INFECTION PREVENTION / STANDARD PRECAUTIONS

Infection Prevention

Methods used to prevent and control the spread of disease. This is important in protecting yourself and your clients from disease and infections.

Definitions:

Microorganism – a tiny living thing that is not visible to the eye without a microscope. Another name for a microorganism is a *microbe.*

Pathogens – harmful microorganisms that invade and multiply causing an infection.

PPE (Personal Protective Equipment) – equipment worn to minimize exposure to hazards that can cause serious injuries or illness. PPE in health care includes gloves, mask, goggles, face shields, gowns and shoe covers.

Standard Precautions (Universal Precautions) – treating ALL blood, body fluids, non-intact skin (like abrasions, pimples, or opens sores) and mucous membranes (linings of the nose, mouth, eyes, rectum, or genitals) as if they are infected with an infectious disease.

Transmission Based Precautions – The CDC set forth a second level of precautions beyond Standard Precautions to be used when caring for persons who ARE infected or SUSPECTED to be infected with a disease. These precautions are to be used in ADDITION to the standard precautions.

Hand Hygiene – washing hands with either plain or antiseptic soap and water or using an alcohol-based hand rub such as a gel or foam that does not need water.

Chain of Infection

1: The *causative agent,* a pathogenic microorganism that causes disease. Examples include bacteria, viruses, fungi, and parasites.

2: A *reservoir* is a place where the pathogen lives and grows. A reservoir can be a human, an animal, a plant, soil, or a substance. Examples of reservoirs include the lungs, blood, and intestines.

3: *Portal of exit* is any opening on an infected person that allows pathogens to leave. Examples include the nose and mouth (droplets from coughing, sneezing, or talking), the gastrointestinal tract (saliva, vomit, or feces), skin (blood, pus or drainage from wounds) and Genital/urinary tract (urine, semen or vaginal secretions).

4: The *mode of transmission* describes how the pathogen travels. Transmission can happen through the air or through direct or indirect contact. Fine mist pathogens, such as Covid-19, can live in the air up to 3 hrs. Direct contact happens by touching the infection person, in-direct contact results from touching something contaminated by the infected person such as a tissue, needles, or clothing.

5:The *portal of entry* is any body opening on a non-infected person that allows pathogens to enter. These includes mouth, nose, eyes, broken, cut or cracked skin and other mucous membranes such as the lining of the mouth, nose, eyes, rectum, or genitals.

6: A *susceptible host* is an un-infected person that could become sick. Examples include ALL healthcare workers and anyone in their care who is not already infected with that particular disease.

Standard Precautions Guidelines

- Wash your hands before putting on gloves. Wash your hands immediately after taking gloves off. Be careful not to touch clean objects with your used gloves.
- Wear gloves if you may come into contact with any of the following: body fluids or secretions; broken skin including acne, cuts, stitches, or staples; or mucous membranes. Such contact can occur during baths, mouth care, perineal care, providing assistance with a bed pan or urinal, ostomy care, or cleaning up spills, bedpans, urinals basins or other containers that have held body fluids or waste.
- Remove gloves immediately when finished with a procedure.
- Immediately wash all skin surfaces that have been contaminated with blood and/or body fluids.
- Wear a disposable gown that is resistant to body fluids if you may come into contact with blood or a body fluid. If your client has a contagious illness, you should wear a gown even if you are not likely to come into contact with blood or body fluids.
- Wear a mask and protective goggles if you may come into contact with splashing or spraying blood or body fluids (like emptying a bedpan)
- Wear gloves and use cautions within handling razor blades, needles, and other sharps. Sharps should be placed in a biohazard container made for sharps. There are also biohazard bags that are made for biomedical waste such as soiled dressings.
- Never attempt to recap a needle.
- Avoid nicks and cuts when shaving a person.
- Carefully bag all contaminated supplies
- ***Standard precautions are to be used/practiced by ALL healthcare workers*** *in* ***ALL situations*** *involving the care of patients or contact with the environment*.

Hand Hygiene

Washing your hands is the single most important thing you can do to prevent the spread of disease. An alcohol-based rub can be used for hand hygiene. However, they are NOT a substitute for proper handwashing. Additionally, if hands are visibly soiled, washing with soap and water is required.

