Influenza

Lesson 1: Objectives

At the end of the course, participants will be able to:

- Describe the signs and symptoms of influenza,
- Explain how flu viruses spread,
- List the populations at risk for flu-related complications, and
- Identify flu prevention strategies

Introduction

Influenza (or the flu) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. Individuals who have the flu may develop a fever or chills, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue, and vomiting and diarrhea (although this is more common in children). It can cause mild to severe illness resulting in hospitalization or death. Some individuals, such as older people, young children, and those with certain health conditions, are at high risk for serious flu complications. The best way to prevent the flu is by getting vaccinated each year.

Lesson 2: How does the flu spread?

Flu viruses spread mainly by respiratory droplets made when people with the flu cough, sneeze or talk. The droplets can spread up to 6 feet and land in the mouths or noses of people who are nearby and possibly be inhaled into the lungs. Less often, a person might get the flu by touching a surface or object that has the flu virus on it and then touching their own mouth, eyes or nose.

The time from when a person is exposed and infected with flu to when symptoms begin is about 2 days. Most healthy adults are able to infect others beginning 1 day before symptoms develop and up to 5 to 7 days after becoming sick. They are most contagious in the first 3 to 4 days after their illness begins. That means that you may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Some people can be infected with the flu virus but have no symptoms. During this time, those people may still spread the virus to others. Children and individuals with weakened immune systems may pass the virus even longer.

While flu viruses are detected year-round in the United States, these viruses are most common during the fall and winter. The exact timing and duration of flu seasons can vary, but influenza activity often begins to increase in October. Most of the time flu activity peaks between December and February, although activity can last as late as May.

Question:

Select the correct statements:

***Flu viruses spread mainly by respiratory droplets made when people with the flu cough, sneeze or talk.**
***Flu viruses in respiratory droplets can spread up to 6 feet.**
***Flu viruses in respiratory droplets can land in the mouths or noses of others and inhaled into the lungs.**
***Flu viruses in respiratory droplets can land on a surface or object and spread to a person who touches it and then touches their own mouth, eyes, or nose.**

Lesson 3: How serious is the flu?

Most people who get the flu will have mild illness, will not need medical care or antiviral drugs and will recover in less than two weeks. Some people, however, are more likely to have complications that result in being hospitalized and occasionally death including children younger than 5 years old (but especially children younger than 2), adults 65 years of age and older, pregnant women and women up to two weeks postpartum, residents of nursing homes and other long-term care facilities, and American Indians and Alaskan Natives. Examples of flu-related complications include bacterial pneumonia, sinus infections, and ear infections. The flu also can make medical conditions such as congestive heart failure, asthma, and diabetes worse.

Question:
Which person is least likely to have flu-related complications?

a. A toddler
b. A resident of a nursing home
c. A pregnant woman
d. ***An adolescent**

Lesson 4: Preventing the Flu

The single best way to prevent the flu is to get vaccinated each year, but good health habits often can help stop the spread of germs and prevent the flu. Avoid close contact with people who are sick and when you are sick, keep your distance from others to protect them from getting sick too. Stay home for at least 24 hours after your fever is gone except to get medical care or for necessities. When coughing or sneezing be sure to cover your mouth and nose with a tissue and put the used tissue in a waste basket. If you don't have a tissue, cough or sneeze into your upper sleeve or elbow. Wash your hands often with soap and water or use an alcohol-based hand rub. Avoid touching your eyes, nose or mouth. Clean and disinfect frequently touched surfaces. Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids, and eat nutritious food.

Question:

The single best way to prevent the flu is to get vaccinated each year.

***True** or False

Lesson 5: Preventing the Flu: Get vaccinated

There are four types of influenza viruses: A, B, C, and D. Human influenza A and B viruses cause seasonal epidemics of disease almost every winter in the United States. Influenza type C infections cause a mild respiratory illness and are not thought to cause epidemics. Influenza D viruses primarily affect cattle and are not known to infect or cause illness in people. Influenza A (H1N1), A (H3N2), and one or two influenza B viruses are included in each year's influenza vaccine. The seasonal flu vaccine does not protect against influenza C viruses.

