



Centers for Disease
Control and Prevention

REVIEWED

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Coronavirus Disease 2019 (COVID-19)

Clinical Questions about COVID-19: Questions and Answers

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COVID-19 Risk

Are there work restrictions recommended for HCP with underlying health condition COVID-19 patients? What about for pregnant HCP?

Adherence to recommended infection prevention and control practices is an important patients in healthcare settings. All HCP who care for confirmed or suspected COVID-19 | [standard and transmission based precautions](#).

To the extent feasible, healthcare facilities could consider prioritizing HCP who are not a severe illness from COVID-19 or who are not pregnant to care for confirmed or suspect

If staffing shortages make this challenging, facilities could consider restricting HCP at hi from COVID-19 or who are pregnant from being present for higher risk procedures (e.g [procedures](#)) on COVID-19 patients. Find more information for facilities on [mitigating HC](#)

HCP who are concerned about their individual risk for severe illness from COVID-19 due conditions while caring for COVID-19 patients can discuss their concerns with their super services.

People 65 years and older and people of all ages with serious [underlying health condition](#) conditions, chronic lung disease, and diabetes — seem to be at higher risk of developin COVID-19.

Information on COVID-19 in pregnancy is limited. Pregnant women are not currently co severe illness from COVID-19. However, pregnant women have had a higher risk of sev viruses from the same family as COVID-19 and other viral respiratory infections, such as information on [pregnancy](#) and risk for severe illness from COVID-19.

I am a HCP living with someone who is at higher risk of severe illness from COVID-19 should I take?

Take the same [precautions recommended for people at higher risk](#) of severe illness fro additional precautions for HCP. Some HCP may choose to implement extra measures w providing healthcare, such as removing any clothing worn during delivery of healthcare clothing, and immediately showering. However, these are optional personal practices b evidence on whether they are effective.

Who is at risk for infection with the virus that causes COVID-19?

Currently, those at greatest risk of infection are persons who have had prolonged, unpr patient with symptomatic, confirmed COVID-19 and those who live in or have recently b transmission. For more information, see [Risk Assessment](#).

Who is at risk for severe disease from COVID-19?

The available data are currently insufficient to clearly identify risk factors for severe clin limited data that are available for COVID-19 patients, and data from related coronavirus respiratory syndrome coronavirus (SARS-CoV) and MERS-CoV, people who may be at ris include older adults and persons who have certain [underlying chronic medical conditio](#) conditions include chronic lung disease, moderate to severe asthma, cardiac disease wi immunocompromising conditions. See also [Interim Clinical Guidance for Management of Coronavirus Disease 2019 \(COVID-19\)](#) and [Information for Healthcare Professionals: CC Conditions](#).

If my patient has an underlying medical condition, what is my patient's risk of acquiring illness from COVID-19, and what should I tell my patient?

- There is insufficient information on COVID-19 to determine the level of risk for each CDC is analyzing data continuously and provides updates as soon as new information is available.
- You know your patient's overall health and how well their conditions are managed. Use this information to evaluate on a case by case basis. Patients frequently in congregate settings are at increased risk. Patients with [underlying medical conditions](#) may be at increased risk of severe disease.
- If possible, work with patients to manage their underlying condition to the best of their ability so that patients have sufficient medication and supplies. Prescribing three-month supplies can help ensure access to sufficient medications.
- Explain to all patients which symptoms of their chronic conditions require emergency care. Stress the importance of obtaining emergency care if needed.
- Reassure your patients who require emergency care that emergency departments have measures in place to protect them from acquiring COVID-19.
- Tell patients with [underlying medical conditions](#) that increase their risk of severe illness from COVID-19:
 - To stay home as much as possible to reduce their risk of being exposed.
 - Closely follow their care plans for management of their chronic disease, including achieving better glycemic or blood pressure control.
 - Seek emergency care for acute exacerbations of their underlying medical conditions that requires immediate attention.
- Encourage all patients, regardless of risk, to:
 - Take [steps](#) to protect yourself.
 - Call your healthcare provider if you are sick with a fever, cough, or shortness of breath.
- Follow CDC [travel guidelines](#) and the recommendations of your state and local health departments. If isolation, and for healthcare providers that are treating patients at higher risk. [Do what you can to protect your mental health and encourage your patients to do the same.](#)

[Additional resources for healthcare providers](#)

Are pregnant healthcare personnel at increased risk for adverse outcomes if they care for patients with COVID-19?