Hand washing procedure –

1. Turn on water at the sink. Keep your clothing dry (moisture breeds bacteria)
2. Wet hands and wrist thoroughly.
3. Apply soap to your hands.
4. Keep your hands lower than your elbows and your fingertips down. Rub hands together and fingers between each other to create a lather. Lather all surfaces of wrist, fingers, and hands, using friction for **at least 20 seconds.**
5. Clean your nails by rubbing them in the palm of your other hand.
6. Being careful not to touch the sink, rinse all surfaces of hands and wrist. Do not run water over unwashed arms down to clean hands.
7. Use a clean, dry paper towel to dry all surfaces of your hands, wrists, and fingers. Do not wipe towel on unwashed forearms and then wipe hands. Dispose of towel without touching the wastebasket. If your hands touch the wastebasket or sink, start all over again.
8. Use a clean dry paper towel to turn off the faucet.
9. Dispose of the used paper towel in the wastebasket immediately after shutting off the faucet.

Hand hygiene should be done at the following times:

- When arriving at a client's home
- Whenever they are visibly dirty
- Before and after touching a client
- Before putting on gloves and after removing gloves or any type of PPE
- After contact with any body fluids, mucous membranes, non-intact skin, or dressings
- After handling contaminated items
- Before and after making meals or working in the kitchen
- Before and after feeding a patient
- Before getting clean linen
- Before reaching into the clean area of your supply bag
- After touching garbage or trash
- After picking up anything from the floor

- Before and after you eat
- Before and after you use the toilet
- After blowing your nose or coughing or sneezing into your hands
- After smoking
- After touching areas on your body such as your face, you mouth, eyes, hair, ears, or nose.
- Before and after putting on makeup
- After any contact with pets and after contact with pet care items
- Before leaving the client's home

Special considerations:

Nails should be kept short (1/4 inch in length), smooth and clean. Artificial nails should not be worn because they harbor bacteria and increase the risk of contamination. If you wear rings, consider removing them while working since rings can also increase the risk of contamination.

Personal Protective Equipment (PPE)

Equipment that helps protect you from serious injuries or illnesses resulting from contact with workplace hazards. In healthcare, gowns protect the skin and/or clothing, masks protect the mouth and nose, goggles protect the eyes, face shields protect the entire face and gloves protect the hands.

Donning (Putting on PPE)

1. Perform hand hygiene.
2. Identify and gather the PPE.
3. Perform hand hygiene.
4. Put on gown.
   Tie all the ties on the gown.
5. Put on mask.
   Pull the loops gently and loop them appropriately around your ears. Fit the nosepiece to your nose using both hands. Do not bend or tent the nosepiece.
6. Put on face shield or goggles.
7. Put on gloves.
   Gloves should cover the wrist and cuff of gown.

Doffing (Taking off PPE)

1. Remove gloves.
   Grasp outside of glove with other gloved hand. Holding dirty glove in hand that still has glove on, slide ungloved finger under wrist of remaining gloved hand and peal glove off over first glove.
2. Remove gown.
   Untie gown, some can be broken, gently reach up to the shoulders and pull the gown down and away from the body. Rolling the gown from the inside is also acceptable.
3. Preform hand hygiene.
4. Remove face shield or goggles.
   Do not touch front of face shield, goggles or mask (remove by loops or ties)
5. Remove mask.
6. Perform hand hygiene.

Transmission Based Precautions

The CDC has set forth a second level of precautions beyond Standard Precautions. These precautions are called Transmission-Based or *Isolation*
Precautions. There are three categories of Transmission-based Precautions.

1. Airborne Precautions are used for diseases that can be transmitted or spread through the air after being expelled. The Pathogens are so small that that can attach to moisture in the air and "float" for up to 3 hrs. Airborne diseases include tuberculosis, measles, chickenpox.
2. Droplet Precautions are used for diseases that are spread by droplet in the air. Droplets normally do not travel more than 3ft but, as in the case of influenza and Covid-19, the CDC has increased the size to 6ft. Other examples of a droplet disease include the mumps, diphtheria, pertussis, and meningococcal meningitis.
3. Contact Precautions are used for when there is a risk of spreading an organism by touching an object. Pink eye and C-diff are example of situations that require contact precautions.

