Centers for Disease Control and Prevention

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Coronavirus Disease 2019 (COVID-19)

Clinical Questions about COVID-19: Qu Answers

Updated June 4, 2020

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 supe services.

People 65 years and older and people of all ages with serious underlying health conditi 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 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 acquir 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 informatio
- You know your patient's overall health and how well their conditions are managed. U evaluate on a case by case basis. Patients frequently in congregate settings are at in Patients with underlying medical conditions may be at increased risk of severe disea
- If possible, work with patients to manage their underlying condition to the best of th that patients have sufficient medication and supplies. Prescribing three-month supp ensure access to sufficient medications.
- Explain to all patients which symptoms of their chronic conditions require emergenc Stress the importance of obtaining emergency care if needed.
- Reassure your patients who require emergency care that emergency departments h to protect them from acquiring COVID-19
- Tell patients with underlying medical conditions that increase their risk of severe illn 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, includi better glycemic or blood pressure control.
  - Seek emergency care for acute exacerbations of their underlying medical condi 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
- Follow CDC travel guidelines and the recommendations of your state and local healt about a disease can feel overwhelming, especially for those who might be at higher isolation, and for healthcare providers that are treating patients at higher risk. Do wh 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 ca COVID-19?

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

What is multisystem inflammatory syndrome in children (MIS-C) and who is at risk?

CDC is investigating reports of multisystem inflammatory syndrome in children (MIS-C) Patients with MIS-C have presented with a persistent fever and a variety of signs and sy (e.g., cardiac, gastrointestinal, renal, hematologic, dermatologic, neurologic) involvemer markers. CDC is collaborating with domestic and international partners to better under including how common it is and its risk factors, and to begin tracking cases. For more ir case definition, visit MIS-C Information for Healthcare Providers.

Transmission

When is someone infectious?

The onset and duration of viral shedding and the period of infectiousness for COVID-19 possible that SARS-CoV-2 RNA may be detectable in the upper or lower respiratory tract similar to infections with MERS-CoV and SARS-CoV. However, detection of viral RNA doe infectious virus is present. There are reports of asymptomatic infections (detection of vi symptoms) and pre-symptomatic infections (detection of virus prior to development of but their role in transmission is not yet known. Based on existing literature, the incubat exposure to development of symptoms) of SARS-CoV-2 and other coronaviruses (e.g. M from 2–14 days.

Which body fluids can spread infection?

SARS-CoV-2 RNA has been detected in upper and lower respiratory tract specimens, an isolated from upper respiratory tract specimens and bronchoalveolar lavage fluid. SARS detected in blood and stool specimens, and SARS-CoV-2 virus has been isolated in cell c patients, including a patient with pneumonia 15 days after symptom onset. The duratio detection in upper and lower respiratory tract specimens and in extrapulmonary specir may be several weeks or longer. Duration of several week or longer has been observed SARS-CoV infection. While viable, infectious SARS-CoV has been isolated from respirator specimens, viable, infectious MERS-CoV has only been isolated from respiratory tract sp whether other non-respiratory body fluids from an infected person including vomit, uri 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 y MERS-CoV are unlikely to be re-infected shortly after they recover, but it is not yet know 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 commercial and clinical laboratories across the country. The Association of Public He provides a list of states and territories with laboratories that are using COVID-19 vira see Testing in U.S. Clinicians should direct testing questions to their state health dep reference laboratories are also able to offer a larger volume of testing for SARS-CoV-
- CDC has guidance for who should be tested, but decisions about testing are at the d health departments and/or individual clinicians.
- Healthcare providers should report positive results to their local/state health depar collect these data directly.
- See recommendations for prioritization of testing, and instructions for specimen col Testing Persons for COVID-19.

Do existing commercially available multiple respiratory virus panels detect SARS-Co

Yes. There are commercially developed respiratory panels with multi-pathogen molecul respiratory pathogens, including SARS-CoV-2, influenza, and other human coronaviruse respiratory illness. The U.S. Food and Drug Administration (FDA) maintains a list of tests Emergency Use Authorization (EUA).

If a patient tests positive for another respiratory virus, should that exclude SARS-Co

Patients can be infected with more than one virus at the same time. Coinfections with c people with COVID-19 have been reported. Therefore, identifying infection with one res 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 whether such imaging will change clinical management. The American College of Radiol CT should not be used to screen for COVID-19, or as a first-line test to diagnose COVID- used sparingly and reserved for hospitalized, symptomatic patients with specific clinical Appropriate infection control procedures should be followed before scanning subseque information see, ACR Recommendations for the use of Chest Radiography and Comput 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 faci in a patient. If a patient tests positive, providers should report that positive result to the department.

