

Good afternoon. I'm Commander Ibad Khan and I'm representing the Clinician Outreach and Communication Activity, COCA, with the Emergency Risk Communication Branch at the Centers for Disease Control and Prevention. I'd like to welcome you to today's COCA call, Corona Virus Disease 2019, COVID-19 Update: Information for Clinicians Caring for Children and Pregnant Women. For participants using the Zoom platform to access today's webinar, if you're unable to gain or maintain access or if you experience technical difficulty, you may wish to watch the livestream of the webinar on COCA's Facebook page at www.facebook.com/CDCclinicianoutreachandcommunicationactivity. Again, that web address is www.facebook.com/CDCclinicianoutreachandcommunicationactivity.

The video recording of this COCA call will be available immediately following the live call on COCA's Facebook page. The video recording will be posted on COCA's webpage at emergency.cdc.gov/COCA a few hours after the call ends. Again, that web address is emergency.cdc.gov/COCA. Continuing education is not provided for this COCA call. After today's presentation, there will be a Q&A session. You may submit questions at any time during the presentation through the Zoom webinar system by clicking the Q&A button at the bottom of your screen and then typing your question.

If you are unable to ask the presenters your question, please visit CDC's COVID-19 website at www.cdc.gov/COVID-19 for more information. You may also email your questions to COCA@CDC.gov. For those who have media questions, please contact CDC Media Relations 404 639 3286 or send an email to media@CDC.gov.

If you are a patient, please refer your questions to your healthcare provider. I would now like to welcome our three presenters to today's COCA call. Our first presenter is Dr. Denise Jamieson, Department Chair of Gynecology and Obstetrics at Emory University in Atlanta, Georgia.

Our second presenter is Dr. Romeo Galang from the Clinical Team on the Healthcare Response and Worker Safety Task Force for CDC COVID-19 Emergency Response. And finally, our third presenter is Dr. Kate Woodward with the Maternal Child Health Team of the At-Risk Task Force for CDC's COVID-19 Emergency Response. Please note that the only slide that will be displayed during today's webinar is the slide you're currently viewing titled CDC COVID-19 resources.

The slides will not advance again until we begin the Q&A portion of this call. And now for our first presenter. Dr. Jamieson, you may proceed.

Thank you and good afternoon. This call starts with a review of clinical findings in patients with COVID-19, both overall and in pregnant women. Then moves on to a discussion of testing and treatment. And finally ends with infection prevention and considerations related to inpatient obstetric care settings such as labor and delivery. So what are the clinical manifestations? Let's start with a brief review of the clinical findings in patients with COVID-19.

At illness onset, frequently reported signs and symptoms include fever, cough, myalgia or fatigue, and shortness of breath. Other less commonly reported respiratory symptoms include sore throat, headache, cough with sputum production, or even hemoptysis and congestion or rhinorrhea. Some patients have experienced gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and lower respiratory tract symptoms. Physicians should be aware that some reports suggest the potential for clinical deterioration. Pneumonia is the most common complication.

Additionally in China, acute respiratory distress syndrome developed in 20% to 30% of hospitalized patients with pneumonia, with a median time of eight days from symptom onset to respiratory distress.

What are the risk factors for severe illness? Regarding risk factors, older adults and people of all ages with severe underlying health conditions such as heart disease, lung disease, and diabetes seem to be at higher risk of developing severe illness. Is pregnancy a risk factor for severe illness? There are few published reports on COVID-19 and pregnancy. We know that pregnant women are a population who may be at increased risk of susceptibility to infection, severe illness and mortality associated with other respiratory infections. This is because of the physiologic changes that take place during pregnancy, including increased heart rate and oxygen consumption, decreased lung capacity, and a shift away from cell-mediated immunity.

These changes may increase the risk of more severe disease in pregnant women compared with non-pregnant adults. This increased risk has been observed for other viral respiratory infections in pregnant women, specifically influenza and SARS. At this point, because of what we know about other respiratory infections and given the paucity of data related to COVID-19 and pregnancy, pregnant women should be considered an at-risk population for strategies focusing on prevention and management of COVID-19. I will now turn this over to Dr. Romeo Galag.

Thank you, Dr. Jamieson. What we know today about COVID-19 and pregnancy is based upon very few case series of COVID-19 in pregnancy from China. The challenge with these reports is that reporting of maternal, perinatal, and neonatal outcomes has been inconsistent and details have varied. But here's what we know so far.

So far, at least 34 women affected in pregnancy have been reported. The median age among reported cases was 30 years with illness in the second and third trimester of pregnancy, with a median of 36 completed weeks. Most women reported fever and cough, and symptom onset occurred was frequently within two days of delivery with a range between 13 days prior to delivery and with symptoms three days after delivery. Almost all of the infants were delivered by caesarian section and all within 13 days of onset of illness. The indications for caesarean section included COVID-19 infection but also other conditions which prompt a caesarean delivery such as fetal distress or placenta previa.