Guidelines for Isolation Precautions:

- Wash plates and utensils thoroughly in very hot water with antibacterial soap. Bleach may be added to water to help disinfect the dishes. Encourage family members to use separate dishes and utensils. Disposable dishes and utensils can also be used.
- Wear disposable gloves when handling soiled laundry. Bag laundry in the client room and carry it to the laundry area in a bag. Wash client's laundry separately.
- The amount of non-disposable equipment brought into the client's home should be limited. Ideally, the client's care equipment should be left in the home until

home health services are no longer needed. If some care equipment cannot be left, clean and disinfect them before taking them from the home.

- A solution of bleach and water, (one part bleach to nine parts water) can be used to clean up spills of blood or body fluids. Make sure mixed solution is clearly labeled and safely put away.
- Clean and disinfect frequently touched surfaces and equipment, such as tables, bedside commodes, TV remotes, canes, wheelchairs, and doorknobs (at lease daily). A client in contact or airborne isolation should use a separate bathroom if possible. If client uses the same bathroom as others, disinfect it after each use by the client.

Bloodborne Pathogens

Bloodborne pathogens are microorganisms that are found in human blood that can cause infections and diseases in humans. The organisms may also be found in other body fluids such as draining wounds, saliva or mucous membranes, vaginal secretions, and semen. The pathogens may be transmitted by infected blood entering your blood stream (by a needle stick or in rare cases through an open cut) or by having sexual contact with someone carrying that disease. Sexual contact includes sexual intercourse (vaginal or anal) contact of the mouth to the genital or anus and contact with the hands with the genital area. In addition, infected mothers may transmit bloodborne diseases to their babies in the womb or at birth.

Who is at risk?

Doctors, nurses, dentists, paramedics, laboratory workers, housekeepers and anyone offering first-aid or assistance to an injured person are considered high risk for contacting a blood born pathogen infection.

Examples of blood born pathogens include **HIV (AIDS)** and **Hepatitis B and C.** (Hepatitis A is a result of oral-fecal contamination, which means through food water contamination by stool by an infected person), Malaria and Syphilis.

Hepatitis B (HBV) is a bloodborne disease that is spread by sexual contact, by sharing infected needles, and from mother to baby. HBV can survive outside the body for up to 7 days. HBV is a serious threat to healthcare worker. Employers are required to offer the HBV vaccine to healthcare workers and the Hep B vaccine is usually given in a series of 3 shots.

Hepatitis C (HCV) is also transmitted by blood or body fluids and sexual intercourse. HCV now is treatable and curable, but side effects of the medication can interfere with or prevent completion of the treatment.

If there has been exposure to blood, high-risk body fluids or tissue known or strongly suspected to be contaminated with HIV, it is recommended to be treated. This is ideally given within an hour of exposure and the full course lasts for four weeks. Where treatment is delayed but the source person proves to be HIV positive, post exposure prophylaxis can be given up to two weeks from the time of the injury. Advice and follow-up care from the occupational health department are essential.

The risk of contracting Hepatitis B (HBV) from a needle stick exposure in a health care setting is much higher than HIV because the virus is both more infectious and has greater prevalence.

As a result, it is recommended that all Home Health Aides should be vaccinated against hepatitis B with monitoring of antibody titer levels and boosters, where appropriate. You should contact your HR department if you have any concerns.

Universal Standard (Standard Precautions)

The concept of Universal or Standard Precaution is that ALL blood and potentially infectious materials much be contained and treated as being infected. Standard precautions should be followed by all persons at all time on all patients. All patients need to be regarded as potentially infected with bloodborne pathogens.

Multi-drug resistant organisms

Bacteria may become resistant to an antibiotic because the bacteria contain genes that confer drug resistance. Some examples include:

MRSA (methicillin resistant staphylococcus aureus) – a common type of bacteria that has become resistant to Methicillin is a powerful antibiotic drug used to treat certain bacterial infections.

VRE (vanomycin resistant enterococcus) – Enterococci are bacteria that live in the digestive tract and genital tracts. They normally do not cause problems in healthy people. Vancomycin is a powerful antibiotic that is used to treat bacterial infections.

C-Diff (Clostridium difficile) – When the normal flora in the intestinal tract is altered, like overuse of antibiotics, C-diff can flourish and have devastating results. C-diff is highly contagious and normal alcohol-based sanitizers are NOT effective against C-diff. Only soap and water should be used to cleanse the hands and a bleached based cleaner should be used for cleaning surfaces.

In dealing with ALL infection control, remember the old saying “a once of protection is worth a pound of cure”.