How do you diagnose and report a potential case of multisystem inflammatory sync C)?

Patients with MIS-C have presented with a persistent fever and a variety of signs and sy (e.g., cardiac, gastrointestinal, renal, hematologic, dermatologic, neurologic) involvemer markers. Not all children will have the same symptoms. For children who may have MIS signs of this syndrome may include (but are not limited to) chest radiograph, echocardi evaluate for evidence of inflammation.

Healthcare providers who have cared or are caring for patients younger than 21 years c should report suspected cases to their local, state, or territorial health department. Afte health departments are available at the Council of State and Territorial Epidemiologists reporting questions, please contact CDC's 24-hour Emergency Operations Center at 770 information, including a full case definition, please visit MIS-C Information for Healthcar

Treatment and Management

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

There is currently no FDA-approved post-exposure prophylaxis for people who may hav
For information about registered clinical trials of investigational therapeutics for pre or
SARS-CoV-2 infection, visit ClinicalTrials.gov .

For more information on movement restrictions, monitoring for symptoms, and evalua
to COVID-19, see Interim US Guidance for Risk Assessment and Public Health Managem
Coronavirus Disease 2019 (COVID-19) Exposure in Travel-associated or Community Sett
Guidance for Risk Assessment and Public Health Management of Healthcare Personnel
Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19).

The National Institutes of Health recently published guidelines on prophylaxis use, testi
COVID-19 patients. For more information, please visit: National Institutes of Health: Cor
(COVID-19) Treatment Guidelines .

How are COVID-19 patients treated?

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

Corticosteroids are *not* routinely recommended for treatment of viral pneumonia or AR
prolonging viral replication, as has been observed with MERS coronavirus and influenza
avoided unless they are indicated for another reason (e.g., COPD exacerbation or refrac
the Surviving Sepsis Campaign Guidelines).

For information on investigational therapies, see Therapeutic Options for Patients with

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

Not all patients with COVID-19 require hospital admission. Patients whose clinical prese clinical management for supportive medical care should be admitted to the hospital un precautions.

Some patients with initial mild clinical presentation may worsen in the second week of i monitor these patients in the inpatient or outpatient setting should be made on a case- will depend not only on the clinical presentation, but also on the patient's ability to enga feasibility of safe isolation at home, and the risk of transmission in the patient's home e information, see Interim Infection Prevention and Control Recommendations for Patien Confirmed Coronavirus Disease 2019 (COVID-19) in a Healthcare Setting and Interim Gu Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COV

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

Patients can be discharged from the healthcare facility whenever clinically indicated. Isc at home if the patient returns home before the time period recommended for discontir Transmission-Based Precautions.

Decisions to discontinue Transmission-Based Precautions or in-home isolation can be n in consultation with clinicians, infection prevention and control specialists, and public h multiple factors, including disease severity, illness signs and symptoms, and results of la COVID-19 in respiratory specimens.

See Interim Considerations for Disposition of Hospitalized Patients with COVID-19. For n Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization Discontinuation of In-Home Isolation for Immunocompromised Persons.

Managing COVID-19 Cases With Persistent or Recu Positive Tests for SARS-CoV-2 After Having Recove Completed Isolation

What do we know about detection of SARS-CoV-2 RNA after clinical recovery from C

Many recovered persons do not have detectable SARS-CoV-2 RNA in upper respiratory t
viral RNA can be persistently detected by RT-PCR in respiratory tract samples after clini
after testing negative by RT-PCR in two consecutive samples, later samples can test pos
persistent or recurrent, these repeated detections of viral RNA consistently are associat
(Ct) values (i.e., fewer RNA copies) than were found in earlier RT-PCR results in samples
during clinical illness. Studies that have looked at how long SARS-CoV-2 RNA can be det
demonstrated that in some persons it can detected for weeks.

Are clinically recovered persons infectious to others if they test persistently or recur CoV-2 RNA?

Whether the presence of detectable but low concentrations of viral RNA after clinical re presence of potentially infectious virus is unknown. Based on experience with other viru persons pose an infectious risk to others. However, whether this is true for SARS-CoV-2 definitively established.

Typically, after the onset of illness, the detectable viral burden declines. After a week or immunoglobulin becomes detectable and antibody titers rise. Some of these antibodies infecting cells in cell culture. The decline in viral burden is associated with decreased ab Efforts to isolate live virus from upper respiratory tract specimens have been unsuccess collected more than 10 days after illness onset.

