Public Health Ontario | Santé publique Ontario

IPAC Core Competencies - Risk Assessment and Chain of Transmission

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Introduction to Routine Practices

Welcome to Core Competency Routine Practices Chain of Transmission and Risk Assessment. Routine Practices are the infection prevention and control practices that must be used routinely during all activities with all clients, patients or residents, to help prevent and control the spread of infectious agents in all health care settings. No matter what health care setting you work in, routine practices always apply.

Overview

An important element of Routine Practices is the Chain of Transmission and Risk Assessment. This learning component deals with the Chain of Transmission, breaking the links in the Chain to prevent infections and organizational and personal Risk Assessments. You will learn about the six links in the Chain of Transmission and how to break the links in the Chain to prevent infection. To help protect yourself and others, you will also learn about infection control measures and the steps you need to take when performing a Risk Assessment.

A Risk Assessment is an evaluation of the interaction of the health care provider, the client/patient/resident and the environment to assess the risk of acquiring or transmitting infection, in order to know what controls to implement. A health care provider is any person delivering care to a client/patient/resident. This includes, but is not limited to, the following: emergency service workers, physicians, dentists, nurses, respiratory therapists and other health professionals, personal support workers, clinical instructors, students and home health care workers. In some non-acute settings, volunteers might provide care and would be included as health care providers.

Objectives

The objectives of this component are to:

- Describe the six links in the Chain of Transmission and how they relate to the development of infections
- Use infection prevention and control strategies to “break the links” in the Chain of Transmission

- Perform a Risk Assessment to evaluate the potential risk of getting an infection

In your workplace, you may be called “staff” or “health care provider” or “health care worker”. In this component, we’ll use the term “health care provider”.

Microorganisms in Health Care Settings

Sometimes we call microorganisms “germs.” This is when the microorganism can cause an infection. The microorganism is then known as an “Infectious Agent.” Microorganisms can be found in every health care setting.

Infectious Agents can be found on equipment and surfaces in different health care settings. Here is a list of examples of the surfaces you may encounter in a patient’s room, washing station, and by a clinician’s desk:

- Walls
- Paper towel holder
- Box of gloves
- Cabinet handles
- Phones
- Computers
- Needle box
- Folders
- Chairs
- Beds
- Curtains

The goal of infection prevention and control is to stop or reduce the transmission or spread of Infectious Agents.

Next, we will discuss the various links in the Chain of Transmission and how Infectious Agents are spread.

Chain of Transmission

To help us understand how Infectious Agents are spread, you need to understand the Chain of Transmission model. It is used to help understand how infections are spread and how they can be prevented.

Each link in the Chain represents a part of the process that can lead to an infection. An infection cannot develop unless all six of the links in the Chain are present and connected. The links in the Chain can be broken to help prevent the transmission of infections. We will come back to this later. Next, we will discuss each link in the Chain.

We need to begin this discussion by talking again about microorganisms. Microorganisms are everywhere and many are harmless and necessary for health. Most do not lead to infections. They are very small and the majority can only be seen under a microscope. If they were visible, people would clean their hands more often and environmental cleaning would be much easier, too! Sometimes we call microorganisms "germs". This is when the microorganism can cause an infection. The microorganism is then known as an "Infectious Agent".

In order for any infection to occur, there needs to be an Infectious Agent. The Infectious Agent is the first link in the Chain of Transmission. In health care, the Infectious Agents we deal with on a regular basis are bacteria, viruses and fungi. Bacteria are the most common Infectious Agents we see in health care. An example is the bacterium that causes an infection known as "strep throat". This bacterium is called "Streptococcus". Have you ever had food poisoning? This might have been caused by Salmonella bacteria, which is a common cause of food poisoning. Viruses are also Infectious Agents. Serious illnesses and death can be caused by viruses like hepatitis and influenza (commonly known as "the flu").
Another type of Infectious Agent is fungi. A common fungus that most of us have heard about is the one that causes "athlete's foot." You may also have seen "thrush mouth" in a baby.

The second link in the chain is the "Reservoir". This is where microorganisms live and grow. Examples of Reservoirs are people, animals, insects, water or food. Everyone has had some sort of infection in their lives. This means that you have been the Reservoir where an Infectious Agent has lived and grown. If a water supply became contaminated this would be an example of how water can be a Reservoir. Anyone who has ever had food poisoning has first-hand knowledge of how food can be a Reservoir for infection.

