Infection Prevention

- Transmissible infections are a major concern among healthcare workers (all paid and unpaid persons working in healthcare settings).
- Transmissible infections can be spread from patient to healthcare worker or from healthcare worker to patient.

Our Infection Prevention program only works if you are committed to following the guidelines described in this CBL.
Upon completion of this CBL, you should:

- Recognize your role in preventing infection in the health care setting
- Identify three (3) key strategies in preventing infection
- Understand the types of transmission-based precautions used at CHC facilities and general situations to which they apply
- Know available resources within CHC to provide information and guidance in preventing infection
- Identify how to protect yourself from risks associated with common bloodborne pathogens encountered in the health care setting
The Foundation of Infection Preventing & Control in Hand Hygiene

• It is estimated that more than 2 million healthcare-associated infections occur annually, leading to almost 100,000 deaths each year.
• At least one-third to one-half of healthcare-associated infections are preventable.
• Hand hygiene remains the most important method to prevent the spread of infection (although estimates of healthcare personnel compliance rates in the United States remain around 40%).

Hand Hygiene – When?
• Before & after each patient encounter
• Before donning gloves
• Before inserting invasive devices
• After removing gloves
• After contact with objects and equipment in the patient’s environment

Hand Hygiene – How?
Alcohol Hand Sanitizer
• Apply to palm of one hand, rub hands together covering all surfaces until dry

Hand Washing
• Wet hands with water, apply soap, rub hands together for at least 15 seconds
• Wash all surfaces of hands
• Rinse and dry with disposable towel
• Use towel to turn off faucet
What are the 10 most common causes of infections?

Your Fingers!
Clean your hands before patient contact (i.e. entering the patient’s room), after removing gloves & after contact with patients or contaminated items/materials.
More On Hand Hygiene

Wash hands with soap and water when:
• Hands are visibly dirty
• Before you eat
• After using the bathroom
• After caring for patients with C.diff

Natural nail length should be ¼ inch or shorter

No artificial nails, extenders or tips – they harbor bacteria & fungi
Standard Precautions

• The way an organism is transmitted will determine the type of precautions to be used.
• ALWAYS use **standard precautions** on all patients, all the time.
  - Protect yourself first, and in doing so, protect others.
  - Use standard precautions for all patients, regardless of age, diagnosis or overall health status.
  - Assume everyone is potentially infectious – protect yourself from human immunodeficiency virus (HIV), hepatitis B, hepatitis C and other bloodborne diseases.

*Use personal protective equipment (PPE) as a barrier to keep blood and body fluids off your clothes, skin, eyes, nose and mouth.* . . .

Always clean your hands after removing PPE.
Standard Precautions protect you from both known and unknown sources of infection

Standard Precautions

- apply to all blood, body fluids & other potentially infectious material [OPIM] (including excretions, secretions, mucous membranes and non-intact skin) as well as contaminated equipment, linen, trash and supplies.

- include the proper use of personal protective equipment (PPE) – gloves, gown, mask, eye protection – appropriate to the specific task.

- include selection of PPE based on the degree of anticipated exposure.
More on PPE…

Use GOOD JUDGEMENT! Think about how you need to protect yourself before you start any procedure…

- **GLOVES** – Wear gloves if there is any chance you will touch blood or body fluids.
- **FLUID RESISTANT GOWN** – Use gowns to prevent blood or body fluids from coming in contact with clothing or skin.
- **PROTECTIVE EYEWEAR** – Use a face shield or goggles to protect your eyes from splashing or spraying of blood or body fluids.
- **MASKS** – Use masks to protect your nose and mouth when splashing, spraying or spattering of blood or body fluids might occur.
- **ONE-WAY VALVE RESUSCITATION MASK** – Use a resuscitation mask for rescue breathing instead of direct mouth to mouth contact.

*Protecting yourself with appropriate PPE is essential – DO NOT fall into the trap of thinking you do not have time to protect yourself!*
Key Strategies in Preventing Bloodborne Pathogen Exposure & the Spread of Infection

1. Avoid direct contact with contaminated objects & surfaces.
2. Always wear appropriate personal protective equipment (PPE).
3. Remove PPE properly and dispose in appropriate containers at the point of use.

SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)

Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.