Persons who have tested persistently or recurrently positive for SARS-CoV-2 RNA have s signs of illness. When viral isolation in tissue culture has been attempted in such person United States, live virus has not been isolated. In addition, there is no evidence that clin persistent or recurrent detection of viral RNA have transmitted COVID-19 to others.

Despite encouraging observations to date, it's not possible to conclude that persons wit detection of SARS-CoV-2 RNA are no longer infectious. There is no firm evidence yet tha in response to infection are protective. If these antibodies are protective, it's not known associated with protection from reinfection.

Based on these data and experience with other viral infections, most persons recovered persistently or recurrently positive by RT-PCR are likely no longer infectious. Additional persistence of the immune response following recovery may vary among individuals, w potentially influencing protection. Based on limited available data, determinations mus basis as to whether recovered persons with persistently detectable SARS-CoV-2 RNA are others and should continue to be in home isolation and excluded from work, school, or determinations are typically made in consultation with infectious diseases specialists ar review of available information (e.g., medical history, time from initial positive test, RT-P COVID-19 signs or symptoms).

Can cycle threshold (Ct) values be used to assess when a person is no longer infecti

No. Although attempts to culture virus from upper respiratory specimens have been lar values are in high but detectable ranges, Ct values are not a measure of viral burden, ar PCR platform, and have not been approved by FDA for use in clinical management. CDC recommend use of Ct values to assess when a person is no longer infectious; however, in the context of the entire body of information available when assessing recovery and

What further evidence is needed to be reassured that persistent or recurrent shedd after recovery does not represent the presence of infectious virus?

Prospectively collecting serial respiratory samples and attempting to isolate live virus in persons testing positive by RT-PCR following illness recovery is generally required. If rep replication-competent virus in culture from such serial samples are unsuccessful that is evidence that infectious virus is absent, and that persons continuing to test positive do other people

Can viral culture be used to demonstrate that a person who had persistently or recu RNA is not infectious to others?

Yes. However, viral culture is not widely performed for SARS-CoV-2. It must be conducte laboratories using BSL-3 practices by experienced virologists and results can take a wee persons whose specimens do not yield live virus are considered no longer infectious, th and the time required to complete it mean that it is unlikely to be useful to guide mana

A person who previously tested positive by RT-PCR for SARS-CoV-2 and clinically rec later tested again, for example as part of a contract tracing investigation. If that per by RT-PCR, should they be managed as potentially infectious to others, and isolated

The person should be managed as potentially infectious and isolated. When a positive t weeks after the person met criteria for discontinuation of isolation, it can be difficult to represents a new infection or a persistently positive test associated with the previous ir occurs more than 6-8 weeks after the person has completed their most recent isolation authorities should consider the possibility of reinfection. Ultimately, the determination subsequently positive test is contagious to others should be made on a case-by-case ba infectious diseases specialists and public health authorities, after review of available inf history, time from initial positive test, RT-PCR Ct values, and presence of COVID-19 signs are determined to be potentially infectious should undergo evaluation and remain isola criteria for discontinuation of isolation or of transmission-based precautions, dependin

If a previously infected person has clinically recovered but later develops symptoms COVID-19, should the person be isolated again and tested for SARS-CoV-2?

Yes, they should be isolated and retested. Persons who test positive for SARS-CoV-2 by after meeting criteria for the symptom-based or test-based strategy. We do not know th COVID-19 illness protects against a subsequent SARS-CoV-2 infection or for how long pe Currently, serologic testing cannot be used to determine if this person may be reinfecte may be evidence of the prior infection, but it remains unknown to what degree persons CoV-2 antibodies are immune to reinfection. Contact tracing for the second period of sy investigation) may be warranted.

If an infected person has clinically recovered and then later is identified as a contact need to be quarantined?

Yes, they should follow quarantine recommendations for contacts. We do not know to v persons are protected against reinfection with SARS-CoV-2 following recovery from COV serologic test may be evidence of prior infection, but it remains unknown whether pers CoV-2 antibodies are immune to reinfection.

If an infected person has clinically recovered using the symptom-based strategy, do

No. The symptom-based strategy is intended to replace the need for repeated testing.

If an infected person has clinically recovered, should the person continue to wear a public?

Yes. It is recommended that almost all persons wear cloth face coverings in public[1]. The face coverings is to limit transmission of SARS-CoV-2 from infected persons who may be clinical symptoms of illness or may have early or mild symptoms that they do not recog may also offer the wearer some protection against re-exposure to SARS-CoV-2, provide public settings, and act as a reminder of the need to maintain social distancing. Howeve personal protective equipment (PPE) and should not be used instead of a respirator or healthcare worker.