The third link in the Chain is how Infectious Agents (or microorganisms) leave the Reservoir - or the "Portal of Exit." There are many Portals of Exit from the human body. If someone has a blood infection the Portal of Exit may be a cut in the skin. If someone has a respiratory infection, a cough or sneeze can spread infection. Uncontained drainage from a wound can be a Portal of Exit and spread infection. Touching the skin of someone with a skin infection has the potential to spread germs.

The fourth link in the chain is the "Mode of Transmission." Most Infectious Agents can't travel by themselves. They need a way to move from one place to another. This is called the Mode of Transmission. In health care we focus on 3 main Modes of Transmission: contact, droplet and airborne. The Infectious Agent travels from one host to another through contact, droplet or airborne routes. You will learn more about Mode of Transmission in the Additional Precautions Module.

The fifth link in the Chain is the "Portal of Entry." This is how the Infectious Agent enters a new host. Portals of Entry include the mucous membranes of your eyes, the respiratory tract, the gastrointestinal tract or broken skin. For example, you can eat an Infectious Agent like salmonella. You can get an Infectious Agent, like Staph aureus, in a cut. Your eyes, nose, mouth

(mucous membranes) can be exposed to an Infectious Agent like Influenza!

The sixth link in the Chain is the "Susceptible Host." Anyone can be at risk of infection. The most vulnerable are people who are very young or very old, who have a poorly functioning immune system or illnesses such as diabetes. Individuals with burns or who have had surgery are also at increased risk because their skin is no longer intact.

When all these links are in place, infection will occur.

Let's "stop and think" about how Infectious Agents are spread.

- What kind of infection has made you miss work?
- How do you get the common cold?
- Who are the people who seem to get infections easily?

Break the Chain of Transmission

You can stop the spread of infection by breaking any of the links in the Chain of Transmission. The spread of Infectious Agents does not occur and infection does not develop if any of the links are eliminated or "broken."

Let's see what we can do to break the Chain.

Let's look at Infectious Agents. If there were no Infectious Agents, there would not be any infections. Killing or removing the Infectious Agent at the source can break the Chain. For example, antibiotics, disinfection or sterilization will kill Infectious Agents. Another example is the action of cleaning which decreases the number of Infectious Agents by physically removing them. By removing the Infectious Agent, the risk of infection is reduced or eliminated.

The second link in the Chain is the Reservoir. If we can eliminate a Reservoir, the Infectious Agent will not have anywhere to live and grow. We can eliminate the Reservoir by using effective Controls of the Environment and by cleaning the environment. For example, if we store food properly and treat water, Infectious Agents cannot grow there. In this way the Chain of Transmission is broken by eliminating the place where Infectious Agents live and grow.

Another way to break the Chain of Transmission is managing how Infectious Agents leave the body or other Reservoirs through the Portal of Exit. We need to manage all blood and body fluids, excretions and secretions which exit from the body or onto contaminated surfaces, in a way that helps reduce the risk of infection. For example, when we sneeze, if we cover our mouth and nose we will prevent the droplets from travelling through the air and contaminating surfaces. Another way to manage the Portal of Exit is by practicing good hand hygiene, safely disposing of waste and contaminated linen, and containing excretions and secretions. Hand hygiene is a general term referring to any action of hand cleaning. Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene may be accomplished using an alcohol-based hand rub or soap and running water.

This link in this Chain is broken by managing the Infectious Agents as they exit the body and contaminate surfaces or other Reservoirs, such as equipment, linen and waste.

The link that health care providers can control most easily is the Mode of Transmission. Preventing Infectious Agents from travelling breaks the Chain of Transmission by keeping them from reaching the Susceptible Host. The single most important action you can take to prevent the transmission of infection is to perform hand hygiene. Another way to prevent Infectious Agents from travelling is to maintain a spatial separation, such as keeping a 2 metre distance from someone who is coughing, or by using single rooms. Proper air flow is an example of a Control of the Environment that improves air quality and stops Infectious Agents from travelling. Environmental sanitation, (or environmental cleaning) and equipment disinfection are important in controlling Infectious Agents that can be spread by touch (or contact). The proper use of Personal Protective Equipment helps prevent Infectious Agents from travelling from person-to-person and to the environment.