Among live-born infants, almost half were born late preterm and infant testing to date has not shown evidence of COVID-19 infection. Amniotic fluid, cord blood, breast milk and placenta specimens when tested were reported as negative for viral RNA. No maternal deaths have been reported. However, two women were admitted to the intensive care unit for critical care. One of these women delivered a live-born infant while the other delivered a stillborn infant.

We have not seen any data on COVID-19 in early pregnancy to date. This is all to say that the clinical presentation of COVID-19 illness during pregnancy as reported in the literature seems to be similar to that for non-pregnant persons and the course of illness ranges from mild disease to severe illness that requires critical care. Increased risks of severe morbidity and mortality are not yet evident in a very few number of reported cases of COVID-19 in pregnancy and more data is needed. Next, let's talk about testing, treatment, and considerations for inpatient obstetric care settings. Guidance about who to test has been updated and can be found on the CDC website page titled Evaluating and Reporting Persons Under Investigation, or PUI.

Clinicians should use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested. Decisions on which patients receive testing should be based on the focal epidemiology of COVID-19 as well as the clinical course of illness. Clinicians are strongly encouraged to test for other causes of respiratory illness including infections such as influenza. Epidemiologic factors that may help guide decisions on whether to test include any persons including

health workers who within 14 days of symptom onset have close contact with a patient with COVID-19 or history of travel for affected geographic areas within 14 days of their symptoms. Testing should be coordinated with your local or state public health department.

So how is COVID-19 treated? Patients with mild clinical presentation may not initially require hospitalization. As mentioned previously, clinical signs and symptoms may worsen with progression to lower respiratory tract disease in the second week of illness and all patients should be monitored closely. The decision to monitor and the inpatient or outpatient setting should be made on a case-by-case basis and this decision will depend not only on the clinical presentation but also on the patient's ability to engage in monitoring at home, to ensure home isolation, and the risk of transmission in the patient's home environment. There's no specific treatment for COVID-19 currently available. Clinical management includes prompt implementation of recommended infection prevention and control measures, and supportive management of complications including advanced organ support if indicated.

Corticosteroids, particularly high dose corticosteroids, should be avoided because of the potential of prolonging viral replication as observed in MERS-CoV patients unless indicated for other reasons. Some of you may have heard about investigational new drugs available through clinical trials. Pregnancy and breastfeeding are exclusions for enrollment in the NIH adapted trial. A small number of patients with COVID-19 have received the medication Remdesivir for compassionate use outside of a clinical trial setting. CDC has posted considerations for infection prevention and control in healthcare facilities that care for pregnant patients with confirmed COVID-19 or patients who are under investigation for infection.

This is meant to apply the broader infection control guidance as it applies to scenarios unique to the inpatient obstetric healthcare setting which includes OB triage, labor and delivery, and recovery and inpatient postpartum settings. Since maternity and newborn care units vary in how they're physically set up, each facility should consider their space and staffing needs to prevent transmission. These considerations include appropriate isolation of pregnant patients who have confirmed COVID-19 or who are PUIs, training for all healthcare personnel on correct infection control practices and PPE use, having sufficient supplies of appropriate PPE, and including processes to protect newborns from risk of COVID-19 infection. Next, I'll outline some approaches for preventing transmission at various time points in care received in the inpatient obstetric care setting. These conservative approaches are similar to those taken in the 2009 H1N1 influenza pandemic.

Let's start with pre-hospital considerations. Pregnant patients who have confirmed COVID-19 or who are PUIs should notify the obstetrics unit prior to arrival so the facility can make appropriate infection control preparations. If a pregnant patient who has confirmed COVID-19 or as a PUI arrives by transport by EMS services, the driver should contact the receiving emergency department or healthcare facility and follow previously agreed-upon local or regional transport protocols. CDC has a COVID-19 webpage specifically for EMS systems. Healthcare providers should promptly notify infection control personnel at the facility of the anticipated arrival of a pregnant patient who has confirmed or suspected COVID-19.

During hospitalization, healthcare facilities should ensure that their recommended infection control practices for pregnant patients with COVID-19 or suspected to have infection are consistent with CDC's guidance. All healthcare facilities that provide obstetric care should ensure that their personnel are correctly trained and can adhere to the infection control requirements and PPE use. Healthcare facilities should follow the infection control guidance on managing visitors, including any essential support persons for women in labor such as a spouse or partner. And finally, infants born to mothers with

confirmed COVID-19 should be considered patients under investigation and as such, these infants should be isolated according to the infection prevention and control guidance available online. Now, it's unknown whether newborns with COVID-19 are at increased risk for severe complications.

