Can you talk briefly about transmission via the fecal-oral route?
One of the things we need to be really cautious of is extrapolating results from small studies and/or studies that are done in the in vitro setting. There have been some data in China that show that the virus is excreted not only in nose secretions and respiratory secretions, but does seem to exist in stool. That’s a theoretical transmission route, but it’s not a standard transmission route. It’s not the most common or most likely, and from a practical point-of-view for the ambulatory clinic, you’re wearing gloves and gowns and you’re disinfecting and you’re washing your hands when you take the gloves and gowns off. It’s not really a mechanism that’s that relevant to the ambulatory clinic.

What role does the N95 mask play if the surgical masks are in fact adequate for protection? And should people also be using hair covers and shoe covers?
N95 masks should be used when an aerosolization procedure is taking place. In the ambulatory setting, you are not going be intubating patients or doing other procedures like bronchoscopy that could cause a lot of aerosolization. The one thing that might happen in an ambulatory clinic is using nebulization for the patients who come in who have COPD or some other underlying pulmonary disease and they need that extra help before they go home. N95 masks are really for high aerosolization procedures. Primarily, people are spreading droplets so that’s why the surgical mask works. As to hair and shoe covers, we don’t have any information about their use. However, you’re already wearing an eye shield that comes up high on the forehead to cover the eyes and the face. There’s no evidence that the virus survives on hair or on shoes. And remember, this is an enveloped, virus so it’s not a very hardy virus.

There are some patients who are sick enough to go to the hospital and some you can triage over the telephone and tell them they can stay home but there are some patients you might want to see in the office. How do you prepare for a patient who comes to the office who you think might have COVID-19? What do you do when they get to the office in terms of protecting other patients and you and your staff?
As community prevalence goes up, you have to assume that patients who present with respiratory symptoms are going to be either COVID-19 positive or a person under investigation. So, you get the mask on that patient as soon as possible so that they’re not transmitting to other...
patients and the healthcare workers follow the guidelines we said of mask for themselves, gloves, and gowns.

**How about the front desk staff and other people who are working in your office but aren’t healthcare providers per se?**

A lot depends on mask supply. We need to protect everyone who’s in contact with a patient who has symptoms of COVID-19. If there is going to be that close contact, where your office staff is sitting across a desk to check a patient in, they’re going to be within six feet of each other. If there isn’t a good physical barrier, a barrier of plastic or glass that is tall enough that the patients can’t cough over it, so it is protective, they need to get the patient in a mask right away.

**Can you talk about the role that both chloroquine and chloroquine-azithromycin play in prevention and in treatment?**

In short, I don’t think that anything should be done, or conclusive comments should be made, until there is randomized trial data. It’s really good that, for sicker patients, in a lot of places there’s compassionate use of remdesivir and there’s a suggestion that chloroquine and azithromycin may help. There was a French study of hydroxychloroquine that had an extremely small sample, so I think we can’t generalize anything at this point. Unfortunately, our patients are going to go into full-blown ARDS. In most of the academic centers in the United States that are part of NIH-funded trials or industry-funded trials, where these things are being studied, they have the ability to give those kinds of agents in compassionate use. As an example, there’s what’s called an adaptive design, where you get one of the agents and if you’re not responding, you get the other and so on and so forth. It’s a good question. It’s being studied formally as part of these randomized trials and we won’t get the answer, unfortunately, until they’re done.

**How would you advise pregnant patients and how would you advise families who have college students that are coming back from areas where there’s been a lot of cases in terms of their risk to everybody else?**

They [the college students] have definitely not been doing social distancing, we know that, so you would want to social distance yourself from them if you could, because they’re at high risk for being infected. We want to social distance from everyone because we don’t know who has it and who doesn’t, and we know that the population of college students may be asymptomatic and still be infectious. That’s something that people need to remember – that there are asymptomatic people who are infected. Although we don’t know the infectivity rate, we know that transmission can occur from the asymptomatic population, particularly when they’re younger.

We don’t have enough data for pregnant women. As an example, I just launched a research grant to study that population. I think there are things to worry about and then I think there are things that are reassuring. Pregnant women are partially immunosuppressed, so that is a negative. What’s a positive? In the Italy data, 70% of the people who have bad outcomes are men, and what’s clear in all the data is, if you’re older, you tend to do poorly. Pregnant women have the advantage of being women and younger, and my hope would be as they gather more data, that’s going to outweigh the negatives of them being partially immunosuppressed.
It is reassuring that in the China experience infected, hospitalized women who were in the third trimester delivered normal infants that, at least so far, did not show any problems.