Controlling the Portal of Entry means keeping the Infectious Agent from entering a Susceptible Host. If we provide care with clean hands and use aseptic technique when caring for patients, we can stop Infectious Agents from entering a client, patient, or resident who might be at risk of infection. Proper techniques when we perform procedures such as wound care and catheter care help prevent infections, too. Again, using Personal Protective Equipment correctly helps prevent client, patient, or resident infections related to the Portal of Entry.

What about Susceptible Hosts? If a person is not susceptible to an Infectious Agent, he or she cannot get an infection. Immunity develops from receiving vaccines or may result from getting an infection, such as chickenpox. When a client, patient, or resident receives treatment such as pre-operative antibiotics, it reduces their risk of infection. A healthy lifestyle with exercise, enough sleep and good nutrition helps clients, patients, or residents have a better immune system. When we are as healthy as we can be, we are less at risk of infection and are more likely to fight off infections.

Let's "stop and think" about how we can break the Chain of Transmission.

Consider the following questions:

- How does hand hygiene prevent the spread of infection?
- What actions do I take to minimize the growth and spread of Infectious Agents to protect my clients, patients, or residents?
- Why is cleaning and disinfection in health care important?
- Infection is a hazard for clients, patients, residents as well as healthcare providers. What steps do I need to take to stay healthy and reduce my risk of getting an infection so I can protect myself and my clients/patients/residents?

Risk Assessment

Breaking the links in the Chain of Transmission helps prevent the development of infection. But, how do you protect yourself from infection? And what can your health care setting do to help protect you and the health care environment in which you work. The answer is to perform a Risk Assessment. The purpose of a Risk Assessment is to identify risks and reduce potential exposure to infectious diseases and other health and safety hazards.

Types of Risk Assessments

There are two types of Risk Assessments. One is done by the employer and one is done by the health care provider. Both are necessary to create a safe work environment.

Organizational Risk Assessment

An Organizational Risk Assessment is done by your employer to assess the need for certain controls or safeguards. For example: Engineering controls include safeguards built into the health care setting structure itself, such as special ventilation or dedicated hand washing sinks. In addition, cleaning processes for the environment and equipment as well as physical barriers and linen, waste and dish or utensil management are included in this. An additional Risk Assessment needs to be done by the employer in each health care setting.

Administrative Controls are safeguards introduced by the management of each health care setting to continue to make the workplace safe, such as having clear and current policies for cleaning and health care provider education and training.

Provision of the necessary Personal Protective Equipment, or PPE, such as gloves, gowns, masks and eye protection, is another important safety measure that must be provided by your employer.

Once your employer identifies areas of risk related to infection prevention and control, interventions may be put into place to minimize those risks in order to protect you, your coworkers and clients, patients, or residents from getting an infection.

Health care providers do not have control over Organizational Risk Assessments but may have input through their Joint Health and Safety Committee or Health and Safety representative. Health care providers DO have control over their Personal Risk Assessment.

Let’s talk more about “when” and “how” to do personal Risk Assessments.

Personal Risk Assessment

A Personal Risk Assessment is a thought process that each health care provider must engage in before each and every interaction with a client, patient, or resident or their environment. This

is necessary to help prevent the spread of infection.

A Risk Assessment helps health care providers in choosing interventions which help prevent the spread of Infectious Agents. The Risk Assessment is necessary because other controls may be absent or do not completely eliminate the risk.

To help learn about Risk Assessment in the workplace, let's consider how Risk Assessments are done by each of us every day.

For example, consider the decisions you make before crossing the street. Your "mental checklist" might include these questions:

- Is there a car coming?
- Is there a crosswalk?
- Do I have time to get across safely?

In health care you need to use Risk Assessment questions in the same way to help guide your actions as you work.

When to Perform a Personal Risk Assessment

The Risk Assessment is ongoing throughout your work day. As you become more comfortable with asking these questions, they will form an automatic "checklist" that you will do and re-do with each health care interaction you have with the client, patient, or resident and his or her environment.

How to Perform a Personal Risk Assessment

Every time you perform a personal Risk Assessment, ask yourself about the task, about the status of your client, patient, or resident and about the Controls of the Environment and Administrative Controls that are in place. Administrative Controls are managerial measures put in place in the health care setting to reduce the risk of infection to staff or to clients/patients/residents. This will help you identify whether you may be exposed to blood, body fluids, secretions, excretions or non-intact skin. This way you can choose controls or interventions that protect clients, patients, or residents as well as yourself.

It's time to "stop and think".

How do YOU do Risk Assessments in your health care setting?