Transition after birth from contacts with infectious respiratory secretions is a concern, so to reduce the risk of transmission from mother to the newborn, facilities should consider temporarily separating the mother who has confirmed COVID-19 or who is a PUI from her baby until the mother's transmission-based precautions are discontinued. The risks and benefits of temporary separation of the mother from her baby should be discussed with the mother by the healthcare team. A separate isolation room should be available for the infant while they remain under investigation for infection. Healthcare facilities should consider limiting visitors to the infant with the exception of a healthy parent or caregiver who, while providing care such as diapering, bathing, and feeding, should use appropriate PPE including gown, gloves, face mask, and eye protection. For healthcare personnel, the recommendations for appropriate PPE are outlined in the online guidance.

The decision to discontinue temporary separation of mother and baby should be made on a case-by-case basis in consultation with the clinicians, infection prevention and control specialists, and public health officials. The decision to take into account, should take into account disease severity, illness signs and symptoms, and the results of COVID-19 lab testing. These considerations are the same as those used to discontinue precautions for other hospitalized patients with COVID-19 and this includes resolution of fever, waive out the use of antipyretic medications, improvement in respiratory symptoms, and negative COVID-19 results from two consecutive pairs of nasopharyngeal and oropharyngeal swabs collected at least 24 hours apart. If the mother wishes to co-locate or room in with her newborn in this, or if temporary separation is unavoidable due to the facility limitations, healthcare facilities should consider implementing measures to reduce exposure of the newborn to the virus that causes COVID-19. Engineering controls like physical barriers such as a curtain between the mother and newborn and keeping the newborn more than 6 feet away from the mother who is ill can be considered.

If no other healthy adult is present in the room to care for the newborn, a mother who has confirmed COVID-19 or is a PUI should put on a face mask and practice hand hygiene before each feeding or other close contact with a newborn. The face mask should remain in place during contact with the newborn and these practices would continue while the mother is on transition-based precautions in the healthcare facility. Regarding breastfeeding, if a mother and newborn do room in and the mother wishes to nurse at the breast, she should put on the face mask and practice hand hygiene before each feeding. If temporarily separated, mothers who intend to breastfeed should be encouraged to express their breast milk and establish and maintain milk supply. If possible, a dedicated breast pump should be provided.

Prior to expressing breast milk mothers should practice hand hygiene, and after each pumping session all parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected per manufacturer instructions. This expressed breast milk can be fed to the newborn by a healthy caregiver. Finally, regarding hospital discharge, patients can be discharged from the healthcare facility whenever clinically indicated. The decision to send the patient home should be made in consultation with a patient's clinical care team and with local and state public health departments and should consider the home's suitability for and patients ability to adhere to home isolation recommendations and potential risk of secondary transmission to household members who may have high risk or immunocompromised conditions. This information on disposition of hospitalized patients is outlined on the CDC website.

For infants with pending test results or who test negative for the virus that causes COVID-19 upon hospital discharge, the caretakers should take steps to reduce risk of transmission to the infant. And again, these are outlined on the CDC website page which is titled Preventing the Spread of Corona Virus Disease 2019 in Homes and Residential Communities. I'll now pass on this discussion to Dr. Kate Woodward.

Thank you. I'd now like to describe what is known about COVID-19 in children including epidemiology, clinical manifestations, transmission, and prevention. So, similar to what's known in pregnancy, the information on children with COVID-19 is still limited and has mainly come from published case series and case reports from China. And we continue to learn more every day. In terms of the epidemiology and burden of COVID-19 among children, early reports from China described a low percentage of cases among children compared with the general population, with about 2% of confirmed or suspected cases occurring among persons less than 20 years of age as of early February.

However, a more recent report described an increase in the proportion of confirmed cases that were from children from 2% to 13% in one major city in China. Possible reasons for this may be fewer children exposed earlier in the outbreak, increased transmission within families and communities later in the outbreak, improved detection and case-finding later in the outbreak, or challenges with identification of children with SARS Cov2 or COVID-19 due to milder symptoms. In most of the reports of confirmed infection with SARS Cov2 from China, children have had exposure to a household member with confirmed COVID-19. From prior outbreaks of related coronaviruses, SARS, and MERS, there were also relatively few cases in children compared with adults, with less than 5% of SARS cases in 2003 occurring in children. So far, the vast majority of cases detected in the United States have been in adults.

Predominant presenting symptoms and children reported to date are similar to other viral respiratory infections including fever, cough, congestion, rhinorrhea and sore throat. Data from some of the larger case series from China described between 50 and 80 percent of children presenting with fever. Gastrointestinal symptoms of vomiting and diarrhea have been reported in a handful of cases and there's been at one, at least one child presenting with predominantly these GI symptoms and only developing respiratory symptoms later in their disease course. And these symptoms appear to be similar even among the youngest children. There was a case series of nine infants, so less than 12 months of age, who were hospitalized with COVID-19 and they reported mostly mild URI symptoms with half having fever and 1/3 having cough.