Pregnant healthcare personnel (HCP) should follow [risk assessment](#) and [infection control](#) practices when caring for patients with suspected or confirmed COVID-19. Adherence to recommended infection control practices is an important part of protecting all HCP in healthcare settings. Information on the risk of infection to pregnant HCP is very limited; facilities may want to consider limiting exposure of pregnant HCP to patients with suspected COVID-19, especially during higher risk procedures (e.g., aerosol-generating procedures) when staffing availability is limited.

Transmission

When is someone infectious?

The onset and duration of viral shedding and the period of infectiousness for COVID-19 are not yet known. It is possible that SARS-CoV-2 RNA may be detectable in the upper or lower respiratory tract specimens similar to infections with MERS-CoV and SARS-CoV. However, detection of viral RNA does not necessarily mean that infectious virus is present. There are reports of asymptomatic infections (detection of viral RNA without symptoms) and pre-symptomatic infections (detection of virus prior to development of symptoms), but their role in transmission is not yet known. Based on existing literature, the incubation period (time from exposure to development of symptoms) of SARS-CoV-2 and other coronaviruses (e.g. MERS-CoV) is typically from 2–14 days.

Which body fluids can spread infection?

SARS-CoV-2 RNA has been detected in upper and lower respiratory tract specimens, and virus has been isolated from upper respiratory tract specimens and bronchoalveolar lavage fluid. SARS-CoV-2 has also been detected in blood and stool specimens, and SARS-CoV-2 virus has been isolated in cell culture from respiratory tract specimens, including a patient with pneumonia 15 days after symptom onset. The duration of detection in upper and lower respiratory tract specimens and in extrapulmonary specimens may be several weeks or longer. Duration of several weeks or longer has been observed for SARS-CoV infection. While viable, infectious SARS-CoV has been isolated from respiratory tract specimens, viable, infectious MERS-CoV has only been isolated from respiratory tract specimens. It is not known whether other non-respiratory body fluids from an infected person including vomit, urine, and sweat contain viable, infectious SARS-CoV-2.

Can people who recover from COVID-19 be re-infected with SARS-CoV-2?

The immune response, including duration of immunity, to SARS-CoV-2 infection is not yet known. People with MERS-CoV are unlikely to be re-infected shortly after they recover, but it is not yet known if similar protection will be observed for patients with COVID-19.

Testing, Diagnosis, and Notification

How do you test a patient for infection with SARS-CoV-2?

- Clinicians are able to access laboratory testing through state and local public health departments, commercial and clinical laboratories across the country. The [Association of Public Health Laboratories](#) provides a list of states and territories with laboratories that are using COVID-19 viral testing. Clinicians should direct testing questions to their [state health department](#). Reference laboratories are also able to offer a larger volume of testing for SARS-CoV-2.
- CDC has [guidance](#) for who should be tested, but decisions about testing are at the discretion of local health departments and/or individual clinicians.
- Healthcare providers should report positive results to their local/state health department. Health departments collect these data directly.
- See recommendations for prioritization of testing, and instructions for specimen collection in [Testing Persons for COVID-19](#).

Do existing commercially available multiple respiratory virus panels detect SARS-CoV-2?

Yes. There are commercially developed respiratory panels with multi-pathogen molecular testing for various respiratory pathogens, including SARS-CoV-2, influenza, and other human coronaviruses. The U.S. Food and Drug Administration (FDA) maintains a list of tests with [Emergency Use Authorization](#) (EUA).

If a patient tests positive for another respiratory virus, should that exclude SARS-CoV-2?

Patients can be infected with more than one virus at the same time. Coinfections with other respiratory viruses in people with COVID-19 have been reported. Therefore, identifying infection with one respiratory virus does not exclude SARS-CoV-2 virus infection.

Should chest CT be used for diagnosis of COVID-19?