The Task

How do you perform a personal Risk Assessment? Consider the tasks you are about to perform.

Do I have the equipment I need to do this task?
If the answer is no, gather the equipment and supplies needed before starting the task.

Will I be touching blood, body fluids, secretions, excretions or other potentially infectious material?
If you answer yes, wear gloves if the task involves contact with blood, body fluids, secretions or excretions and clean your hands. Body fluid includes blood, secretions (for example, saliva and semen), excretions (for example, urine and feces), or body fluids (for example, cerebrospinal fluid and synovial fluid).

Will my face be exposed to a cough or spray of saliva or blood?
Wear facial protection if the task exposes your face to saliva, blood or other body fluids. Facial protection is personal protective equipment that protect the mucous membranes of the eyes, nose and mouth from splashes or sprays of blood, body fluids, secretions or excretions. Facial protection may include a mask or respirator in conjunction with eye protection, or a face shield that covers eyes, nose and mouth.

Will my clothing or skin be exposed to splashes or sprays?
Wear a gown if the task exposes your clothing or skin to blood or body fluids.

How skilled am I at this task? Can I safely perform this task myself or do I need assistance?
Ask someone to assist you if necessary.

Client/Patient/Resident Status

The next step in your personal Risk Assessment is to ask yourself questions about the status of your client, patient, or resident. First, assess his or her cognitive or mental status.

Cognitive/mental status
Will he/she be able to follow directions?
You may need to change how you are going to provide the care for this client, patient, or resident.

Is he/she cooperative?
Remember to consider the extremes of age in your Risk Assessment because they may not be able to understand what you are trying to do.

Is he/she agitated or resistant?
You may need to change how you are going to provide the care for this client, patient, or resident.

The second, is to assess his or her physical status.

Physical Status
Is he/she coughing, sneezing, vomiting or having diarrhea?
Wear gloves and a gown if you may be touching body fluids or excretions such as vomit or feces.
Wear a gown if your clothing or arms may be soiled with body fluids or excretions.
Wear facial protection if your face may be exposed to a cough or sneeze.

Has he/she got a rash or fever?
Wear gloves if you may be touching a client, patient or resident with a rash.

Is he/she incontinent or does he/she have uncontrolled drainage?
Wear gloves and a gown to clean the contaminated environment, and then clean your hands.

Every client, patient, or resident interaction is different. That's why it is so important to consider all these factors in your Risk Assessment.

Environment and Admin Controls

Lastly, think about the controls that have already been put in place by your employer. Ask yourself questions about the administrative controls and controls of the environment that are in place in your health care setting.

Are there facilities for cleaning my hands?
Know where your facility's alcohol-based hand rub stations and hand washing sinks are located.

Are there any policies and procedures for me to follow?
Know the infection prevention and control policies and procedures in your health care setting.

Is a special environment necessary for this client, patient, or resident to contain transmission?
Assess the need and availability for the client, patient, or resident to be in a single room, to be segregated from others or to have single toileting facilities.

Will I be using a sharp item or potentially be exposed to a sharp?
Be sure there is a sharps container within reach. Use safety-engineered needles and medical sharps. Be aware of your health care setting's protocol for exposure management.

In this way, you will determine what you need to do to protect yourself and the client, patient, or resident. All of these questions and answers are part of your Risk Assessment.

Hierarchy of Controls

Let's look again at hazards in the workplace.

An occupational health and safety model for this concept is the Hierarchy of Controls. These controls range from the most effective to the least effective.

Eliminating or Substituting the hazard is the most effective control.

Controls of the Environment and Administrative Controls are next, because these have already been put in place by your employer. You do not have to take action to use these.

Wearing Personal Protective Equipment is the least effective in the Hierarchy of Controls, because it relies on your own judgment and knowledge about how and when to use it. Use of Personal Protective Equipment is your defence when other controls may be absent or do not completely eliminate the risk.

Let's discuss each one of these different controls in turn. More information about controls will be discussed in the Controls of the Environment or Administrative Controls components of the Routine Practices Module.

Elimination/Substitution

It would be ideal if a hazard could just be Eliminated or Substituted. Then the risk would no longer exist.

An example of the Elimination of a hazard is when medical equipment is sterilized. The Infectious Agents (the hazard) have been destroyed.

An example of controlling a hazard through substitution would be using a needleless intravenous system or using a medication patch instead of giving an injection.

