

Coronavirus 19 (Covid-19), Dr Li Wenliang & Dr Ignatius Semmelweis

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What Covid-19 is and How it Might Impact Your Pregnancy

Covid-19 is the seventh known virus from the corona virus family to pass from animals to humans. Four of these are known to cause 1 out of every 4 head colds with a non-coronavirus, named rhinovirus, causing most. The other two coronaviruses, SARS-CoV & MERS-CoV, emerged from animals earlier this century with both having the potential to cause serious illness, viral pneumonia and even death. When pregnancies are complicated by either of these two viruses, the risk for poor outcomes such as miscarriage, preterm birth, underweight newborns, fetal death and maternal death is increased.

Covid-19 is thought to behave much like SARS-CoV and was, in fact, named SARS-CoV2 at the start of the outbreak because it spread and behaved like SARS-CoV with similar symptoms and progression to pneumonia and then to death in some. This is a major concern for our pregnant population since in past epidemics pregnant women suffered more than others particularly when viral infections worsened to viral pneumonia.

For example, in the 1918 – 1919 Spanish flu pandemic 27% of infected pregnant women died with death rates increasing to 50% in those who developed pneumonia. During the 1957 Asian flu epidemic, one death out of every ten was in pregnancy. Like Covid-19, SARS-CoV moved from an animal to a human- a cook in a restaurant specializing in wild animals- in China then spread rapidly outside of China. The data on SARS-CoV and pregnancy is patchy but death rates of up to 30% have been reported- this compares to 10% in nonpregnant patients. While the virus does not seem to pass to the fetus, severe infection can still damage the fetus.

MERS-CoV emerged in Saudi Arabia in 2013. Overall death rate with MERS-CoV is 35%. Data on MERS Infection in pregnancy is also limited but seems to show even higher maternal death rates than those associated with SARS-CoV with a number of fetal deaths also reported.

How are Head Colds and Flu and Seasonal Allergy symptoms different from Covid-19 Symptoms?

Head colds, also called the common cold, are upper respiratory tract infections causing a sore throat, nasal congestion and runny nose along with body aches, fatigue and cough. In adults, fever is unusual although young children may develop a fever. Head colds may occur any time of year.

Influenza causes both upper and lower respiratory tract symptoms with sore throat, nasal congestion, cough, body aches and fatigue. The majority of patients have a fever. Some also develop nausea and vomiting. These are mainly fall and winter infections. Death rate with yearly flu is low at 1 per 1000 of those infected although death rates with pandemic flu, like the Spanish flu, are much higher. Influenza is both preventable and treatable. A rapid test with a nasal swab is widely available.

Seasonal allergies happen mainly in the early fall and spring with cough, congestion and a clear runny nose. There is no fever and a sore throat is unusual. Eyes often itch and run. Some may worsen to asthma with difficulty breathing. Symptoms usually decrease with over the counter antihistamines such as Benadryl and Claritin.

Coronavirus bypasses the nose and sinuses causing a lower respiratory tract infection, i.e. your airway and lungs. The most common symptoms are fever and cough with body aches, fatigue and headache also being common. Sore throat in some has also been reported. Some may also have diarrhea. Since the lungs are infected, people can experience difficulty breathing which becomes severe if the infection worsens to pneumonia. In critically ill patients all of the body's organs, including the heart, can be affected and can fail.

Initial Covid-19 screening test kits provided by the CDC were reported to be unreliable but a more reliable test is now being distributed. Currently there is no treatment other than breathing support if the pneumonia becomes severe. Work is being done on developing both a treatment and a vaccine. The time required for development, testing and clinical trials is unknown at this time.

What is Currently Known About Covid-19 Infections

Because the Covid-19 epidemic is evolving and because the reaction of some governments has been to suppress data, we cannot be completely certain of Covid-19's actual impact on either pregnant or nonpregnant patients. So far, on the good news side, it seems that the mother does not pass the infection to her baby during pregnancy and newborns delivered by C section have been reported to remain uninfected. However, vaginal delivery may allow the virus to infect the newborn; this is based on the report of one patient. Fortunately, the death rate in patients under 9 years of age appears to be zero although no report so far has looked at just infected newborns.

Currently, the overall Covid-19 death rate is estimated to be 2% to 3.4% or 20 to 34 per thousand infected patients. This may or may not be correct depending on how reliable the data collection and reporting has been. It also may go up or down with the actual number of infected patients who appear well. These are the asymptomatic carriers of the disease and the single most difficult challenge in controlling the spread of the infection.

Data from the Diamond Princess cruise ship, quarantined in a Japanese harbor due to an onboard Covid-19 outbreak, showed that the number of asymptomatic carriers varied with age. The highest number was in those passengers under 19 years old at 67% with the second highest in those over 60 years old at 57%. Carrier rate for those between these ages was much lower at 30%.

Death rate also depends on age as well as sex and how healthy the person is before the infection. There are no reported deaths in those 9 years old or younger. Risk of death remains low at 2 to 4 per thousand infected patients until after age 49. The risk then increases from 13 to 36 per thousand up to age 69 then turns up sharply to 80 per thousand for 70-79 years old then 147 per thousand after 80 years old. Overall, 28 per thousand infected men die vs 17 per thousand infected women in one published report. Heart disease, diabetes, lung disease, high blood pressure and cancer double and triple the risk of death.

