In-Service: Infection Control & Standard and Universal Precautions
Friday, April 29, 2011

Topics for Discussion:
- Infection Control
- Standard Precautions
- Universal Precautions
- Droplet Precautions
- Contact Precautions
- Airborne Precautions

INFECTION CONTROL
There are many ways pathogens, disease-causing microorganisms or germs can be transmitted. Microorganisms can be transferred from one person to another by touching, sneezing, coughing or the exchange of or contact with bodily fluids (e.g., blood, mucus, saliva, feces, urine, semen, etc.). The basis of good infection control in the workplace is assuming that everyone is potentially infectious. Let’s first discuss the chain of infection in order to better understand the transmission of microorganisms and how to effectively prevent the spread of infection.

The Chain of Infection

Infectious Agent
An infectious agent or pathogen is a microorganism which can cause disease. Pathogens or infectious agents may be bacteria, viruses, fungi or parasites.

Source or Reservoir
A source or reservoir is a place within which infectious agents can thrive and reproduce. A source or reservoir can be human beings, animals and inanimate objects such as water, table tops and doorknobs.
**Portal of Exit**
A portal of exit provides a way for an infectious agent to leave the reservoir. For example, the pathogen may leave the reservoir through the nose or mouth when someone sneezes or coughs. Pathogens, carried away from the body by feces may also leave the reservoir through an infected bowel.

**Mode of Transmission**
Method of transfer by which the pathogen moves or is carried from one place to another. The hands of the health care work may carry bacteria from one person to another.

**Portal of Entry**
A portal of entry is an opening which allows a pathogen to enter a host. Such portals of entry include body orifices, mucus membranes or breaks in the skin. They also result from tubes placed in body cavities (e.g., urinary catheters) or from punctures produced by invasive procedures (e.g., intravenous fluid replacement).

**Susceptible Host**
A susceptible host is a person who cannot resist a pathogen invading the body, multiplying and resulting in infection. Such a person is susceptible to disease and lacking immunity or physical resistance to overcome invasion by a pathogenic microorganism.

**STANDARD PRECAUTIONS**
Standard precautions combine the major features of universal precautions and body substance isolation. These standard precautions alert the health care worker of the patient situations that require special barrier techniques. These barrier techniques are used when working with any patient where potential or actualized contact with blood or body fluid exists. Standard precautions are designed to reduce the risk of transmission of infection and should be used for all patients regardless of the diagnosis such as blood, bodily fluids, secretion and excretion except for sweat, non-intact skin and mucous membranes.

The transfer of infection can be prevented by following these simple precautions:

**Hand Hygiene**
Keeping your hands clean is the most important way you can prevent infection. Its importance can never be overstated and it remains the most basic and most effective means of controlling infections.

**When to wash hands:**
1. Before having direct contact with clients
2. Before and after meals or handling of any food
3. After contact with bodily fluids or excretions, mucous membranes, intact and non-intact skin, wound dressings and inanimate objects (including medical equipment and soiled linen and clothes) in the immediate vicinity of the client
4. After you blow your nose, cover a sneeze or cough, comb your hair, use the toilet or handle soiled linens
5. After touching a surface that may be contaminated with bodily fluids
6. Before after and sometime while you perform or help you client with ADLs
7. After you handle the trash
8. When moving from a contaminated site to a clean body site during care
9. Every time you remove your gloves
**Hand washing Technique**

When performing hand antisepsis or washing hands, make sure you push wristwatches and/or other jewelry and long uniform sleeves above wrists and avoid wearing rings. The following details two different techniques.

1. Performing hand antisepsis using an instant alcohol, waterless antiseptic rub (this method should **not** be used when the hands are visibly soiled)
   a. Dispense an ample amount of product into the palm of one hand
   b. Rub hands together, covering all surfaces of hands and fingers with antiseptic
   c. Rub hands together until the alcohol is dry. Allow hands to completely dry before applying gloves

2. Hand washing using plain or antimicrobial soap and water
   a. Be sure fingernails are short, filed and smooth
   b. Stand in front of sink, keeping hands and uniform away from sink surface
   c. Turn facet on
   d. Avoid splashing water against your uniform
   e. Wet hands and wrists thoroughly under running water
   f. Apply a small amount of soap or antiseptic
   g. Perform hand hygiene using plenty of lather and friction for at least 20-30 seconds (imagine singing “Happy Birthday” twice)
   h. Rinse hands and wrist thoroughly, keeping hands down and elbows up

**Gloves**

Gloves should be used under the following circumstances:

1. When touching blood, bodily fluids, secretions, excretions, mucous membranes and non-intact skin
2. When performing personal care on a client who’s skin is broken by abrasions, sores, cuts, rashes, acne, pimples or boils
3. When you have open sores or cuts on your hands
4. When shaving a client

**NOTE:** You should **always** change gloves between tasks and procedures on the same patient, especially after contact with potentially infectious material.