As previously mentioned, the single best way to prevent the flu is to get a flu vaccine. According to current national guidelines, unless contraindicated, all people aged 6 months and older should be vaccinated with a licensed, age-appropriate influenza vaccine. You should get a flu vaccine before flu begins spreading in your community. It takes about two weeks after vaccination for antibodies to develop in the body to protect it. The Centers for Disease Control and Prevention (CDC) recommends that people get a flu vaccine by the end of October. Getting vaccinated later can still be beneficial.

Different flu vaccines are approved for use in different groups of people. Factors that can determine a person's suitability for vaccination, or vaccination with a particular vaccine, include a person's age, health and any relevant allergies. Flu vaccines that are given with a needle are currently made in two ways: with viruses that have been inactivated and are therefore not infectious, or with no viruses at all. Trivalent flu vaccine protects against two influenza A viruses and an influenza B virus. The quadrivalent flu vaccine protects against two influenza A viruses and two influenza B viruses.

Question:

Match the influenza virus type to its description:

Influenza A and B = **causes seasonal epidemics of disease**
Influenza C = **causes a mild respiratory illness and are not thought to cause epidemics**
Influenza D = **affects cattle and are not known to infect/cause illness in people**

Lesson 6: How effective is the flu vaccine?

The ability of a flu vaccine to protect a person depends on the age and health status of the person getting the vaccine and the similarity or "match" between the flu viruses and the flu vaccine. Influenza viruses are constantly changing. One way they change is called "antigenic drift." These are small changes in the genes of influenza viruses that happen continually over time and an immune system exposed to a similar virus will

usually recognize it and respond. The other type of change is called “antigenic shift.” Antigenic shift is an abrupt, major change in the influenza A viruses. Shift results in a new influenza A subtype or a virus that is so different that most people do not have immunity. When shift happens, most people have little or no protection against the new virus.

Lesson 7: What are the risks?

You cannot get the flu from a flu vaccine. Side effects may include soreness, redness, tenderness, or swelling where the shot was given, low grade fever, headaches and muscle aches. The intradermal flu shot may cause additional mild side effects including toughness and itching where the shot was given. The risk of a flu shot causing serious harm or death is extremely small. However, a vaccine, like any medicine, may rarely cause serious problems such as a severe allergic reaction. Signs of an allergic reaction can include breathing problems, hoarseness or wheezing, hives, paleness, weakness, a fast heartbeat, or dizziness. Healthcare providers should consider observing all recipients for 15 minutes after vaccination to decrease the risk for injury should they experience dizziness. If an allergic reaction does occur, it is usually within a few minutes to a few hours after receiving the vaccine. These reactions can occur among persons who are allergic to something that is in the vaccine, such as egg protein or other ingredients. It is recommended that those individuals be vaccinated in a medical setting under the supervision of a healthcare provider who can recognize and manage severe allergic conditions. There is a small possibility that influenza vaccine could be associated with Guillain-Barre syndrome with no more than 1 or 2 cases per million people vaccinated.

Lesson 8: What if I still get sick with flu-like symptoms?

There are several reasons why someone might get flu-like symptoms even after they have been vaccinated. People may be exposed to an influenza virus shortly before getting vaccinated or during the two-week period that it takes the body to gain protection. A person may be exposed to an influenza virus that is not included in the flu vaccine since there are many different influenza viruses that circulate every year and the flu vaccine protects against the 3 or 4 viruses that research suggests will be most common. Unfortunately, some people can get infected with an influenza virus despite getting vaccinated. Protection provided by vaccination can vary widely, based in part on health and age factors of the person getting vaccinated. There is data to suggest that even if someone gets sick after vaccination, their illness may be milder.

Lesson 9: Flu Antiviral Drugs

If you get the flu, antiviral drugs are a treatment option. Antiviral drugs can lessen symptoms and shorten the time you are sick. They also can prevent serious flu complications. For people with a high-risk medical condition, treatment with an antiviral drug can mean the difference between having a milder illness instead of a very serious illness that could result in a hospital stay. Studies show that flu antiviral drugs work best for treatment when they are started within 48 hours of getting sick. However, starting them later can still be helpful, especially if the sick person has a high-risk health

condition or is very sick from the flu. There are flu antiviral drug options for children and pregnant women as well. Side effects vary for each medication.