The difficulty of controlling the spread of Covid-19 was demonstrated by one young woman who lived in Wuhan but left before the City was locked down. She was infected but had no symptoms and returned to her family home. All five family members became ill while she remained well. Even more concerning though is that even after her family became ill, she tested negative and did not test positive until three days later. If the report is true, there may be no screening technique that will stop the spread of the infection.

Another important lesson from the Diamond Princess is how rapidly the disease spread in a confined public area. Equally impressive was how the spread of the infection was stopped by confining all passengers to their cabins. The obvious lesson is to avoid large gatherings of people in enclosed areas.

One big unknown is whether or not infection gives lifetime immunity or whether, like the common cold, the immunity fades. Also unknown is whether or not the virus will mutate each season requiring a new vaccine each year if Covid-19, like the coronaviruses that cause head colds, returns each year.

An important fact is that the virus can remain healthy on many surfaces for up to five days. Cold, humid weather increases survival time while heat lowers survival time. While exposure of people to the virus in confined public areas allows for dramatic and rapid spread of the infection, the most likely route for spread of the virus to most people will be when someone touches a contaminated surface in a public area such as a doorknob or a can of food on the grocery store shelf or money then later touches one of their mucous membranes, i.e. nose, eyes, mouth, vagina and rectum.

However, we are not defenseless. Washing your hands with soap and water for twenty seconds removes the virus. When you cannot wash your hands, applying an alcohol-based hand sanitizer kills the virus. Contaminated surfaces can be sterilized with a dilute household bleach solution- a one to one hundred dilution of bleach to water has been proven to work.

What Covid-19 Means for Pregnancy

Whatever the actual death rate turns out to be, until we learn otherwise, we should assume the death rate will be higher in women who are pregnant, much like SARS-CoV and MERS-CoV. Hopefully both a vaccine and a treatment will be one day be available.

Until then prevention is our only weapon. Masks seem to offer only a small benefit at best and are needed only when close to a symptomatic person in an enclosed area. No difference in protection has been shown between the cheaper common surgical mask and the more expensive N95 masks. This may be because the masks were actually designed to be worn by those already infected to reduce the spread of infection from them to the public.

So, some simple rules to keep yourself healthy during your pregnancy

- 1. Avoid crowded public enclosures and consider a mask if you cannot.**
- 2. Never touch your eyes or mouth or vagina or rectum without first washing your hands or using a hand sanitizer.**
- 3. If your work area or home is exposed, sterilize the surfaces with a dilute bleach solution**

For the bleach solution just mix 2 ½ tablespoons of bleach in one gallon of water. Do not drink or gargle with even a dilute bleach solution.

You can also make your own hand sterilizer. Ethanol (the alcohol people drink) is reported to be the best but is expensive. Isopropyl alcohol (rubbing alcohol) is also effective. It is cheap and can be bought at most local pharmacies. METHANOL (what you buy at the paint and hardware store) IS TOXIC and should be avoided. The World Health Organization has a recipe for making your own hand sanitizer. All ingredients are cheap and easy to find.

Mix 3 ¼ cups of 99% isopropyl alcohol with ¾ cup of distilled or boiled water, 3 tablespoons of hydrogen peroxide and 1 tablespoon of glycerol.

Remember, you must add water to the alcohol for it to be effective. However, if you can only find 70% isopropyl alcohol, common in grocery stores, use the same recipe but do not add water since 70% isopropyl alcohol already contains water.

Do not drink or gargle with any of these solutions.

For Acacia, to protect our pregnant patients,

- 1) we ask that anyone with a cough plus a fever go to the emergency room instead of our clinic
- 2) we will place dispensers of hand sanitizer in the waiting room and in all exam rooms
- 3) all magazines and pamphlets have been removed from the waiting rooms
- 4) all surfaces will be wiped with a bleach solution daily
- 5) get your flu vaccine- it truly will not give you the flu and it may save your life
- 6) stop smoking (healthy lungs do much better)

An Overdue Thank You

Finally, we must pay homage to two heroes of medicine. First, Dr Li Wenliang was the Chinese doctor who announced to the world, in defiance of the Chinese government, that a new and dangerous virus had emerged last December. For this “crime”, he was reprimanded (imprisoned) early in the outbreak then died on February 7, 2020 from the infection that he had raised the alarm over. He was 34 years old.

Second, Dr Ignatius Semmelweis was a Hungarian Obstetrician and scientist in the 1840s who used the scientific method to determine that something on Obstetricians hands was causing women to die of fever after childbirth- that was before exam gloves existed. It was also before anyone knew that tiny, invisible killers called bacteria and viruses existed making his insight all the more staggering.

He recommended the simple act of doctors washing their hands before deliveries. He also developed the first antiseptic solutions. Unfortunately, his colleagues found both Dr Semmelweis and his ideas to be absurd. He died at age forty-seven in an insane asylum, wrapped in a cold, wet bedsheet on the floor of his cell, from an infected hand wound inflicted during a beating by the guards.

Dr Semmelweis’s discovery and simple recommendation has saved more lives than the sum total of all the marvels of modern medicine.

So, in honor of Dr Semmelweis and of Dr Wenliang, stand up straight, be smart, go wash your hands and we should do just fine, as my grandmother would have said.

We are always happy to answer questions.