1. GLOVES
   - Outside of gloves is contaminated!
   - Grasp outside of glove with opposite gloved hand; peel off
   - Hold removed glove in gloved hand
   - Slide fingers of ungloved hand under remaining glove at wrist
   - Peel glove off over first glove
   - Discard gloves in waste container

2. GOGGLES OR FACE SHIELD
   - Outside of goggles or face shield is contaminated!
   - To remove, handle by head band or ear pieces
   - Place in designated receptacle for reprocessing or in waste container

3. GOWN
   - Gown front and sleeves are contaminated!
   - Unfasten ties
   - Pull away from neck and shoulders, touching inside of gown only
   - Turn gown inside out
   - Fold or roll into a bundle and discard

4. MASK OR RESPIRATOR
   - Front of mask/respirator is contaminated — DO NOT TOUCH!
   - Grasp bottom, then top ties or elastics and remove
   - Discard in waste container

PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE
A patient room can be heavily contaminated!

Contaminated surfaces increase the chance to pick up organisms and carry them to the next patient.
Other Sources of Contamination...

... Staff uniforms, hands & equipment can also be a key source of infectious organisms.

- 69% of white coats became contaminated with VRE or MRSA when gowns were not worn after examining colonized/infected patients. (Boyce. 1998 SHEA abstract S74:52)

- VRE or MRSA was transferred to hands after touching contaminated white coats 27% of the time. (Boyce. 1998 SHEA abstract S74:52)
Transmission-Based Precautions are used when a patient:

- has a documented or suspected infection
- is colonized with certain germs (the person has the germ present but they are not sick)

Transmission-Based Precautions are assigned based on how the disease is spread. Transmission-Based Precautions include:

- **Airborne Precautions** – disease spread through the air
- **Droplet Precautions** – disease spread through respiratory droplets such as coughs and sneezes
- **Contact Precautions** – disease spread by touching the patient, surfaces, or equipment

Transmission-Based Precautions are always *in addition to* Standard Precautions.
**Contact Precautions**

**Diseases spread through respiratory droplets of coughs and sneezes such as:**
- Flu
- Meningitis
- Rubella
- Mumps
- Pertussis
- RSV

**CONTACT PRECAUTIONS**
1. **Private Room** — When a private room is not available, cohort with patients who have active infection with the same microorganism but with no other infections.
2. **Gown & Gloves** — Wipe gown & gloves when entering room; change gloves after contact with infectious material; remove gown & gloves before leaving patient’s room.
3. **Wash hands** — with antimicrobial agent immediately after glove removal and before leaving the patient’s room.
4. **Transport** — Limit the movement of patients from room to essential persons only; during transport, ensure that all precautions are maintained at all times.
5. **Equipment** — When possible, dedicate the use of essential patient care equipment to a single patient. If common equipment is used, clean and disinfect between patients.

**GOWN & GLOVES REQUIRED**

Dedicate a stethoscope for the patient’s entire stay.
Droplet Precautions

Wear a visor or surgical mask - **not a respirator or N-95**

Diseases spread through respiratory droplets of coughs and sneezes such as:
- Flu
- Meningitis
- Rubella
- Mumps
- Pertussis
- RSV
Airborne Precautions

Diseases spread through tiny airborne particles:
- TB
- Measles
- SARS
- Chickenpox

Negative Pressure Room required
Alcohol foam use is permitted prior to room entry but hands should be washed with soap and water after PPE removal and prior to exiting the patient’s room.
Multi-drug Resistant Organisms (MDROs)

What are they?
Bacteria that have become resistant to certain antibiotics, and these antibiotics can no longer be used to control or kill the bacteria.

What causes MDROs?
Antibiotics taken longer than necessary or when they are not needed. The more often the antibiotics are used, the more likely it is that resistant bacteria will develop.

How are they spread?
From patient to patient on the hands of healthcare workers or objects such as bed rails, IV poles, surgical equipment, datascopes, etc.

What types of infections do MDROs cause?
Infections in almost any part of the body, including: bloodstream, lungs, urinary tract, wounds, skin and surgical sites.

How do we prevent MDROs?
Antibiotic stewardship, Contact Precautions, appropriate hand hygiene, environmental cleaning.
Vancomycin Resistant Enterococcus (VRE) results from the germ Enterococcus becoming resistant to the antibiotic Vancomycin.

**Where is it found?**
Enterococcus is commonly found in the lower intestine. It is also found in the female vaginal tract.

**How is the patient identified?**
The symbol @V is placed behind a patient’s name on their admission face sheet and on lab and X-ray results.

**How is it spread?**
The VRE germ is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface, or healthcare worker prior to performing proper hand hygiene.