Dr. Galang reviewed current guidance on testing and these recommendations are general for both adults and children. And I want to just stress again that the decisions on who should receive testing should be made on local epidemiology. The disease course in children appears to be generally mild compared to that in adults. To date, we are aware of one report of severe disease and a 13 month old who developed ARDS and sepsis, required ventilatory support in an ICU setting.

But this child did recover. And one additional report of a three-year-old child requiring intensive care. But those are the only reports of severe disease that we're aware of from the published literature. As of February 11th, no deaths had occurred in persons less than 10 years of age in China. There was one death reported in a person between 10 and 19 years of age, but we did not have additional information on that case.

Radiographic findings from children with COVID-19 are similar to those seen in adults, including chest x-ray findings with patchy infiltrates consistent with viral pneumonia, and chest CT findings of nodular

ground glass opacities. In one series of 20 children hospitalized with COVID-19 who received chest CT, about half had bilateral pulmonary lesions, a third had unilateral, and a third had no findings. Some children have had mild laboratory abnormalities, including elevated CRPs, mildly elevated AST and ALT. And we have seen reports that leukopenia and lymphopenia have been commonly reported in adults with COVID-19, but from the few cases that we have information on, we've seen both increases and decreases in white blood cell count in children; again, based on limited information. Co-detection with other respiratory pathogens have been reported.

In one series of 20 children with COVID-19 in China, 40% had a co-detection from a respiratory specimen, including mycoplasma pneumoniae, influenza, and RSV. Again, in terms of complications, several children in the published literature were treated with empiric antibiotics for pneumonia, and there was at least one description of suppurative tonsillitis after a diagnosis of COVID-19. Importantly, adults with underlying medical conditions, as Dr. Galang mentioned, may seem to be a higher risk of morbidity and mortality from COVID-19. At this time we have almost no data on which children or which underlying conditions in children put them at risk of severe disease.

So, we're having to extrapolate from what we know about underlying conditions in adults, and also looking at what underlying conditions put children at high risk for complications from other respiratory viral infections. Moving on to management. Again, at this time there are no antiviral drugs for COVID-19, recommended or licensed by the FDA. And clinical management for children includes infection prevention and control measures in health care settings and supportive management of any complications. Dr.

Galang mentioned the investigational drug Remdesivir and mentioned that there are a few clinical trials for Remdesivir in COVID-19 that are ongoing in adults, but none in children. The NIH and collaborators are working on developing a candidate vaccines and therapeutics, but currently non-pharmacologic interventions like hand-washing, staying home if sick, and covering coughs are the best way to reduce the impact of COVID-19 on our communities. And so finally, looking at transition and prevention, SARS CoV-2, the virus that causes COVID-19, is primarily transmitted through respiratory droplets. Infection prevention recommendations for pediatric healthcare settings are the same as those for other healthcare settings and can be found on CDC's website. Given that many children may have only mild symptoms, pediatric providers and facilities should consider ways to reduce face-to-face triage and visits, such as expanding and encouraging use of nurse directed triage protocols and telehealth programs.

CDC has put out guidance on evaluating persons under investigations in their home, so as to avoid unnecessary health care exposures. And that information can again be found on CDC's website. There have been many questions about the role of children in the spread of COVID-19 despite mild symptoms. We do know that persons with mild illness can transmit the disease to others, and there have been reports of transmission from persons who are asymptomatic. It's not clear what extent these cases impact spread, but we don't consider this a significant means of transmission.

We know from other viral respiratory illnesses that children can shed virus longer than adults. We're still learning about viral shedding for COVID-19. In a case series of 10 children with COVID-19 in China, viral RNA was detected in respiratory specimens up to 22 days after symptom onset and in stool up to 30 days after symptom onset. In a case report of a six-month-old infant, viral RNA was detected in nasopharyngeal blood and stool specimens even though the infant had very mild illness. But it's important to note that viral culture was not performed on specimens in these reports, and so we don't know whether this RNA detection represented potentially transmissible virus.

Another way to look at transmission is through clustering of cases, and the majority of case clusters investigated and reported from China contact tracing identified most cases in children as household context of adults with COVID-19 infection, suggesting that transmission was largely from adults to children rather than from children to adults. But this certainly cannot always be confirmed. And at this stage in the outbreak we have very little information on transmission among children in specific settings. Children should follow the same prevention recommendations as adults, including frequent hand-washing and avoiding people who are ill. For providers, offices, and hospitals, now is the time to review your infection prevention and control policies and CDC's infection control recommendations for COVID-19.