Clinicians considering use of chest CT scans for diagnosis or management of COVID-19 should consider whether such imaging will change clinical management. The American College of Radiology recommends that chest CT should not be used to screen for COVID-19, or as a first-line test to diagnose COVID-19. Chest CT should be used sparingly and reserved for hospitalized, symptomatic patients with specific clinical indications. Appropriate infection control procedures should be followed before scanning subsequent patients. For more information see, [ACR Recommendations for the use of Chest Radiography and Computed Tomography in Suspected COVID-19 Infection](#) [↗](#).

Whom should healthcare providers notify if they suspect a patient has COVID-19?


Healthcare providers should immediately notify infection control personnel at their facility if they suspect a patient has COVID-19. If a patient tests positive, providers should report that positive result to the infection control department.

Treatment and Management

Should post-exposure prophylaxis be used for people who may have been exposed to COVID-19?


There is currently no FDA-approved post-exposure prophylaxis for people who may have been exposed to COVID-19. For information about registered clinical trials of investigational therapeutics for pre or post-exposure prophylaxis for SARS-CoV-2 infection, visit [ClinicalTrials.gov](https://clinicaltrials.gov) .

For more information on movement restrictions, monitoring for symptoms, and evaluation of people exposed to COVID-19, see [Interim US Guidance for Risk Assessment and Public Health Management of People Exposed to Coronavirus Disease 2019 \(COVID-19\) in Travel-associated or Community Settings](#) and [Interim US Guidance for Risk Assessment and Public Health Management of Healthcare Personnel in Healthcare Settings to Patients with Coronavirus Disease 2019 \(COVID-19\)](#).

The National Institutes of Health recently published guidelines on prophylaxis use, testing, and treatment for COVID-19 patients. For more information, please visit: [National Institutes of Health: Coronavirus Disease 2019 \(COVID-19\) Treatment Guidelines](#) .

How are COVID-19 patients treated?

Not all patients with COVID-19 will require medical supportive care. Clinical management of patients with COVID-19 is focused on supportive care for complications, including supplemental oxygen, support for respiratory failure, septic shock, and multi-organ failure. Empiric testing and treatment for bacterial etiologies may be warranted.

Corticosteroids are *not* routinely recommended for treatment of viral pneumonia or ARDS, as has been observed with MERS coronavirus and influenza A virus. Corticosteroids should be avoided unless they are indicated for another reason (e.g., COPD exacerbation or refractory hypotension; see the [Surviving Sepsis Campaign Guidelines](#) ).

For information on investigational therapies, see [Therapeutic Options for Patients with COVID-19](#).

Do patients with confirmed or suspected COVID-19 need to be admitted to the hospital?

Not all patients with COVID-19 require hospital admission. Patients whose clinical presentation requires hospital admission for clinical management for supportive medical care should be admitted to the hospital under appropriate infection control precautions.

Some patients with initial mild clinical presentation may worsen in the second week of illness. Patients whose clinical presentation requires hospital admission should be made on a case-by-case basis. Decisions on hospital admission will depend not only on the clinical presentation, but also on the patient's ability to engage in self-isolation, the feasibility of safe isolation at home, and the risk of transmission in the patient's home environment. For more information, see [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in a Healthcare Setting](#) and [Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 \(COVID-19\)](#).

When can patients with confirmed COVID-19 be discharged from the hospital?

Patients can be discharged from the healthcare facility whenever clinically indicated. Patients should be discharged to home if the patient returns home before the time period recommended for discontinuation of [Transmission-Based Precautions](#).

Decisions to discontinue Transmission-Based Precautions or in-home isolation can be made on a case-by-case basis in consultation with clinicians, infection prevention and control specialists, and public health officials. Considerations include multiple factors, including disease severity, illness signs and symptoms, and results of laboratory testing for COVID-19 in respiratory specimens.

See [Interim Considerations for Disposition of Hospitalized Patients with COVID-19](#). For more information, see [Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 \(COVID-19\)](#) and [Discontinuation of In-Home Isolation for Immunocompromised Persons](#).

Obstetrical Care

Does CDC recommend use of facemasks or respirators for healthcare personnel (HCP) caring for patients with known or suspected COVID-19 infection?

When available, respirators (or facemasks if a respirator is not available), eye protection, and gloves should be used for the care of patients with known or suspected COVID-19 infection, including work in the same room as a patient with known or suspected COVID-19 infection. For more information, please see [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in Healthcare Settings](#).

