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COVID-19: An Update for 2022

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic is an ever-evolving threat to the United States health care system. Thus, health care professionals must remain up to date on relevant COVID-19 information. With that in mind, this course provides up to date COVID-19 information to build awareness among health care professionals so they may safely and effectively work to optimize patient care.

Section 1: Coronavirus Disease 2019 (COVID-19)

Coronavirus disease 2019 (COVID-19) is caused by an infectious virus that possesses the potential to lead to serious illness and even death. As a result, those patients potentially infected with the COVID-19 virus may require special attention from health care professionals. This section of the course will provide up to date information regarding COVID-19 and the COVID-19 virus to help health care professionals address patient needs. The information found within this section of the course was derived from materials provided by the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) unless, otherwise, specified (Centers for Disease Control and Prevention [CDC], 2022; National Institutes of Health [NIH], 2021). Health care professionals should note that the information found within this course was updated on February 2, 2022.

What is coronavirus disease 2019?

Coronavirus disease 2019 (COVID-19) may refer to a respiratory illness that can spread from person to person that is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Health care professionals should note the following: coronaviruses are a large family of viruses which may cause illness in animals or humans; in humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Severe Acute Respiratory Syndrome (SARS); COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China.

How is the virus that causes COVID-19 transmitted?

It is currently believed that the virus that causes COVID-19 is transmitted or spread through person-to-person contact (note: the term person-to-person contact may refer to the transmission of a communicable disease/illness from a host to a healthy person by way of body fluids (e.g., respiratory droplets, blood)). Essentially, an individual may become infected with COVID-19 from others who have the disease.

Health care professionals should note the following: COVID-19 my spread between people who are in close contact with one another (within approximately six feet); COVID-19 my spread through respiratory droplets produced when an infected person coughs or sneezes.

Health care professionals should note the following: it may be possible for an individual to obtain COVID-19 by touching a surface or an object that has become contaminated with the virus. For example, an individual may become infected with COVID-19 if he or she touches a surface contaminated with the virus and then touches his or her own mouth, nose, and/or eyes.

Health care professionals should note the following: evidence suggests that coronaviruses (including the COVID-19 virus) may persist on surfaces for a few hours or up to several days; research suggests that the COVID-19 virus may live on surfaces for up to 28 days; the survivability of the COVID-19 virus on surfaces may vary under different conditions (e.g., type of surface; temperature or humidity of the environment in which the surface is in). Health care professionals should also note the following: health care professionals should disinfect any surfaces or objects that may be infected with the COVID-19 virus; normal routine cleaning with soap and water removes germs and dirt from surfaces; disinfection/cleaning lowers the risk of spreading COVID-19 infection.

Can COVID-19 virus spread through the air?

It is believed that the virus that causes COVID-19 is mainly transmitted through contact with respiratory droplets (i.e., evidence suggests that the virus that causes COVID-19 is not primarily transmitted through the air).

Can an asymptomatic individual with COVID-19 spread the disease?

The main way the disease spreads is through respiratory droplets expelled by someone who is coughing (i.e., someone who is showing the symptoms of COVID-19).

Health care professionals should note the following: some individuals with COVID-19 may only experience mild symptoms, especially in the early stages of the disease; it is possible for an individual with mild symptoms to transmit COVID-19 to a healthy individual (i.e., an individual that does not appear or feel "sick" may still transmit COVID-19 to healthy individuals).

What is the incubation period for COVID-19?

The term incubation period may refer to the time period between exposure to an infectious agent and the appearance of the first symptoms. Evidence suggests that the estimated incubation period for COVID-19 is between two and 14 days with a median of five days. Health care professionals should note that some individuals become infected and do not develop any symptoms or feel ill.

What are the potential symptoms of COVID-19?

The potential symptoms of COVID-19 include the following: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea.

Health care professionals should note the following: COVID-19 can range from mild symptoms to severe illness; COVID-19 may lead to death.

How should health care professionals assess the need for in-person COVID-19 evaluation?

- When possible, patients with symptoms of COVID-19 should be triaged via telehealth visits to determine whether they require COVID-19-specific therapy and in-person care (note: the term telehealth may refer to the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration).

- Outpatient management may include the use of patient self-assessment tools.

- During initial triage, clinic staff should determine which patients are eligible to receive supportive care at home and which patients warrant an in-person evaluation.

- Local emergency medical services, if called by a patient, may also be of help in deciding whether an in-person evaluation is indicated.

- Patient management plans should be based on the patient's vital signs, physical exam findings, risk factors for progression to severe illness, and the availability of health care resources.

- All patients with dyspnea, oxygen saturation (SpO_2) ≤94% on room air at sea level, or symptoms that suggest higher acuity (e.g., chest pain or tightness, dizziness, confusion or other mental status changes) should be referred for an in-person evaluation by a health care professional.

- The criteria used to determine the appropriate clinical setting for an in-person evaluation may vary by location and institution; it may also change over time as new data and treatment options emerge. There should be a low threshold for in-person evaluation of older persons and those with medical conditions that are associated with a risk of progression to severe COVID-19. The health care professional who performs the initial triage should use his or her clinical judgment to determine whether a patient requires ambulance transport. There are unique considerations for residents of nursing homes and other long-term care facilities who develop acute COVID-19. Decisions about transferring these patients for an in-person evaluation should be a collaborative effort between the resident (or their health care decision maker), a hospital-based specialist (e.g., an emergency physician or geriatrician), and the clinical manager of the facility.

- In some settings where clinical evaluation is challenged by geography, health care professional home visits may be used to evaluate patients. Patients who are homeless should be provided with housing where they can adequately self-isolate. Providers should be aware of the potential adverse effects of prolonged social isolation, including depression and anxiety. All outpatients should receive instructions regarding self-care, isolation, and follow-up, and should be advised to contact a health care professional or a local emergency department for any worsening symptoms.

How may individuals potential suffering from COVID-19 present?

Individuals potentially suffering from COVID-19 may present in a variety of different states including the ones found below.

- **Potential exposure state** - individuals in the potential exposure state may present with reports that they may have been exposed to the COVID-19 virus. Typically, individuals presenting in the potential exposure state will not exhibit symptoms of the COVID-19 virus or appear to be "sick." To help determine if an individual has been exposed to the COVID-19 virus, health care professionals should ask patients the types of questions found below.

  - Why do you believe you have been exposed to the COVID-19 virus?

  - When do you believe you were exposed to the COVID-19 virus?

  - Have you recently traveled?

  - Have you recently traveled internationally?

  - Where have you recently traveled to?

  - When did you recently travel?

  - Where you around anyone with COVID-19?

  - Where you exposed to the COVID-19 virus?

  - Where you around anyone that was recently quarantined due to potential exposure to the COVID-19 virus?

  - Do you know anyone with COVID-19?

  - Do you know anyone that was exposed to the COVID-19 virus?

  - Were you around anyone who has been excessively coughing?

  - Have you been coughing?

  - Have you recently had a fever?

  - Have you been experiencing shortness of breath?

  - Do you feel sick?

- **Mild symptom state** - individuals in the mild symptom state may not appear "sick." However, they may present with reports of the following symptoms: fever,

chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea. Individuals presenting in the mild symptom state, once diagnosed with COVID-19, may require health care. If a health care professional is administering care to an individual in the mild symptom state, with confirmed COVID-19, he or she should follow his or her health care organization's policies and procedures regarding COVID-19 or related diseases. Health care professional should note that individuals in the mild symptom state may transmit the COVID-19 virus to healthy individuals, including health care professionals, through person-to-person contact. Health care professionals should also note the following: in order to provide context for diagnosis/health care, health care professionals should attempt to ask patients in the mild symptom state the types of questions found below.

- When do you believe you were exposed to the COVID-19 virus?

- When did you start to experience symptoms?

- When did your symptoms begin?

- How long have you been experiencing symptoms?

- Have you recently traveled?

- Have you recently traveled internationally?

- Where have you recently traveled to?

- When did you recently travel?

- Did you start experiencing symptoms before you traveled?

- Did you start experiencing symptoms after you returned from traveling?

- Have you been in close contact with other individuals?

- Have you been in public locations?

- Have you been in close proximity with other individuals for a prolonged period of time?

- **Severe illness state** - individuals presenting in the severe illness state will appear to be "sick," and should exhibit symptoms of COVID-19. Individuals presenting in

the severe illness state may also be suffering from some of the complications of COVID-19, which include pneumonia in both lungs. Additionally, individuals presenting in the severe illness state may suffer from the following: breathing difficulties, persistent pain or pressure in the chest, new confusion, an inability to wake or stay awake, and/or bluish lips or face. Individuals in the severe illness state may require immediate health care, and should be triaged accordingly. Health care professionals should follow their specific health care organization's policies and procedures regarding COVID-19 when administering health care to patients in the severe illness state. Health care professional should note that individuals in the severe illness state may transmit the COVID-19 virus to healthy individuals, including health care professionals, through person-to-person contact. Health care professionals should also note the following: in order to provide context for diagnosis/health care, health care professionals should attempt to ask patients in the severe illness state the types of questions found below.

- When do you believe you were exposed to the COVID-19 virus?

- When did you start to experience symptoms?

- When did your symptoms begin?

- How long have you been experiencing symptoms?

- When did your symptoms become severe?

- What are your current symptoms?

- Have you recently traveled?

- Have you recently traveled internationally?

- Are you currently taking any medications?

- What medications are you currently taking?

How is COVID-19 diagnosed?

The diagnostic process for COVID-19 may include the use of the viral test or an antibody test.

- The viral test checks specimens from the nose or mouth (saliva) to determine if an individual is infected with the COVID-19 virus. The two types of viral test include nucleic acid amplification tests (NAATs) and antigen tests.

  - **Nucleic acid amplification tests (NAATs)** - NAATs detect the COVID-19 virus's genetic material and are commonly used in laboratories.

  - **Antigen tests** - antigen tests detect viral proteins (note: antigen tests may not be as sensitive as NAATs; the results of an antigen test may need to be confirmed with a NAAT).

- Antibody tests, otherwise referred to as serology tests, may be used to determine if an individual was infected with COVID-19 in the past. Essentially, antibody tests assess for the presence of antibodies in the blood to determine if an individual was infected with the COVID-19 virus.

Health care professionals should note the following: COVID-19 rapid point-of-care tests may refer to tests performed or interpreted by someone other than the individual being tested; rapid point-of-care tests can be performed in minutes and can include antigen and some NAATs; COVID-19 self-tests may refer to rapid tests that can be taken at home or anywhere, and produce rapid results.

What are the vaccines currently available for the prevention of COVID-19?

The following vaccines are currently available for the prevention of COVID-19: the Pfizer-BioNTech COVID-19 vaccine, the Moderna COVID-19 vaccine, and the Johnson & Johnson's Janssen vaccine (note: the aforementioned COVID-19 vaccines are authorized or approved for use in the United States to prevent COVID-19; Pfizer-BioNTech or Moderna (COVID-19 mRNA vaccines) are preferred; vaccines reduce the risk of severe illness, hospitalization, and death from COVID-19). Specific information regarding the aforementioned vaccines may be found below.