Practice Activity

You have now completed the content and objectives for this Risk Assessment component. Let's see if you know how to apply this information in your everyday work. Here is a practice activity. Before you start this practice activity, you will have to choose the sector that best fits your workplace setting.

Review any of the following settings to begin the practice activity:
Community Care
Community Clinic
Long-term Care
Acute Care

Community Home Practice Activity

Community Home Part 1 of 5

In this scenario, you are a health care provider assigned to provide care for Mr. Purple in his home following his discharge from hospital. You call the night before your visit to let Mr. Purple know what time you are arriving and begin your assessment during that conversation. The next morning, you visit Mr. Purple and find that overnight, he has developed a new onset fever, cough and shortness of breath.

Community Home Part 2 of 5

What description matches with the link in the chain of transmission? Remember that there are six links in the chain of transmission, they are: Infectious Agent, Reservoirs, Portals of Exit, Modes of Transmission, Portals of Entry, and Susceptible Host.

A bacteria or virus that may cause a respiratory infection
Answer: Infectious Agent

Mr. Purple
Answer: Reservoirs

Respiratory tract
Answer: Portals of Exit

Respiratory secretions on environmental surfaces and contaminated hands
Answer: Modes of Transmission

Respiratory tract and mucus membranes
Answer: Portals of Entry

Healthcare Provider
Answer: Susceptible Host

Community Home Part 3 of 5

What infection control strategies could you use to break the chain to prevent the spread of this possible Infectious Agent? More than one could apply.

Options:
Clean your hands well.
Wear Personal Protective Equipment.

Clean equipment used by Mr. Purple.
Tell your supervisor.

Answer:
Clean your hands well.
Wear Personal Protective Equipment.
Clean equipment used by Mr. Purple.

Cleaning your hands breaks the Chain by removing the Mode of Transmission, the Portals of Exit and Entry, and the Infectious Agent. Wearing PPE breaks the Chain by removing the Mode of Transmission and Portal of Entry. Cleaning equipment breaks the Chain by removing the Reservoir and the Mode of Transmission. Telling your supervisor doesn't break the Chain of Transmission, but it is important information for surveillance and to inform other health care providers who may be going into the home, that Mr. Purple may have a respiratory infection so that they can take action to eliminate this hazard.

Community Home Part 4 of 5

From the following list, what is the first task you need to do before you provide care for Mr. Purple?

Options:
Put on Personal Protective Equipment.
Clean and disinfect equipment.
Perform a Risk Assessment.
Call your supervisor.

Answer:
Perform a Risk Assessment.
Performing a risk assessment is the first step prior to any interaction with Mr. Purple or his environment. The other tasks may be necessary, but they are not your first steps.

Community Home Part 5 of 5

Which of the following Risk Assessment questions do you need to ask yourself before you provide care for Mr. Purple? More than one could apply.

Options:
Do I need to use any Personal Protective Equipment when I provide health care for Mr. Purple?
Will Mr. Purple be able to follow directions and cooperate with care?
Am I able to dedicate equipment to leave in Mr. Purple's home for his care?
How long will it take me to finish this visit?

Answer:
Do I need to use any Personal Protective Equipment when I provide health care for Mr. Purple?
Will Mr. Purple be able to follow directions and cooperate with care?
Am I able to dedicate equipment to leave in Mr. Purple's home for his care?

The first three are good questions to ask. Though Personal Protective Equipment is the least effective control, Personal Protective Equipment helps to protect you when you are taking care of Mr. Purple. You may be in contact with secretions because Mr. Purple is coughing and sneezing. The second question helps you think about the cognitive or mental status of Mr. Purple to know whether he will be able to follow directions to cover his cough and contain his secretions. For the third question, dedicating equipment to Mr. Purple may reduce the risk of transmission of Infectious Agents to your other clients. The length of time required to complete a visit is not part of a risk assessment, therefore the fourth question can be omitted.

You have now completed the practice activity. You can return to the practice activity main page to view examples for other health care settings or move on to the summary.

Community Clinic Practice Activity

Community Clinic Case Study

You work in a clinic setting. A mother brings her child to the reception desk. The infant is coughing and sneezing, has very red cheeks and green fluid leaking from his nose.

Community Clinic Part 2 of 5

What description matches with the link in the chain of transmission? Remember that there are six links in the chain of transmission, they are: Infectious Agent, Reservoirs, Portals of Exit, Modes of Transmission, Portals of Entry, and Susceptible Host.