I also want to point out that the CDC website includes a preparedness checklist for providers and hospitals. For additional information on COVID-19, including up-to-date guidance surrounding clinical care, infection prevention and control, testing and prevention, please see CDC's coronavirus website. Please help us to guide your patients and families towards reliable sources of information. The CDC website includes information for communities, schools, and the general public. Additionally, please reach out your local health department's for information on risk assessment, testing, and preparedness planning in your local area.

I want to thank you all for taking the time to inform yourselves so that you are able to prepare and protect yourselves, your facilities, and your patients. I'll now hand it back to our moderator, Ibad Khan, for any questions.

Presenters, thank you for providing our audience with such useful information on this rapidly evolving pandemic. We appreciate your time and value your clinical insights on this matter. We will now go into our Q&A session. In addition to our presenters, we are also joined today by CDC subject matter experts, Dr. Alice Gu, and Dr.

Angela Campbell for the Q&A session. Audience, please remember you may submit questions through the webinar system by clicking the Q&A button at the bottom of your screen and then typing your question. We have received multiple questions about the effects of coronavirus on pregnancy. And a theme that has developed is around healthcare providers.

So, can our presenters please address what are things that can be done to protect doctors and nurses who are pregnant, and who are seeing patients in the hospital setting.

Should they be on the frontlines?

Hi this is Dr. Galang speaking. So, pregnant healthcare personnel should still follow the risk assessment and infection control guidelines for healthcare personnel that are exposed to patients with suspected or confirmed COVID-19. Adherence to the recommended infection prevention control practices is a very important part of protecting everybody in the healthcare setting. We know that information on COVID-19 and pregnancy is very limited based on which symptoms are presented.

And facilities may want to at least consider limiting exposure of pregnant healthcare personnel from patients, patient care with those who have confirmed COVID-19 infection. I mean, this would be especially important during high-risk procedures that generate aerosols. And this is all of course if it's feasible, and based upon staffing availability.

Thank you for that.

Along the same lines, we have received a question that asks if pregnant women are either more susceptible to infection, or are considered at an increased risk for severe illness compared to the general public.

Hi, this is Dr. Galang again. As Dr. Jamieson had pointed out earlier, we don't have a lot of information from the public scientific reports about susceptibility of pregnant women and COVID-19. She did mention that pregnant women experienced immunologic and physiologic changes, which might make them more susceptible to viral respiratory infections in general, and this might include COVID-19.

This has been observed in other types of viral respiratory infections, such as influenza and SARS. So, of course, you know, one of the big things to emphasize for our patients would be that they should engage in the usual preventive actions to avoid infection. And this includes things like washing hands often and avoiding folks who are sick. Thank you, next question.

Thank you.

Our next question seems to focus more on children and asks that it being flu and cold season, there are children in healthcare settings presenting with fever and cough regularly. How would a healthcare provider determine who might have COVID-19?

Yeah, so this is really challenging. I'm sorry, this is Kate Woodward. And this is certainly a challenge since symptoms may be indistinguishable from common things that, especially pediatric healthcare providers see every day. And so, right now decisions about which patients should get tested should be based on local epidemiology of COVID-19 and the clinical course of illness. And so some factors that might help guide this decision are if there's known close contact of a laboratory confirmed COVID-19 patient within the 14 days of symptom onset, having a history of travel from affected geographic areas within 14 days of symptom onset, or presence of spread of COVID-19 in your community.

And so, because of this, it's really important to establish contact with your local public health partners so that you can understand your local epidemiology and determine who should be tested for COVID-19. And in addition, I just want to take this time to sort of to remind everyone to consider other common causes of respiratory illness; including infections such as influenza. So, this influenza season has been particularly bad for children, with 136 flu pediatric deaths so far this year. And though activity does seem to be decreasing in some areas recently, most states in the U. S.

Continued to experience high influenza like illness activity level. And so healthcare providers should consider other common diagnoses in children with upper respiratory illness. Also, again I want to stress that the CDC is encouraging health care facilities to consider alternatives to face-to-face triage and visits, through things like advice lines and telehealth interactions whenever possible. Thank you.

Thank you.

Our next question is also about children, however it's more from the psychological point of view. We have received a few questions all asking about how to deal with anxiety the children may be experiencing because of this outbreak and what they're hearing from friends and in school. Are you aware of resources or guidance that you can share with children and their families?

Yes. So, this is Dr. Woodward again. We know that emergencies like disease outbreaks can be stressful for both children and adults alike. And some of the mitigation strategies that we use like social distancing can put a strain on mental health as well.

So, we encourage parents to provide simple information and reassurance, consider monitoring or limiting media exposure, correcting misinformation, trying to keep routines as much as possible, and reminding children of the actions that they can take to keep themselves and their community safe like hand-washing and covering coughs. And we encourage our providers to provide families with information from trusted sources. So, the CDC website has information on resiliency geared towards children and parents and older children. And I'd also encourage providers to look to their usual resources. Professional organizations like the American Academy of Pediatrics have put out information on how to talk to children about COVID-19.