Pfizer-BioNTech COVID-19 vaccine

- Recommended for individuals five plus years old.

- Primary Series - two doses given three weeks (21 days) apart.

- Booster dose - individuals ages 18 years and older should receive a booster dose of either the Pfizer-BioNTech or Moderna COVID-19 vaccine five months after the last dose in their primary series; teens 12 - 17 years old should get a Pfizer-BioNTech COVID-19 vaccine booster five months after the last dose in their primary series.

- When are individuals fully vaccinated - individuals who receive the Pfizer-BioNTech COVID-19 vaccine are fully vaccinated two weeks after the second dose.

Moderna COVID-19 vaccine

- Recommended for individuals 18 plus years old.

- Primary Series - two doses given four weeks (28 days) apart.

- Booster Dose - individuals ages 18 years and older should receive a booster dose of either the Pfizer-BioNTech or Moderna COVID-19 vaccine five months after the last dose in their primary series.

- When are individuals fully vaccinated - individuals who receive the Moderna COVID-19 vaccine are fully vaccinated two weeks after the second dose.

Johnson & Johnson's Janssen vaccine

- Recommended for individuals 18 plus years old.

- Primary Series - one dose.

- Booster Dose - individuals ages 18 years and older should receive a booster dose of either the Pfizer-BioNTech or Moderna COVID-19 vaccine at least two months after the first dose of the Johnson & Johnson's Janssen COVID-19 vaccine.

- When are individuals fully vaccinated - individuals who receive the Johnson & Johnson's Janssen vaccine are fully vaccinated two weeks after the first dose.

What medications should be used for pre-exposure prophylaxis for SARS-CoV-2 infection?

The COVID-19 Treatment Guidelines Panel recommends using tixagevimab plus cilgavimab (Evusheld) administered as intramuscular injections as SARS-CoV-2 pre-exposure prophylaxis (PrEP) for adults and adolescents (aged ≥12 years and weighing

≥40 kg) who do not have SARS-CoV-2 infection, who have not been recently exposed to an individual with SARS-CoV-2 infection, and who: are moderately to severely immunocompromised and may have an inadequate immune response to COVID-19 vaccination; are not able to be fully vaccinated with any available COVID-19 vaccines due to a documented history of severe adverse reaction to a COVID-19 vaccine or any of its components.

Health care professionals should note the following: tixagevimab plus cilgavimab is not a substitute for COVID-19 vaccination and should not be used in unvaccinated individuals for whom COVID-19 vaccination is recommended and who are anticipated to have an adequate response; if supplies of tixagevimab plus cilgavimab are limited, priority for use as PrEP should be given to those who are at the highest risk for severe COVID-19.

What are the treatment options for COVID-19?

Treatment options for COVID-19 include medications (e.g., acetaminophen; ibuprofen; sotrovimab) and supportive care. Specific recommendations regarding COVID-19 treatment may be found below.

- The COVID-19 Treatment Guidelines Panel recommends the following: management of nonhospitalized patients with acute COVID-19 should include providing supportive care, considering the use of COVID-19-specific therapy for patients who have a high risk for disease progression, taking steps to reduce the risk of SARS-CoV-2 transmission (e.g., isolating patients), and advising patients on when to contact a health care professional and seek an in-person evaluation.

- The COVID-19 Treatment Guidelines Panel recommends the following: when possible, patients with symptoms of COVID-19 should be triaged via telehealth visits to determine whether they require COVID-19-specific therapy and in-person care.

- The COVID-19 Treatment Guidelines Panel recommends the following: patients with dyspnea should be referred for an in-person evaluation by a health care professional and should be followed closely during the initial days after the onset of dyspnea to assess for worsening respiratory status.

- The COVID-19 Treatment Guidelines Panel recommends the following: management plans should be based on a patient's vital signs, physical exam

findings, risk factors for progression to severe illness, and the availability of health care resources.

- The COVID-19 Treatment Guidelines Panel recommends using a single intravenous infusion of sotrovimab 500 mg, administered as soon as possible and within 10 days of symptom onset, to treat nonhospitalized patients (aged ≥12 years and weighing ≥40 kg) with mild to moderate COVID-19 who are at high risk of clinical progression, as defined by criteria in the Food and Drug Administration (FDA) Emergency Use Authorization (EUA) for the product.

Health care professionals should note the following: antiviral medications reduce the ability of a virus to multiply and spread through the patient's body; monoclonal antibody treatments may help the immune system recognize and respond more effectively to the SARS-CoV-2 virus; oral antiviral medications that target specific parts of the SARS-CoV-2 virus can help reduce its multiplication and spread through a patient's body.

What are the patient risk groups for prioritizing the use of COVID-19 therapy?

The patient risk groups for prioritizing the use of COVID-19 therapy include Tier 1 through Tier 4 patients. Specific information regarding Tier 1 through Tier 4 patients may be found below. The information found below was derived from materials provided by the NIH (NIH, 2022).

- **Tier 1 patients** - Tier 1 patients include: immunocompromised individuals who are not expected to mount an adequate immune response to COVID-19 vaccination or SARS-CoV-2 infection due to their underlying conditions, regardless of their vaccine status; or unvaccinated individuals who are at the highest risk of severe disease (e.g., anyone aged ≥75 years or anyone aged ≥65 years with additional risk factors).

- **Tier 2 patients** - Tier 2 patients include unvaccinated individuals who are at risk of severe disease and who are not included in Tier 1 (e.g., anyone aged ≥65 years or anyone aged <65 years with clinical risk factors).

- **Tier 3 patients** - Tier 3 patients include vaccinated individuals who are at high risk of severe disease (e.g., anyone aged ≥75 years or anyone aged ≥65 years with clinical risk factors); vaccinated individuals who have not received a COVID-19 vaccine booster dose are likely to be at higher risk for severe disease; patients

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who did not receive a booster dose and who are within Tier 3 should be prioritized for treatment.

- **Tier 4 patients** - Tier 4 patients include: vaccinated individuals who are at risk of severe disease (e.g., anyone aged ≥65 years or anyone aged <65 with clinical risk factors); vaccinated individuals who have not received a COVID-19 vaccine booster dose are likely to be at higher risk for severe disease; patients who have not received a booster dose and who are within this tier should be prioritized for treatment.

How should health care professionals counsel patients regarding the need for a COVID-19 medical follow-up?

- Health care professionals should identify patients who are at high risk for disease progression. These patients may be candidates for anti-SARS-CoV-2 monoclonal antibody treatments, and health care professionals should ensure that these patients receive adequate medical follow-up.

- The frequency and duration of a medical follow-up depends on the risk for severe disease, the severity of symptoms, and the patient's ability to self-report worsening symptoms. Health care professionals should determine whether a patient has access to a phone, computer, or tablet for telehealth; whether the patient has adequate transportation for clinic visits; and whether the patient has regular access to food. The health care professional should also confirm that the patient has a caregiver who can assist with daily activities if needed.

- All patients and/or their family members or caregivers should be counseled about the warning symptoms that should prompt re-evaluation through a telehealth visit or an in-person evaluation in an ambulatory care setting or emergency department (e.g., dyspnea; worsening dyspnea; dizziness; mental status changes, such as confusion).

What should health care professionals know about emerging COVID-19 variants?

Viruses constantly change through mutation. Virus mutations lead to variants. Multiple variants of the virus that causes COVID-19 are currently being documented in the United

States and throughout the world (note: new variants of the COVID-19 virus are expected to occur; taking steps to reduce the spread of infection, including getting a COVID-19 vaccine, are the best way to slow the emergence of new variants). Specific information regarding the major COVID-19 variants may be found below. The information found below was derived from materials provided by the CDC (CDC, 2021).

- **Variant B.1.1.7** - variant B.1.1.7 was identified in the United Kingdom (UK) in the Fall of 2020. Variant B.1.1.7 spreads easily and quickly when compared to other COVID-19 variants. Research indicates that variant B.1.1.7 may be associated with an increased risk of death compared to other COVID-19 variants. Health care professionals should note that variant B.1.1.7 was first detected in the United States at the end of December 2020.

- **Variant B.1.351** - variant B.1.351 emerged independently in South Africa. Variant B.1.351 also spreads easily and quickly when compared to other COVID-19 variants. Variant B.1.351 may also be more deadly. Health care professionals should note that variant B.1.351 was detected in the United States at the end of January 2021.

- **Variant P.1** - variant P.1 emerged in Brazil, and was first identified in travelers from Brazil, who were tested during routine screening. Variant P.1 contains a set of additional mutations that may affect its ability to be recognized by antibodies. Health care professionals should note that variant P.1 was first detected in the United States at the end of January 2021.

- **Delta variant** (otherwise referred to as variant B.1.617.2) - the Delta variant was first identified in India. The Delta variant spreads more easily when compared to other variants. The Delta variant may cause more severe COVID-19 cases when compared to other variants. Health care professionals should note the following: breakthrough infections in people who are fully vaccinated are expected, but vaccines are effective at preventing severe illness, hospitalizations, and death; early evidence suggests that fully vaccinated people who become infected with the Delta variant can spread the virus to others; all FDA-approved or authorized vaccines are effective against severe illness, hospitalization, and death; nearly all variants circulating in the United States respond to treatment with FDA-authorized monoclonal antibody treatments.

- **Omicron variant** (otherwise referred to as variant B.1.1.529) - the Omicron variant was first identified in South Africa. The Omicron variant may spread more

easily when compared to other variants, including the Delta variant. Health care professionals should note the following: breakthrough infections in people who are fully vaccinated are expected, but vaccines are effective at preventing severe illness, hospitalizations, and death. Early evidence suggests that fully vaccinated people who become infected with the Omicron variant can spread the virus to others; all FDA-approved or authorized vaccines are expected to be effective against severe illness, hospitalizations, and deaths; the recent emergence of the Omicron variant further emphasizes the importance of vaccination and boosters; some monoclonal antibody treatments may not be as effective against infection with Omicron.

What are the responsibilities of health care organizations regarding the COVID-19 virus?

Health care organizations, such as hospitals, may have several responsibilities related to the COVID-19 virus. Some of the more essential COVID-19 virus-related responsibilities may be found below.

- Health care organizations should take overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks - health care organizations should take measures to protect the health of their health care professional staff; health care organizations should have policies and procedures, related to the COVID-19 virus or infectious disease outbreaks, in place to help guide health care professionals administering care to patients in need.

- Health care organizations should provide information, instruction and training on occupational safety and health - health care organizations should make sure their health care professional staff receives education and training regarding the COVID-19 virus.

- Health care organizations should provide the appropriate tools necessary to assess, triage, test, and treat patients - it is the responsibility of health care organizations to ensure health care professionals have the necessary equipment to administer health care to patients suffering from COVID-19.

- Health care organizations should ensure health care professionals adhere to infection prevention and control recommendations and procedures - it is essential

that health care professionals adhere to infection prevention and control recommendations/procedures to help contain COVID-19 outbreaks.