[1] Cloth face coverings should not be placed on young children under age 2, anyone wh unconscious, incapacitated or otherwise unable to remove the mask without assistance

Obstetrical Care

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

When available, respirators (or facemasks if a respirator is not available), eye protectior used for the care of patients with known or suspected COVID-19 infection, including wo more information, please see Interim Infection Prevention and Control Recommendatic Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings.

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

During respirator shortages, care should be taken to ensure that N95 respirators are re respiratory protection is most important, such as performance of aerosol-generating pr suspected or confirmed COVID-19 infection. In such shortage situations, facemasks mig patient care.

Alternatives to N95 respirators might be considered where feasible. These include othe filtering facepiece respirators, half facepiece or full facepiece elastomeric respirators, a respirators (PAPRs) where feasible. All of these alternatives will provide equivalent or hi respirators when properly worn. However, PAPRs and elastomeric respirators should n due to concerns that exhaled air may contaminate the sterile field. For more informatio Optimizing the Supply of N95 Respirators: Conventional Capacity Strategies.

When respirator supplies are restored, the facility can switch back to use of N95 respira with known or suspected COVID-19 infection. For more information, please see Interim Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disea Healthcare Settings.

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

Based on limited data, forceful exhalation during the second stage of labor would not b aerosols to the same extent as procedures more commonly considered to be aerosol g bronchoscopy, intubation, and open suctioning. Forceful exhalation during the second considered an aerosol-generating procedure for respirator prioritization during shortag 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 gowns during the second stage of labor, in addition to other personal protective equipr indicated for labor and delivery. For more information please see: Healthcare Infection

Is use of high-flow oxygen considered an aerosol-generating procedure for respirat shortages?

Based on limited data, high-flow oxygen use is not considered an aerosol-generating pr prioritization during shortages over procedures more likely to generate higher concentr respiratory aerosols (such as bronchoscopy, intubation, and open suctioning). Patients COVID-19 should receive any interventions they would normally receive as standard of supplies are restored, as with all clinical care activities for patients with known or suspe facemasks if a respirator is not available), eye protection, gloves, and gowns should be 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; n 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 G Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19).

- For information on use of investigational drugs for treatment of patients with COVID for Patients with COVID-19.
- For information on specific clinical trials underway for treatment of patients with CO clinicaltrials.gov .

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

CDC is currently not aware of scientific evidence establishing a link between NSAIDs (e.g worsening of COVID-19. FDA , the European Medicines Agency , the World Health O continuing to monitor the situation and will review new information on the effects of NS as it becomes available. For those who wish to use treatment options other than NSAID counter and prescription medications approved for pain relief and fever reduction. Pati treat chronic conditions and have additional questions should speak to their healthcare management. Patients should use NSAIDs, and all medications, according to the produc 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 l 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 usi because there is no evidence of increased risk of COVID-19 morbidity with use of inhale abundance of data showing reduced risk of asthma exacerbation with maintenance of a

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

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

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

Systemic corticosteroids should be used to treat an asthma exacerbation per national a current standards of care, even if it is caused by COVID-19. Short-term use of systemic c asthma exacerbations should be continued. There is currently no evidence to suggest tl corticosteroids to treat asthma exacerbations increases the risk of developing severe C 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 continu treatments, as recommended by national professional organizations, including the Ame Asthma & Immunology (AAAAI) and the American College of Allergy, Asthma & Immuno providers need to be present during nebulizer use among patients who have either sym COVID-19, use CDC's recommended precautions when performing aerosol-generating p

Clinicians may be concerned that an asthma exacerbation is related to an underlying in Clinicians can access laboratory testing for COVID-19 through a network of state and lo across the country. Lists of states and territories with laboratories that are using COVID For more information, see Testing in U.S. Clinicians should direct testing questions to th 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 somec COVID-19.

If nebulizer use at home is necessary for patients with asthma who have symptoms or a of the nebulizer in a location that minimizes and preferably avoids exposure to any oth and preferably a location where air is not recirculated into the home (like a porch, patio by national professional organizations, including the American College of Allergy, Asthm the ACAAI and the Allergy & Asthma Network (AAN). Limiting the number of people in th nebulizer is used is also recommended by the Asthma & Allergy Foundation of America used and cleaned according to the manufacturer's instructions.