Question:

Studies show that flu antiviral drugs work best for treatment when they are started within how many days of getting sick?

a. One
b. ***Two**
c. Four
d. Seven

Lesson 10: Preventing the Flu: Healthcare Organization Strategies

Flu prevention strategies within a healthcare organization include the administration of the influenza vaccine, use of respiratory hygiene and cough etiquette, management of ill health care providers, and compliance with infection control precautions and measures. Achieving high influenza vaccination rates of health care providers and patients/residents is a critical step in preventing healthcare transmission of influenza.

Lesson 11: Preventing the Flu: Minimize Potential Exposures

A range of administrative policies and practices can be used to minimize influenza exposures before arrival, upon arrival, and throughout the duration of a patients/residents visit to a healthcare facility. Preventive measures include screening and triage of symptomatic patients/residents and the use of respiratory hygiene and cough etiquette as well as proper hand hygiene.

Lesson 12: Preventing the Flu: Monitor and Manage Ill Healthcare Personnel

If you as a health care provider develop a fever and respiratory symptoms you should promptly notify your supervisor and infection control/occupational health personnel. This should be addressed as part of your organization's plan for the prevention of the transmission of all infectious agents among patients/residents and health care providers. Health care providers that have conditions that place them at higher risk of complications should inform their health care provider immediately if they become ill with an influenza-like illness so they can receive early treatment if indicated.

Lesson 13: Preventing the Flu: Follow Standard and Droplet Precautions

During the care of any patient/resident, all health care providers in every healthcare setting should follow standard precautions. This includes proper hand hygiene and the appropriate donning of gloves and gowns. Droplet precautions should be applied for patients/residents with suspected or confirmed influenza for 7 days after illness onset or until 24 hours after fever and respiratory symptoms are gone, whichever is longer. In some cases, facilities may choose to apply droplet precautions for longer periods based on clinical judgment.

Question:

Droplet precautions should be applied to patients/residents with influenza.

***True** or False

Lesson 14: Preventing the Flu: Use Caution when Performing Aerosol-Generating Procedures

Some procedures performed on patients/residents may be more likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking, or breathing. These procedures potentially put health care providers at an increased risk for exposure. Precautions for aerosol-generating procedures include only performing these procedures on individuals with suspected or confirmed influenza if they are medically necessary and cannot be postponed, limiting the number of health care personnel present to only those essential for care and support, conducting the procedure in an airborne infection isolation room, considering the use of a portable HEPA filtration unit, the donning of a face shield or goggles and respiratory protection, allowing sufficient time to remove potentially infectious particles from a room before entry by unprotected health care personnel, and conducting environmental surface cleaning.

Lesson 15: Preventing the Flu: Manage Visitor Access and Movement

Limit visitors for patients/residents in isolation for influenza to those necessary for their emotional well-being and care. Facilities should develop visitor restriction policies that consider the location of the patient/resident and circumstances where exemptions to the restriction may be considered. Visits should be scheduled and controlled to allow for screening visitors for symptoms of respiratory illness and providing instruction on hand hygiene, limiting surfaces touched, use of personal protective equipment, limiting their movement within the facility, and exiting the room during aerosol-generating procedures. Visitors may also be advised to contact their health care provider for information about influenza vaccination.

Question:

Visitors of patients/residents in isolation for influenza should receive instruction on which of the following?

a. Hand hygiene
b. Use of personal protective equipment
c. Limiting the surfaces they touch
d. *All of the above

Lesson 16: Preventing the Flu: Monitor Influenza Activity

The CDC collects, compiles and analyzes information on influenza activity year-round. The United States influenza surveillance system is a group effort between the CDC and its many partners in state and local health departments, public health and clinical laboratories, vital statistics offices, health care providers, and clinics and emergency departments. Information is collected that allow the CDC to find out when and where influenza activity is occurring, track influenza-related illness, determine what viruses are circulating, detect changes in viruses, and measure the impact influenza is having on hospitalizations and deaths. Healthcare organizations should alert their providers if there is increased influenza activity in the community or if an outbreak occurs within the facility.

