary motion of the eyeball
15. waste excreted from the bowels
16. feeling the need to vomit
17. a small spot on the body surface caused by a minute hemorrhage
18. inability to sleep
19. redness of the skin
20. secretion of diminished amounts of urine in relation to fluid intake

Core Lesson 4



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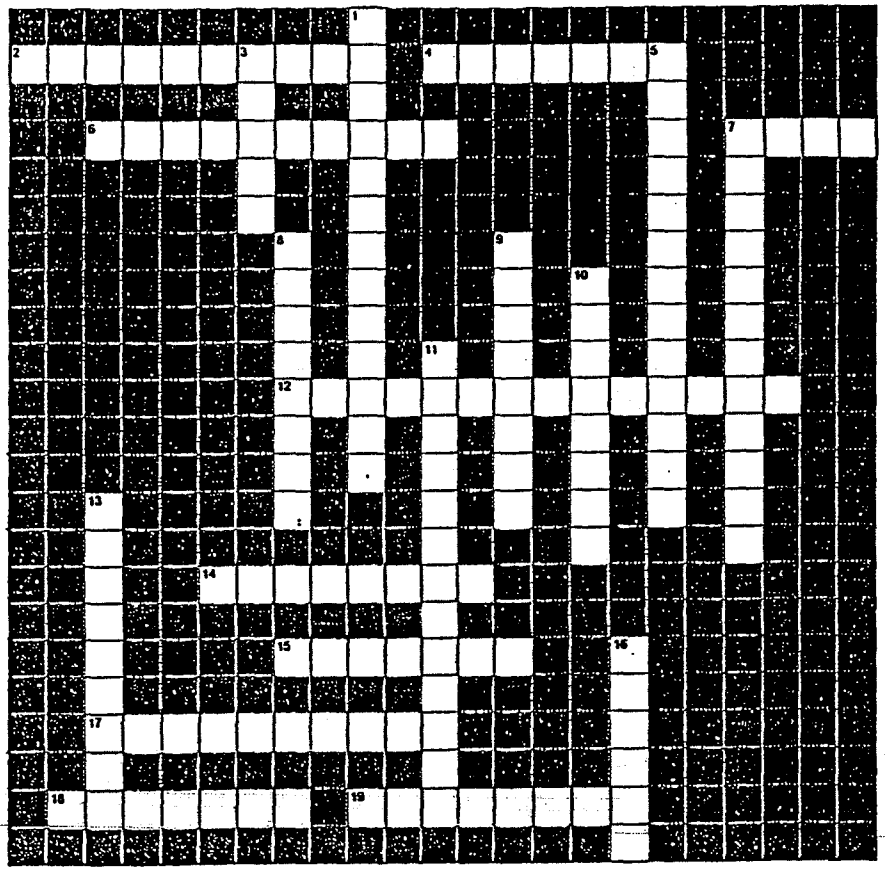
Instructions: Use the clues to help you solve the puzzle.

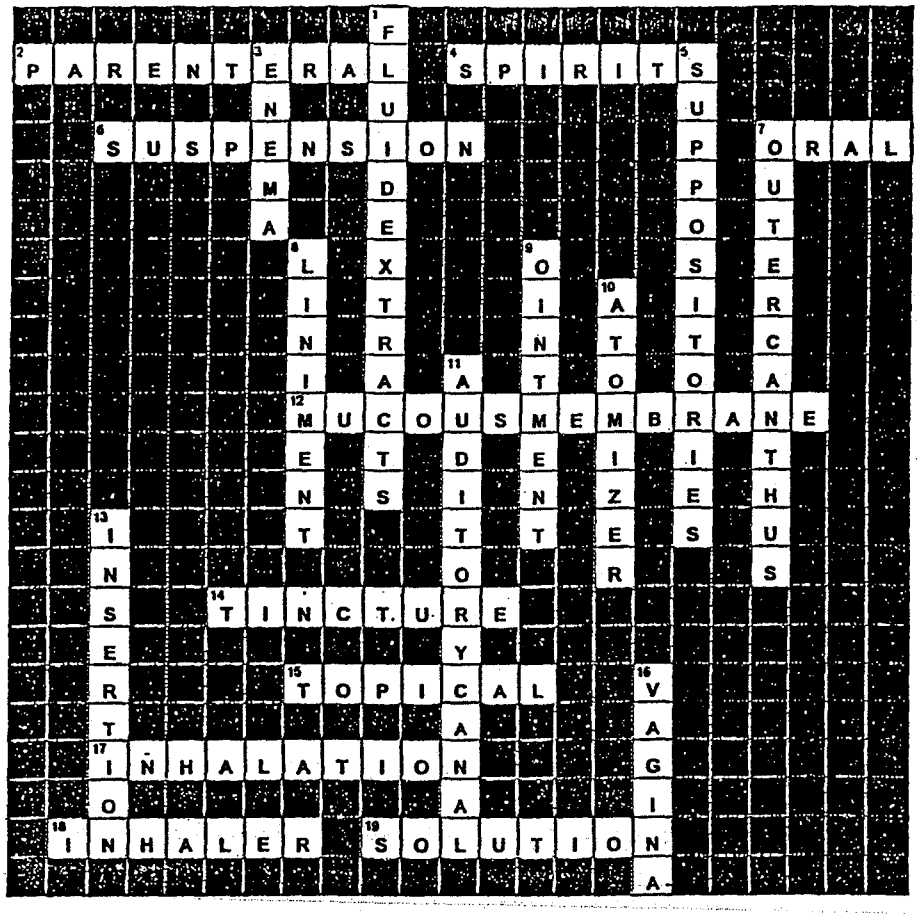


Across

2. medication is injected with a needle
4. an alcohol solution of a volatile substance
6. fluid mixtures that need to be shaken; only stay together for a short period of time.
7. by mouth
12. inner lining of the mouth and the labia minora
14. alcohol solution of an animal or vegetable drug or chemical susbstance
15. pertaining to a particular spot; local
17. to draw in by breathing
18. a device used to admnister medication by the act of breathing in
19. substance dissolved in water

Down

1. concentrated alcohol solution of a vegetable based drug
3. used to cleanse the lower bowel, relieve constipation; some types will relieve gas or act as an emollient and method of medication administration
5. solid medication designed to melt within a body cavity other than the mouth
7. outer corner of the eyelid
8. solution used as a vehicle to distribute medication
9. mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature
10. a device used to deliver a fine spray of medicine
11. tubular passages or ducts that assist in hearing or in the sense of hearing
13. medication is placed into a specific area of the body, usually with the fingers



Across

2. medication is injected with a needle
4. an alcohol solution of a volatile substance
6. fluid mixtures that need to be shaken; only stay together for a short period of time.
7. by mouth
12. inner lining of the mouth and the labia minora
14. alcohol solution of an animal or vegetable drug or chemical susbstance
15. pertaining to a particular spot; local
17. to draw in by breathing
18. a device used to admnister medication by the act of breathing in
19. substance dissolved in water

Down

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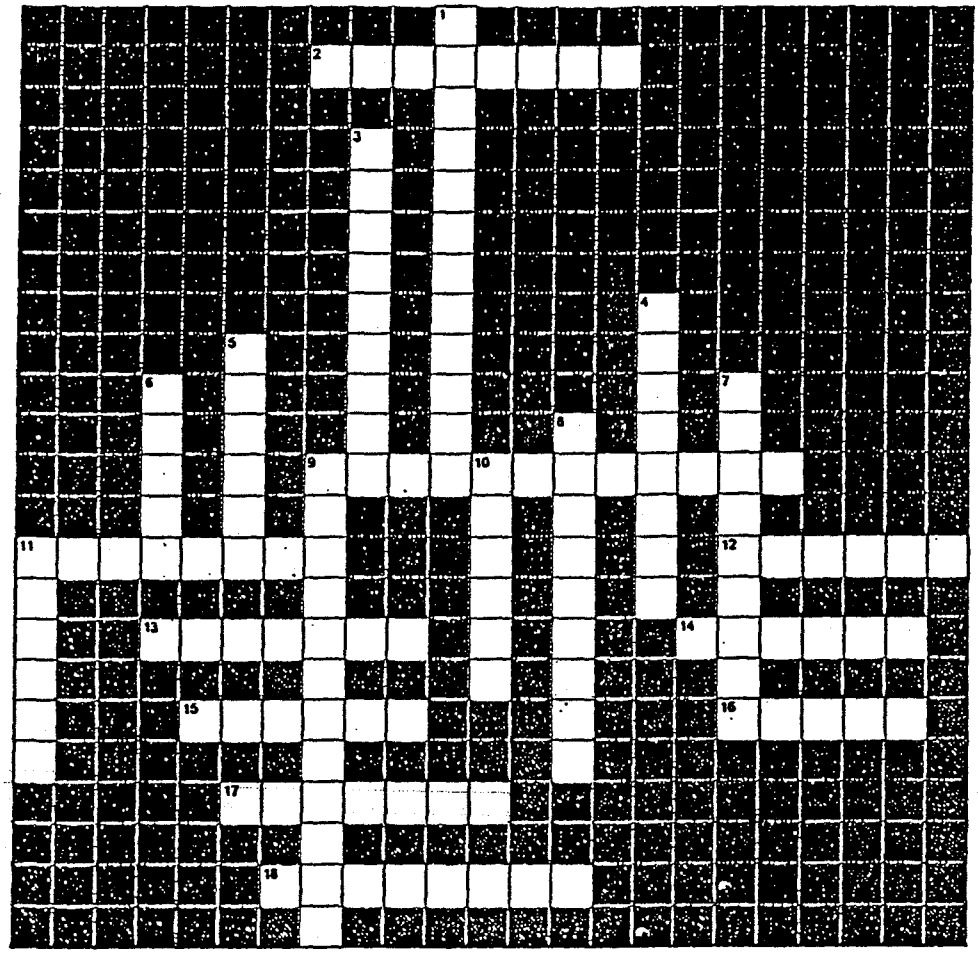
Instructions: Use the clues to help you solve the puzzle.