Thank you.

Thank you very much.

We had received questions about hospital setting, but we also have questions about outpatient settings. Specifically in the realm of infection control. And the question asks: are there any infection control guidance for outpatient pediatrician and OB offices?

Thanks. So this is Dr. Gu. Many of the recommendations described in the interim CDC infection prevention and control guidance are applicable to outpatient pediatrician OB offices, and should already be part of infection control program designed to prevent transmission of seasonal respiratory infections, including COVID-19. These include appropriately screening and triaging patients with respiratory symptoms, such as asking patients to call ahead if they're coming in with symptoms of a respiratory infection so that staff are prepared to receive them.

Emphasizing source control, to asking patients with symptoms of a respiratory infection to wear a face mask upon entry into the facilities. Now for young children who may not be able to tolerate a face mask, parents or caregivers can use tissues to cover the child's nose and mouth. Additional infection control measures that could help prevent transmission of COVID-19 include ensuring that all facilities staff and patients and caregivers adhere to respiratory hygiene, cough etiquette, and hand hygiene.

Thank you for your answer. We've received multiple questions about pregnancies, and I'm going to try and compile them into a theme.

The questions generally boil down to the following: a, are pregnant women with COVID-19 at an increased risk for adverse pregnancy outcomes? And b, what about those with high-risk pregnancies?

Hi, this is Dr. Galang again. So, with regards to pregnancy outcomes, we don't have a lot of information on adverse pregnancy outcomes in pregnant women with COVID-19. At least not enough to state that there's an increased risk. As stated earlier, pregnancy loss including miscarriage and still-birth have been observed in cases of infection with other types of coronaviruses, such as SARS coronavirus and MERS coronavirus during pregnancy.

And we also know that high fevers during the first trimester of pregnancy can increase the risk of certain types of birth defects. These are all things that we consider when thinking about the risk for potential

adverse pregnancy outcomes. With regards to women who have a high-risk pregnancy, care should really be individualized. And this does include a discussion about the risk of severe illness with coronavirus disease and prevention measures with health care providers. There's currently no vaccine to prevent COVID-19.

And so the best way to prevent illness at this time is to avoid being exposed. And as a reminder, CDC always recommends everyday preventive actions to help prevent the spread of COVID-19. We also have resources online that can help families in preventing the spread in their homes, and this includes information on how to plan ahead, what to do if some in your household is sick, and some information on cleaning and disinfection recommendations. We also have information online in general for people at higher risk and special populations, which includes pregnant women.

Thank you for that.

Similar question, but follow-up to that with the different patient population in mind. We have received questions asking about children with underlying medical conditions, like asthma, or other special healthcare needs. Are they at a higher risk of infection or complication? And also are there special considerations for this patient population that should be taken to mind?

Thank you. This is Dr. Woodward. And so, at this time we really have very little information about children with underlying medical conditions, or children with special healthcare needs and how they may be at risk of severe disease or complications from COVID-19. We have seen that adults with certain underlying medical conditions such as cardiovascular disease, chronic respiratory disease, or diabetes, or others are at high risk of morbidity and mortality from COVID-19.

And you know, usually we think of children, especially young children, as a high-risk group for other infections, thinking about things like influenza, but from the very limited data we have so far it seems that even infants have mild disease with COVID-19 if they are exposed. Certainly children with special healthcare needs are a vulnerable population for multiple reasons during infectious disease outbreak. Their care is often more complex because of their various health conditions and extra care requirements. And so, we do encourage families to have an emergency care plan for their child with special healthcare needs. And CDC does have a website that has information and resources available for families caring for children with special healthcare needs during a public health emergency.

But in brief, if your patient is at higher risk of getting sick from COVID-19, we do recommend that they stock up on necessary supplies, that they take the same precautions as others to keep space between themselves, to do social distancing, to keep away from others who are sick, to limit close contact, wash hands often, avoid unnecessary travel, and avoid crowds. And then if there is an outbreak in their community, we recommend patients who are at higher risk stay home as much as possible, watch for some symptoms, and emergency signs. And then again, it'd be great for providers to communicate with these families that if they do, if their child with special healthcare needs does become sick, that they should call your office ahead of time. And so again, I would refer providers to the website to get more information on these.

Thank you for that.

Our next questions have to do with pregnant women again, but with the focus on the fetus. Can you please talk about what information is available of the effects on pregnant women, but specifically on their fetus? And also, if it's possible for a woman with COVID-19 to pass the virus via vertical transmission to the fetus or the newborn?