Lesson 17: Preventing the Flu: Environmental and Engineering Controls

Standard cleaning and disinfection procedures are adequate for influenza virus environmental control. The management of laundry, food service utensils, and medical waste should be performed by following standard procedures. The healthcare organization may also design and install engineering controls to reduce or eliminate exposures by shielding health care providers and other patients/residents from infected individuals and reducing exposures related to specific procedures.

Lesson 18: Conclusion

(NOTE: You may wish to display contact information for the appropriate personnel to contact within your organization.)

Your organization is committed to protecting you, its patients/residents and the community from the flu. And it takes your help! If you have any questions about influenza, including who is responsible for communication with public health officials and the distribution of information to health care providers, contact the appropriate personnel within your organization for guidance and assistance.

Test Questions (10 questions Pre-test or 5 questions Post-test)

Pool 1 (6 or 3 questions)

MULTIPLE CHOICE

1. Which person is least likely to have flu-related complications?
    a. A toddler
    b. A resident of a nursing home
    c. A pregnant woman
    d. An adolescent

2. Studies show that flu antiviral drugs work best for treatment when they are started within how many days of getting sick?
    a. One
    b. Two
    c. Four
    d. Seven

3. Which type(s) of influenza is known to cause seasonal epidemics of disease?
    a. Influenza A and B
    b. Influenza C
    c. Influenza D
    d. Influenza I

4. Which of the following is NOT an example of a flu-related complication?
    a. Pneumonia
    b. Cold sores
    c. Ear infections
    d. Bronchitis

5. Which of the following is NOT one of the four types of influenza viruses?
    a. A
    b. B
    c. C
    d. I

6. The flu does NOT infect which of the following part of the body?
    a. Skin
    b. Nose
    c. Throat
    d. Lungs

7. Respiratory droplets are spread when a person:

a. Coughs
b. Sneezes
c. Talks
d. All of the above.

Pool 2 (4 or 2 questions)

TRUE/FALSE

8. Most adults with the flu are able to infect others up to 7 days after becoming sick.

9. The single best way to prevent the flu is get vaccinated each year.

10. The seasonal flu vaccine protects against influenza C viruses.

11. Antigenic shift is an abrupt, major change in the influenza A viruses.

12. Droplet precautions should be applied to individuals with influenza.

13. Flu viruses spread mainly through respiratory droplets.

14. Respiratory droplets can spread up to 6 feet.

15. Unless contraindicated, all people aged 6 months and older should be vaccinated.

16. You can get the flu from a flu shot.

Influenza – Clinics

Lesson 1: Objectives

At the end of the course, participants will be able to:

- Describe the signs and symptoms of influenza,
- Explain how flu viruses spread,
- List the populations at risk for flu-related complications, and
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Introduction

Influenza (or the flu) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. Individuals who have the flu may develop a fever or chills, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue, and vomiting and diarrhea (although this is more common in children). It can cause mild to severe illness resulting in hospitalization or death. Some individuals, such as older people, young children, and those with certain health conditions, are at high risk for serious flu complications. The best way to prevent the flu is by getting vaccinated each year.

Lesson 2: How does the flu spread?

Flu viruses spread mainly by respiratory droplets made when people with the flu cough, sneeze or talk. The droplets can spread up to 6 feet and land in the mouths or noses of people who are nearby and possibly be inhaled into the lungs. Less often, a person might get the flu by touching a surface or object that has the flu virus on it and then touching their own mouth, eyes or nose.

The time from when a person is exposed and infected with flu to when symptoms begin is about 2 days. Most healthy adults are able to infect others beginning 1 day before symptoms develop and up to 5 to 7 days after becoming sick. They are most contagious in the first 3 to 4 days after their illness begins. That means that you may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Some people can be infected with the flu virus but have no symptoms. During this time, those people may still spread the virus to others. Children and individuals with weakened immune systems may pass the virus even longer.

While flu viruses are detected year-round in the United States, these viruses are most common during the fall and winter. The exact timing and duration of flu seasons can vary, but influenza activity often begins to increase in October. Most of the time flu activity peaks between December and February, although activity can last as late as May.

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Lesson 3: How serious is the flu?