**Question:**
Which Transmission-Based Precautions should the patient be in?
How is it spread?

The VRE germ is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface, or healthcare worker prior to performing proper hand hygiene.

Vancomycin Resistant Enterococcus (VRE)

Because VRE is spread by contact, the patient must be in Contact Precautions.

In fact, VRE is so easy to spread, you need to **wear gloves and gown every time you enter the room**.

VRE can live on equipment for at least 1 week. Equipment should be thoroughly cleaned when removed from patient’s room.
Resistant Acinetobacter

What is it?
Acinetobacter is one of the gram negative rod bacteria. Other examples of gram negative rod bacteria include: E.coli, Klebsiella, and Enterobacter. These bacteria are often resistant to many commonly prescribed antibiotics. If highly resistant, isolation is required.

Where is it found?
Acinetobacter is commonly found in soil and water. It can also be found on the skin of healthy people.

How is the patient identified?
The symbol @A is placed behind a patient’s name on their admission face sheet and on lab and X-ray results.

How is it spread?
The Acinetobacter germ is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface, or healthcare worker prior to performing proper hand hygiene.

Question:
Which Transmission-Based Precaution should the patient be in?

Continue
Resistant Acinetobacter

Because Resistant Acinetobacter (RA) is spread by contact, patients with Resistant Acinetobacter must be in Contact Precautions.

Some RA is resistant to so many antibiotics, you need to wear gloves and gown every time you enter the room.

How is it spread?
The Acinetobacter germ is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface, or healthcare worker prior to performing proper hand hygiene.
ESBLs – Extended-Spectrum β-Lactamase

- ESBLs are enzymes that mediate resistance to third generation cephalosporins.

- ESBLs are most frequently seen with Klebsiella pneumoniae, E.coli, and Proteus mirabilis.

- Because ESBLs can be spread by contact, patient should remain in Contact Isolation for their entire hospital stay.

**How is it spread?**

The ESBL germ is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface, or healthcare worker prior to performing proper hand hygiene.

**CONTACT PRECAUTIONS**

1. Private Room — When a private room is not available, cohort with patients who have active infection with the same organisms as you. Use PPE with all isolation precautions.

2. Gown & Gloves — Wear a gown and gloves when entering room. Change gown and gloves with each patient contact. Remove gown & gloves before leaving patient’s room.

3. Wash hands — Wash hands with alcohol-based hand rub or soap and water before and after touching patients or their surroundings.

4. Transport — Limit the transportation of patients from one isolation area to the other. During transport, ensure that all precautions are maintained at all times.

5. Equipment — If possible, limit the use of equipment and avoid single patient use. If more equipment is used, clean and sanitize between patients.

**GOWN & GLOVES REQUIRED**
Clostridium Difficile Infection (C-diff)

What is it?
C-diff is a bacteria that causes diarrhea and more serious intestinal problems such as sepsis and could even cause death. It occurs mostly in patients taking antibiotics.

Where is it found?
C-diff can live on things in the patient’s environment such as bed rails, linens, bathroom fixtures, and medical equipment.

How is it spread?
C-diff is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface or healthcare worker prior to performing proper soap and water hand hygiene (alcohol does not kill C-diff).

Question:
Which Transmission-Based Precaution should the patient be in?
Because C-diff is spread by contact, patients with C-diff (confirmed or results pending) must be in Contact Precautions.

C-diff is so easy to spread – you need to wear gown and gloves every time you enter the room and remove the PPE before exiting the room.

C-diff spores are NOT killed by alcohol-based cleansers. Wash your hands with soap and water after caring for a patient with C-diff.

If you see the tan/brown sign, think poop and know that you must wear gown/gloves before entering the room and you need to wash your hands with soap & water instead of using alcohol foam after being in the patient’s environment.

**How is it spread?**
C-diff is spread when a patient or healthcare worker touches a patient or surface the germ is on and then touches another patient, surface or healthcare worker prior to performing proper hand hygiene.
Influenza (Flu)

What is it?
Influenza (flu), is a contagious respiratory illness caused by the influenza virus.

How is it spread?
Flu is spread in the respiratory droplets of coughs and sneezes.

You can get infected when someone’s respiratory droplets are propelled through the air and land on your mouth, eyes, or nose.

You can also get infected if you come in contact with these respiratory droplets then touch your eyes, mouth or nose, before washing your hands.