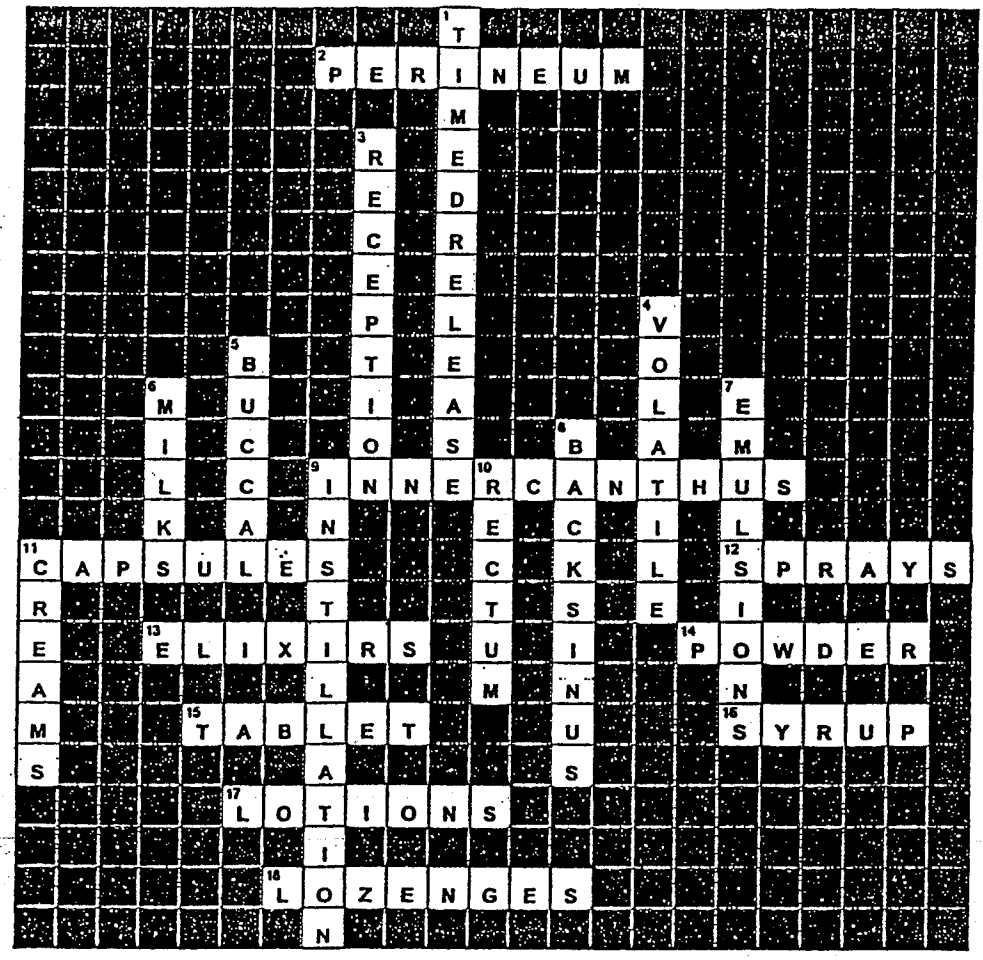


Across

2. area between the anus and the posterior part of the external genitalia
9. the corner of the eyelid closest to the nose
11. medication in small cylinder-like containers
12. medications administered by an atomizer
13. water-alcohol solutions which may contain sugar and flavoring
14. solid medication that has been ground into a powder and is used in that form
15. dried, powdered medication pressed into shapes
16. medication made with water, flavoring and sugar
17. watery preparation that contains medication; are to be patted on, not rubbed in
18. flat, rounded discs made up of medication and sugar

Down

1. Medication is designed to be slowly absorbed by the system so that is has a longer lasting effect
3. method of introducing medicine into the body, by mouth, injection, rectally, inhalation, etc.
4. substances that evaporate easily at normal temperature and pressure
5. medication is placed between the teeth and the mucous membrane of the cheek
6. bulky suspension in water that are insoluble and must be shaken
7. suspension of oils, water and other substances
8. an air cavity in one of the cranial bones that connects with the nose
9. process of administering a liquid usually drop by drop
10. lowest or last segment of the large intestine that ends at the anus
11. medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments



Across

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Down

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5. medication is placed between the teeth and the mucous membrane of the cheek
6. bulky suspension in water that are insoluble and must be shaken
7. suspension of oils, water and other substances
8. an air cavity in one of the cranial bones that connects with the nose
9. process of administering a liquid usually drop by drop
10. lowest or last segment of the large intestine that ends at the anus
11. medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments

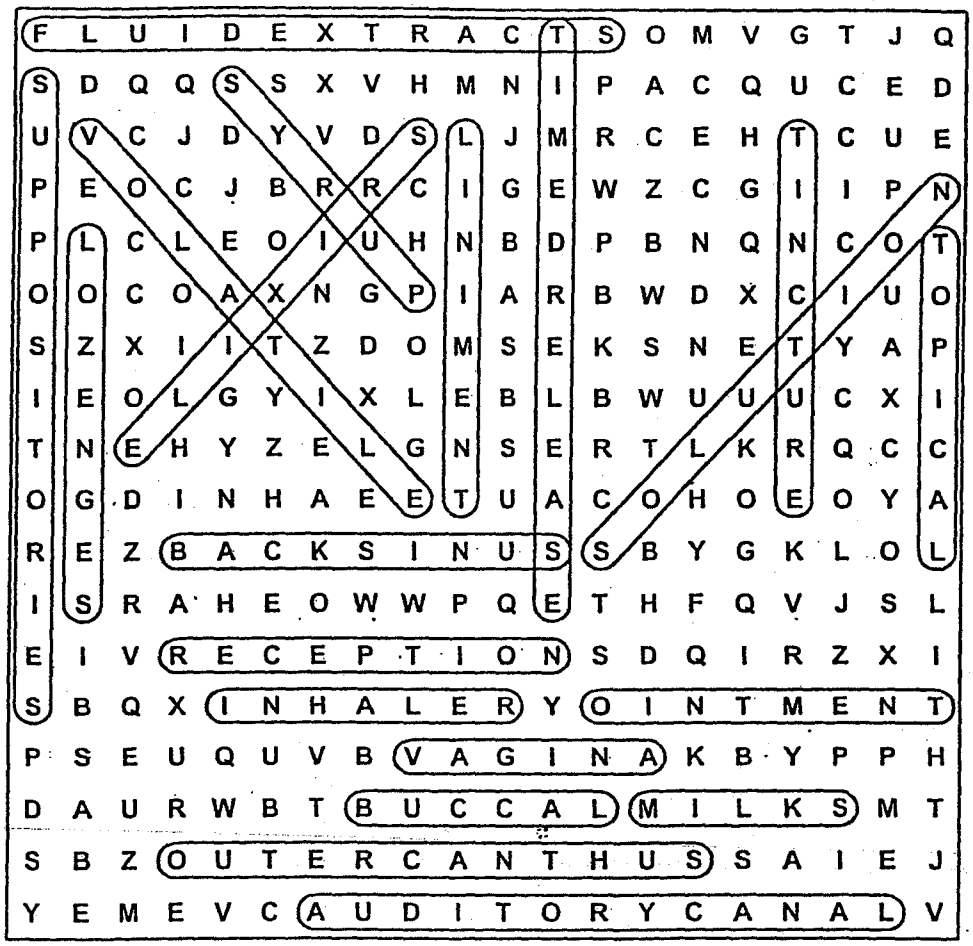
Instructions: Use the clues to help you identify the words.