**Do you think healthcare providers should be wearing masks routinely as they see all their patients, in case someone has not been symptomatic but is infected?**

Major weaknesses of our national preparedness have been the following two areas: one, lack of testing and two, lack of stockpiling of masks. If we had an unlimited number of earloop surgical masks, yes, I would say that that would make a lot of sense to wear masks routinely, especially when we know COVID-19 is in the community and especially when we know that some people who are not yet symptomatic can transmit it. The really difficult task that most of us are facing on the frontline right now is trying to get accurate estimates of what masks we have and how long they’re going to last and trying to prioritize when those masks are used.

Hypothetically, let me give two extremes. If your clinic has enough masks because you order your masks once for a whole year and you have that large amount of masks, I would suggest either you donate some of them to the hospital or, if that’s not an option, I think it’s reasonable to wear the mask in all instances. If you have limited number of masks then you have got to prioritize their use because we do not want to reach the point where we have healthcare workers caring for COVID-positive patients with no protection at all because they’ve burned through all of their masks taking care of patients who are not COVID-19 positive. If you go to the CDC website, there’s a whole set of modified instructions now about things we never thought we would be doing, including to reuse the masks, how to maintain masks, and so on and so forth. It’s a very difficult time we’re in relative to supply of masks.

**What about using cotton masks or reusing masks, wearing them all day, and sterilizing them with UV light?**

The use of expired masks is acceptable. If you can find an expired mask that doesn’t have a broken elastic band or if you can modify it. If the elastic band does break, you can add something to the band to make it work. People are having to be very creative while we’re waiting for adequate supplies. A lot of people have concerns about CMS and what they say can and can’t be used; however, CMS has given a waiver to many of the things that they would have cited in terms of misusing masks and reusing masks.

**What are the risks of children having it and what are your thoughts about that?**

The problem with the lack of testing is that we don’t know the percentage of children who are mildly symptomatic or even asymptomatic but are infected. Some of the infectious disease mathematical modelers that I give the most credence to think that children are a major vector in transmission and the explosion of cases, and I think that is part of the reason schools were closed in many of our states very early on. The good news is there’s only one death of someone under the age of 20 worldwide. If kids get COVID-19, they’re not going to do poorly, which is a major contrast to influenza. Not having readily accessible testing means there may be a lot of children who may either already have COVID-19 and are asymptomatic or are very mildly symptomatic. There is data from China in the *JAMA* paper that talked about one in 500 under age 20 and they had underlying disease that died from coronavirus severe disease.
Should pregnant healthcare providers continue to work?
Refer to the CDC website. Based on my understanding, their recommendation is they should continue to work.

How accurate is the testing?
I know we said this a lot, but there are not enough data, which is pretty amazing considering we’re two and a half months in. The sensitivity of some of the tests in China appear to be between 60% and 70%. The data from Europe seem to indicate that it’s 70% to 75%. It depends from which anatomical site the specimens are obtained. That was part of the reason why, originally, the testing included nasopharyngeal and oropharyngeal swabs. The idea was samples from two sites would increase sensitivity and there would be fewer false negatives. With the limited number of swabs and the limited amount of reagents, the CDC officially recommended only nasopharyngeal testing.

We are moving from manual testing to automated testing, some with PCR as the tests come online. This is going to be one of those evolving situations in terms of what we learn about how good the tests are because we’re actually using several different tests.

Has the virus mutated? Do we know anything about that?
There is not any scientific literature to suggest that based on my reading. It is something that has mutated obviously to being a person-to-person-spread disease really quickly, so there are probably multiple strains out there as it spreads throughout the world, but I can’t answer that. We’re still trying to determine that.

What will high humidity and high temperatures do to the virus?
Some of the other coronaviruses that have been studied do better seasonally with warm weather, some do better with cold, drier weather. It is something that we’re going to have to watch and see as the temperatures go up, whether this pathogen has a seasonal aspect to it as some coronaviruses do or whether it will persist through the summer. We can’t answer that question yet. We know a lot of the coronaviruses do like drier, cooler temperatures, but not all of them.

If you have someone who’s been infected and stayed at home and done their quarantine, can they be re-infected?
There was a study done in rhesus monkeys, they show that they couldn’t be reinfected, that most of these viral infections lead to a temporal immunity of about a year. Again, we’re basing this on our other coronavirus experience, so re-infection is unlikely from what I’ve read in the literature.