- Health care organizations should provide appropriate security measures for personal safety - health care organizations should ensure the personal safety of all employees.

- Health care organizations should provide channels for COVID-19 virus-related incident reporting - during the process of administering care to patients suffering from COVID-19, health care professionals may experience incidents that may require further investigation. It is the responsibility of health care organizations to ensure internal channels exist for efficient and effective incident reporting.

- Maintain appropriate working hours with breaks - in the face of an COVID-19 virus outbreak, health care professionals may be expected to work extended hours with little to no breaks. It is the responsibility of health care organizations to ensure health care professionals work hours consistent with professional mandates.

- Allow health care professionals to exercise the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their life or health - if a health care professional believes his or her life is in danger, the health care professional has the right to remove his or herself from any perceived imminent and/or serious danger to life. It is the responsibility of the health care organization to ensure a health care professional can exercise that right without fear of consequences.

- Provide access to mental health and counseling resources - the act of providing health care during an outbreak can have psychological effects on health care professionals. Health care organizations should provide some form of access to mental health and counseling for staff.

- Acknowledge the right to compensation, rehabilitation, and curative services if infected with COVID-19 following exposure in the workplace - it is possible for a health care professional to become infected with the COVID-19 virus when administering health care to patients with COVID-19. If a health care professional becomes infected with the COVID-19 virus when administering health care, it may be considered to be occupational exposure and any resulting illness may be considered to be an occupational disease. If occupational exposure and illness occurs, it is the responsibility of health care organizations to acknowledge the

right compensation, rehabilitation and curative services for any applicable employee.

- Establish effective communication between management and staff - effective communication may be essential to the safe and effective administration of health care to patients during a COVID-19-related outbreak. It is the responsibility of health care organizations to ensure effective internal communication channels are in place to foster open communication among management and staff.

- Allow health care professionals an opportunity to receive COVID-19 vaccination - all health care organizations should ensure relevant health care professionals receive and maintain COVID-19 vaccinations.

What are the responsibilities of health care professionals regarding the COVID-19 virus?

Health care professionals may have several responsibilities related to the COVID-19 virus. Some of the more essential COVID-19 virus-related responsibilities may be found below.

- Health care professionals should follow their specific health care organization's policies and procedures regarding the COVID-19 virus - as previously mentioned, health care organizations should have COVID-19 virus and/or infectious disease outbreak-related polices and procedure in place to help guide health care professionals administering care to patients in need. It is the responsibility of health care professionals to follow any related COVID-19 virus organizational polices/procedures. If no such polices/procedures exist, health care professionals may consider developing such polices/procedures.

- Maintain patient confidentiality - health care professionals should follow patient confidentiality laws and regulations, such as those outlined in the Health Insurance Portability and Accountability Act of 1996 (HIPAA), when administering health care to patients with COVID-19.

- Follow established public health reporting procedures for potential/confirmed cases of COVID-19 - it is important that health care professionals follow established public health reporting procedures for potential/confirmed cases of COVID-19 to help contain COVID-19 outbreaks.

- Adhere to infection prevention and control recommendations and procedures - it is essential that health care professionals adhere to infection prevention and control recommendations/procedures to help contain COVID-19 outbreaks.

- Self-monitor for symptoms of COVID-19 - it is possible for health care professionals to become infected with the COVID-19 virus. Therefore, it is vital that health care professionals self-monitor for symptoms of COVID-19. The potential symptoms of COVID-19 include the following: fever, cough, shortness of breath, tiredness, aches and pain, nasal congestion, runny nose, sore throat, and diarrhea.

- Report potential/confirmed COVID-19 - if health care professionals believe they are infected with the COVID-19 virus or have a confirmed case of COVID-19, they should report any such information to their health care organization(s) of employment.

- Report any COVID-19 virus-related incidents that warrant investigation - it is the responsibility of the individual health care professional to report any COVID-19 virus-related incidents that warrant investigation to their health care organization. If incident reporting channels do not exist within their health care organization, health care professionals should consider developing or advocating for such channels.

- Adequately monitor patients with COVID-19 - COVID-19 may lead to serious illness and even death. Thus, patients diagnosed with COVID-19 should be monitored by health care professionals, when applicable (note: special patient populations, such as older adult patient populations, may require additional monitoring; the term older adult may refer to an individual 65 years or older).

- Immediately report any situation which presents an imminent and serious danger to life or health - it is paramount that health care professionals immediately report any situation which presents an imminent and serious danger to life or health. Health care professionals may report such incidents to their health care manger/supervisor.

- Complete effective health care documentation - health care documentation may refer to a digital or an analog record detailing the administration of health care to patients. If completed effectively, health care documentation can be used in daily practice by health care professionals to communicate vital patient information to other health care professionals in order to facilitate positive health care outcomes

and to decrease the potential for negative health care outcomes, such as adverse events and patient mortalities. Regarding COVID-19, effective health care documentation may be used as a method to review patient cases and to ensure all aspects of an individual patient's health care are noted and evaluated to maximize therapeutic outcomes. Health care professionals should note the following: in order for health care documentation to be considered effective, it must function as a viable form of communication, as well as a means to establish a detailed record of health care administration.

- Maintain effective communication with managers, supervisors, other health care professionals, and patients - as previously mentioned, effective communication may be essential to the safe and effective administration of health care to patients during a COVID-19-related outbreak. Health care professionals should work to maintain effective communication with managers, supervisors, other health care professionals, and patients. Health care professionals should note that effective communication occurs when the intended meaning of messages and/or transmitted information is received by the intended party or parties.

Section 1 Summary

COVID-19 is a respiratory illness that can spread from person to person that is caused by a virus known as SARS-CoV-2. It is believed that the COVID-19 virus is primarily transmitted through respiratory droplets produced when an infected person coughs or sneezes. Evidence suggests that the estimated incubation period for COVID-19 is between two and 14 days with a median of five days. The potential symptoms of COVID-19 include the following: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea. Individuals potentially suffering from COVID-19 may present in the following states: potential exposure state, mild symptom state, and severe illness state. It is vital that health care professionals identify those individuals potentially suffering from COVID-19. Finally, health care organizations and health care professionals should ensure that they meet their COVID-19 virus-related responsibilities to foster the administration of safe and effective health care to patients in need.

Section 1 Key Concepts

- Coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases, such as SARS.

- COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China.

- It is believed that the virus that causes COVID-19 is transmitted or spread through person-to-person contact; it is also believed that the COVID-19 virus is primarily transmitted through respiratory droplets produced when an infected person coughs or sneezes.

- Evidence suggests that the estimated incubation period for COVID-19 is between two and 14 days with a median of five days; health care professionals should note that some individuals become infected and do not develop any symptoms or feel ill.

- The potential symptoms of COVID-19 include the following: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea.

- When possible, patients with symptoms of COVID-19 should be triaged via telehealth services to determine whether they require COVID-19-specific therapy and in-person care.

- Individuals potentially suffering from COVID-19 may present in the following states: potential exposure state, mild symptom state, and severe illness state.

- The diagnostic process for COVID-19 may include the use of the viral test or an antibody test.

- The following vaccines are available for the prevention of COVID-19: the Pfizer-BioNTech COVID-19 vaccine, the Moderna COVID-19 vaccine, and the Johnson & Johnson's Janssen vaccine.

- In some patient cases, tixagevimab plus cilgavimab (Evusheld), administered as intramuscular injections, may be used as SARS-CoV-2 pre-exposure prophylaxis (PrEP).

- Treatment options for COVID-19 include medications and supportive care.

- The patient risk groups for prioritizing the use of COVID-19 therapy include Tier 1 through Tier 4 patients.

- Health care professionals should counsel patients regarding the need for a COVID-19 medical follow-up.

- Multiple variants of the virus that causes COVID-19 are currently being documented in the United States and throughout the world .

- Health care organizations' COVID-19 virus-related responsibilities include: take overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks, provide information, instruction and training on occupational safety and health, provide the appropriate tools necessary to assess, triage, test and treat patients, ensure health care professionals adhere to infection prevention and control recommendations and procedures, provide appropriate security measures for personal safety, provide channels for COVID-19 virus-related incident reporting, maintain appropriate working hours with breaks, allow health care professionals to exercise the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their life or health, provide access to mental health and counseling resources, acknowledge the right to compensation, rehabilitation and curative services if infected with COVID-19 following exposure in the workplace, establish effective communication between management and staff, and allow health care professionals an opportunity to receive the COVID-19 vaccine.

- Health care professionals' COVID-19 virus-related responsibilities include: follow their specific health care organization's policies and procedures regarding the COVID-19 virus, maintain patient confidentiality, follow established public health reporting procedures for potential/confirmed cases of COVID-19, adhere to infection prevention and control recommendations and procedures, self-monitor for symptoms of COVID-19, report potential/confirmed COVID-19, report any COVID-19 virus-related incidents that warrant investigation, adequately monitor patients with COVID-19, immediately report any situation which presents an imminent and serious danger to life or health, complete effective health care documentation, and maintain effective communication with managers, supervisors, other health care professionals, and patients.

Section 1 Key Terms

Coronavirus disease 2019 (COVID-19) - a respiratory illness that can spread from person to person that is caused by a virus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Person-to-person contact - the transmission of a communicable disease/illness from a host to a healthy person by way of body fluids (e.g., respiratory droplets, blood)

Incubation period - the time period between exposure to an infectious agent and the appearance of the first symptoms

Telehealth - the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration

COVID-19 rapid point-of-care tests - tests performed or interpreted by someone other than the individual being tested

COVID-19 self-tests - rapid tests that can be taken at home or anywhere, and produce rapid results

Temperature monitoring device (TMD) - a measurement instrument that is capable of recording temperature over a defined period of time

Older adult - an individual 65 years or older

Health care documentation - a digital or an analog record detailing the administration of health care to patients

Section 1 Personal Reflection Question

How can health care professionals effectively identify an individual with COVID-19?

Section 2: COVID-19 Prevention/Standard Precautions

It is important for health care professionals to possess insight into COVID-19 in order to identify those patients with COVID-19 and to, ultimately, administer safe and effective health care to those patients in need. With that said, health care professionals should also possess insight into how to prevent the transmission of the COVID-19 virus. To help prevent the transmission of the COVID-19 virus, health care professionals should adhere to Standard Precautions. Standard Precautions may refer to the minimum infection

prevention measures that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where health care is delivered. Although Standard Precautions represent minimum infection prevention measures, they can be essential to preventing the transmission of the COVID-19 virus. That being the case, this section of the course will review the key elements of Standard Precautions, which include hand hygiene, the use of personal protective equipment (e.g., gloves, gowns, facemasks), respiratory hygiene and cough etiquette, safe injection practices, and the safe handling of potentially contaminated equipment or surfaces in the patient environment. The information found within this section of the course was derived from materials provided by the CDC (CDC, 2018).

Hand Hygiene

Hand hygiene may refer to any action of hand cleansing. Relevant information regarding adequate hand hygiene may be found below.

- Health care professionals may use a variety of different products to carry out adequate hand hygiene including the following: plain soap, antimicrobial (medicated) soap, antiseptic agents, and alcohol-based handrubs.