**How to properly remove gloves:**

1. Notice on the very edge of the glove, there is a slightly raised edge going all the way around.
2. Bend your left arm so that your elbow is at your side, the rest of your arm is out in front of you and your palm is facing up. Flex your wrist so that your palm is now facing the direction that you are facing. This creates a little opening between your wrists and the glove. Keep your wrist in this position.
3. With the pointer finger and thumb of your **right** hand, carefully grab the raised edge of the glove that is on your left hand. Grab for the raised edge that is away from your skin so that you won’t touch your skin with the glove still on your right hand.
4. Make a closed fist with your left hand and very carefully start to pull (with your right hand on the left glove) the edge of the glove away from you.
5. As you open your left hand, carefully pull the glove completely off so that the glove is now inside out and hold it in your right hand.
6. Make a closed fist with your right hand with the glove from your left hand inside your closed fist.
7. Repeat the same steps you used to take off the glove from your left hand, but this time, instead of grabbing the brim of the glove on the right hand, use your thumb and pointer finger from your left hand to pinch the very inside edge of the right glove. Go for the part of the glove that is sticking up. This way you have no skin contact and no contact with the outside of the right glove. When you pull the glove off and it is inside out, the glove that was on your left hand (considering that it is still inside your closed fist) will end up inside the right glove. Dispose of the gloves in a proper disposal container.

8. Wash your hands and wrists thoroughly.

**Mask, Eye Protection & Face Shield**
Always wear mask and eye protection or a face shield to protect mucous membranes of the eyes, nose and mouth during procedures and patient-care activities that are likely to generate splashes or sprays of blood, bodily fluids and excretions.

**Gowns**
Wear a gown to protect skin and to prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, bodily fluids, secretions and excretions. You should remove soiled gowns as soon as possible and perform appropriate hand hygiene.

**Respiratory Hygiene & Cough Etiquette**
Always cover your nose and mouth when coughing/sneezing with a tissue or mask. Dispose of used tissues and masks and perform hand hygiene after contact with respiratory secretions.

**Environmental Cleaning**
Always use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

**Linens**
You should always handle, transport and process used linen in a manner which:
1. Prevents skin and mucous membrane exposures and contamination of clothing
2. Avoids transfer of pathogens to other patients and/or the environment

**Waste Disposal**
In order to ensure safe waste management, you should treat waste contaminated with blood, bodily fluids, secretions and excretions as clinical waste, in accordance with local regulations.

**Patient Care Equipment**
Handle equipment soiled with blood, bodily fluids, secretions and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing and transfer or pathogens to other patients or the environment. Also, make sure you clean, disinfect and reprocess reusable equipment appropriately before use with another client.
UNIVERSAL PRECAUTIONS
Universal precautions help control contamination from blood borne viruses such as human immunodeficiency virus (HIV) and hepatitis viruses. When in contact with a patient’s blood or anybody secretion that may be contaminated with blood, protective measures such as wearing gloves, gowns, facial masks and/or goggles must be followed.

DROPLET PRECAUTIONS
In addition to wearing a mask as outlined under Standard Precautions, you must wear a mask when working within 6 feet of a client (prior to entering the client’s room) who has a disease that can be transmitted by large droplets. Such diseases include streptococcal pharyngitis, pneumonia, scarlet fever in infants or small children, pertussis (whooping cough), mumps, meningococcal pneumonia, sepsis and pneumonic plague.

When leaving an isolation room:
1. Remove your gloves
2. Remove your mask

When transporting a patient for procedures to a different location other than their room, place a mask on them in order to reduce the risk of exposure or transmission to other clients.

CONTACT PRECAUTIONS
Direct contact transmission involves skin-to-skin contact and physical transfer of microorganisms to a susceptible host. You must wear gloves when entering the patient’s room and wash hands before and after each procedure. C-diff, GI diseases, skin lesions or wound infections, MRSA, shigella and Hepatitis A can all be transferred via direct contact.

AIRBORNE PRECAUTIONS
Airborne transmission occurs by dissemination of airborne by small, airborne, droplet nuclei such as measles, chickenpox and pulmonary or laryngeal TB. Airborne transmission occurs by dissemination of either airborne droplet nuclei. A negative air pressure room is needed for a client on airborne precaution.