Hi, this is Dr. Galang. So, the as mentioned earlier we don't really have a lot of information at the moment. And we don't, certainly don't have any data on fetal effects of COVID-19. Though, we do know that pregnancy loss, miscarriage, and stillbirth have been observed in case of infection with other related coronaviruses.

And I think we mentioned SARS-CoV and MERS-CoV during pregnancy. And we also do you know that high fevers in the first trimester can increase the risk of certain birth defects. With regards to vertical transmission, the virus that causes COVID-19 is thought to be spread mainly by close contact with an infected person through respiratory droplets. Now whether a pregnant woman with COVID-19 can transmit the virus to her fetus or neonate by other routes of transmission, and this means before, during, or after delivery. This is all still unknown.

However, in a limited recent case series of infants that were born to mothers who have acute COVID-19, none of these infants had tested positive for the virus. Additionally, viral RNA was not detected in any of the samples amniotic fluid, or in breast milk. Again, this is limited information about vertical transmission, but from what we know of other coronaviruses like MERS and SARS, we haven't seen vertical transmission for either of those infections either. Thank you.

Thank you for the response.

We have another question about influenza. And the question asks: if you have a patient where you know the known cause for their respiratory illness, such as influenza, should you still test for COVID-19?

Yeah, so this is Dr. Woodward again. And so, healthcare providers should use their judgment to determine if a patient has signs and symptoms compatible with COVID-19, and whether the patient should be tested. We strongly encourage providers to test for other causes of respiratory illness, including infections such as influenza or other viral pathogens that may be common in children. But this does not necessarily rule out COVID-19.

As I mentioned, there have been some co-detections reported in the literature in children. But again, I would refer folks to the CDC guidance criteria for just a guide evaluation for PUIs for COVID-19 and to talk to their local health department.

Thank you.

We have a follow-up question on testing. And the question asks: if my patient tested negative previously for SARS-CoV-2, and now their symptoms appear to be getting worse, is there rationale for testing again?

Yeah, so this is Dr. Woodward again. Generally, we're saying that persons who have had new onset of symptoms within their 14-day monitoring period, if there's been a known exposure, or if they have persistent illness where they're not improving, or if they're having worsening of symptoms these individuals should be retested for COVID-19.

Thank you.

We received a question about lactation and the effects of maternal illness in COVID-19 and the inquirer is curious if there's a potential risk to a breastfeeding infant in such a scenario?

Hi, this is Dr. Galang. So, as mentioned earlier, you know, human-to-human transmission by close contact with a person who has confirmed COVID-19 has been reported, and this is thought to occur mainly through respiratory droplets that are produced when a person with infection coughs or sneezes. In the very limited case series] to date, there has not been any evidence of virus found in the breast milk of women with COVID-19. We don't have any information available on the transmission of virus through breast milk, and this means whether there's infectious virus present in the breast milk of the infected women.

Limited reports of lactation from SARS-CoV virus detect antibody against SARS-CoV, but not actual viral RNA or live virus. But that was a very, you know, a very small number of reports. Over.

Thank you for that.

Our next question is more so a compilation of multiple questions where people are asking about the, both the frequency or the lack thereof, as well as the sort of decreased severity of disease among children, and if this is, if you can comment on the reason behind this?

Yeah, this is Dr. Woodward. So, there may be multiple reasons that we're seeing fewer infections or more mild infections among children compared with adults. And so in early phases of an outbreak, there is definitely a bias towards reporting and testing of more severe cases. And at this time, again it does look like children are having more mild symptoms.

Additionally, children may have fewer occupational or travel exposures that put them at risk of exposure to SARS-CoV-2. They're less likely to be healthcare providers, they're not taking care of sick family members. And so again, they're having sort of reduced exposures. And as I mentioned the SARS outbreak in 2003, we also saw many fewer confirmed cases in children compared with adults. But I think the true burden of COVID-19 by age group, and so among children, is still being determined.

Thank you.

We've received several questions about Remdesivir, and essentially they all boil down to: how can I get Remdesivir for a patient if I determine that the patient needs it?

Yes, so a small number of patients with COVID-19 have received intravenous Remdesivir for compassionate use outside of clinical trial settings. And again, we mentioned the clinical trial that those exclude pregnant women and children. So, the the option would really be for the compassionate use. And we can provide information on requesting Remdesivir for compassionate use under an emergency investigational new drug request to the manufacturer.

Yeah, I would just say -- this is Angie Campbell -- our website has the link. But also, if you even just Google Gilead compassionate use, they have a specific website about this. And we have asked them, and they said right now that they would determine on a case-by-case basis whether this would be used for compassionate use for children and for pregnant women actually. So, I think at some point we would

really like to encourage people to enroll in clinical trials. But for these populations compassionate use remains the option that's available.

Thank you for that response.

Next question asks: in the mitigation phase of the outbreak, is it recommended that pregnant patients do not go out into the community?