F	L	U	I	D	E	X	T	R	A	C	T	S	O	M	V	G	T	J	Q
S	D	Q	Q	S	S	X	V	H	M	N	I	P	A	C	Q	U	C	E	D
U	V	C	J	D	Y	V	D	S	L	J	M	R	C	E	H	T	C	U	E
P	E	O	C	J	B	R	R	C	I	G	E	W	Z	C	G	I	I	P	N
P	L	C	L	E	O	I	U	H	N	B	D	P	B	N	Q	N	C	O	T
O	O	C	O	A	X	N	G	P	I	A	R	B	W	D	X	C	I	U	O
S	Z	X	I	I	T	Z	D	O	M	S	E	K	S	N	E	T	Y	A	P
I	E	O	L	G	Y	I	X	L	E	B	L	B	W	U	U	U	C	X	I
T	N	E	H	Y	Z	E	L	G	N	S	E	R	T	L	K	R	Q	C	C
O	G	D	I	N	H	A	E	E	T	U	A	C	O	H	O	E	O	Y	A
R	E	Z	B	A	C	K	S	I	N	U	S	S	B	Y	G	K	L	O	L
I	S	R	A	H	E	O	W	W	P	Q	E	T	H	F	Q	V	J	S	L
E	I	V	R	E	C	E	P	T	I	O	N	S	D	Q	I	R	Z	X	I
S	B	Q	X	I	N	H	A	L	E	R	Y	O	I	N	T	M	E	N	T
P	S	E	U	Q	U	V	B	V	A	G	I	N	A	K	B	Y	P	P	H
D	A	U	R	W	B	T	B	U	C	C	A	L	M	I	L	K	S	M	T
S	B	Z	O	U	T	E	R	C	A	N	T	H	U	S	S	A	I	E	J
Y	E	M	E	V	C	A	U	D	I	T	O	R	Y	C	A	N	A	L	V

Clues

1. solution used as a vehicle to distribute medication
2. bulky suspensions in water that are insoluble and must be shaken
3. method of introducing medicine into the body, by mouth, injection, rectally, inhalation, etc.
4. substances that evaporate easily at normal temperature and pressure
5. tubular passages or ducts that assist in hearing or in the sense of hearing
6. medication is designed to be slowly absorbed by the system so that is has a longer lasting effect
7. medication made with water, flavoring and sugar
8. mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature
9. flat, rounded discs made up of medication and sugar
10. substance dissolved in water
11. canal leading from the vulva to the uterus in the female
12. an air cavity in one of the cranial bones that connects with the nose
13. solid medication designed to melt within a body cavity other than the mouth
14. a device used to admnister medication by the act of breathing in
15. pertaining to a particular spot; local
16. medication is placed between the teeth and the mucous membrane of the cheek
17. outer corner of the eyelid
18. concentrated alcohol solution of a vegetable based drug
19. water-alcohol solutions which may contain sugar and flavoring
20. alcohol solution of an animal or vegetable drug or chemical susbstance

Core Lesson 5



Clues

1. solution used as a vehicle to distribute medication
2. bulky suspensions in water that are insoluble and must be shaken
3. method of introducing medicine into the body, by mouth, injection, rectally, inhalation, etc.
4. substances that evaporate easily at normal temperature and pressure
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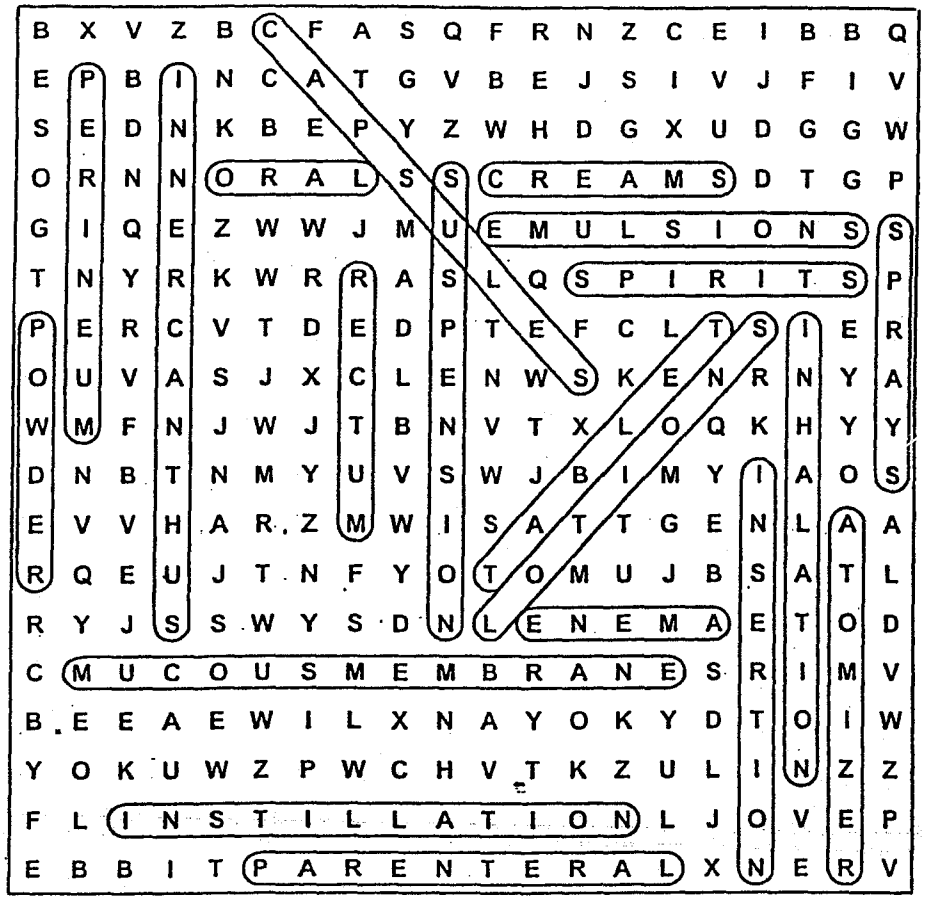
Instructions: Use the clues to help you identify the words.

B	X	V	Z	B	C	F	A	S	Q	F	R	N	Z	C	E	I	B	B	Q
E	P	B	I	N	C	A	T	G	V	B	E	J	S	I	V	J	F	I	V
S	E	D	N	K	B	E	P	Y	Z	W	H	D	G	X	U	D	G	G	W
O	R	N	N	O	R	A	L	S	S	C	R	E	A	M	S	D	T	G	P
G	I	Q	E	Z	W	W	J	M	U	E	M	U	L	S	I	O	N	S	S
T	N	Y	R	K	W	R	R	A	S	L	Q	S	P	I	R	I	T	S	P
P	E	R	C	V	T	D	E	D	P	T	E	F	C	L	T	S	I	E	R
O	U	V	A	S	J	X	C	L	E	N	W	S	K	E	N	R	N	Y	A
W	M	F	N	J	W	J	T	B	N	V	T	X	L	O	Q	K	H	Y	Y
D	N	B	T	N	M	Y	U	V	S	W	J	B	I	M	Y	I	A	O	S
E	V	V	H	A	R	Z	M	W	I	S	A	T	T	G	E	N	L	A	A
R	Q	E	U	J	T	N	F	Y	O	T	O	M	U	J	B	S	A	T	L
R	Y	J	S	S	W	Y	S	D	N	L	E	N	E	M	A	E	T	O	D
C	M	U	C	O	U	S	M	E	M	B	R	A	N	E	S	R	I	M	V
B	E	E	A	E	W	I	L	X	N	A	Y	O	K	Y	D	T	O	I	W
Y	O	K	U	W	Z	P	W	C	H	V	T	K	Z	U	L	I	N	Z	Z
F	L	I	N	S	T	I	L	L	A	T	I	O	N	L	J	O	V	E	P
E	B	B	I	T	P	A	R	E	N	T	E	R	A	L	X	N	E	R	V

Clues

1. by mouth
2. suspensions of oils, water and other substances
3. used to cleanse the lower bowel, relieve constipation; some types will relieve gas or act as an emollient and method of medication administration
4. medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments
5. inner lining of the mouth and the labia minora
6. lowest or last segment of the large intestine that ends at the anus
7. medications admnistered by an atomizer
8. fluid mixtures that need to be shaken; only stay together for a short period of time.
9. the corner of the eyelid closest to the nose
10. to draw in by breathing
11. medication is placed into a specific area of the body, usually with the fingers
12. medication is injected with a needle
13. dried, powdered medication pressed into shapes
14. medication in small cylinder-like containers
15. watery preparation that contain medication; are to be patted on, not rubbed in
16. a device used to deliver a fine spray of medicine
17. solid medication that has been ground into a powder and is used in that form
18. an alcohol solution of a volatile substance
19. process of administering a liquid usually drop by drop
20. area between the anus and the posterior part of the external genitalia