- Plain soap may refer to detergents that contain no added antimicrobial agents or may contain these solely as preservatives; antimicrobial (medicated) soap may refer to soap (detergent) containing an antiseptic agent at a concentration sufficient to inactivate microorganisms and/or temporarily suppress their growth; the detergent activity of such soaps may also dislodge transient microorganisms or other contaminants from the skin to facilitate their subsequent removal by water; an antiseptic agent may refer to an antimicrobial substance that inactivates microorganisms or inhibits their growth on living tissues, examples include alcohols, chlorhexidine gluconate (CHG), chlorine derivatives, iodine, chloroxylenol (PCMX), quaternary ammonium compounds and triclosan; an alcohol-based handrub may refer to an alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to inactivate microorganisms and/ or temporarily suppress their growth, such preparations may contain one or more types of alcohol, other active ingredients with excipients and humectants.

- The major indications for hand hygiene include the following five key moments in health care administration:

  1. Before patient contact

2. Before an aseptic procedure or task

3. After a body fluid exposure risk occurs

4. After touching a patient

5. After contact with a patient's surroundings

- •Health care professionals should wash their hands with soap and water when they are visibly dirty or visibly soiled with blood or other body fluids or after using the toilet.

- Health care professionals should use an alcohol-based handrub when their hands are not visibly soiled to reduce bacterial counts.

- Health care professionals should engage in hand hygiene if exposure to potential spore-forming pathogens is strongly suspected or proved (handwashing with soap and water is the preferred means).

- Health care professionals should engage in hand hygiene before handling an invasive device for patient care.

- Health care professionals should engage in hand hygiene after contact with body fluids or excretions, mucous membranes, non-intact skin, or wound dressings.

- Health care professionals should engage in hand hygiene if moving from a contaminated body site to another body site during the care of the same patient.

- Health care professionals should engage in hand hygiene after contact with inanimate surfaces and objects (including medical equipment) in the immediate vicinity of a patient.

- Health care professionals should engage in hand hygiene after removing sterile or non-sterile gloves.

- Health care professionals should engage in hand hygiene before handling medications (hand hygiene in the previous case may include the use an alcohol-based handrub or handwashing with either a plain or antimicrobial soap and water).

- Health care professionals should engage in hand hygiene before preparing food (hand hygiene in the previous case may include the use an alcohol-based handrub or handwashing with either a plain or antimicrobial soap and water).

- When engaging in hand hygiene, health care professionals should remember the following note: soap and an alcohol-based handrub should not be used concomitantly.

- Health care professionals should follow the steps in the following procedure when washing their hands with soap and water to optimize hand hygiene results. The duration of the entire handwashing procedure should last between 40 - 60 seconds.

Hand Hygiene Procedure with Soap and Water

1. The health care professional should wet his or her hands with water.

2. The health care professional should apply enough soap to cover all hand surfaces.

3. The health care professional should rub his or her hands palm to palm.

4. The health care professional should rub the right palm over the left dorsum with interlaced fingers and vice versa.

5. The health care professional should rub his or her hands palm to palm with fingers interlaced.

6. The health care professional should rub the backs of fingers to opposing palms with fingers interlocked.

7. The health care professional should engage in rotational rubbing of the left thumb clasped in the right palm and vice versa.

8. The health care professional should engage in rotational rubbing, backwards and forwards with clasped fingers of the right hand in the left palm and vice versa.

9. The health care professional should then rinse his or her hands with water.

10. The health care professional should then dry his or her hands thoroughly with a single use towel.

11. Finally, the health care professional should use a towel to turn off the faucet.

- Health care professionals should follow the steps in the following procedure when using an alcohol-based formulation to optimize hand hygiene results. The

duration of the entire procedure should last between 20 - 30 seconds. When using an alcohol-based formulation health care professionals should note the following: alcohol-based handrubs with optimal antimicrobial efficacy usually contain 75% to 85% ethanol, isopropanol, or n-propanol, or a combination of the aforementioned products.

<u>Hand Hygiene Procedure with an Alcohol-Based Formulation</u>

1. The health care professional should first apply a palmful of alcohol-based product in a cupped hand, making sure to cover all surfaces.

2. The health care professional should then rub his or her hands palm to palm.

3. The health care professional should rub the right palm over the left dorsum with interlaced fingers and vice versa.

4. The health care professional should rub his or her hands palm to palm with fingers interlaced.

5. The health care professional should rub the backs of his or her fingers to opposing palms with fingers interlocked.

6. The health care professional should engage in the rotational rubbing of the left thumb clasped in the right palm and vice versa.

7. The health care professional should engage in rotational rubbing, backwards and forwards with clasped fingers of the right hand in the left palm and vice versa.

8. Finally, health care professionals should note that their hands are safe once they are dry.

- Health care professionals should follow the steps in the following procedure when using an alcohol-based formulation to optimize surgical hand hygiene results.

<u>Surgical Hand Preparation Procedure with an Alcohol-Based Hand rub Formulation</u>

Before beginning the procedure health care professionals should note the following:

- The hand rubbing procedure for surgical hand preparation should be performed on clean dry hands.

- Health care professionals should handwash with soap and water on arrival to an operating theatre and after having donned theatre clothing (cap/hat/bonnet and mask).

- If any residual talc or biological fluids are present when gloves are removed following the operation, handwash with soap and water.

1. Health care professionals should put approximately 5ml (3 doses) of alcohol-based handrub in the palm of their left hand, using the elbow of their other arm to operate the dispenser.

2. Health care professionals should dip the fingertips of their right hand in the handrub to decontaminate under the nails (5 seconds).

3. Health care professionals should spread the handrub on the right forearm up to the elbow, ensuring that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (10 - 15 seconds).

4. Health care professionals should put approximately 5ml (3 doses) of alcohol-based handrub in the palm of their right hand, using the elbow of their other arm to operate the dispenser.

5. Health care professionals should dip the fingertips of their left hand in the handrub to decontaminate under the nails (5 seconds).

6. Health care professionals should spread the handrub on the left forearm up to the elbow, ensuring that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (10 - 15 seconds).

7. Health care professionals should put approximately 5ml (3 doses) of alcohol-based handrub in the palm of their left hand and rub both hands at the same time up to the wrists, following all of the next steps (20 - 30 seconds).

8. Cover the whole surface of the hands up to the wrist with alcohol-based handrub, rubbing palm against palm with a rotating movement.

9. Rub the back of the left hand, including the wrist, moving the right palm back and forth, and vice-versa.

10. Rub palm against palm back and forth with fingers interlinked.

11. Rub the back of the fingers by holding them in the palm of the other hand with a sideways back and forth movement.

12. Rub the thumb of the left hand by rotating it in the clasped palm of the right hand and vice versa.

13. When the hands are dry, sterile surgical clothing and gloves can be donned.

14. Health care professionals should repeat the above procedure (average 60 seconds) the number of times that adds up to the total duration recommended by the alcohol-based handrub manufacturer's instructions. This could be two or even three times.

Personal Protective Equipment

Personal protective equipment (PPE) may refer to equipment designed to protect, shield and minimize exposure to hazards that may cause serious injury, illness and/or disease. Essentially, donning PPE can prevent the spread of infectious materials and agents to patients/health care professionals. PPE can include a variety of different types of equipment such as: gowns, masks, goggles, face shields, respirators and, of course, gloves. Specific information regarding individual pieces of PPE may be found below.

Gown

Background information - The gown may be one of the most recognizable pieces of PPE. The purpose of a gown is to protect an individual's torso and arms from potential contamination. Gowns are typically clean or sterile and often resistant to fluids.

Donning PPE - When putting on a gown, a health care professional should make sure the gown completely covers his or her torso from the neck to the knees. The gown should also completely cover a health care professional's arms and wrists. Additionally, a gown should be wrapped around the back and fastened at the back of the neck and waist.

Removing PPE - To effectively remove a gown, a health care professional should unfasten the gown's ties and pull the gown away from the neck and shoulders. When the gown is

removed from the body, it should be rolled or folded and placed in the appropriate waste container. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Mask

Background information - The mask is another very recognizable piece of PPE. The purpose of a mask is to protect a health care professional's face from potentially infectious materials.

Donning PPE - When putting on a mask, a health care professional should make sure the mask completely covers his or her mouth and nose. A health care professional should also ensure a mask fits snugly to the face and below the chin. Often masks can be secured to the head and neck via separate ties.

Removing PPE - To effectively remove a mask, a health care professional should untie the bottom ties, if applicable, followed by the upper ties. The mask should then be pulled off and discarded in the appropriate waste container. A health care professional should not touch a contaminated mask. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Goggles

Background information - Goggles are typically worn with a mask. The purpose of goggles is to protect the eyes from potentially infectious materials.

Donning PPE - When putting on goggles, a health care professional should make sure the goggles fit snugly around the eyes. If a health care professional wears personal prescription lenses, the goggles should fit snugly around his or her personal prescription lenses. Furthermore, goggles should be properly adjusted on the face to maximize vision and protection.

Removing PPE - To effectively remove goggles from the face, a health care professional should take off the goggles from the back by lifting the goggle's band and pulling them forward. If the goggles are not reusable they should be placed in the appropriate waste container. A health care professional should not touch contaminated goggles. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Face Shields

Background information - A face shield can be worn in place of goggles. The purpose of a face shield is to protect the eyes, nose, and mouth from potentially infectious materials.

Donning PPE - When putting on a face shield, health care professionals should make sure the face shield covers the forehead, extends below the chin, and wraps around the side of the face.

Removing PPE - To effectively remove a face shield, a health care professional should take off the face shield from the back by lifting the face shield's band and pulling it forward. If the face shield is not reusable, it should be placed in the appropriate waste container. A health care professional should not touch a contaminated face shield. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Respirator

Background information - The purpose of a respirator is to protect a health care professional from hazardous and/or infectious aerosols. There are many types of respirators available to health care professionals including: particulate respirators, half-face elastomeric respirators, full-face elastomeric respirators, and powered air purifying respirators. The most common type of respirators used by health care professionals are particulate respirators. When selecting a specific type of respirator, health care professionals should consider the type of exposure risk associated with patient care. A "fit test" may be required to determine the appropriate size respirator needed for each individual health care professional. Health care professionals may also require training regarding how and when to use a respirator.

Donning PPE - When putting on a respirator, a health care professional should make sure the respirator completely covers his or her mouth and nose. Health care professionals should also ensure the respirator fits snug to the face and below the chin. Additionally, a health care professional should be sure the respirator is properly sealed.

Removing PPE - To effectively remove a respirator, a health care professional should untie the bottom ties, if applicable, followed by the upper ties. The respirator should then be pulled off and discarded in the appropriate waste container. A health care professional should not touch a contaminated respirator. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Gloves

Background information - Gloves are often the most common piece of PPE used by health care professionals. The two main reasons why health care professionals should wear gloves include the following - to reduce the risk of contamination of health care professionals' hands with blood and other body fluids and to reduce the risk of germ dissemination to the environment and/or transmission from the health care worker to the patient and vice versa, as well as from one patient to another. When wearing gloves, health care professionals should avoid touch contamination. Touch contamination may refer to touching one's self and/or other surfaces such as tables, light switches, and doors while wearing gloves. Touch contamination may lead to contamination and/or the passing of potentially infectious materials. Health care professionals should also remember to change their gloves as they administer care to different patients, i.e., a new patient means a new pair of gloves.