The infant's respiratory secretions on environmental surfaces, contaminated hands, and droplets
Answer: Modes of Transmission

Health Care Provider
Answer: Susceptible Host

The infant's respiratory tract
Answer: Portals of Exit

Health Care Provider's respiratory tract and mucus membranes
Answer: Portals of Entry

A bacteria or virus that may cause a gastrointestinal infection
Answer: Infectious Agent

The infant
Answer: Reservoirs

Community Clinic Part 3 of 5

What infection control strategies could you use to break the Chain to prevent the spread of this Infectious Agent? More than one could apply.

Options:
Clean your hands very well.
Wear Personal Protective Equipment.
Clean equipment used when providing care for this infant.
Put the infant and mother into a clinic room immediately.

Answer:
Clean your hands very well.
Wear Personal Protective Equipment.
Clean equipment used when providing care for this infant.
Put the infant and mother into a clinic room immediately.

Cleaning your hands breaks the Chain by removing the Mode of Transmission, the Portals of Exit and Entry, and the Infectious Agent. Wearing PPE breaks the Chain by removing the Mode of Transmission and Portal of Entry. Cleaning equipment breaks the Chain by removing the Reservoir and the Mode of Transmission. Putting the infant and mother into a separate area breaks the Chain by removing the Mode of Transmission.

Community Clinic Part 4 of 5

From the following list, what is the first thing you need to do before your provide care for this ill infant?

Options:
Put on Personal Protective Equipment.
Clean and disinfect equipment.
Perform a risk assessment.
Send the infant to the hospital.

Answer:
Perform a risk assessment.
Performing a risk assessment is the first step prior to any interaction with this infant, the mother, and their environment. The other tasks may be necessary, but they are not your first steps.

Community Clinic Part 5 of 5

Which of the following Risk Assessment questions do you need to ask yourself before you provide care for this infant? More than one could apply.

Options:
Do I need to use any Personal Protective Equipment when I provide health care for this infant?
Will the mother and infant be able to follow directions?
Do I have the equipment I need to provide care for this infant?
How long will it take me to see this client?

Answer:
Do I need to use any Personal Protective Equipment when I provide health care for this infant?
Will the mother and infant be able to follow directions?
Do I have the equipment I need to provide care for this infant?

For the first question, though Personal Protective Equipment is the least effective control, Personal Protective Equipment helps to protect you when you are taking care of this infant. You may be in contact with secretions because the infant is coughing and sneezing. The second question helps you think about the cognitive or mental status of the mother. The infant is too young to follow directions. For the third question, gathering equipment ahead of time will make the task more efficient. You will not need to remove your Personal Protective Equipment to go and get what you need later on. For the last question, the length of time required to see the client is not part of a risk assessment.

You have now completed the practice activity. You can return to the practice activity main page to view examples for other health care settings or move on to the summary.

Long Term Care Practice Activity

Long Term Care Part 1 of 5

In this scenario, Mrs. Blue is an 89-year old female with a history of Diabetes and Dementia. Mrs. Blue leaves on a one-day pass for a family reunion celebration where several of the family had diarrhea and vomiting. Upon return to the facility, Mrs. Blue is confused, had diarrhea,

removes her soiled brief and it leaks on her bed and on the floor.

Long Term Care Part 2 of 5

What description matches with the link in the chain of transmission? Remember that there are six links in the chain of transmission, they are: Infectious Agent, Reservoirs, Portals of Exit, Modes of Transmission, Portals of Entry, and Susceptible Host.

Family members' hands and contaminated environmental surfaces
Answer: Modes of Transmission

Mrs. Blue's age and Diabetes
Answer: Susceptible Host

Gastrointestinal tract (vomiting and diarrhea)
Answer: Portals of Exit

Gastrointestinal tract (mouth)
Answer: Portals of Entry

A bacteria or virus that may cause a gastrointestinal infection
Answer: Infectious Agent

Sick family members
Answer: Reservoirs

Long Term Care Part 3 of 5

What infection control strategies could you use to break the Chain to prevent the spread of this Infectious Agent? More than one could apply.

Options:
Clean the bathroom and areas used by Mrs. Blue.
Clean your hands very well when providing care for Mrs. Blue.
Clean equipment used by Mrs. Blue.
Allow her roommate to use the same washroom as Mrs. Blue.