Clues

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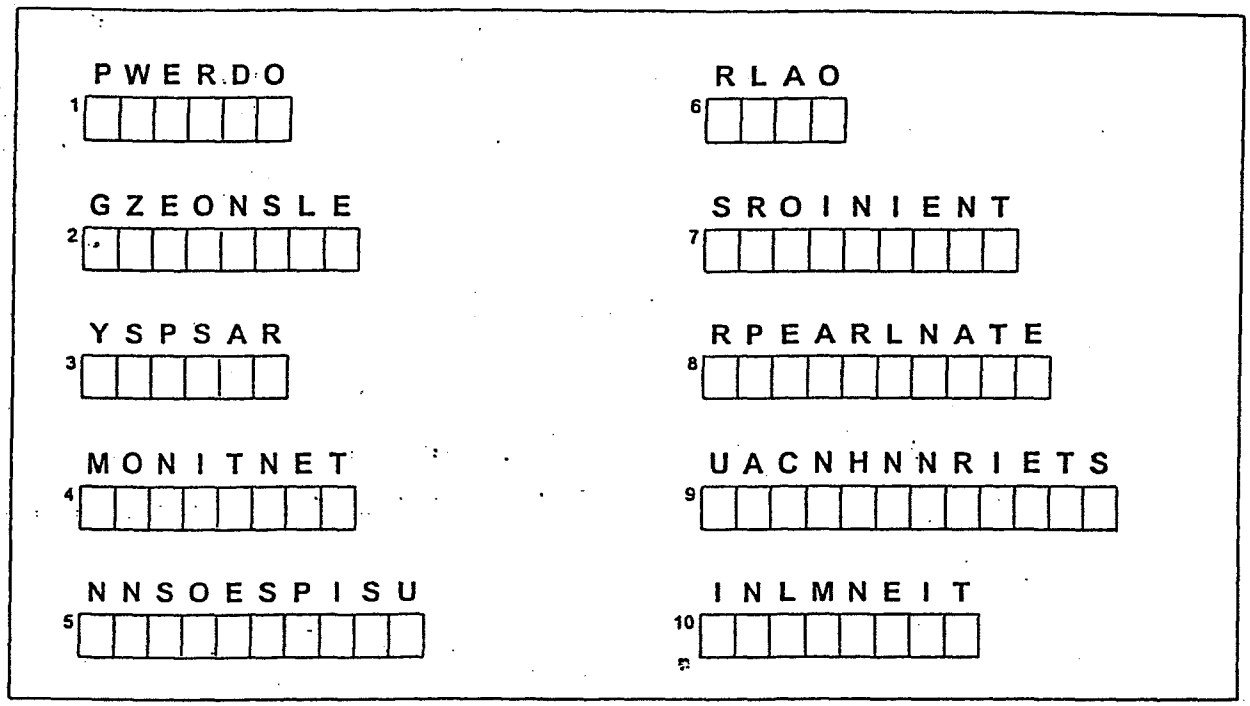
Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.



Clues

1. solid medication that has been ground into a powder and is used in that form
2. flat, rounded discs made up of medication and sugar
3. medications admnistered by an atomizer
4. mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature
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8. medication is injected with a needle
9. the corner of the eyelid closest to the nose
10. solution used as a vehicle to distribute medication

P W E R D O
1 P O W D E R

R L A O
6 O R A L

G Z E O N S L E
2 L O Z E N G E S

S R O I N I E N T
7 I N S E R T I O N

Y S P S A R
3 S P R A Y S

R P E A R L N A T E
8 P A R E N T E R A L

M O N I T N E T
4 O I N T M E N T

U A C N H N N R I E T S
9 I N N E R C A N T H U S

N N S O E S P I S U
5 S U S P E N S I O N

I N L M N E I T
10 L I N I M E N T

Clues

1. solid medication that has been ground into a powder and is used in that form
2. flat, rounded discs made up of medication and sugar
3. medications admnistered by an atomizer
4. mixtures of medications with a fatty base, soft enough to spread at room temperature or melt at body temperature
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9. the corner of the eyelid closest to the nose
10. solution used as a vehicle to distribute medication

Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.

1. L N I N A A I T O H
2. A O T D R A Y L A U N C I
3. S S U L P A C E
4. A E S R M C
5. O U E S N M L I S
6. H N A L I R E
7. K S C I N U S A B
8. R E Z T M O A I
9. M E N E A
10. L U C B C A

Clues

1. to draw in by breathing
2. tubular passages or ducts that assist in hearing or in the sense of hearing
3. medication in small cylinder-like containers
4. medication applied to the skin or mucous membrane that is more easily absorbed by the skin than ointments
5. suspensions of oils, water and other substances
6. a device used to admnister medication by the act of breathing in
7. an air cavity in one of the cranial bones that connects with the nose
8. a device used to deliver a fine spray of medicine
9. used to cleanse the lower bowel, relieve constipation; some types will relieve gas or act as an emollient and method of medication administration
10. medication is placed between the teeth and the mucous membrane of the cheek

L N I N A A I T O H
1 I N H A L A T I O N

H N A L I R E
6 I N H A L E R

A O T D R A Y L A U N C I
2 A U D I T O R Y C A N A L

K S C I N U S A B
7 B A C K S I N U S

S S U L P A C E
3 C A P S U L E S

R E Z T M O A I
8 A T O M I Z E R

A E S R M C
4 C R E A M S

M E N E A
9 E N E M A

O U E S N M L I S
5 E M U L S I O N S

L U C B C A
10 B U C C A L

Clues

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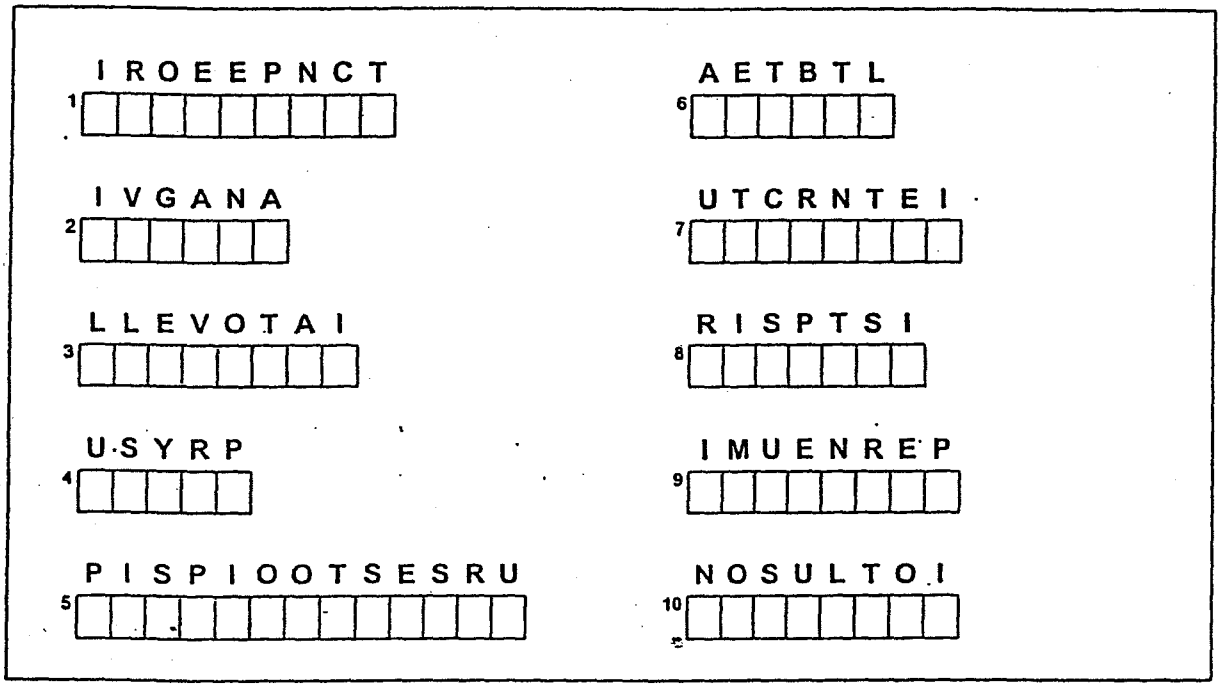
Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.



Clues

1. method of introducing medicine into the body, by mouth, injection, rectally, inhalation, etc.
2. canal leading from the vulva to the uterus in the female
3. substances that evaporate easily at normal temperature and pressure
4. medication made with water, flavoring and sugar
5. solid medication designed to melt within a body cavity other than the mouth
6. dried, powdered medication pressed into shapes
7. alcohol solution of an animal or vegetable drug or chemical susbstance
8. an alcohol solution of a volatile substance
9. area between the anus and the posterior part of the external genitalia
10. substance dissolved in water

I R O E E P N C T
1 R E C E P T I O N

A E T B T L
6 T A B L E T

I V G A N A
2 V A G I N A

U T C R N T E I
7 T I N C T U R E

L L E V O T A I
3 V O L A T I L E

R I S P T S I
8 S P I R I T S

U S Y R P
4 S Y R U P

I M U E N R E P
9 P E R I N E U M

P I S P I O O T S E S R U
5 S U P P O S I T O R I E S

N O S U L T O I
10 S O L U T I O N

Clues

1. method of introducing medicine into the body, by mouth, injection, rectally, inhalation, etc.
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8. an alcohol solution of a volatile substance
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10. substance dissolved in water

Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.