Hi, this is Dr. Gelan. It's important to mention the patients, okay, should still receive any interventions that they would normally receive as a part of standard care, and that includes their routine prenatal care. Pregnant patients with suspected or confirmed COVID-19, you know, should be asked, you know, when they present for care to wear a surgical mask as soon as they're identified, and to be evaluated in a private room with door closed. And health care personnel entering that room, should still use standard transmission-based precautions.

So, in general, as far as prevention during the mitigation phase, persons at a higher risk of getting very sick from COVID-19 should take measures to prevent that spread. And again, these are those everyday habits such as the hand-washing, the avoiding touching of the face, keeping away from others who are sick, and limiting close contact. And of course, avoiding, you know, large crowds as much as possible. And this information is outlined on the CDC website. During the COVID-19 outbreak, if you have one in your community, a person at higher risk of getting very sick should stay at home pretty much as much as possible to further reduce the risk of being exposed.

We do have resources online for families to help them prepare for such a situation. And this information can be shared with patients as a part of their discussions on how to prevent the spread of infection.

Thank you for the response.

Along the same lines, regarding community intervention steps that can be taken, multiple questions all around school closure. And the questions are: is there guidance on when schools should close, or when we should recommend that parents take their children out of school?

Thanks, this is Dr. Woodward again. So, yes I know that a lot of pediatric health care providers may get questions from parents about school, or even questions from schools for their advice. And CDC has developed interim guidance to help administrators in both child care programs and K through 12 schools to plan and prepare for potential community spread of coronavirus, or COVID-19, among students and staff. And we know that schools working together with their local health departments have an important role to play in slowing the spread of diseases to help ensure students have safe and healthy learning environments.

And so again, the CDC does have interim guidance up on the website now and I know that we are continually adding and updating this information in order to provide administrators with as much information as they can to make informed decisions about this. And so that guidance is up on the website. But we would recommend that you as providers encourage families to prepare for the possibility of a COVID-19 outbreak in their community, including learning about emergency operation plans at a child's school or childcare facility.

Thank you for that response, and for audiences benefit we will have a COCO call tomorrow at 2:00 p.m. That will share latest guidance on infection prevention and control recommendations. So please stand by until the end of this call for more information on that upcoming COCO call tomorrow.

Our last question asks: do you know if someone who has recovered from COVID-19 can be reinfected?

This is Dr. Woodward, and I can take that question. So, we're aware of reports of possible reinfection, but do not have additional information. And it seems possible that viral RNA could be detected for weeks in the respiratory tract, and that this represents sort of prolonged shedding which has occurred in some cases of the other related coronaviruses like MERS-CoV or SARS-CoV infection. And from studies of other respiratory viruses, such as influenza, it's known that certain immunocompromising conditions can cause prolonged viral shedding.

What we know from patients with MERS-CoV infection, that they are unlikely to be reinfected shortly after they recover. But it's not yet known whether similar immune protection will be observed for patients with SARS-CoV-2. And so, that's to say we don't yet know enough about the immune response of SARS-CoV-2 to say whether people might be reinfected.

Excuse me. This is Angela Cambell, and I just wanted to follow up actually, because I found the correct information and I think it would be useful to share on how to contact Gilead. They did have a phone number, but they actually have an entire team of physicians working on the compassionate use program. And so, they recommend the best way to contact someone the fastest is actually through their compassionate access inbox. And it's literally just compassionateaccess@gilead.com. So, again that is on our website on the clinical care. But I wanted to get that out to all the listeners.

Thank you for the response and sharing them valuable resource. On behalf of COCA, I would like to thank everyone for joining us today with a special thank you to our experts, Doctors Jamieson, Galang, Woodward, Gu, and Campbell. The video recording of this COCA call will be available immediately following the live call on COCA's Facebook page at www.facebook.com/CDCclinicianoutreachandcommunicationactivity.

Again, that is www.facebook.com/CDCclinicianoutreachandcommunicationactivity. The video recording will be posted on COCAS webpage at emergency.cdc.gov/COCA a few hours after the call ends. Again, the web address is emergency.cdc.gov/COCA.

Please join us again tomorrow at 2 p.m. Eastern time for another COCA call where the topic will be a COVID-19 update on infection prevention and control recommendations. More information will be shared via email and is also available on COCA's web page at emergency.cdc.gov/COCA.

To receive information on upcoming COCA calls, or other COCA products and services, join the COCA mailing list by visiting the COCA webpage at emergency.cdc.gov/COCA and click on the join the COCA mailing list link. To stay connected to the latest news from COCA be sure to like and follow us on Facebook at [facebook.com/CDCclinicianoutreachandcommunicationactivity](https://www.facebook.com/CDCclinicianoutreachandcommunicationactivity).

Again thank you for joining us for today's call, and have a great day.