Answer:
Clean the bathroom and areas used by Mrs. Blue.
Clean your hands very well when providing care for Mrs. Blue.
Clean equipment used by Mrs. Blue.

Cleaning the areas used by Mrs. Blue breaks the Chain by removing the Reservoir and the Mode of Transmission. Cleaning your hands breaks the Chain by removing the Mode of Transmission, the Portals of Exit and Entry and the Infectious Agent. Cleaning equipment used by Mrs. Blue breaks the Chain by removing the Reservoir and the Mode of Transmission. Allow her roommate to use the same washroom only if the washroom can be cleaned immediately after Mrs. Blue uses it. Otherwise, dedicate the washroom for Mrs. Blue's use only and provide alternative toileting for the roommate. This breaks the Chain by removing the Mode of Transmission and the Reservoir. Another option is to dedicate a commode for Mrs. Blue's use. Consult your Infection Prevention and Control Practitioner for more information on how to do this properly on a case by case basis.

Long Term Care Part 4 of 5

Mrs. Blue has uncontrolled diarrhea and vomiting, and has soiled her bed and bed space. What is the first thing you need to do before you provide care for Mrs. Blue? What's the first thing you need to do?

Options:
Put on Personal Protective Equipment.
Clean and disinfect equipment.
Perform a Risk Assessment.
Seek a private room.

Answer:
Perform a Risk Assessment
Performing a risk assessment is the first step prior to any interaction with Mrs. Blue or her environment. The other tasks may be necessary, but they are not your first steps.

Long Term Care Part 5 of 5

Which of the following Risk Assessment questions do you need to ask yourself before you provide care for Mrs. Blue? More than one could apply.

Options:
Are there designated hand washing sinks for washing my hands or is alcohol-based hand rub available?
Is Mrs. Blue able to follow directions so she doesn't soil the environment?
Do I need to use any Personal Protective Equipment when I provide health care for Mrs. Blue?
Does Mrs. Blue need a private room?

Answer:

Are there designated hand washing sinks for washing my hands or is alcohol-based hand rub available?
Is Mrs. Blue able to follow directions so she doesn't soil the environment?
Do I need to use any Personal Protective Equipment when I provide health care for Mrs. Blue?

The first question helps you think about the controls in place. Hand washing sinks are examples of Controls of the Environment which are safeguards built into the health care setting structure. The second question helps you think about the cognitive or mental status of Mrs. Blue. For the third question, although Personal Protective Equipment is the least effective control, Personal Protective Equipment helps to protect you when you are taking care of Mrs. Blue. You may be at risk when you are in contact with excretions, because Mrs. Blue is having diarrhea, vomiting, and is soiling the environment.

The last question is one that you can consider. It is preferable that she has a private room if it is available. This is often not the case. It is important to minimize the risk of transmission of infection by dedicating either the washroom or a commode for Mrs. Blue's use until she is better.

You have now completed the practice activity. You can return to the practice activity main page to view examples for other health care settings or move on to the summary.

Acute Care Practice Activity

Acute Care Part 1 of 5

In this scenario, Mrs. Pink is an 83-year old female with a long history of Diabetes. Yesterday, she went to a family gathering and learned that some of her family had vomiting and diarrhea. Mrs. Pink is now very ill with vomiting and diarrhea and presents to your emergency department.

Acute Care Part 2 of 5

What description matches with the link in the chain of transmission? Remember that there are six links in the chain of transmission, they are: Infectious Agent, Reservoirs, Portals of Exit, Modes of Transmission, Portals of Entry, and Susceptible Host.

Mrs. Pink's hands, secretions and contaminated environmental surfaces
Answer: Modes of Transmission

Mrs. Pink's age and Diabetes
Answer: Susceptible Host

Gastrointestinal tract (vomiting and diarrhea)
Answer: Portals of Exit

Gastrointestinal tract (mouth)
Answer: Portals of Entry

A bacteria or virus that may cause a gastrointestinal infection
Answer: Infectious Agent

Sick family members
Answer: Reservoirs

Acute Care Part 3 of 5

What infection control strategies could you, the health care provider, use while Mrs. Pink is in the Emergency department, to break the Chain to prevent the spread of this potential Infectious Agent? More than one could apply.

Options:
Clean the bathroom and areas used by Mrs. Pink.
Clean your hands well when providing care for Mrs. Pink.
Clean equipment used by Mrs. Pink.
Allow other people to use the same washroom as Mrs. Pink.