1. S N O I L O T
2. T P L O A C I
3. I E I L X R S
4. M C E R U T
5. T E T U R U S C A N H O
6. O N A I S I L N T T I L
7. R T I E E L E E A S D M
8. K I M S L
9. S B O M C E E U N U A R M M
10. E S T A F U X L R D I T C

Clues

1. watery preparation that contain medication; are to be patted on, not rubbed in
2. pertaining to a particular spot; local
3. water-alcohol solutions which may contain sugar and flavoring
4. lowest or last segment of the large intestine that ends at the anus
5. outer corner of the eyelid
6. process of administering a liquid usually drop by drop
7. medication is designed to be slowly absorbed by the system so that is has a longer lasting effect
8. bulky suspensions in water that are insoluble and must be shaken
9. inner lining of the mouth and the labia minora
10. concentrated alcohol solution of a vegetable based drug

S N O I L O T
1 L O T I O N S

O N A I S I L N T T I L
6 I N S T I L L A T I O N

T P L O A C I
2 T O P I C A L

R T I E E L E E A S D M
7 T I M E D R E L E A S E

I E I L X R S
3 E L I X I R S

K I M S L
8 M I L K S

M C E R U T
4 R E C T U M

S B O M C E E U N U A R M M
9 M U C O U S M E M B R A N E

T E T U R U S C A N H O
5 O U T E R C A N T H U S

E S T A F U X L R D I T C
10 F L U I D E X T R A C T S

Clues

1. watery preparation that contain medication; are to be patted on, not rubbed in
2. pertaining to a particular spot; local
3. water-alcohol solutions which may contain sugar and flavoring
4. lowest or last segment of the large intestine that ends at the anus
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6. process of administering a liquid usually drop by drop
7. medication is designed to be slowly absorbed by the system so that is has a longer lasting effect
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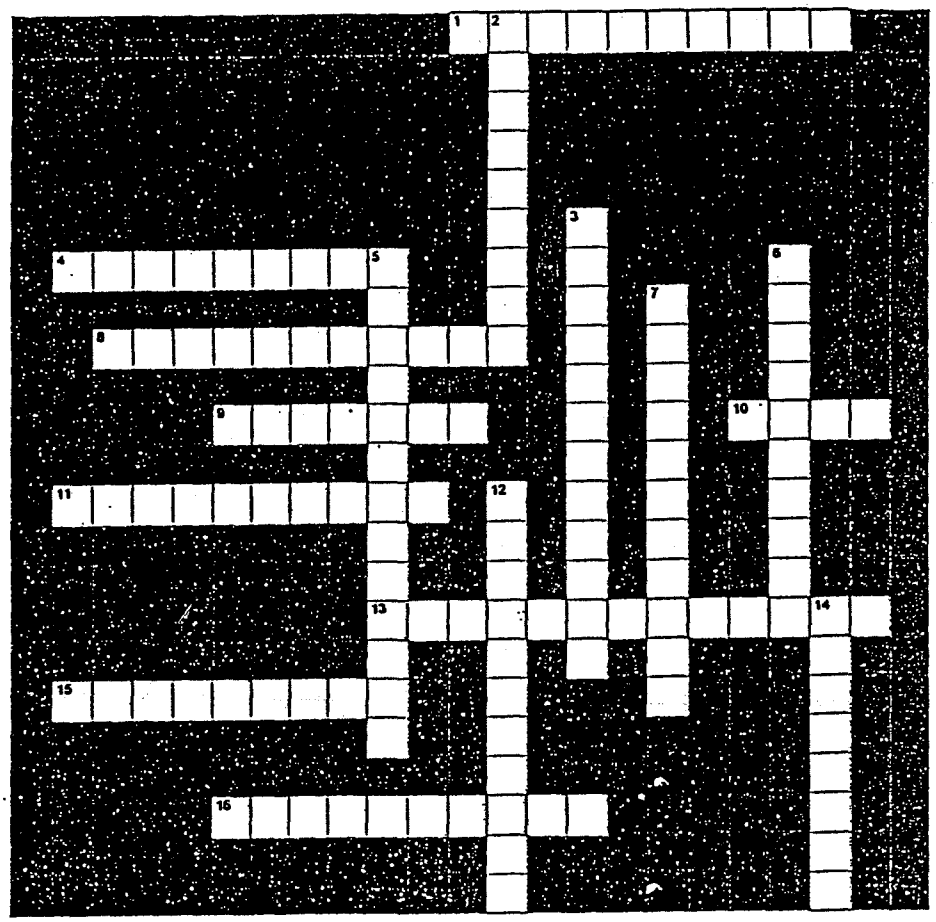
9. inner lining of the mouth and the labia minora
10. concentrated alcohol solution of a vegetable based drug

Instructions: Complete the crossword puzzle. Use the clues to help you solve the puzzle.



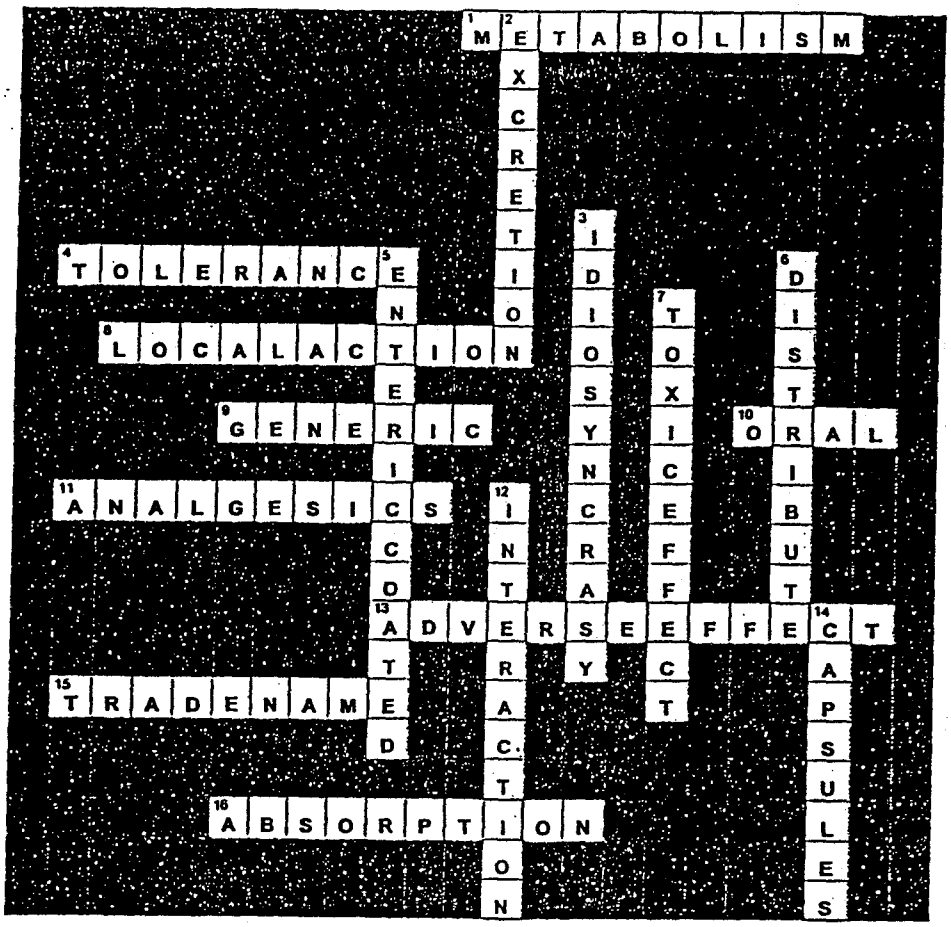
Across

1. the process by which a substance is changed into a form that is more easily excreted by the body
4. the ability to endure or resist the effects of a drug; can build up with repeated usage
8. medication acts at the site of administration usually on the skin or mucous membrane
9. commonly available drugs that are not protected by trademark
10. by mouth
11. medications that relieve muscle, joint and bone pain
13. negative side effect of a medication; undesirable reaction
15. the name, given by the manufacturer, by which a medication is known
16. the taking up of fluids or other substances by the skin, mucous surfaces, or absorbent vessels

Down

2. elimination of body wastes through the lungs, urine or feces
3. unusual or unexpected effect from a medication
5. protective coating on medication that allows for easier swallowing
6. to divide and dispense in portions
7. medications that can become poisonous to the body
12. the action of one medication interfering with the action of another
14. medication in small cylinder-like containers

Core Lesson 6



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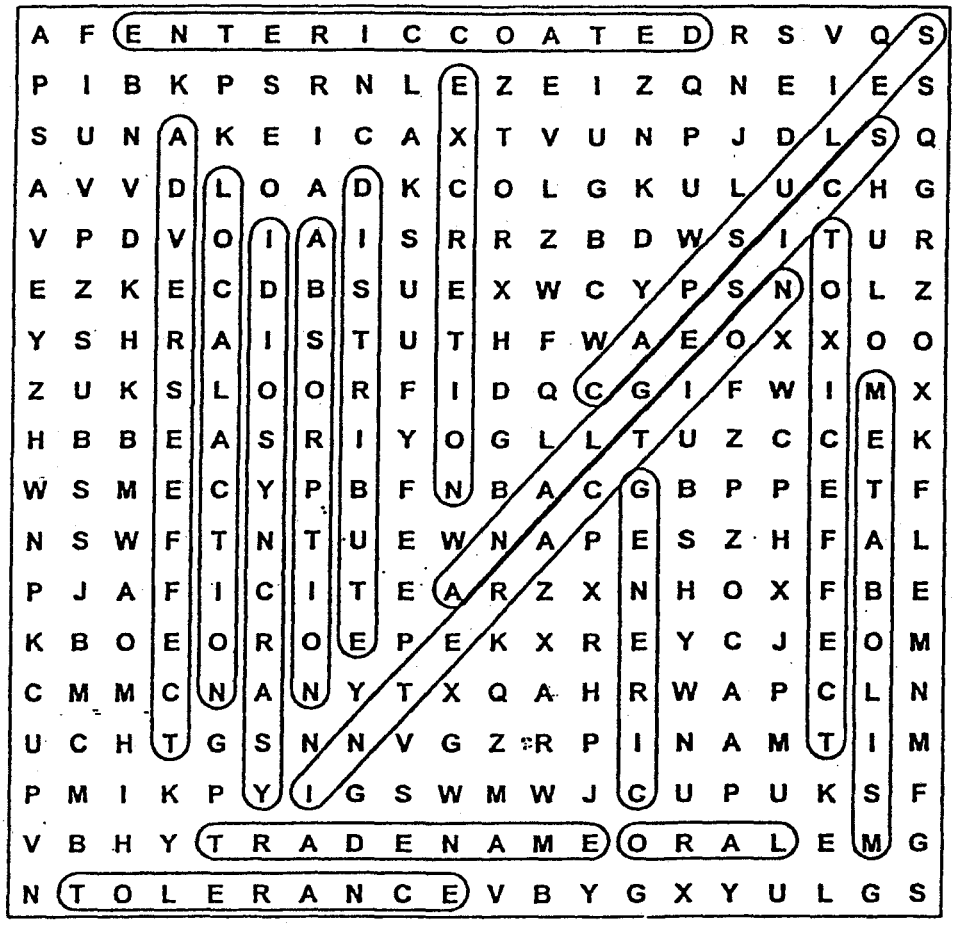
14. medication in small cylinder-like containers

Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

A	F	E	N	T	E	R	I	C	C	O	A	T	E	D	R	S	V	Q	S
P	I	B	K	P	S	R	N	L	E	Z	E	I	Z	Q	N	E	I	E	S
S	U	N	A	K	E	I	C	A	X	T	V	U	N	P	J	D	L	S	Q
A	V	V	D	L	O	A	D	K	C	O	L	G	K	U	L	U	C	H	G
V	P	D	V	O	I	A	I	S	R	R	Z	B	D	W	S	I	T	U	R
E	Z	K	E	C	D	B	S	U	E	X	W	C	Y	P	S	N	O	L	Z
Y	S	H	R	A	I	S	T	U	T	H	F	W	A	E	O	X	X	O	O
Z	U	K	S	L	O	O	R	F	I	D	Q	C	G	I	F	W	I	M	X
H	B	B	E	A	S	R	I	Y	O	G	L	L	T	U	Z	C	C	E	K
W	S	M	E	C	Y	P	B	F	N	B	A	C	G	B	P	P	E	T	F
N	S	W	F	T	N	T	U	E	W	N	A	P	E	S	Z	H	F	A	L
P	J	A	F	I	C	I	T	E	A	R	Z	X	N	H	O	X	F	B	E
K	B	O	E	O	R	O	E	P	E	K	X	R	E	Y	C	J	E	O	M
C	M	M	C	N	A	N	Y	T	X	Q	A	H	R	W	A	P	C	L	N
U	C	H	T	G	S	N	N	V	G	Z	R	P	I	N	A	M	T	I	M
P	M	I	K	P	Y	I	G	S	W	M	W	J	C	U	P	U	K	S	F
V	B	H	Y	T	R	A	D	E	N	A	M	E	O	R	A	L	E	M	G
N	T	O	L	E	R	A	N	C	E	V	B	Y	G	X	Y	U	L	G	S

Clues

1. negative side effect of a medication; undesirable reaction
2. medications that can become poisonous to the body
3. the name, given by the manufacturer, by which a medication is known
4. medication in small cylinder-like containers
5. to divide and dispense in portions
6. by mouth
7. elimination of body wastes through the lungs, urine, or feces
8. commonly available drugs that are not protected by trademark
9. protective coating on medication that allows for easier swallowing
10. the action of one medication interfering with the action of another
11. medications that relieve muscle, joint and bone pain
12. medication acts at the site of administration usually on the skin or mucous membrane
13. the ability to endure or resist the effects of a drug; can build up with repeated usage
14. unusual or unexpected effect from a medication
15. the taking up of fluids or other substances by the skin, mucous surfaces, or absorbent vessels
16. the process by which a substance is changed into a from that is more easily excreted by the body



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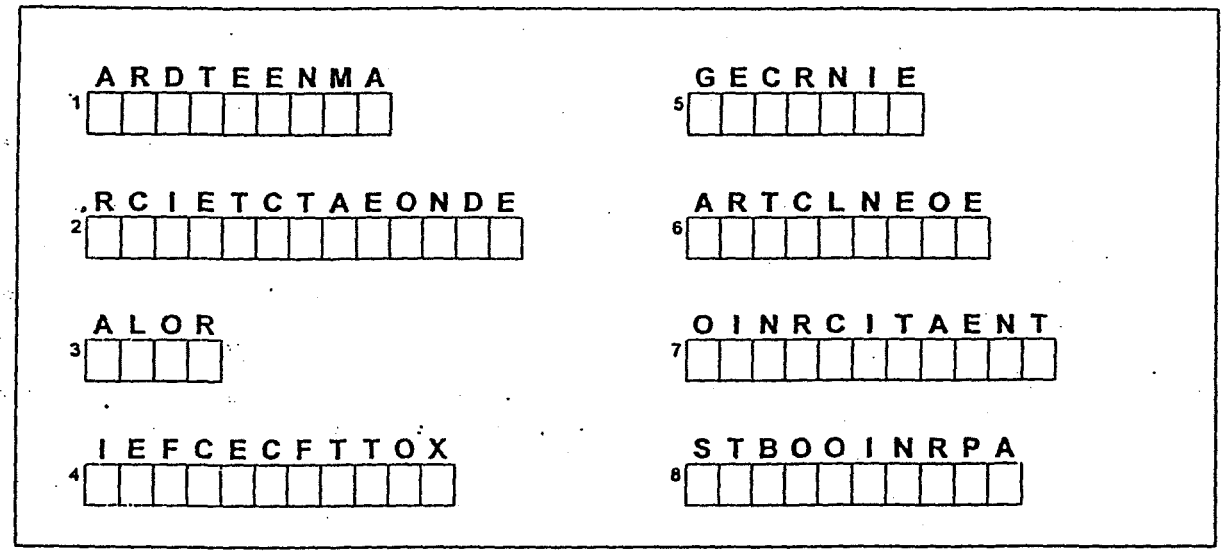
Instructions: Unscramble the letters for each word. Use the clues to help you solve the puzzles.



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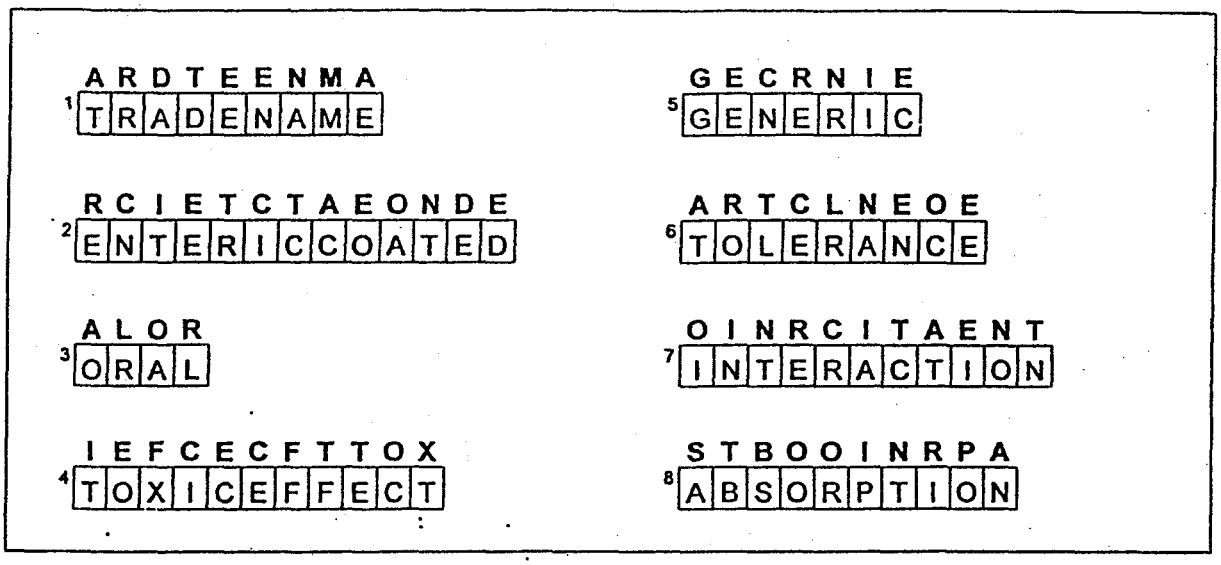

