Below is a transcript of an interview from WLEX channel 18 with Dr. Charles Kennedy, a local infectious disease specialist with a great reputation (click here for bio). Click here for interview source. I find it informative, measured, helpful and reassuring.

Coronavirus Q&A with Infectious Disease Expert
Posted: 7:45 PM, Mar 14, 2020 — LEX 18 sat down with Dr. Charles Kennedy, an infectious disease expert, to answer commonly asked questions about the coronavirus.

Q: Should people avoid any activities?
A: I think the general message from infectious disease specialists and public health authorities at this point in time, is that there are multiple relatively simple interventions that can be done to try and minimize your risk. Certainly **hand hygiene** becomes very important, either with one of the alcohol chlorhexidine hand preparations or a simple soap and water. Secondarily, basically, would be **avoidance of large groups.** And I think if one accomplishes those two things, basically, their overall risk remains relatively small.

Q: What about social distancing?
A: Yeah, the concept of social distancing basically is become very important, and we know that individuals that are within six feet of an infected patient are at some risk basically for inhaling infected aerosols. The social distancing construct basically from public health authorities usually involves a spacing of **six to 10 feet** to try and minimize the transmission of droplet aerosols.

Q: What about travel? Can you practice social distancing on a plane?
A: I think it's going to be very difficult for the average consumer and traveler to determine basically what the capacity of flights are going to be. Certainly with the current economic downturn related to concerns about the coverage of the epidemic, there's going to be more seats available on airplanes simply because fewer people are going to be flying. In general, the ventilation systems in airlines are closed, but there is a filtration system. What that doesn't account for is somebody two rows front of you with a cough and a low grade fever who has chosen to travel, so I think it becomes a **highly individual judgment in most cases.**

Q: Younger people are at lower risks. Should they follow all public health recommendations?
A: Now, I think it's wise for **the population in general to adhere to the public health recommendations**. Individuals between school age and 30 are at a lower risk of developing severe disease if, in fact, they're exposed. The flip side of that clinical decision analysis is that young, healthy individuals who may be infected but not ill, all of a sudden become the most competent vector to potentially transmit the virus to individuals that are at risk. The CDC clearly defines those individuals as being over the age of 60 and with medical comorbidities and involved Cardiac, pulmonary renal, or diabetic disease. I think there's certainly a moral imperative, basically, in an outbreak context like this for every member of society to act as responsibly as possible and minimize the risk not only of true infection, but even being an asymptomatic vector that would result in infection in people that you care about.

Q: Should you be concerned if you have a relative in a Kentucky nursing home?
A: I think the answer in general is **yes**. That comes from really a catastrophic experience in Seattle where there have been 22 deaths among elderly patients with comorbid medical conditions. T hose risk factors of being over the age of 60 and having comorbid conditions place those older individuals at risk. I think the Governor earlier this week essentially generated an executive order whereby elective visitation to nursing homes and extended care facilities ought to be avoided.

Q: Do people need to stock up on toilet paper like we've seen all over the world on social media?
A: There's a tremendous amount of fear largely because the United States in the world has never faced a pandemic, basically, at this magnitude in the modern age. I think what's reassuring is the majority of patients who are infected with COVID-19 have infectious signs and symptoms that are limited to the upper respiratory tract. To the best of my knowledge and reading a large body of literature about this disease, it is not primarily a gastrointestinal pathogen. If patients in fact

were experiencing significant diarrheal syndromes than certainly one would understand the market pressure on the availability of toilet paper. At the present time, however, I find that totally **unjustified**.

Q: What does "isolation" at a hospital mean?
A: Any patient who is under suspision of having the disease or has documented disease is isolated in a negative pressure room. Those rooms are ventialted to the outside environment and there are a minimum of 6 air exchanges every hour to make sure that any droplets that are present in the room are diluted and the risk to health care providers is minimized.