Answer:
Clean the bathroom and areas used by Mrs. Pink.
Clean your hands well when providing care for Mrs. Pink.
Clean equipment used by Mrs. Pink.

Cleaning areas used by Mrs. Pink breaks the Chain by removing the Reservoir and the Mode of Transmission. Cleaning your hands breaks the Chain by removing the Mode of Transmission, the Portals of Exit and Entry and the Infectious Agent. Cleaning equipment breaks the Chain by removing the Reservoir and the Mode of Transmission. Allow other people to use the same washroom as Mrs. Pink only if it is cleaned immediately after Mrs. Pink uses it. Otherwise, dedicate the washroom for Mrs. Pink's use only until she leaves the emergency department, after which the washroom must be cleaned and disinfected. This breaks the Chain by removing the Mode of Transmission and the Reservoir.

Acute Care Part 4 of 5

Mrs. Pink has uncontrolled diarrhea and vomiting and has soiled her stretcher and cubicle area.

What is the first thing you need to do before you provide care for Mrs. Pink?

Options:
Put on Personal Protective Equipment.
Clean and disinfect equipment.
Perform a Risk Assessment.
Seek a private room.

Answer:
Perform a Risk Assessment.
Performing a risk assessment is the first step prior to any interaction with Mrs. Pink or her environment. The other tasks may be necessary, but they are not your first steps.

Acute Care Part 5 of 5

Which of the following Risk Assessment questions do you need to ask yourself before you provide care for Mrs. Pink? More than one could apply.

Options:
Are there designated hand washing sinks for washing my hands or is alcohol-based hand rub available?
Is Mrs. Pink able to follow directions so she doesn't soil the environment?
Do I need to use any Personal Protective Equipment when I provide health care for Mrs. Pink?
Does Mrs. Pink need a private room?

Answer:
Are there designated hand washing sinks for washing my hands or is alcohol-based hand rub available?
Is Mrs. Pink able to follow directions so she doesn't soil the environment?
Do I need to use any Personal Protective Equipment when I provide health care for Mrs. Pink?

The first question helps you think about the controls in place. Hand washing sinks are examples of Controls of the Environment which are safeguards built into the health care setting structure. The second question helps you think about the cognitive or mental status of Mrs. Pink. For the third question, although Personal Protective Equipment is the least effective control, Personal Protective Equipment helps to protect you when you are taking care of Mrs. Pink. You may be at risk when you are in contact with excretions, because Mrs. Pink is having diarrhea, vomiting, and is soiling the environment.

The last one can be a question to consider. It is preferable that she has a private room if it is available. This is often not the case. If a private room is not available, then you need to use additional measures to minimize the risk of transmission of infection by dedicating either the washroom or a commode for Mrs. Pink's use until she is better.

You have now completed the practice activity. You can return to the practice activity main page to view examples for other health care settings or move on to the summary.

Summary

Let's summarize some of the key concepts. First of all, it is important to recognize that there are two important elements of Routine Practices.

#1. You need a good understanding of the Chain of Transmission and how transmission can be stopped through breaking the links in the Chain.

#2. You need to know how to perform a Risk Assessment and incorporate Risk Assessment into your everyday activities.

The Chain of Transmission explains how:

- Infectious Agents are spread
- Infections can be prevented

The six links in the Chain are:

- Infectious Agents
- Reservoir
- Portal of Exit
- Mode of Transmission
- Portal of Entry
- Susceptible Host

When all six of the links in the Chain are present and connected, infections will develop. Breaking the links in the Chain helps prevent infections.

Summary Part Two

There are organizational Risk Assessments and personal Risk Assessments.

Organizational Risk Assessments are done by the employer and risks that are identified are reduced by putting appropriate Controls of the Environment and Administrative Controls in place. Employers must also assure that Personal Protective Equipment is available for use by health care providers to help minimize exposure risks at work.

Each health care provider also has a responsibility to conduct personal Risk Assessments in the workplace. These must be done to identify control measures that are in place and so that you can put additional measures in place if needed (such as wearing Personal Protective

Equipment).

Scored Test

This is the end of the Occupational Health and Safety component.

To show that you have completed this module, there is a test.

There are five questions in the test.

You need to answer every question correctly and then you can print out a certificate.

If you do not answer questions correctly, review the material and retake the test.

If you are ready, please return to the PHO website and select the Challenge Question document that corresponds with this module.