Donning PPE - When putting on a pair of gloves, a health care professional should make sure the gloves extend to cover the wrists of isolation gowns, if applicable. Gloves are often the last piece of PPE donned when putting on required PPE. When donning gloves, health care professionals should adhere to the following steps:

1. Health care professionals should note the following - when an indication for hand hygiene precedes contact that also requires glove usage, hand rubbing with an alcohol-based handrub or hand washing with soap and water should be performed before donning gloves.

2. Take out a glove from its original box.

3. Health care professionals should be sure to touch only a restricted surface of a glove corresponding to the wrist (at the top edge of the cuff).

4. Don the first glove.

5. Take the second glove with the bare hand and be sure to touch only a restricted surface of a glove corresponding to the wrist (at the top edge of the cuff).

6. Health care professionals should note the following - to avoid touching the skin of the forearm with the gloved hand, turn the external surface of the glove to be donned on the folded fingers of the gloved hand, thus permitting to glove the second hand (don the second glove).

7. Health care professionals should note the following - once both hands are gloved, hands should not touch anything else that is not defined by indications and conditions for gloved use.

Removing PPE - To effectively remove a pair of gloves, a health care professional should use one gloved hand to grasp the palm area of the other gloved hand. Once the health care professional has a firm grip on the palm of one gloved hand, the health care professional should then peel off the first glove. After removing the first glove, the health care professional should then hold that glove in one hand. Using his or her fingers, the health care professional should slide the fingers off his or her ungloved hand under the remaining glove at the wrist and peel off the second glove right over the first glove. Both gloves should then be placed in the appropriate waste container.

If heath care professionals are wearing a gown with gloves, they may also remove their gloves when they are removing their gowns. To do so, health care professionals should peel off each glove as they roll or fold their gowns before disposal. Both the gloves and the gown should then be discarded in the appropriate waste container. When removing a pair of gloves with a gown, health care professionals should ensure they do not touch the gloves or the gown with their bare hands. Health care professionals should wash their hands or use an alcohol-based hand sanitizer after removing all PPE.

Respiratory Hygiene and Cough Etiquette

Respiratory hygiene may refer to prevention measures t that may be used to prevent the transmission of infectious agents/respiratory diseases and/or illnesses. Cough etiquette may refer to prevention techniques that may be used to prevent the transmission of infectious respiratory droplets produced when infected individuals cough or sneeze. Relevant information regarding adequate respiratory hygiene and cough etiquette may be found below.

- Health care professionals should note/document any individuals presenting with symptoms of a respiratory infection.

- The following supplies should be readily available to both health care professionals and patients: facemasks, tissues, no-touch waste receptacles for disposing of used tissues, and dispensers of alcohol-based handrubs.

- Patients suspected of a respiratory infection should be instructed/encourages to don a facemask (e.g., procedure or surgical mask) upon entry into a health care facility.

- Health care professionals should provide facemasks to all individuals (including individuals accompanying patients) who are coughing and/or have symptoms of a respiratory infection.

- Upon entry to a health care facility/at the time of patient registration, health care professionals should work to screen patients and accompanying persons for symptoms of respiratory infection.

- Patients identified with respiratory symptoms should be placed in a private room as soon as possible, when applicable.

- Health care professionals with a respiratory infection should avoid direct patient contact, when applicable.

- Health care professionals should regularly review information on local respiratory virus activity provided by the health department and CDC to determine if their health care facility will need to implement enhanced screening for respiratory symptoms.

- All individuals with signs and symptoms of a respiratory infection (including health care professionals) should be instructed to: cover the mouth and nose with a tissue when coughing or sneezing; dispose of the used tissue in the nearest waste receptacle; perform hand hygiene after contact with respiratory secretions and contaminated objects/materials.

Safe Injection Practices

Safe injection practices may refer to the proper use and handling of supplies for administering injections and infusions (e.g., syringes, needles, fingerstick devices, intravenous tubing, medication vials, and parenteral solutions). Safe injection practices are intended to prevent the transmission of infectious diseases between one patient and another, or between a patient and a health care professional during preparation and administration of parenteral medications. Relevant information regarding safe injection practices may be found below.

- Whenever possible, health care professionals should use commercially manufactured or pharmacy-prepared prefilled syringes (e.g., saline and heparin).

- Health care professionals should avoid unwrapping syringes prior to the time of use.

- Health care professionals should never administer medications from the same syringe to multiple patients.

- Health care professionals should not administer medications from single-dose or single-use vials, ampoules, or bags or bottles of intravenous solution to more than one patient.

- Cleanse the access diaphragms of medication vials with 70% alcohol and allow the alcohol to dry before inserting a device into the vial.

- Health care professionals should dispose of used syringes and needles at the point of use in a sharps container that is closable, puncture-resistant, and leak-proof.

- Health care professionals should use single-use, disposable fingerstick devices (e.g., lancets) to obtain samples for checking a patient's blood glucose, PT/INR, etc. and dispose of them after each use.

- Health care professionals should be sure to adhere to federal and state requirements for protection of health care professionals from exposure to bloodborne pathogens.

Safe Handling of Potentially Contaminated Equipment or Surfaces in the Patient Environment

The safe handling of potentially contaminated equipment or surfaces in the patient environment may help prevent the transmission of infectious agents found on surfaces and/or objects. Relevant information regarding the safe handling of potentially contaminated equipment or surfaces in the patient environment may be found below.

- Wear appropriate PPE, when applicable.

- Handle equipment and or objects soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures,

contamination of clothing, and transfer of pathogens to other health care professionals, patients, and/or the environment.

- Prevent skin and mucous membrane exposures and contamination of clothing, when applicable.

- Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces, when applicable.

- Clean the countertops and surfaces where medication preparation occurs at least daily and when visibly soiled.

- Ensure potentially contaminated items are not placed in or near a medication preparation area.

- Puncture-resistant, leak-proof sharps containers should be located in every patient-care area (e.g., exam room).

- All sharps should be disposed of in the designated sharps container; health care professionals should not bend, recap, or break used syringe needles before discarding them into the container.

- Handle and treat waste contaminated with blood, body fluids, secretions and excretions as clinical waste, in accordance with organizational and state/federal regulations.

Section 2 Summary

To help prevent the transmission of the COVID-19 virus, health care professionals should adhere to Standard Precautions. The key elements of Standard Precautions include: hand hygiene, the use of personal protective equipment (e.g., gloves, gowns, facemasks), respiratory hygiene and cough etiquette, safe injection practices, and the safe handling of potentially contaminated equipment or surfaces in the patient environment. A failure to adhere to any of the aforementioned key elements of Standard Precautions may lead to the transmission of the COVID-19 virus and other infectious agents to health care professionals and patients.

Section 2 Key Concepts

- To help prevent the transmission of the COVID-19 virus, health care professionals should adhere to Standard Precautions.

- The key elements of Standard Precautions include: hand hygiene, the use of personal protective equipment (e.g., gloves, gowns, facemasks), respiratory hygiene and cough etiquette, safe injection practices, and the safe handling of potentially contaminated equipment or surfaces in the patient environment.

- Health care professionals should be familiar with the adequate application of the key elements of Standard Precautions.

Section 2 Key Terms

Standard precautions - the minimum infection prevention measures that apply to all patient care, regardless of suspected or confirmed infection status of the patient, in any setting where health care is delivered

Hand hygiene - any action of hand cleansing

Plain soap - detergents that contain no added antimicrobial agents or may contain these solely as preservatives

Antimicrobial (medicated) soap - soap (detergent) containing an antiseptic agent at a concentration sufficient to inactivate microorganisms and/or temporarily suppress their growth; the detergent activity of such soaps may also dislodge transient microorganisms or other contaminants from the skin to facilitate their subsequent removal by water

Antiseptic agent - an antimicrobial substance that inactivates microorganisms or inhibits their growth on living tissues; examples include alcohols, chlorhexidine gluconate (CHG), chlorine derivatives, iodine, chloroxylenol (PCMX), quaternary ammonium compounds and triclosan

Alcohol-based handrub - an alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to inactivate microorganisms and/or temporarily suppress their growth; such preparations may contain one or more types of alcohol, other active ingredients with excipients and humectants

Personal protective equipment (PPE) - equipment designed to protect, shield and minimize exposure to hazards that may cause serious injury, illness and/or disease

Touch contamination - touching one's self and/or other surfaces such as tables, light switches, and doors while wearing gloves

Respiratory hygiene - prevention measures that may be used to prevent the transmission of infectious agents/respiratory diseases and/or illnesses

Cough etiquette - prevention techniques that may be used to prevent the transmission of infectious respiratory droplets produced when infected individuals cough or sneeze

Safe injection practices - the proper use and handling of supplies for administering injections and infusions (e.g., syringes, needles, fingerstick devices, intravenous tubing, medication vials, and parenteral solutions)

Section 2 Personal Reflection Question

How can health care professionals use the key elements of Standard Precautions to help prevent the transmission of the COVID-19 virus?

Section 3: COVID-19 Prevention/Transmission-Based Precautions

In addition to Standard Precautions, health care professionals should also adhere to Transmission-Based Precautions to help prevent the transmission of the COVID-19 virus. Transmission-Based Precautions may refer to prevention measures that apply to patients who may be infected or colonized with certain infectious agents for which additional precautions are needed to prevent infection transmission. This section of the course will review the key elements of Transmission-Based Precautions, which include: contact precautions, droplet precautions, and airborne precautions. The information found within this section of the course was derived from materials provided by the CDC (CDC, 2018).

Contact Precautions

Contact precautions may refer to prevention measures that apply to patients with known or suspected infections that represent an increased risk for contact transmission. Relevant information regarding the application of contact precautions may be found below.

- Health care professionals should work to identify patients who may require contact precautions; health care professionals should remain alert for any patient arriving to a health care facility with symptoms of an active infection (regarding COVID-19, health care professionals should be on alert for patients with the following symptoms: fever, cough, shortness of breath, tiredness, aches and pain, nasal congestion, runny nose, sore throat, and diarrhea); patients with symptoms of an active infection should be placed in a private room until it is determined if contact precaution are indeed necessary; signs indicating patients are on contact precautions may be posted outside patient rooms.

- Health care professionals should perform adequate hand hygiene before touching a patient and prior to donning gloves.

- Wear appropriate PPE, when applicable; health care professionals should don PPE including gloves and gown; health care professionals should wear a gown and gloves for all interactions that may involve contact with a patient and/or a patient's environment; health care professionals should done PPE upon patient room entry and should properly discard PPE before exiting the patient room to contain pathogens.