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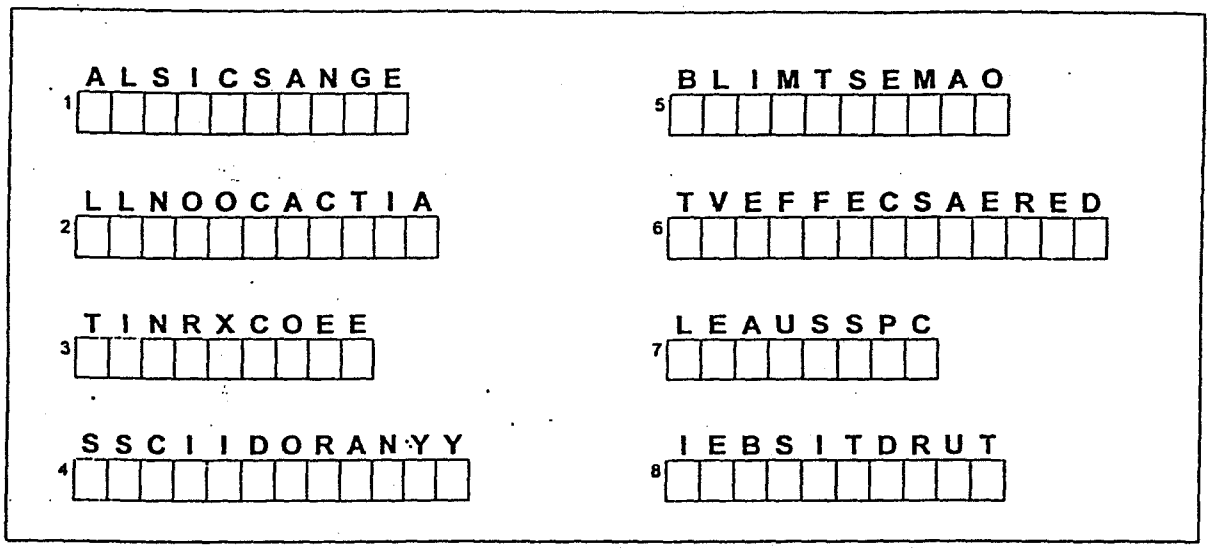

Clues

1. Medications that relieve muscle, joint and bone pain
2. Medication acts at the site of administration usually on the skin or mucous membrane.
3. Elimination of body wastes through the lungs, urine, or feces.
4. Unusual or unexpected effect from a medication.
5. The process by which a substance is changed in to a form that is more easily excreted by the body.
6. Negative side effect of a medication; undesirable reaction
7. Medication in small cylinder-like containers.
8. To divide and dispense in portions.

A L S I C S A N G E
1 A N A L G E S I C S

B L I M T S E M A O
5 M E T A B O L I S M

L L N O O C A C T I A
2 L O C A L A C T I O N

T V E F F E C S A E R E D
6 A D V E R S E E F F E C T

T I N R X C O E E
3 E X C R E T I O N

L E A U S S P C
7 C A P S U L E S

S S C I I D O R A N Y Y
4 I D I O S Y N C R A S Y

I E B S I T D R U T
8 D I S T R I B U T E

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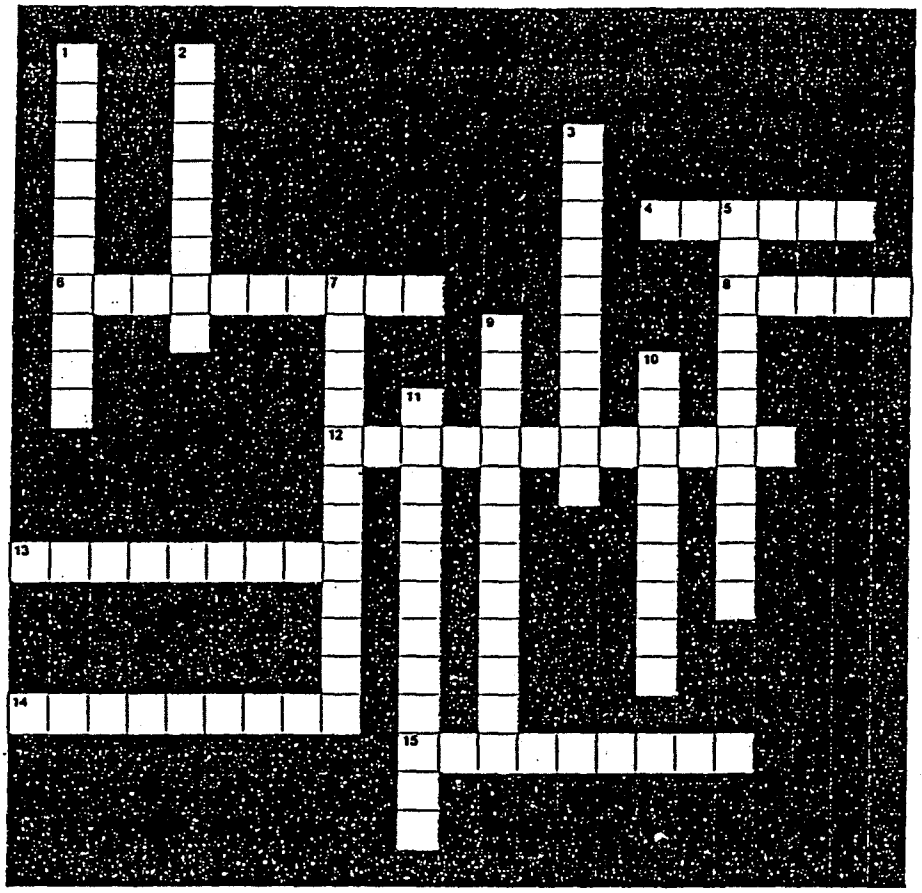


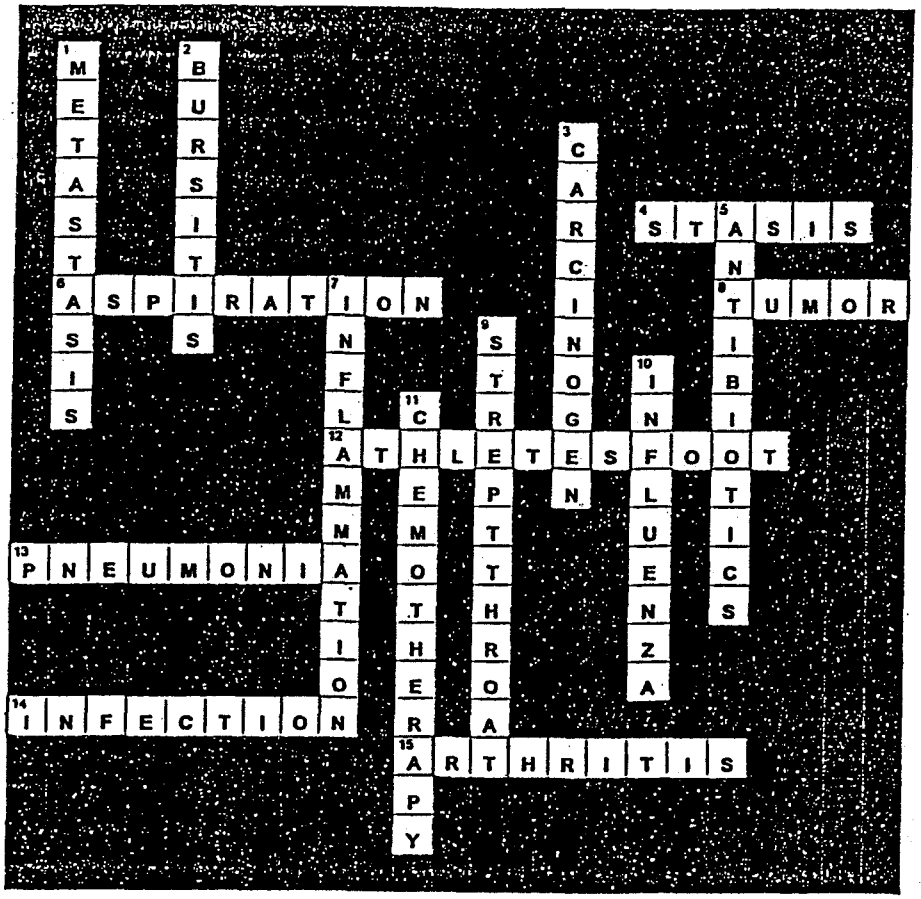
Across

4. a stoppage of the flow of blood or other body fluids in part of the body
6. the act of breathing in
8. a circumscribed, non-inflammatory growth arising from existing tissue, but growing independently of the normal rate or structural development of such tissue; serves no physiological function
12. a contagious fungal infection of the feet
13. an acute or chronic disease marked by inflammation and infection in the lungs
14. activity of disease-producing bacteria, virus or fungus in the body and the reaction of the body to the microorganisms and their products
15. inflammation of a joint

Down

1. transmission of a disease from an original site to tone or more sites elsewhere in the body
2. inflammation of a bursa, usually at the shoulder, elbow or knee joints
3. a cancer-causing substance
5. substances produced by certain fungi, bacteria and other organisms that are effective in inhibiting the growth of or destroying microorganisms
7. localized heat, redness, swelling and pain as a result of irritation, injury or infection
9. a severely inflamed and infected throat
10. an acute highly contagious infection; flu
11. the treatment of a disease with chemicals

Core Lesson 7



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Instructions: Complete the word search puzzle. Use the clues to help you identify the words.