If nebulizer use in a healthcare setting is necessary for patients who have either sympto COVID-19, use CDC's recommended precautions when performing aerosol-generating p

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 them for hepatitis A virus, hepatitis B virus, and hepatitis C virus infections. However, el aminotransferase (ALT) or aspartate aminotransferase (AST) may also be associated wit indicate greater severity of illness. For more information, review CDC's Interim Clinical C Patients with Confirmed Coronavirus Disease (COVID-19)

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

Yes. People susceptible to hepatitis A virus (HAV) infection during the current hepatitis A 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 s previously planned and organized in a way that would adhere to infection control pract distancing standards can be maintained. However, efforts should be made to vaccinate settings that allow for social distancing. Whenever possible, vaccination efforts in non-c continue for people at highest risk of acquiring HAV infection or developing serious com infection, if social distancing standards can be maintained.

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

Routine hepatitis A and hepatitis B vaccination of children should continue to the exten CDC immunization schedules.

Maintaining Childhood Immunizations During COVID-19 Pandemic

The COVID-19 pandemic is changing rapidly and continues to affect communities acros Some of the strategies used to slow the spread of disease in communities include postp urgent elective procedures and using telemedicine instead of face-to-face encounters f

Different strategies are needed to ensure the delivery of newborn care and well-child ca immunizations. Healthcare providers in communities affected by COVID-19 are using st from sick 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 a location from patients with well visits.
- Collaborating with providers in the community to identify separate locations for hol

Because of personal, practice, or community circumstances related to COVID-19, some provide well-child care, including immunizations, for all patients in their practice. **If a pr limited well-child visits, healthcare providers are encouraged to prioritize newborn c infants and young children (through 24 months of age) when possible.** CDC is monitc 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, s
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 sh
infant within 12 hours of birth.
- If a woman's HBsAg status is unknown, single antigen hepatitis B vaccine should be a
within 12 hours of birth. Administration of HBIG should be determined per ACIP reco
https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm). Infants weighing <2,000 g
the 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 o
hepatitis B virus transmission from household or other close contacts.

Should management of infants born to HBV-infected women continue during the CO

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

Pediatric Care of HBV-exposed Infants

- Make every effort to ensure HBV-exposed infants complete the hepatitis B vaccine s
recommendations (see https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm). P
component vaccine who are experiencing immunization service disruption should a
as close to the recommended intervals as possible, including series completion at 6
recommendations for post-vaccination serologic testing.
- If post-vaccination serologic testing is delayed beyond 6 months after the hepatitis B
administering a "booster" dose of single antigen hepatitis B vaccine and then orderin
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 s clinical preventive service can be delivered during that visit with no additional risk; or ar clinician believe that there is a compelling need to receive the service based on an asse benefit outweighs the risk of exposure to SARS-CoV-2 virus. For more information see D 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 hypertensic hypertension is an independent risk factor for severe illness from COVID-19. Hypertens States. Hypertension is more frequent with advancing age and among men, non-Hispar other underlying medical conditions such as obesity, diabetes, and serious heart diseas only underlying medical condition is hypertension are not considered to be at higher ris COVID-19.

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

No. The American Heart Association, the Heart Failure Society of America, and the Amer recommend continuing ACE-I or ARB medications for all patients already prescribed indications such as heart failure, hypertension, or ischemic heart disease. At this time, a demonstrates no indication of COVID-specific harm from these agents. Several random under way to better answer this important clinical question. Cardiovascular disease pat COVID-19 should be fully evaluated by a healthcare professional before adding or remo changes to their treatment should be based on the latest scientific evidence. Patients w treat chronic conditions and have additional questions should speak to their healthcare management

Waste Management

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

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

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

Wastewater workers should use standard practices including basic hygiene precautions PPE as prescribed for their current work tasks when handling untreated waste. There is employees of wastewater plants need any additional protections in relation to COVID-1

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

Medical waste (trash) coming from healthcare facilities treating COVID-2019 patients is coming from facilities without COVID-19 patients. CDC's guidance states that managem utensils, and medical waste should be performed in accordance with routine procedure suggest that facility waste needs any additional disinfection.

More guidance about environmental infection control is available in section 7 of CDC's I and Control Recommendations for Patients with Confirmed COVID-19 or Persons Unde 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 Poter Setting to Patients with Coronavirus Disease (COVID-19)
- Infection Prevention and Control Recommendations for Patients with Suspected or (Disease 2019 (COVID-19) in Healthcare Settings
- Strategies for Optimizing the Supply of N95 Respirators: Conventional Capacity Strat
- 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 Guide