- Limit transport and movement of patients outside of their room to medically-necessary purposes; When patient transport or movement is necessary, health care professionals should cover or contain the infected or colonized areas of the patient's body; health care professionals should remove and dispose of contaminated PPE and perform hand hygiene prior to transporting patients on contact precautions; health care professionals should be sure to don clean PPE to handle a patient at the transport location.

- Perform hand hygiene after the removal of PPE; health care professionals should use soap and water when their hands are visibly soiled (e.g., blood, body fluids).

- Use disposable or dedicated patient-care equipment on patients on contact precautions; if common use of equipment for multiple patients is unavoidable, health care professionals should clean and disinfect such equipment before use on another patient.

- Prioritize the cleaning and the disinfection of patients' rooms on contact precautions; health care professionals should ensure rooms are frequently cleaned and disinfected (e.g., at least daily or prior to use by another patient if outpatient setting); when cleaning/disinfecting, health care professionals should

focus on frequently-touched surfaces and equipment in the immediate vicinity of a patient.

Droplet Precautions

Droplet precautions may refer to prevention measures that apply to patients known or suspected to be infected with pathogens transmitted by respiratory droplets that are generated by a patient who is coughing, sneezing, or talking. Relevant information regarding the application of droplet precautions may be found below.

- Health care professionals should work to identify patients who may require droplet precautions; signs indicating patients require droplet precautions may be posted outside patient rooms.

- Health care professionals should perform adequate hand hygiene before touching a patient and prior to donning gloves.

- Wear appropriate PPE, when applicable; health care professionals should don a mask upon entry into a patient room or patient space; if substantial spraying of respiratory fluids is anticipated, gloves and gown as well as goggles (or face shield in place of goggles) should be worn.

- Ensure appropriate patient placement; patients who require droplet precautions should be place in a single room when possible.

- Instruct patients to wear facemasks when exiting their rooms, avoid coming into close contact with other patients, and practice respiratory hygiene and cough etiquette; health care professionals may consider placing a facemask on a patient.

- Limit the transport and movement of patients outside of their rooms to medically-necessary purposes; if patient transport or movement outside of patients' rooms is necessary, instruct patients to wear a mask and follow respiratory hygiene/cough etiquette.

- Perform hand hygiene after the removal of PPE.

- Perform hand hygiene before and after touching a patient and after contact with respiratory secretions and contaminated objects/materials; health care professional should use soap and water when hands are visibly soiled (e.g., blood, body fluids).

- Prioritize the cleaning and the disinfection of patients' rooms.

Airborne Precautions

Airborne precautions may refer to prevention measures that apply to patients known or suspected to be infected with pathogens transmitted by the airborne route. Relevant information regarding the application of airborne precautions may be found below.

- Health care professionals should work to identify patients who require airborne precautions; if possible, health care professionals should instruct patients who require airborne precautions to enter a health care facility through an entrance that is separate from the main entrance; signs indicating patients require airborne precautions may be posted outside patient rooms.

- Health care professionals should perform adequate hand hygiene before touching a patient and prior to donning gloves.

- Wear appropriate PPE, when applicable; if substantial spraying of respiratory fluids is anticipated, gloves and gown as well as goggles or face shield should be worn.

- Health care professionals should provide facemasks to patients who require airborne precautions.

- Ensure appropriate patient placement in an airborne infection isolation room (AIIR); if a health care facility does not have an AIIR, health care professionals should instruct patients to wear a facemask and place them in a private room with the door closed until the patient is either transferred to a facility with an AIIR or returned home.

- Restrict susceptible health care professionals from entering the room of patients who require airborne precautions.

- Limit transport and movement of patients outside of the room to medically-necessary purposes; if transport or movement outside an AIIR is necessary, health care professionals should instruct patients to wear a surgical mask, if possible, and observe respiratory hygiene/cough etiquette.

- Perform hand hygiene before and after touching a patient and after contact with respiratory secretions and/or body fluids and contaminated objects/materials;

health care professionals should use soap and water when hands are visibly soiled (e.g., blood, body fluids).

- Once a patient leaves a room, it should remain vacant for generally one hour before anyone enters, when applicable.

- Immunize susceptible individuals as soon as possible following unprotected contact with vaccine-preventable infections.

Section 3 Summary

In addition to Standard Precautions, health care professionals should also adhere to Transmission-Based Precautions to help prevent the transmission of the COVID-19 virus. The key elements of Transmission-Based Precautions include: contact precautions, droplet precautions, and airborne precautions. A failure to adhere to any of the aforementioned key elements of Transmission-Based Precautions, in conjunction with the key elements of Standard Precautions, may lead to the transmission of the COVID-19 virus and other infectious agents to health care professionals and patients.

Section 3 Key Concepts

- To help prevent the transmission of the COVID-19 virus, health care professionals should adhere to Transmission-Based Precautions; Transmission-Based Precautions should be used in conjunction with Standard Precautions.

- The key elements of Transmission-Based Precautions include: contact precautions, droplet precautions, and airborne precautions.

- Health care professionals should be familiar with the adequate application of the key elements of Transmission-Based Precautions.

- Health care professionals should work to identify those patients who may require contact, droplet, and/or airborne precautions; signs indicating a patient in on or requires contact, droplet, and/or airborne precautions may be posted outside patients' rooms.

Section 3 Key Terms

Transmission-Based Precautions - prevention measures that apply to patients who may be infected or colonized with certain infectious agents for which additional precautions are needed to prevent infection transmission

Contact precautions - prevention measures that apply to patients with known or suspected infections that represent an increased risk for contact transmission

Droplet precautions - prevention measures that apply to patients known or suspected to be infected with pathogens transmitted by respiratory droplets that are generated by a patient who is coughing, sneezing, or talking

Airborne precautions - prevention measures that apply to patients known or suspected to be infected with pathogens transmitted by the airborne route

Section 3 Personal Reflection Question

How can health care professionals use the key elements of Transmission-Based Precautions to help prevent the transmission of the COVID-19 virus?

Section 4: Interim Infection Prevention and Control Recommendations

Health care professionals should adhere to Standard Precautions as well as Transmission-Based Precautions to help prevent the transmission of the COVID-19 virus and emerging variants. In addition to Standard Precautions and Transmission-Based Precautions, the CDC recommends that health care professionals follow the Interim Infection Prevention and Control Recommendations to provide additional infection prevention and control practices. This section of the course will review the Interim Infection Prevention and Control Recommendations. The information found within this section of the course was derived from materials provided by the CDC (CDC, 2022).

Interim Infection Prevention and Control Recommendations

- Interim Infection Prevention and Control Recommendations should be part of routine health care delivery to all patients.

- Health care organizations should develop internal policies and procedures to ensure the Interim Infection Prevention and Control Recommendations are appropriately applied in their facility.

- Health care organizations should provide education to health care professionals, patients, and visitors about the importance of performing hand hygiene immediately before and after any contact with their facemask or cloth mask.

- Health care organizations should arrange seating in waiting rooms to allow patients to sit at least six feet apart.

- Health care organizations should explore options, in consultation with facility engineers, to improve indoor air quality in all shared spaces.

- Health care organizations should optimize the use of engineering controls (e.g., physical barriers; dedicated pathways) to reduce or eliminate exposures by shielding health care professionals and other patients from infected individuals.

- Health care organizations should optimize air-handling systems.

- Health care organizations should develop a process for notifying the health department about suspected or confirmed cases of COVID-19, and should establish a plan, in consultation with local public health authorities, for how exposures in a health care facility will be investigated and managed and how contact tracing will be performed (note: the term contact tracing may refer to the process of identifying individuals who may have come into contact with an infected individual and subsequent collection of further information about contacts).

- Health care organizations should develop plans for staffing shortages.

- Airborne Infection Isolation Rooms (AIIRs) should be used, when applicable.

- Health care professionals should wear a facemask, also referred to as a surgical mask or a procedure mask, at all times while they are in their health care facility of employment, including in break rooms or other spaces where they might encounter co-workers.

- Health care professionals should note the following: the potential for exposure to the COVID-19 virus is not limited to direct patient care interactions; transmission

can occur through unprotected exposures to asymptomatic or pre-symptomatic co-workers in break rooms or co-workers or visitors in other common areas.

- Health care professionals should note the following: facemasks are preferred over cloth face masks for health care professionals as facemasks offer both source control and protection for the wearer against exposure to splashes and sprays of infectious material from others (note: the term source control may refer to the use of well-fitting masks or facemasks to cover a person's mouth and nose to prevent spread of respiratory secretions when talking, sneezing, or coughing).

- Health care professionals should note the following: cloth masks are not considered to be PPE and should not be worn for the care of patients with suspected or confirmed COVID-19 or other situations where the use of a respirator or a facemask is recommended.

- Cloth masks should not be worn instead of a respirator or facemask if more than source control is required.

- To reduce the number of times health care professionals touch their face and put themselves at potential risk for self-contamination, health care professionals should consider continuing to wear the same respirator or facemask throughout their entire work shift, instead of intermittently switching back to their cloth mask.

- Health care professionals should wear eye protection in addition to their facemasks to ensure the eyes, nose, and mouth are protected from exposure to respiratory secretions during patient care encounters, when applicable.

- Health care professionals should ensure that eye protection is compatible with a respirator, when applicable, so there is not interference with proper positioning of the eye protection or with the fit or seal of the respirator.

- Health care professionals should wear an N95 or equivalent or higher-level respirator, instead of a facemask, for aerosol generating procedures and/or surgical procedures that might pose higher risk for transmission if the patient has COVID-19 (note: a N95 respirator may refer to a particulate-filtering, face piece respirator that filters at least 95% of airborne particles; a N95 respirator should fit firmly against the face in a manner that does not leave any open gaps between the skin and the N95 respirator seal).

- Health care professionals should perform a user seal check when utilizing a respirator (note: a user seal check may refer to a procedure conducted by the respirator wearer to determine if the respirator is being properly worn).

- Health care professionals should note the following: during a positive pressure user seal check, the respirator user should exhale gently while blocking the paths for air to exit the facepiece; a successful check is when the facepiece is slightly pressurized before increased pressure causes outward leakage.

- Health care professionals should note the following: during a negative pressure user seal check, the respirator user inhales sharply while blocking the paths for air to enter the facepiece; a successful check is when the facepiece collapses slightly under the negative pressure that is created with this procedure.

- Health care professionals should note the following: not every respirator can be checked using both positive and negative pressure; health care professionals should refer to the manufacturer's instructions for conducting user seal checks on any specific respirator.

- Health care professionals who enter the room of a patient with suspected or confirmed COVID-19 should adhere to Standard Precautions and use a NIOSH-approved N95 or equivalent or higher-level respirator (or facemask if a respirator is not available), gown, gloves, and eye protection, when applicable.

- Health care professionals should perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and after removing PPE, including gloves (note: hand hygiene after removing PPE is particularly important to remove any pathogens that might have been transferred to bare hands during the removal process).

- Health care professionals should remove their respirator or facemask, perform hand hygiene, and put on their cloth mask when leaving the health care facility at the end of their shift, when applicable.

- Health care professionals should use dedicated medical equipment when caring for patients with suspected or confirmed COVID-19.

- All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and facility policies.

- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.

- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for the COVID-19 virus in health care settings, including those patient-care areas in which aerosol generating procedures are performed.

- Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

- Health care professionals working in areas with minimal to no community transmission should continue to adhere to Standard Precautions and Transmission-Based Precautions based on anticipated exposures and suspected or confirmed diagnoses (note: Standard Precautions and Transmission-Based Precautions may include the use of eye protection, an N95 or equivalent or higher-level respirator, as well as other PPE).

- Empiric use of Transmission-Based Precautions (quarantine) is recommended for patients who have had close contact with someone with SARS-CoV-2 infection if they are not up to date with all recommended COVID-19 vaccine doses.

- A test-based strategy and (if available) consultation with infectious disease experts is now recommended for determining the duration of Transmission-Based Precautions for patients with SARS-CoV-2 infection who are moderately to severely immunocompromised.

- Health care professionals should advise patients to put on their own mask before entering the health care facility.

- Health care professionals should instruct patients to call ahead of their arrival to a health care facility if they are experiencing COVID-19 symptoms.

- Health care professionals should reschedule patients' appointments, when applicable, if a patient reports that he or she is experiencing COVID-19 symptoms.

- Screen and triage everyone entering a health care facility for signs and symptoms of COVID-19 (note: the signs/symptoms of COVID-19 may include: fever, chills,

cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea).

- Health care professionals should take steps to ensure that everyone adheres to source control measures and hand hygiene practices while in a health care facility (e.g., post signs at the entrance and in strategic places).

- If a patient does not have a face covering, they should be offered a facemask or mask (note: patients may remove their mask when in their rooms but should put it back on when around others [e.g., when visitors enter their room or leaving their room]).

- Health care professionals should note the following: facemasks and cloth masks should not be placed on young children under age two, anyone who has trouble breathing, or anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance.

- Provide supplies for respiratory hygiene and cough etiquette, including alcohol-based hand sanitizer, tissues, and no-touch receptacles for disposal, at health care facility entrances, waiting rooms, and patient check-ins (note: patients should be encouraged to use such supplies).

- Limit and monitor points of entry to the health care facility.

- Establish a process to ensure that everyone (e.g., patients, health care professionals, and visitors) entering a health care facility is assessed for COVID-19 signs/symptoms (note: fever can be either a measured temperature ≥ 100.0°F or a subjective fever [e.g., patient reported fever]; individuals might not notice symptoms of a fever at the lower temperature threshold that is used for those entering a health care facility; individuals should be encouraged to actively take their temperature at home or have their temperature taken upon arrival).

- Properly manage anyone with suspected or confirmed COVID-19 virus infection or who has had contact with someone with suspected or confirmed COVID-19 virus infection.

- Health care professionals suspected of COVID-19 virus infection should be excluded from work and should notify occupational health services to arrange for further evaluation.

- Health care professionals with COVID-19 should be excluded from work.

- Patients should be isolated in an examination room with the door closed, when applicable.

- If an examination room is not immediately available, COVID-19 patients should not wait among other patients seeking care.

- Patients should be separated by six or more feet.

- Allow patients to wait in a personal vehicle or outside the health care facility where they can be contacted by mobile phone when it is their turn to be evaluated, when applicable.

- Screening for fever and symptoms of COVID-19 should be incorporated into the daily assessments of all admitted patients.

- All patient fevers and symptoms consistent with COVID-19 among admitted patients should be properly managed and evaluated (e.g., place any patient with unexplained fever or symptoms of COVID-19 on appropriate Transmission-Based Precautions and evaluate).

- Targeted COVID-19 testing of patients without signs or symptoms of COVID-19 should be considered (note: testing results might inform decisions about rescheduling elective procedures or about the need for additional Transmission-Based Precautions when caring for a patient; limitations of using such testing include obtaining negative results in patients during the COVID-19 incubation period who later become infectious).

- Limit visitors to the facility to only those individuals essential to the patient's physical or emotional well-being and care (e.g., partner; parent).

- Visitors who are not able to wear a cloth mask or facemask should be encouraged to use alternatives to on-site visits with patients (e.g., telephone or internet communication), especially if the patient being visited is at increased risk for severe illness from COVID-19.

- Encourage use of alternative mechanisms for patient and visitor interactions such as video-call applications on cell phones or tablets.

- If visitation to patients with COVID-19 occurs, visits should be scheduled and controlled.

- Visitors should be instructed to only visit the intended patient's room; visitors should not go to other locations in the health care facility.

- Health care professionals should provide instruction to visitors, before they enter patients' rooms, on the following areas of note: hand hygiene, limiting surfaces touched, and use of PPE according to current health care facility policy.

- Finally, telehealth services should be applied, when applicable, to help prevent the transmission of the COVID-19 virus. Specific information regarding telehealth may be found below.

  - Telehealth may refer to the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration.

  - A range of technologies may be used to support the delivery of telehealth including the following: text messaging, smartphone apps for mobile phones, websites and computers, standard and wireless telephones, live and asynchronous video, virtual reality, and/or artificial intelligence (AI).

  - The different categories or types of telehealth include the following: live video, store-and-forward, remote patient monitoring, and mobile health.

    - **Live video** - live video, in the context of telehealth services, may refer to a live stream, two-way interaction between a patient and a health care professional(s) where both parties are communicating from different locations. Health care professionals should note that live video telehealth services, typically, occur in real time (note: the term real time may refer to the actual time during which a meeting, interaction, process, or event occurs; live).

    - **Store-and-forward** - store-and-forward may refer to a type of telehealth which involves the transmission of recorded health information (e.g., an x-ray or prerecorded video) through electronic communication systems to a health care professional who evaluates the information and provides a health care-related service to a patient(s). Health care professionals should note that store-and-forward telehealth services do not, typically, occur in real time.

- **Remote patient monitoring** - remote patient monitoring may refer to the use of telehealth-related technologies to collect individuals' health care-related data in one location and electronically transmit it to health care professionals in a different location for assessment and recommendations.

- **Mobile health** - mobile health may refer to the use of mobile communication devices (e.g., smart phones and tablets) to support health care, public health, and education. Health care professionals should note that mobile health applications can help individuals manage chronic conditions, track sleep patterns or fitness, schedule health care appointments, and/or send public health alerts via text message.

- The potential benefits of telehealth include the following: telehealth has the potential to reach more individuals compared to traditional in-person programs; patient convenience; telehealth services may be used to help prevent patient exposure to infectious diseases; timely access to locally unavailable health care services; increased communication; telehealth services can allow for real-time interactions between patients and health care professionals; telehealth services can allow for the transmission of recorded health information (e.g., an x-ray or prerecorded video); telehealth services can allow for remote patient monitoring; telehealth services can allow access to mobile health; patient prescriptions may be ordered via telehealth technologies; potential reductions in health care costs; improved patient outcomes; and improved patient satisfaction.

Section 4 Summary

Health care professionals should adhere to Standard Precautions as well as Transmission-Based Precautions to help prevent the transmission of the COVID-19 virus and emerging variants. In addition to Standard Precautions and Transmission-Based Precautions, the CDC recommends that health care professionals follow the Interim Infection Prevention and Control Recommendations to provide additional infection prevention and control practices. Interim Infection Prevention and Control Recommendations should be part of routine health care delivery to all patients.

Section 4 Key Concepts

- The CDC recommends that health care professionals follow the Interim Infection Prevention and Control Recommendations to provide additional infection prevention and control practices; the Interim Infection Prevention and Control Recommendations should be part of routine health care delivery to all patients.

Section 4 Key Terms

Contact tracing - the process of identifying individuals who may have come into contact with an infected individual and subsequent collection of further information about contacts

Source control - the use of well-fitting masks or facemasks to cover a person's mouth and nose to prevent spread of respiratory secretions when talking, sneezing, or coughing

N95 respirator - a particulate-filtering, face piece respirator that filters at least 95% of airborne particles

User seal check - a procedure conducted by the respirator wearer to determine if the respirator is being properly worn

Live video (within the context of telehealth services) - a live stream, two-way interaction between a patient and a health care professional(s) where both parties are communicating from different locations

Real time (within the context of telehealth services) - the actual time during which a meeting, interaction, process, or event occurs; live

Store-and-forward - a type of telehealth which involves the transmission of recorded health information (e.g., an x-ray or prerecorded video) through electronic communication systems to a health care professional who evaluates the information and provides a health care-related service to a patient(s)

Remote patient monitoring - the use of telehealth-related technologies to collect individuals' health care-related data in one location and electronically transmit it to health care professionals in a different location for assessment and recommendations

Mobile health - the use of mobile communication devices (e.g., smart phones and tablets) to support health care, public health, and education

Section 4 Personal Reflection Question

How can health care professionals use the above recommendations to prevent the transmission of the COVID-19 virus?

Case Study: COVID-19

A COVID-19-related case study is presented below to review the concepts found in this course. A case study review will follow the case study. The case study review includes the types of questions health care professionals should ask themselves when considering COVID-19, the COVID-19 virus, and how they relate to the administration of health care. Additionally, reflection questions will be posed, within the case study review, to encourage further internal debate and consideration regarding the presented case study and COVID-19. The information found within the case study and case study review was derived from materials provided by the CDC (CDC, 2022).

Case Study

A 32-year-old male patient presents to a health care facility. The patient is brought to an examination room, and the examination room door is left open. Upon examination, the patient reports the following symptoms: fever, coughing, and shortness of breath. The patient also reports that he was recently traveling, and began experiencing the aforementioned symptoms four days after he returned. Additionally, the patient reports that he received the Pfizer-BioNTech COVID-19 vaccine "eight months ago." A health care professional observes the patient coughing throughout the examination without attempting to cover his mouth. To confirm the presence of a potential fever, the same health care professional takes the patient's temperature. The health care professional does not engage in hand hygiene before touching the patient or taking his temperature. Additionally, the health care professional does not don PPE. However, the health care professional does observe the patient's temperature is elevated. The health care professional documents the patient's elevated temperature, and leaves the patient's examination room with the door open. The patient is eventually admitted into the health care facility.

Case Study Review

What patient details may be relevant to the possible presence of COVID-19?

The following patient details may be relevant to the possible presence of COVID-19: the patient presents to a health care facility; the patient is brought to an examination room, and the examination room door is left open; upon examination the patient reports the following symptoms: fever, coughing, and shortness of breath; the patient reports that he was recently traveling; the patient reports he began experiencing the aforementioned symptoms four days after he returned from traveling; the patient reports that he received the Pfizer-BioNTech COVID-19 vaccine "eight months ago"; a health care professional observes the patient coughing throughout the examination without attempting to cover his mouth; the health care profession does not engage in hand hygiene before touching the patient or taking his temperature; the health care professional does not don PPE; the health care professional documents the patient's elevated temperature; and the health care professional leaves the patient's examination room with the door open.

Are there any other patient details that may be relevant to the possible presence of COVID-19; if so, what are they?

How are each of the aforementioned patient details relevant to the possible presence of COVID-19?

Each of the previously highlighted patient details may be potentially relevant to the possible presence of COVID-19. The potential relevance of each patient detail may be found below.