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The single best way to prevent the flu is to get vaccinated each year, but good health habits often can help stop the spread of germs and prevent the flu. Avoid close contact with people who are sick and when you are sick, keep your distance from others to protect them from getting sick too. Stay home for at least 24 hours after your fever is gone except to get medical care or for necessities. When coughing or sneezing be sure to cover your mouth and nose with a tissue and put the used tissue in a waste basket. If you don't have a tissue, cough or sneeze into your upper sleeve or elbow. Wash your hands often with soap and water or use an alcohol-based hand rub. Avoid touching your eyes, nose or mouth. Clean and disinfect frequently touched surfaces. Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids, and eat nutritious food.

Question:

The single best way to prevent the flu is to get vaccinated each year.

***True** or False

Lesson 5: Preventing the Flu: Get vaccinated

There are four types of influenza viruses: A, B, C, and D. Human influenza A and B viruses cause seasonal epidemics of disease almost every winter in the United States. Influenza type C infections cause a mild respiratory illness and are not thought to cause epidemics. Influenza D viruses primarily affect cattle and are not known to infect or cause illness in people. Influenza A (H1N1), A (H3N2), and one or two influenza B viruses are included in each year's influenza vaccine. The seasonal flu vaccine does not protect against influenza C viruses.

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Match the influenza virus type to its description:

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happen continually over time and an immune system exposed to a similar virus will usually recognize it and respond. The other type of change is called “antigenic shift.” Antigenic shift is an abrupt, major change in the influenza A viruses. Shift results in a new influenza A subtype or a virus that is so different that most people do not have immunity. When shift happens, most people have little or no protection against the new virus.

Lesson 7: What are the risks?

You cannot get the flu from a flu vaccine. Side effects may include soreness, redness, tenderness, or swelling where the shot was given, low grade fever, headaches and muscle aches. The intradermal flu shot may cause additional mild side effects including toughness and itching where the shot was given. The risk of a flu shot causing serious harm or death is extremely small. However, a vaccine, like any medicine, may rarely cause serious problems such as a severe allergic reaction. Signs of an allergic reaction can include breathing problems, hoarseness or wheezing, hives, paleness, weakness, a fast heartbeat, or dizziness. Healthcare providers should consider observing all recipients for 15 minutes after vaccination to decrease the risk for injury should they experience dizziness. If an allergic reaction does occur, it is usually within a few minutes to a few hours after receiving the vaccine. These reactions can occur among persons who are allergic to something that is in the vaccine, such as egg protein or other ingredients. It is recommended that those individuals be vaccinated in a medical setting under the supervision of a healthcare provider who can recognize and manage severe allergic conditions. There is a small possibility that influenza vaccine could be associated with Guillain-Barre syndrome with no more than 1 or 2 cases per million people vaccinated.

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them later can still be helpful, especially if the sick person has a high-risk health condition or is very sick from the flu. There are flu antiviral drug options for children and pregnant women as well. Side effects vary for each medication.

Question:

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Lesson 10: Preventing the Flu: Healthcare Organization Strategies

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All health care providers in every healthcare setting should follow standard precautions. This includes proper hand hygiene and the appropriate donning of gloves and gowns. Droplet precautions should be applied for patients with suspected or confirmed influenza for 7 days after illness onset or until 24 hours after fever and respiratory symptoms are gone, whichever is longer.

If you as a health care provider develop a fever and respiratory symptoms you should promptly notify your supervisor. Health care providers that have conditions that place them at higher risk of complications should inform their health care provider immediately if they become ill with an influenza-like illness so they can receive early treatment if indicated.

Question:

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***True** or False

Lesson 11: Preventing the Flu: Monitor Influenza Activity

The CDC collects, compiles and analyzes information on influenza activity year-round. The United States influenza surveillance system is a group effort between the CDC and its many partners in state and local health departments, public health and clinical laboratories, vital statistics offices, health care providers, and clinics and emergency departments. Information is collected that allow the CDC to find out when and where influenza activity is occurring, track influenza-related illness, determine what viruses are

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Lesson 12: Conclusion

(NOTE: You may wish to display contact information for the appropriate personnel to contact within your organization.)

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Pool 2 (4 or 2 questions)

TRUE/FALSE

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