How should the use of N95 respirators be prioritized within obstetric healthcare settings?

During respirator shortages, care should be taken to ensure that N95 respirators are reserved for situations where respiratory protection is most important, such as performance of aerosol-generating procedures on patients with suspected or confirmed COVID-19 infection. In such shortage situations, facemasks may be used for patient care.

Alternatives to N95 respirators might be considered where feasible. These include other types of filtering facepiece respirators, half facepiece or full facepiece elastomeric respirators, and powered air-purifying respirators (PAPRs) where feasible. All of these alternatives will provide equivalent or higher protection than N95 respirators when properly worn. However, PAPRs and elastomeric respirators should not be used in the operating room due to concerns that exhaled air may contaminate the sterile field. For more information, please see [Optimizing the Supply of N95 Respirators: Conventional Capacity Strategies](#).

When respirator supplies are restored, the facility can switch back to use of N95 respirators for the care of patients with known or suspected COVID-19 infection. For more information, please see [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in Healthcare Settings](#).

Is forceful exhalation during the second stage of labor considered an aerosol-generating procedure for respirator prioritization during shortages?

Based on limited data, forceful exhalation during the second stage of labor would not be considered an aerosol-generating procedure for respirator prioritization during shortages. Forceful exhalation during the second stage of labor is likely to generate higher concentrations of infectious respiratory aerosols.

When respirator supplies are restored, as with all clinical care activities for patients with COVID-19, HCP should use respirators (or facemasks if a respirator is not available), eye protection, gloves, and gowns during the second stage of labor, in addition to other personal protective equipment indicated for labor and delivery. For more information please see: [Healthcare Infection Control Practices Advisory Committee \(HICPAC\) 2019](#)

Is use of high-flow oxygen considered an aerosol-generating procedure for respirator prioritization during shortages?

Based on limited data, high-flow oxygen use is not considered an aerosol-generating procedure for respirator prioritization during shortages over procedures more likely to generate higher concentrations of infectious respiratory aerosols (such as bronchoscopy, intubation, and open suctioning). Patients with COVID-19 should receive any interventions they would normally receive as standard of care. When respirator supplies are restored, as with all clinical care activities for patients with known or suspected COVID-19, HCP should use respirators (or facemasks if a respirator is not available), eye protection, gloves, and gowns should be used for pregnant patients with known or suspected COVID-19. For more information please see [Prevention and Control FAQs](#)

Should intrapartum fever be considered as a possible sign of COVID-19 infection?

Clinicians should use their judgment to determine if a patient has [signs and symptoms](#) and whether the patient should be tested. Fever is the most commonly reported sign; no COVID-19 have developed fever and/or symptoms of acute respiratory illness (cough, d

Data regarding COVID-19 in pregnancy are limited; according to current information, pr are expected to be similar to those for non-pregnant patients, including the presence o

Other considerations that may guide testing are epidemiologic factors such as the occu transmission of COVID-19 infections. As part of evaluation, clinicians are strongly encou of respiratory illness and peripartum fever. For more information please see: [Evaluating Coronavirus Disease 2019 \(COVID-19\)](#)

What guidance is available for labor and delivery HCP with potential exposure in a h patients with COVID-19 infection?

HCP in labor and delivery healthcare settings should follow the same infection preventi recommendations and personal protective equipment recommendations as all other H patients with COVID-19 infection, guidance is available for HCP and healthcare facilities information, please see: [Interim U.S. Guidance for Risk Assessment and Public Health M Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus](#)

Drugs and Investigational Therapies

Are empiric antibiotics recommended for patients suspected of having COVID-19?

Several patients with COVID-19 have been reported to present with concurrent commu pneumonia. Decisions to administer antibiotics to COVID-19 patients should be based c infection (community-acquired or hospital-acquired), illness severity, and antimicrobial information, see [Diagnosis and Treatment of Adults with Community-acquired Pneumo Practice Guideline of the American Thoracic Society and Infectious Diseases Society of A](#)

What antiviral drugs are available to treat COVID-19?

There are currently no antiviral drugs approved by FDA to treat COVID-19. See [Interim Clinical Practice Guidelines for the Management of Patients with Confirmed Coronavirus Disease 2019 \(COVID-19\)](#).