Question:
Which Transmission-Based Precaution should the patient be in?
Influenza (Flu)

Because flu is spread in the respiratory droplets of coughs and sneezes, patients with the flu (confirmed or results pending) are placed in Droplet Precautions.

How is it spread?
Flu is spread in the respiratory droplets of coughs and sneezes.

You can get infected when someone’s respiratory droplets are propelled through the air and land on your mouth, eyes, or nose.

You can also get infected if you come in contact with these respiratory droplets then touch your eyes, mouth or nose, before washing your hands.
The flu is such a common illness/disease. Is it really that serious of a disease? Do I need a flu vaccine every year? Can I have the flu virus and not know it?

Let’s ask our Flu Expert, Vicki Weaver, Director Employee Health Services.

Vicki Weaver,
Director Employee Health Services & Flu Expert
Influenza (Flu)

Click on the Continue button to see what Vicki has to say.

Ask Do I really need to get the flu shot every year?

Ask How soon after my flu shot am I protected?

Ask Besides getting the flu shot, how else can I protect myself from getting the flu?

Ask What are the flu symptoms?

Ask Do people really die from the flu?

Ask What medical complications can result from the flu?

Ask How do I know I have the flu and not a bad cold?

Ask As a healthcare worker, how can I protect myself when testing a patient for the flu?
Do I really need to get the flu shot every year?

How soon after my flu shot am I protected?

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

What medical complications can result from the flu?

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?

• Yes, you should get the flu shot every year. CHC provides the flu vaccine to all healthcare workers throughout the flu season.

• People who care for and/or live with those at high risk from flu complications should get the flu vaccine each year.
Do I really need to get the flu shot every year?

**Ask**

**How soon after my flu shot am I protected?**

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

What medical complications can result from the flu?

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?

- You are normally protected from the flu virus about 2 weeks after vaccination.
- You can infect others with the flu virus 1 day before you show signs or symptoms, and you can infect others up to 5 days after becoming sick.
In addition to getting the flu vaccine, you can:
• Avoid close contact with people.
• Cover your mouth & nose when you cough or sneeze (cough & sneeze in your sleeve).
• Practice frequent hand hygiene.
• Avoid touching your eyes, nose, or mouth.
• Stay home if you’re sick.

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

What medical complications can result from the flu?

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?
Symptoms of the flu include:

- Fever, Headache
- Extreme tiredness
- Dry cough & sore throat
- Runny or stuffy nose
- Muscle aches, nausea
- Vomiting & diarrhea can occur, but more often in children

Do I really need to get the flu shot every year?

How soon after my flu shot am I protected?

Besides getting the flu shot, how else can I protect myself from getting the flu?

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How do I know I have the flu and not a bad cold?

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As a healthcare worker, how can I protect myself when testing a patient for the flu?

• Yes, about 36,000 people in the U.S. die each year from flu-related causes.
• Plus, more than 200,000 people in the U.S. are hospitalized from flu-related complications.
Complications from the flu include:

- Bacterial pneumonia
- Ear infections
- Sinus infections
- Dehydration
- Worsening of chronic medical conditions such as congestive heart failure, asthma, or diabetes

Do I really need to get the flu shot every year?

How soon after my flu shot am I protected?

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

**What medical complications can result from the flu?**

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?
There are a variety of tests available for diagnosis of the flu. Rapid diagnostic tests can provide results in 15 minutes or less.

Early diagnosis of flu can provide the option of treatment with antiviral medications.

Do I really need to get the flu shot every year?

How soon after my flu shot am I protected?

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

What medical complications can result from the flu?

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?
Healthcare workers should wear a visor mask when collecting the nasal or nasopharyngeal specimen for diagnostic testing.

Do I really need to get the flu shot every year?

How soon after my flu shot am I protected?

Besides getting the flu shot, how else can I protect myself from getting the flu?

What are the flu symptoms?

Do people really die from the flu?

What medical complications can result from the flu?

How do I know I have the flu and not a bad cold?

As a healthcare worker, how can I protect myself when testing a patient for the flu?
Infection Prevention & Control Is Everyone’s Responsibility.

If you have any questions about the material in this CBL, contact Infection Prevention at 745-1581.

• When you’re comfortable with the material covered, Click TAKE TEST.

• You will have 3 chances to achieve the passing score of 80% or better.

• If you do not achieve 80% on your third chance, contact Infection Prevention at 745-1581. They will review the material with you and have your test reset.