Q: How do you protect yourself while treating patients with COVID-19?
A: I've been involved basically with two documented cases here in private sector hospitals in Lexington. The precautions that are being used throughout the city amongst not only myself, but my colleagues are what's essentially been recommended by the CDC. We obviously wear gloves, a full barrier gown is put in place, and we wear a filter mask which blocks the transmission of viral particles, as small as one micron, and a face shield.

Q: What are the first symptoms and signs of COVID-19?
A: In general the signs and symptoms involve a relatively hectic fever, often as high as 103 degrees, in association with a dry non productive cough.

Q: What is non productive?
A: Patients are not coughing up anything.

Q: How long does the virus live on a surface? In the air?
A: In some respects, it's a little bit of an unknown. Clearly when it comes to the ability of the virus to remain viable in the air, we know that for a period of **three to four hours** after exposure to high inoculum, that virus can continue to be detected in air samples. When it comes to inanimate surfaces, the current verbiage from the CDC is that that organism can remain viable for **"hours to days"** although we don't know basically the maximum time that that virus can remain viable on environmental surfaces. It has been studied to some degree on metallic surfaces and cardboard, where the organism may persist for a period of eight to nine days.

Q: How soon after someone comes into contact with the virus can you be tested positive for the virus?
A: I'm not sure that we know exactly what the time interval is from exposure to positive DNA testing for COVID-19. It's currently thought that it may take **24 to 48 hours** before there's enough of a viral burden in the nasal or oral mucosa to result in a positive DNA test.

Q: When are you contagious?
A: Again, it probably takes a couple of days post exposure in order to pose a risk to other individuals that you may be in close proximity. The current thought is the incubation period of the virus is somewhere between **two and 14 days**, with the open whelming majority of patients with high risk exposures actually developing clinical symptoms by day five.

Q: Seeing what China has done to prevent the spread of this virus, do you think we should be as aggressive as they are to get this under control?
A: I think we're doing the best that we can at this point in time, given the resources that we have and the number of patients that we're taking care of. Our Achilles heel in making the diagnosis is the time required to do testing and **a lack of availability of actual test kits** to screen the number of patients that we're concerned about. The current testing that's being done by the state laboratory requires about a 24 hour turnaround time for result. The commercial products from Labcorp and Quest are probably out at about three to four days. The problem with a delay and being able to make a real-time diagnosis within an hour of testing is that patients at-risk occupy **negative pressure isolation rooms**, which are in relatively short supply. It also puts a **stress on the inventory of personal protective equipment.**

Q: Does everyone with COVID-19 show symptoms?
A: 80% of the patients that are exposed to COVID-19 may either have **no symptoms** whatsoever, or may have symptoms that are so minimal that it doesn't cause them to seek medical attention.

Q: What are the conditions the patients you're seeing?
A: I've been involved in a couple of severe cases that have been hospitalized in the private sector here in Lexington. One of those individuals is currently clinically improving. One of them is critically ill and mechanically ventilated, pending the arrival of an **experimental drug** from Gilead pharmaceuticals. It has been shown in the Chinese experience to be effective in treating this disease.

Q: It's experimental. Does that mean it has been tested?
A: **It hasn't formally been tested** in large numbers of patients in a controlled fashion. Although it has been given on compassionate plea. It's produced by Gilead pharmaceuticals in Northern California. It was originally developed four years ago as an antiviral agent to treat Ebola, but as it turns out in animal models of COVID-19, it **appears to be very effective in eliminating the virus**.

Q: What is compassionate plea?
A: It basically means that you have a drug that may have efficacy in animal models or in small numbers of human beings that have been studied, but **doesn't have large clinical experience**. It **doesn't yet have FDA approval**, but there are mechanisms to expedite through the FDA experimental agents in a **critical situation** such as this.

Q: When will the patient receive the drug?
A: Either tonight or early tomorrow morning.