<u>The patient presents to a health care facility</u> - the previous patient detail is relevant because it may represent a breach in Transmission-Based Precautions. During situations such as an COVID-19 outbreak, health care professionals should work to identify patients who may require contact and/or other Transmission-Based Precautions; health care professionals should remain alert for any patient arriving to a health care facility with symptoms of an active infection (note: regarding COVID-19, health care professionals should be on alert for patients with the following symptoms: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea); patients with symptoms of an active infection should be placed in a private room until it is determined if contact or other Transmission-Based Precautions are necessary. Based on the information provided in the case study, it does not appear that health care professionals were on alert to identify patients exhibiting COVID-19 symptoms. Health care professionals should remain vigilant during a COVID-19 outbreak to help identify any patients that may be infected with the

COVID-19 virus. Identifying patients exhibiting symptoms of COVID-19 may help prevent the transmission of the COVID-19 virus and contain outbreaks.

The patient is brought to an examination room, and the examination room door is left open - the previous patient detail is relevant because it may represent a breach in Transmission-Based Precautions. During situations such as a COVID-19 outbreak, health care professionals should ensure appropriate patient placement in, either, an AIIR or private room with the door closed, when applicable; if a health care facility does not have an AIIR, health care professionals should instruct patients to wear a facemask and place them in a private room with the door closed until the patient is either transferred to a facility with an AIIR or returned home.

Upon examination the patient reports the following symptoms: fever, coughing, and shortness of breath - the previous patient detail is relevant because the patient's symptoms are consistent with symptoms of COVID-19.

The patient reports he was recently traveling - the previous patient detail is relevant because it may provide context for patient diagnosis. The previous patient detail may also be relevant because it could help health care professionals understand where the patient was potentially exposed to the COVID-19 virus. If patients present with symptoms of COVID-19, health care professionals should attempt to ask those patients the types of questions found below.

- When do you believe you were exposed to the COVID-19 virus?

- When did you start to experience symptoms?

- When did your symptoms begin?

- How long have you been experiencing symptoms?

- Have you recently traveled?

- Have you recently traveled internationally?

- Where have you recently traveled to?

- When did you recently travel?

- Did you start experiencing symptoms before you traveled?

- Did you start experiencing symptoms after you returned from traveling?

- Have you been in close contact with other individuals?

- Have you been in public locations?

- Have you been in close proximity with other individuals?

- Have you been in close proximity with other individuals for a prolonged period of time?

The patient reports he began experiencing the aforementioned symptoms four days after he returned from traveling - the previous patient detail is relevant because it may provide context for patient diagnosis. Essentially, the previous patient detail may provide insight into the potential incubation period. Health care professionals should note the following: evidence suggests that the estimated incubation period for COVID-19 is between two and 14 days with a median of five days.

The patient reports that he received the Pfizer-BioNTech COVID-19 vaccine "eight months ago" - the previous patient detail is relevant because it suggests that the patient did not receive a recommended COVID-18 vaccine booster. Health care professionals should note the following: individuals ages 18 years and older should receive a booster dose of either Pfizer-BioNTech or Moderna (COVID-19 vaccines) five months after the last dose in their primary series; teens 12 - 17 years old should get a Pfizer-BioNTech COVID-19 Vaccine booster five months after the last dose in their primary series.

A health care professional observes the patient coughing throughout the examination without attempting to cover his mouth - the previous patient detail is relevant because it may represent a symptom of COVID-19 (e.g., coughing). The previous patient detail may also be relevant because it may represent a breach in Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations. When considering the application of Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations, health care professionals should note the following: patients suspected of a respiratory infection should be instructed/encouraged to don a facemask upon entry into a health care facility; all individuals with signs and symptoms of a respiratory infection (including health care professionals) should be instructed to: cover the mouth and nose with a tissue when coughing or sneezing, dispose of the used tissue in the nearest waste receptacle, and to perform hand hygiene after contact with respiratory secretions and contaminated objects/materials.

The health care professional does not engage in hand hygiene before touching the patient or taking his temperature - the previous patient detail is relevant because it may represent a breach in Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations. When considering the application of Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations, health care professionals should note the following: the major indications for hand hygiene include the following five key moments in health care administration: before patient contact, before an aseptic procedure or task, after a body fluid exposure risk occurs, after touching a patient, after contact with a patient's surroundings; health care professionals should wash their hands with soap and water when they are visibly dirty or visibly soiled with blood or other body fluids or after using the toilet; health care professionals should use an alcohol-based handrub when their hands are not visibly soiled to reduce bacterial counts.

The health care professional does not don PPE - the previous patient detail is relevant because it may represent a breach in Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations. When considering the application of Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations, health care professionals should note the following: health care professionals should don PPE, when applicable, including gloves and gown; health care professionals should wear a gown and gloves for all interactions that may involve contact with a patient and/or a patient's environment; health care professionals should done PPE upon patient room entry and should properly discard PPE before exiting the patient room to contain pathogens; health care professionals should don a mask upon entry into a patient room or patient space; if substantial spraying of respiratory fluids is anticipated, gloves and gown as well as goggles (or face shield in place of goggles) should be worn.

The health care professional documents the patient's elevated temperature - health care documentation regarding COVID-19 is essential to the safe and effective administration of health care to patients infected with the COVID-19 virus. Health care professionals should note that it is there professional responsibility to complete effective health care documentation. If completed effectively, health care documentation can be used in daily practice by health care professionals to communicate vital patient information to other health care professionals in order to facilitate positive health care outcomes and to decrease the potential for negative health care outcomes, such as adverse events and patient mortalities. Regarding COVID-19, effective health care documentation may be used as a method to review patient cases and to ensure all aspects of an individual

patient's health care are noted and evaluated to maximize therapeutic outcomes. Health care professionals should note the following: in order for health care documentation to be considered effective, it must function as a viable form of communication, as well as a means to establish a detailed record of health care administration.

The health care professional leaves the patient's examination room with the door open - the previous patient detail is relevant because it may represent a breach in Transmission-Based Precautions. During situations such as an COVID-19 outbreak, health care professionals should ensure appropriate patient placement in, either, an AIIR or private room with the door closed, when applicable; if a health care facility does not have an AIIR, health care professionals should instruct patients to wear a facemask and place them in a private room with the door closed until the patient is either transferred to a facility with an AIIR or returned home.

What other ways, if any, are the patient details relevant to the possible presence of COVID-19?

Is it possible the patient in the case study has COVID-19?

Based on the information found in the case study, it does appear possible that the patient may have COVID-19.

How can a health care professional potentially gather additional patient information to help confirm the possible presence of COVID-19?

How may a health care professional address any patient questions and concerns regarding COVID-19?

There are a variety of strategies that may be used, by a health care professional, to address patient questions and concerns regarding COVID-19, including the ones found below.

Remain professional - remaining professional is often essential to addressing patient's questions and concerns. Remaining professional can help set a tone for a patient discussion that can help foster effective communication and ensure the adequate transmission and receipt of vital information.

Remain calm and composed - a potential COVID-19 diagnosis may be difficult for some patients to handle - thus, they may react in a dramatic manner when presented with COVID-19-related information. With that in mind, it is important for health care professionals to remain calm and composed in situations where patients react

dramatically to COVID-19-related information. Much like with remaining professional, remaining calm and composed can help foster effective communication and ensure the adequate transmission and receipt of vital information. Furthermore, remaining calm and composed may help deescalate any volatile situations that may arise.

Clearly answer questions - many questions may arise in a patient discussion regarding COVID-19. It is important health care professionals clearly answer questions that may develop in an COVID-19 discussion to help avoid confusion among patients.

Provide COVID-19-related educational information - patients may not be familiar with COVID-19. Thus, health care professionals should consider providing patients COVID-19-related educational information to help address any questions and concerns that may arise. Health care professionals should note the following when providing COVID-19-related educational information: it is important not to overwhelm a patient with COVID-19-related educational information. Going through the COVID-19 diagnostic process may be overwhelming in and of itself. Thus, health care professionals should not further overwhelm patients with copious amounts of information. Health care professionals should observe patients to ascertain there response to COVID-19 -related educational information and provide subsequent information accordingly.

Answer questions centered around COVID-19 myths - some patients may initially ask questions regarding COVID-19 myths. Therefore, it may be appropriate, in some cases, for health care professionals to address any myths surrounding COVID-19 in order to provide additional patient education regarding COVID-19 and the COVID-19 virus.

Outline COVID-19 treatment options - some patients may initially ask questions regarding COVID-19 treatment options. Therefore, it may be appropriate, in some cases, for health care professionals to outline COVID-19 treatment options. Health care professionals should note the following: COVID-19 treatment centers around supportive care.

Outline the use of Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations - due to the infectious nature of COVID-19, it is paramount that health care professionals adhere to Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations. Thus, it may be advantageous to provide patients with information regarding Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations to help address any questions and concerns that may arise, especially in cases where a patient is instructed

to cover the mouth and nose with a tissue when coughing or sneezing, dispose of used tissues in the nearest waste receptacle, perform adequate hand hygiene after contact with respiratory secretions and contaminated objects/materials, wear a facemask, and/or enter an AIIR/private room with the door closed.

What other strategies may be used to address patients' questions and concerns regarding COVID-19?

Conclusion

COVID-19 is a respiratory illness that can spread from person to person that is caused by a virus known as SARS-CoV-2. It is believed that the COVID-19 virus is primarily transmitted through respiratory droplets produced when an infected person coughs or sneezes. Evidence suggests that the incubation period for COVID-19 is 2 - 14 days. The potential symptoms of COVID-19 include the following: fever, chills, cough, shortness of breath, aches and pain, fatigue, headaches, nasal congestion, runny nose, sore throat, nausea, vomiting, and diarrhea. Individuals potentially suffering from COVID-19 may present in the following states: potential exposure state, mild symptom state, and severe illness state. To prevent the transmission of the COVID-19 virus, health care professionals should adhere to Standard Precautions, Transmission-Based Precautions, and the Interim Infection Prevention and Control Recommendations. Finally, the COVID-19 virus is a significant threat to the health care system - therefore it is vital that health care professionals identify those individuals potentially suffering from COVID-19, work to prevent the transmission of the COVID-19 virus at all times, and remain up to date on relevant COVID-19 information.

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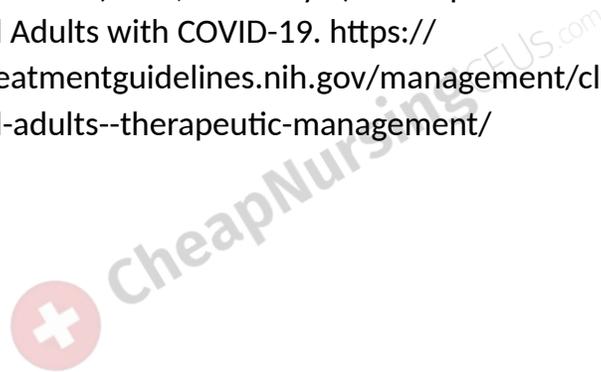
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