- For information on use of investigational drugs for treatment of patients with COVID-19, see [Investigational Medicines for Patients with COVID-19](#).
- For information on specific clinical trials underway for treatment of patients with COVID-19, see clinicaltrials.gov [↗](#).

Do nonsteroidal anti-inflammatory drugs (NSAIDs) worsen the course of disease for COVID-19?

CDC is currently not aware of scientific evidence establishing a link between NSAIDs (e.g., aspirin, ibuprofen, naproxen) and worsening of COVID-19. [FDA](#) [↗](#), the [European Medicines Agency](#) [↗](#), the [World Health Organization](#) [↗](#) are continuing to monitor the situation and will review new information on the effects of NSAIDs as it becomes available. For those who wish to use treatment options other than NSAIDs, there are many over-the-counter and prescription medications approved for pain relief and fever reduction. Patients with chronic conditions and additional questions should speak to their healthcare professional. Patients should use NSAIDs, and all medications, according to the product labeling and their healthcare professional.

Patients with Asthma

If I have patients with asthma, do I need to make any changes to their daily asthma regimens to reduce their risk of getting sick with COVID-19?

People with moderate to severe asthma, particularly if not well controlled, [might be at higher risk](#) from COVID-19.

Based on what we currently know about COVID-19, the selection of therapeutic options recommended treatment of asthma has not been affected. [National asthma guidelines](#) Continuation of inhaled corticosteroids is particularly important for patients already using them because there is no evidence of increased risk of COVID-19 morbidity with use of inhaled corticosteroids. There is an abundance of data showing reduced risk of asthma exacerbation with maintenance of asthma therapy.

Patients with asthma but without symptoms or a diagnosis of COVID-19 should continue their asthma treatments.

If my patient experiences an asthma exacerbation, should the exacerbation be treated to reduce risk of COVID-19?

Selection of therapeutic options through guideline-recommended treatment of asthma is affected by what we currently know about COVID-19.

Systemic corticosteroids should be used to treat an asthma exacerbation per [national and current standards of care](#), even if it is caused by COVID-19. Short-term use of systemic corticosteroids for asthma exacerbations should be continued. There is currently no evidence to suggest that use of corticosteroids to treat asthma exacerbations increases the risk of developing severe COVID-19. There is an abundance of data to support use of systemic steroids for moderate or severe asthma.

Patients with asthma but without symptoms or a diagnosis of COVID-19 should continue their treatments, as recommended by national professional organizations, including the American College of Allergy, Asthma & Immunology (AAAAI) and the American College of Allergy, Asthma & Immunology. Health care providers need to be present during nebulizer use among patients who have either symptoms of COVID-19, use [CDC's recommended precautions when performing aerosol-generating procedures](#).

Clinicians may be concerned that an asthma exacerbation is related to an underlying infection. Clinicians can access laboratory testing for COVID-19 through a network of state and local laboratories across the country. Lists of [states and territories with laboratories](#) that are using COVID-19 testing are available. For more information, see [Testing in U.S.](#) Clinicians should direct testing questions to their local health departments.

Are any changes recommended to the asthma treatment plan if my patient with ast

Patients can be referred to [CDC's recommendations for caring for themselves or someone with COVID-19](#).

If nebulizer use at home is necessary for patients with asthma who have symptoms or a diagnosis of COVID-19, use the nebulizer in a location that minimizes and preferably avoids exposure to any other people in the home and preferably a location where air is not recirculated into the home (like a porch, patio, or outdoors). For more information, see [Guidance for the use of nebulizers](#) by national professional organizations, including the American College of Allergy, Asthma & Immunology (ACAAI) and the Allergy & Asthma Network (AAN). Limiting the number of people in the room when the nebulizer is used is also recommended by the Asthma & Allergy Foundation of America. The nebulizer should be used and cleaned according to the manufacturer's instructions.

If nebulizer use in a healthcare setting is necessary for patients who have either symptoms or a diagnosis of COVID-19, use [CDC's recommended precautions when performing aerosol-generating procedures](#).

Patients with Liver Disease

Should people with COVID-19 and increased ALT or AST be tested for viral hepatitis?