What should we do about wearing lab coats? A. can they take the place of gowns or B. should we dispose of them completely?
When I’m not dealing with coronavirus, my main area of research has been in the use of gloves and gowns and contact precautions vs bacteria. I think, in general, lab coats are very hard to
clean and they become contaminated, frequently not only with bacteria and resistant bacteria, but viruses. In general, you’re better off not having the lab coat; wearing scrubs, cleaning the scrubs at the end of every shift, discarding them, putting on clean scrubs at the beginning of your clinic shift, and ditching the lab coat.

At what point do you think we’re going to be doing more universal testing so that we can really get a handle on the epidemiology?

As someone who spends... a lot of my time doing research, I don’t know why we haven’t done a classic cohort study at this point and tested more people. I think it’s an excellent question. I think if we had had universal testing, we would better be able to model what this disease will do because we would have a much better idea what the real mortality rate is, what the real hospitalization rate is, and what the real incubation rate is. If we knew that, we then would know is this worse than influenza and how much worse. We do not have enough data. We may have that data in the next week. South Korea and Singapore are doing massive testing and they have very high functioning healthcare systems. My hope is that when that data comes out, we’ll have much better answers as to what will happen.

What advice do you have about healthcare providers when they go home? They’re worried about inadvertently taking this virus back to their families. When you get home, should you be isolating? What should you do?

When I work in a healthcare environment, if I’m wearing scrubs or if I’m wearing my regular clothing, I change when I get home. I try to think of Mr. Rogers, get out of what I was just exposed to and put on fresh clean clothes. That’s always a good idea. Unless you become symptomatic, I think a reasonable thing to do is just to keep yourself with your family members. Keep cleaning, disinfecting, and hand hygiene is the same thing at home that we do at work.

What about NSAID use with the virus?

The reason this has hit the press is the French warned against perhaps worse outcomes with NSAIDs. Then WHO recommended that that was not the case. In short, our treatment team, at least here at Maryland, re-evaluated all the literature and their recommendation was that the data of doing worse on NSAIDs are not supported at all by the literature. As an example, in the patients they’re sending home with the COVID test pending, they’re recommending both NSAIDs and Tylenol for fever management.

What is the status of antivirals?

There was a paper published in the New England Journal in the last 24 to 48 hours of using lopinavir and ritonavir, and in short, it was a negative trial. There was no large benefit of the regimen. There are two or three other agents that are being studied at present and one of them is being used in a lot of trials. The one that’s being used most commonly in US trials is remdesivir.

What about the use of steroids in these patients?

The use of steroids in patients with pneumonia is something that people have been debating for a long time, both for bacterial pneumonia and viral pneumonia. Often when someone with pneumonia is dying of sepsis, there’s controversy whether steroids help or not. I think it’s still debatable as to what the answer is.
Which healthcare facilities should be open or closed? What is not essential and is a specialty clinic considered to be essential or not essential? What should they be doing with their patients who walk in and they think they might have COVID-19?

Essential versus not essential, right? For an ophthalmology clinic, for example, a patient is doing their routine yearly eye exam, that can probably be rescheduled for eight weeks down the road or three months down the road. But if they’re having a detached retina, they need to be seen. If they have an eye infection, they need to be seen. The things that really need to be treated should be treated while the things that are elective can wait. I think it is reasonable to tell people to cancel all elective procedures including, OR procedures, that are elective. If you need to be tested for cancer, if you need a biopsy for cancer, that is not going to wait, but plastic surgery wait. These decisions impact revenue and employees greatly, but if it’s not already being done in your area, it will probably be coming soon.

Any particular recommendations for correctional medicine settings such as a jail or a prison?

In the last three days, that type of issue and the issue of how to deal with the homeless has come up. I don’t think people have any great ideas. Eli Perencevich is an infectious disease physician in Iowa, he’s dealing a lot with this on his Twitter feed and I know in Iowa he’s launched a campaign to try to get the homeless population into hotels to lower transmission in that area. As to prisoners, it’s a hot topic that people are trying to decide what to do is the bottom line. Because obviously, in the prison, you can imagine there could be, similar to a nursing home, a fair amount of transmission, unfortunately.

What about the use of ARBs and ACE inhibitors? Where do they stand?

Again, it’s similar to the hydroxychloroquine and azithromycin question. There’s not enough data at this point.

*These questions are from the live webinar on Friday, March 20, 2020.*