S	N	H	J	W	B	G	A	D	T	N	V	C	W	S	Q	A	K	N	V
E	M	W	X	V	J	Z	M	S	O	G	G	Y	I	L	Z	I	N	A	C
S	J	W	T	U	M	O	R	I	P	F	P	S	Q	N	M	U	A	J	H
N	B	R	H	Y	S	E	T	J	J	I	A	O	E	T	G	R	R	H	E
S	U	U	L	N	V	C	R	L	Q	T	R	U	O	Q	I	L	T	A	M
T	R	D	Q	G	E	U	O	G	S	N	L	A	N	N	L	G	H	P	O
R	S	W	G	F	R	E	E	A	Q	F	X	O	T	W	Z	D	R	M	T
E	I	T	N	X	U	W	T	J	N	F	N	U	H	I	O	M	I	C	H
P	T	I	X	K	Y	E	G	I	F	J	D	S	Q	C	O	T	T	U	E
T	I	K	B	W	M	O	T	T	Q	E	J	L	S	K	J	N	I	T	R
T	S	W	A	T	H	L	E	T	E	S	F	O	O	T	P	C	S	V	A
H	A	Q	J	F	I	I	N	F	L	A	M	M	A	T	I	O	N	M	P
R	Y	N	F	X	D	D	M	S	G	H	E	F	I	I	P	R	R	I	Y
O	U	Q	Z	H	A	D	D	T	I	C	A	R	C	I	N	O	G	E	N
A	F	M	R	E	X	D	B	A	A	N	T	I	B	I	O	T	I	C	S
T	Y	B	J	L	Y	U	W	S	P	N	E	U	M	O	N	I	A	R	T
X	W	Y	J	Q	B	J	C	I	N	J	T	J	E	O	I	J	K	X	M
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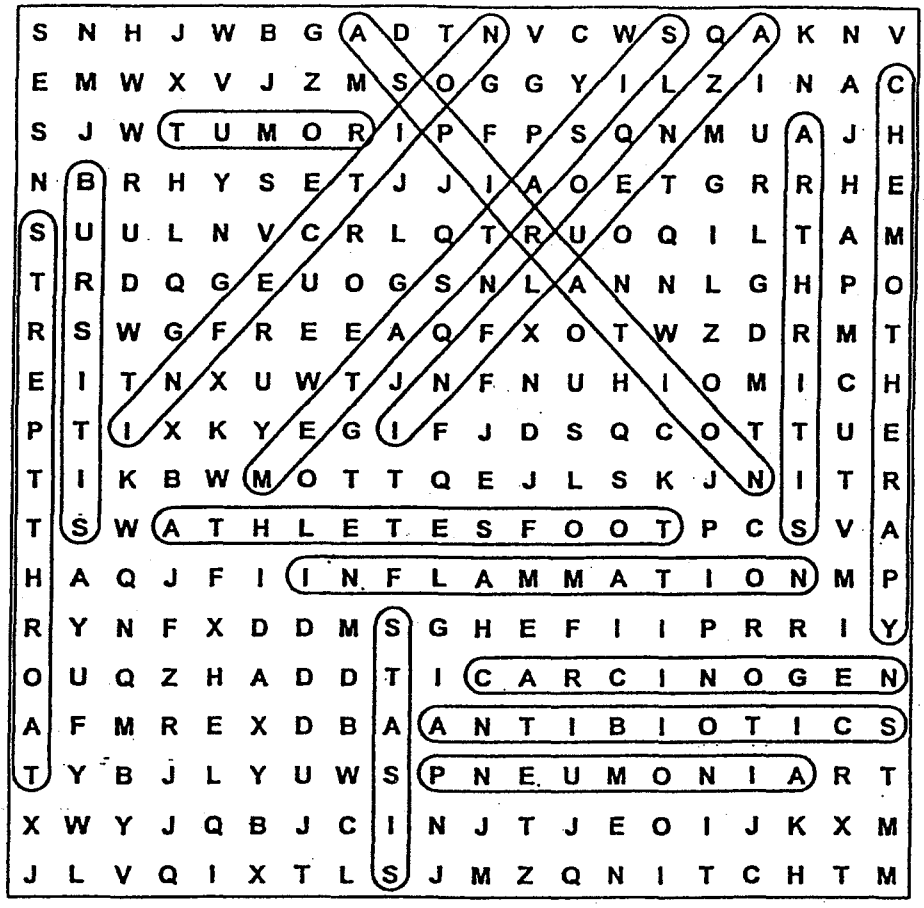

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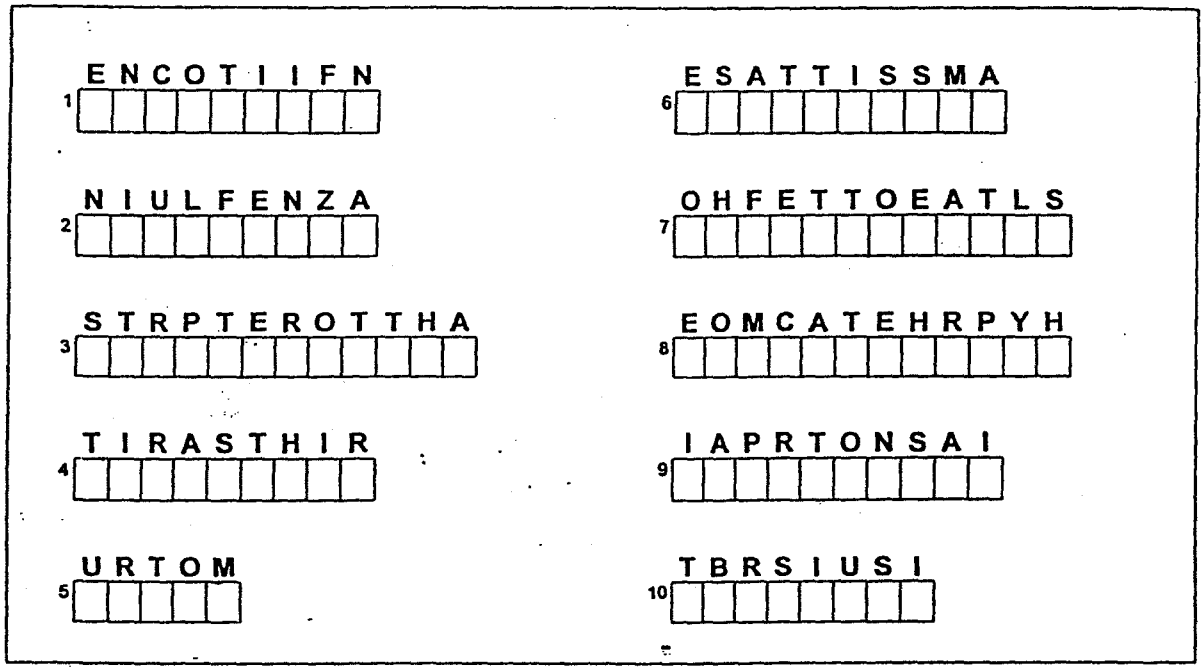

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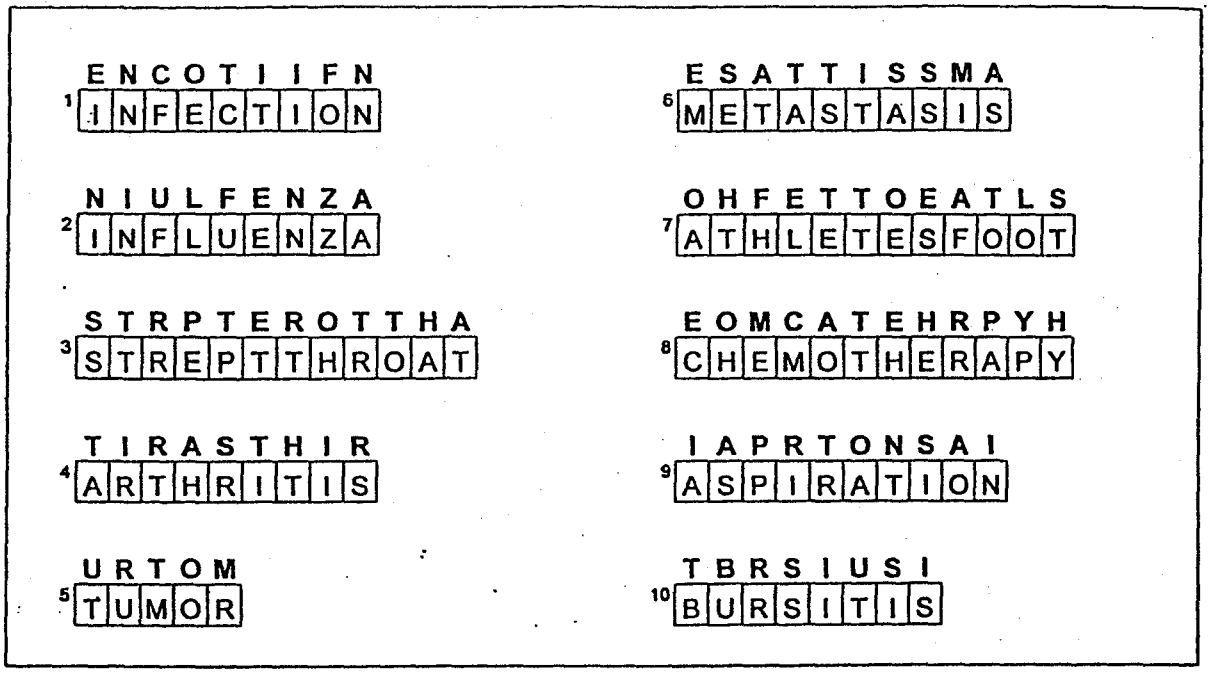

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