Yes, for your COVID-19 patients with risk factors for viral hepatitis and elevated hepatic enzymes, test them for hepatitis A virus, hepatitis B virus, and hepatitis C virus infections. However, elevated alanine aminotransferase (ALT) or aspartate aminotransferase (AST) may also be associated with COVID-19 and indicate greater severity of illness. For more information, review [CDC's Interim Clinical Guidelines for the Management of Patients with Confirmed Coronavirus Disease \(COVID-19\)](#).

During the COVID-19 pandemic, should high-risk populations continue to be vaccinated in response to the ongoing hepatitis A outbreaks?

Yes. People susceptible to hepatitis A virus (HAV) infection during the current hepatitis A outbreak should receive the hepatitis A vaccine when possible. This includes:

- people who use drugs (injection or non-injection)
- people experiencing unstable housing or homelessness
- men who have sex with men (MSM)
- people who are or were recently incarcerated
- people with chronic liver disease (including cirrhosis, hepatitis B, or hepatitis C) and where the [hepatitis A outbreaks](#) are ongoing

Vaccination in settings such as jails, other correctional facilities, and homeless shelters is best when it is previously planned and organized in a way that would adhere to infection control and social distancing standards can be maintained. However, efforts should be made to vaccinate people in settings that allow for social distancing. Whenever possible, vaccination efforts in non-crowded settings should continue for people at highest risk of acquiring HAV infection or developing serious complications, if social distancing standards can be maintained.

Should routinely recommended hepatitis A and hepatitis B vaccines continue to be given to children?

Routine hepatitis A and hepatitis B vaccination of children should continue to the extent possible in accordance with [CDC immunization schedules](#).

Maintaining Childhood Immunizations During COVID-19 Pandemic

The COVID-19 pandemic is changing rapidly and continues to affect communities across the United States. Some of the strategies used to slow the spread of disease in communities include postponing non-urgent elective procedures and using telemedicine instead of face-to-face encounters for many services.

Different strategies are needed to ensure the delivery of newborn care and well-child care immunizations. Healthcare providers in communities affected by COVID-19 are using strategies to [separate sick visits from well visits](#). Examples include:

- Scheduling well visits in the morning and sick visits in the afternoon.
- Separating patients spatially, such as by placing patients with sick visits in different areas of the practice location from patients with well visits.
- Collaborating with providers in the community to identify separate locations for holding well-child visits.

Because of personal, practice, or community circumstances related to COVID-19, some practices may not be able to provide well-child care, including immunizations, for all patients in their practice. If a practice is limited to providing well-child visits, healthcare providers are encouraged to prioritize newborn care for infants and young children (through 24 months of age) when possible. CDC is monitoring the situation and will continue to provide guidance.

Should vaccination of HBV-exposed infants continue during the COVID-19 pandemic

Yes. Hepatitis B vaccination of all infants, especially those exposed to hepatitis B virus, should continue to follow the Advisory Committee on Immunization Practices (ACIP) recommendations.

Labor and Delivery Care

- Identify HBsAg status of all women presenting for delivery.
- If a woman's HBsAg status is positive, HBIG and single antigen hepatitis B vaccine should be administered to the infant within 12 hours of birth.
- If a woman's HBsAg status is unknown, single antigen hepatitis B vaccine should be administered to the infant within 12 hours of birth. Administration of HBIG should be determined per ACIP recommendations (<https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm>). Infants weighing <2,000 g and whose mother's HBsAg status cannot be determined within 12 hours of birth.
- Provide the birth dose of hepatitis B vaccine to all other newborns within 24 hours of birth to prevent hepatitis B virus transmission from household or other close contacts.

Should management of infants born to HBV-infected women continue during the COVID-19 pandemic

Yes. Management should continue to prevent mother-to-child transmission of hepatitis B virus.

Pediatric Care of HBV-exposed Infants

- Make every effort to ensure HBV-exposed infants complete the hepatitis B vaccine series according to ACIP recommendations (see <https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm>). For infants who are experiencing immunization service disruption, catch-up doses should be administered as close to the recommended intervals as possible, including series completion at 6 months of age. Post-vaccination serologic testing is recommended for post-vaccination serologic testing.
- If post-vaccination serologic testing is delayed beyond 6 months after the hepatitis B vaccine series, consider administering a "booster" dose of single antigen hepatitis B vaccine and then order repeat testing (HBsAg & antibody to HBsAg [anti-HBs]) 1-2 months after the "booster" dose.

