

# **Project Firstline**

## ***Key Educational Takeaways***

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## Chapter 1: Introduction to Infection Control and Virus Basics

- The goal of everything we do in infection control, for any disease, is to keep people from getting sick.
- The goal of Project Firstline is to make sure you have the infection control knowledge that you need and deserve to keep yourself, your patients, your colleagues, and your family safe.
- SARS-CoV-2 is the official, scientific name of the virus, the germ that causes the disease COVID-19.
- COVID-19 is the name of the disease – the fever, cough, chills, and other symptoms that people have when they are infected with the virus SARS-CoV-2.
- All viruses have two parts:
  - Genes that contain all the information needed to make more virus copies
  - Proteins that protect the genes and help the virus spread
- Some viruses—SARS-CoV-2 is one of them—also have a third part: an envelope made of special fats that protects the genes and proteins.
- Viruses can use cells in living things, including people, to make copies of themselves. It's how viruses spread within a body, and from person to person.
- When enough viruses have been able to get into our cells and make copies of themselves, the body recognizes that there's an infection, and our immune system revs up to fight off the virus.
- It is the activity of our immune system fighting the virus that makes us feel sick.

## Chapter 2: PPE and Respirator Basics

- Define PPE and describe two (2) functions of PPE in healthcare.
  - PPE is part of the equipment that you use at work to protect yourself, patients, and co-workers, and to help keep germs from spreading in the healthcare environment.
  - PPE is used to:
    - Protect the wearer from dirty surfaces or equipment and to prevent exposure to germs from patients
    - Keep the wearer from spreading germs to others, like patients and co-workers.
- Discuss one (1) reason that eye protection is recommended for COVID-19.
  - Eye protection is part of the PPE recommended for COVID-19 because, in addition to getting in the nose and mouth, or being inhaled, the virus can enter the nose and throat through the tear ducts and cause infection
- Describe two (2) reasons why wearing gloves is important for infection control.
  - To cover breaks and cracks in your skin.
  - To help stop germs from spreading from place to place on your hands.
- Describe two (2) ways that gowns are important for infection control.
  - Gowns protect the wearer by keeping germs off your clothes.
  - Gowns keep the wearer from accidentally spreading germs in the work environment and to other people.
- Discuss three (3) reasons why wearing more than one pair of gloves at once, or wearing more than one gown at once, is not recommended for routine care.
  - Gloves:
    - Wearing more than one pair of gloves can make it harder to move your hands and fingers while providing care, which can lead to mistakes.
    - Double gloving is also an infection control risk, because changing the top layer between patients increases the risk of contaminating the bottom layer and spreading germs.
  - Gowns:
    - CDC does not recommend wearing more than one gown designed for PPE at a time.
    - The extra layers of more than one gown can get in your way.
    - When you remove the top gown, you can accidentally contaminate the bottom gown and other clothing you're wearing.
- Describe one (1) job of a respirator.
  - To keep the wearer from inhaling potentially harmful particles or droplets.
- Describe two (2) aspects of N95s that protect the wearer from inhaling very small particles. Gowns protect the wearer by keeping germs off your clothes.

- N95s are made of a special filtering material that NIOSH has tested to prove that it filters out at least 95% of very small particles in the air.
- N95s fit snugly to ensure the air you are breathing in goes through the filter and doesn't leak in around the edges.
- Explain one (1) way to perform an N95 user seal check and why it is important
  - How to perform a user seal check:
    - Put on the N95 correctly.
    - Put your hands lightly over the surface of the N95 and try to cover as much of the area with your hands as possible.
    - Breathe out gently. While breathing out, make sure there's a little buildup of air inside the N95 and that air doesn't leak around the sides.
  - Why it is important to perform a user seal check each time an N95 is used:
    - It's possible to put on an N95 using the correct technique and still not have a good seal around all the edges.
    - A good seal is important to make sure all the air you're breathing in passes through the filtering material of the N95.
    - If there's a leak or bad seal, then it's likely you'll breathe in unfiltered air, which could have germs in it, from around the edges of the N95.
  - Discuss two (2) possible actions you can take if a leak in the N95 is detected.
    - Use both hands to mold the metal nose strip to the bridge of your nose, starting from the top.
    - Move the straps to different areas at the top and base of your head to get the best possible fit.

## Chapter 3: Environmental Cleaning and Disinfection Basics

- Describe the difference between cleaning and disinfection.
  - Cleaning removes the visible dirt, dust, spills, smears, and grime, as well as some germs, from surfaces.
  - Disinfection kills germs on surfaces or objects.
- Discuss why it is important to follow the label instructions on a disinfectant product.
  - To know the contact time:
    - “Contact time” is the amount of time a disinfectant need to sit on a surface, without being wiped away or disturbed, in order to do its job of killing germs. It can be challenging in a busy healthcare setting, but it is important to wait for the full contact time to finish to be sure the germs are killed.
  - To know which surfaces the chemical can be used on.
  - To know which germs the chemical has been proven to kill.
  - To know whether the product should be dilute.

## Chapter 4: Source Control and Hand Hygiene

- Describe two (2) reasons why having clean hands is especially important in healthcare.
  - In healthcare, patients are ill, weak, and at higher risk of infection.
  - In healthcare, we are likely to encounter blood, body fluids, and other things that may be carrying germs.
- Discuss two (2) reasons why hands are a main way that germs can spread in the environment.
  - We use our hands and touch many things throughout the day.
  - Some parts of the hand make it easier for germs to grow.
- Explain how source control keeps germs from spreading.
  - Source control blocks, or stops, germs at their source, before they can spread to other people.
- Discuss one (1) reason why source control for COVID-19 focuses on masking.
  - For COVID-19, source control focuses on covering the nose and mouth with a mask to keep respiratory droplets out of the air.

## Chapter 5: How COVID-19 Spreads

- Our breath contains a lot of water that you can't usually see.
  - When we see our breath in cold air or see our glasses fog up when we're wearing a mask, what we're seeing is all the water in our breath.
  - Those are our respiratory droplets.
- The main way that SARS-CoV-2, the virus that causes the disease COVID-19, travels between people is through respiratory droplets.
  - When someone is infected with SARS-CoV-2, the droplets that they breathe out have virus particles in them.
  - People who are close by can breathe the droplets in, or the droplets can land on their eyes, and they can get infected.
- Although COVID-19 is mainly spread through respiratory droplets, another way you can get sick is if you touch something that has live virus on it and then touch your face without cleaning your hands first.
- Virus can get on surfaces when respiratory droplets land on those surfaces.
- Virus can also get on surfaces when body fluids from an infected person—like spit and snot— get onto things nearby.
- Describe one (1) way that new virus strains develop.
  - Viruses have genes that carry instructions for making new copies of themselves, and every new copy contains those instructions as well. Sometimes mistakes are made during the copying process. When the instructions are copied wrong, the new viruses come out slightly different. When the new virus is still able to function even with the mistake, a new strain is created, since all the copies from that virus will carry that mistake.
  - Discuss why the infection control actions recommended for COVID-19 work for new strains of SARS-CoV-2, and why they are even more important.
    - Viruses have new strains, variations, or mutations all the time, and there are new strains of SARS-CoV-2, the virus that causes COVID-19. The tools we use for infection control are designed to work on all strains. That's why it's important to keep doing the recommended infection control actions the right way at the right time.
    - Some of the new strains of SARS-CoV-2 allow the virus to spread more easily or make it resistant to treatments or vaccines, so it is even more important to continue using the recommended infection control actions.
- Explain how a person can be infected with SARS-CoV-2 and not feel sick but can still spread the virus to others.

- People can be infected with a virus, and their immune system can be working to fight it off, but they might not feel sick with symptoms such as fever, cough, shortness of breath, or other signs of disease.
  - Someone might have been infected recently but hasn't started feeling sick yet, though they might in a couple of days. That's called "pre-symptomatic" infection.
  - Someone might be infected and will never feel any symptoms at all. That's called "asymptomatic" infection.
- Even mild infections produce virus in people's throat and lungs that comes out with respiratory droplets they make when they talk, breathe, cough, or otherwise blow air out of their nose or mouth.
- Discuss one (1) reason why infection control recommendations for COVID-19, such as masking for source control, are in place in healthcare settings.
  - Some people who are infected with SARS-CoV-2, the virus that causes COVID-19, don't know it, because they aren't feeling any symptoms. Even though they don't look or feel sick, they can still spread the virus.
  - This happens because the virus that is in their body is also in their respiratory droplets.
    - Those droplets can land on someone's eyes, nose, or mouth, or someone can breathe them into their throat and lungs, where the virus in the droplets can start attacking that person's cells.
    - Respiratory droplets can also fall on surfaces, where they can be picked up and spread to others.



## Chapter 6: Injections Safety – Nurses Only

- Discuss two (2) reasons why injection safety actions are important when using multi dose vials.
  - Multi-dose vials are accessed more than once to pull out individual doses for separate patients, which creates an opportunity for spreading infections.
  - If a needle or syringe is reused or gets dirty and goes into the vial, anything that is on or in the needle or syringe can end up in the vial and contaminate it. If the vial is contaminated, it must be thrown away.
    - If it's not thrown away, patients who get an injection from that vial after the contamination occurs could get sick or die from diseases that spread this way, like hepatitis or HIV.
    - Any time a vial that is possibly contaminated is used for a patient, public health authorities must be immediately notified and everyone who got a dose from that vial has to be contacted and followed so they can be tested to find out whether they got infected.
  - We don't want to waste vaccine by contaminating it; we want it to be available for patients.
  
- Describe at least four (4) injection safety steps to take when using a multi-dose vial.
  - Always prepare a multi-dose vial in a space that is clean and away from patients where you can safely draw up the doses and prepare the vaccine.
  - Clean your hands before you touch the vial.
  - Check the label to make sure that it is a multi-dose vial and that it isn't expired or beyond its use date.
  - Look at the vaccine and make sure it looks how the vaccine maker says it should look.
  - Always use a brand-new, sterile needle and a brand-new, sterile syringe for every vaccine dose.
  - Always disinfect the top of the vial thoroughly with an alcohol prep pad and let it dry before you stick the needle in to draw up a dose of vaccine.
  - Follow the vaccine maker's instructions for how long you can use the vaccine after you first access the vial, and when it should be thrown away.
    - If there is a full extra dose in the vial, you can use that dose on another patient.
    - If there is extra vaccine in the vial, but not enough for a full extra dose, throw the vial away: do not combine vaccine from multiple vials into one dose for a patient.
  - Follow the vaccine maker's instructions for how to store vaccine.