Should hepatitis A and hepatitis B vaccines continue to be administered to adults at hepatitis B?

Yes. Continue to administer these vaccines if an in-person visit must be scheduled for a clinical preventive service can be delivered during that visit with no additional risk; or a clinician believe that there is a compelling need to receive the service based on an assessment that the benefit outweighs the risk of exposure to SARS-CoV-2 virus. For more information see [Preventive Services, Including Immunizations](#).

Patients with Hypertension

Are patients with hypertension at higher risk for severe illness from COVID-19?

Although many patients with severe illness from COVID-19 have underlying hypertensive disease, hypertension is an independent risk factor for severe illness from COVID-19. Hypertension is more frequent with advancing age and among men, non-Hispanic Black, and Hispanic populations. Other underlying medical conditions such as obesity, diabetes, and serious heart disease. Patients with only underlying medical condition is hypertension are not considered to be at higher risk for severe illness from COVID-19.

Should angiotensin-converting enzyme inhibitors (ACE-Is) or angiotensin receptor blockers (ARBs) be stopped in patients with COVID-19?

No. The American Heart Association, the Heart Failure Society of America, and the American College of Cardiology [recommend](#) continuing ACE-I or ARB medications for all patients already prescribed these medications for indications such as heart failure, hypertension, or ischemic heart disease. At this time, there is no demonstration of COVID-specific harm from these agents. Several random controlled trials are under way to better answer this important clinical question. Cardiovascular disease patients with COVID-19 should be fully evaluated by a healthcare professional before adding or removing medications. Changes to their treatment should be based on the latest scientific evidence. Patients with chronic conditions and have additional questions should speak to their healthcare provider for management.

Waste Management

What do waste management companies need to know about wastewater and sewage from a healthcare facility or community setting with either a known COVID-19 patient or person under investigation (PUI)?

Waste generated in the care of PUIs or patients with confirmed COVID-19 does not present a risk for wastewater disinfection in the United States. Coronaviruses are susceptible to the same disinfection conditions in community and healthcare settings as other viruses, so current disinfection conditions in wastewater treatment facilities are expected to be sufficient. This includes conditions for practices such as oxidation (e.g., chlorine bleach) and peracetic acid, as well as inactivation using UV irradiation.

Do wastewater and sewage workers need any additional protection when handling wastewater from a healthcare or community setting with either a known COVID-19 patient or PUI?

Wastewater workers should use standard practices including [basic hygiene precautions](#) and [PPE](#) as prescribed for their current work tasks when handling untreated waste. There is no reason to believe that employees of wastewater plants need any additional protections in relation to COVID-19.

Should medical waste or general waste from healthcare facilities treating PUIs and patients with COVID-19 be handled any differently or need any additional disinfection?

Medical waste (trash) coming from healthcare facilities treating COVID-19 patients is no different from waste coming from facilities without COVID-19 patients. CDC's guidance states that management of sharps, linens, and medical waste should be performed in accordance with routine procedures. There is no reason to believe that facility waste needs any additional disinfection.

More guidance about environmental infection control is available in section 7 of CDC's [Infection Prevention and Control Recommendations](#) for Patients with Confirmed COVID-19 or Persons Under Investigation in Healthcare Settings.

Additional Resources

- [Clinical Care Guidance](#)
- [Therapeutic Options for Patient with COVID-19](#)
- [Guidance for Pediatric Healthcare Providers](#)
- [Disposition of Hospitalized Patients with COVID-19](#)
- [Inpatient Obstetric Healthcare Guidance](#)
- [Information for Healthcare Providers: COVID-19 and Pregnant Women](#)
- [Ending Isolation for Immunocompromised Patients](#)
- [Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure to Patients with Coronavirus Disease \(COVID-19\)](#)
- [Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in Healthcare Settings](#)
- [Strategies for Optimizing the Supply of N95 Respirators: Conventional Capacity Strategies](#)
- [Evaluating and Testing Persons for Coronavirus Disease 2019 \(COVID-19\)](#)
- [Healthcare Infection Prevention and Control FAQs](#)
- [National Institutes of Health: Coronavirus Disease 2019 \(COVID-19\) Treatment Guidelines](#)