Q: Depending on how that patient does, this could be good for everyone else correct?
A: I think there's optimism about this drug, but again, it is a compassionate plea. It's not a definitive therapy. It appears to be effective in animal models and small numbers of patients who were given the drug in Southeast Asia. We have limited experience in the United States. We're very early in the epidemiologic curve, but but it appears **promising**.

Q: What would it take to get FDA approval?
A: There are a variety of hoops that clinicians and investigators have to jump through in order to bring a drug to market which has been approved by the FDA, and we're just a fair distance away from that (**a number of months**).

Q: Should pregnant women be included in the "high risk" groups with people over the age of 60 and those with chronic illnesses?
A: I don't think our clinical experience at this point in time allows us to make significant clinical judgments on the risk to a pregnant mom or an unborn child.

Q: Can you get the coronavirus again after yo have already had it?
A: There are many confusing reports in the medical literature that suggests that reinfection may be a possibility, but it is **unknown**.

Q: Are there multiple strains?
A: The possibility of multiple strains has received some attention in the medical community. From the experience in China, it appears that there are at least two distinct states so called **S and L strains** of COVID-19. One of those strains appears to be more virulent than the other, but our ability to differentiate those clinically is limited at this point in time.

Q: What is the difference between the coronavirus and the flu?
A: If you consider seasonal influenza in the United States, there are about 32,000 deaths every year. From a numeric comparison only, the flu poses a much higher risk to the general public than COVID-19. With that said, it's currently felt that

the mortality from COVID-19 is somewhere between **3.5%- 4%**. The mortality for seasonal influenza in the United States appears to be about **0.1%**.

Q: Could that mortality rate change?
A: **We're a little bit early** in our overall experience to come to definitive numbers about mortality risk. I think what we'll find over time is that as the denominator for COVID-19 rises, the actual mortality rate will fall. While we currently think there are 100,000 people infected in Wuhan, China, with roughly 4,000 deaths, what we'll find when investigators go in and take blood from a large segment of the population that either had no symptoms or minimal symptoms, we may well find out that there were 1 million or 2 million Chinese that were actively infected. As the number of infected individuals who didn't come to clinical evaluation rises, **the mortality rate will fall in proportion**.

Q: When could we see a vaccine for COVID-19?
A: The vaccine development requires a fair amount of time. I would not think that wide-scale distribution of an effective vaccine against COVID-19 would be available in the next **12 to 18 months.**

Q: Would we have to get vaccinated every year in the future, just like we do with the flu?
A: **I don't think anybody knows** right now if an effective vaccine against COVID-19 is developed, what the duration of protection will be.

Q: Are there any over the counter medications that can reduce your risk?
A: No

Q: Do you have a prediction on when the pandemic will end?
A: It's difficult to predict moving forward how long this will actually last. I think right now, certainly the Commonwealth of Kentucky and in other hotspots in the United States that we're still on the expansion portion of the epidemiologic curve. China has reached an inflection point with a number of new cases that they're describing on a daily basis is actually falling. Europe, particularly Iran and Italy are still on on an upslope so to speak. The problem with this virus, given the incubation period of two to 14 days, is you're always going to be two weeks behind your last proven case, so I think it's going to take a **number of weeks** and potentially **a few months** basically before we see a significant reduction in incidence. Do you see quarantines in our future?

Q: If the virus slows in the summer, should we expect it to come back in the winter?
A: **It's very difficult to predict** moving forward whether it's just going to be a seasonal event or somewhat of a one-off event, such as SARS.

Q: Is closing schools for two weeks effective or do they need to be closed for longer periods of time?
A: I don't know what the appropriate duration basically is school closures is going to be. I think what's been done in the Commonwealth of Kentucky is a common sense intervention. What you want to do is blunt that epidemiologic curve as early as possible, and again, school closures, intuitively might not make a whole lot of sense because those students would seem to be in an age demographic, which would place them at the least risk for severe disease. But again, that's going to create a population of individuals who may be asymptomatically infected, and then create a reservoir that then allows asymptomatically infected individuals to transmit to the general population. **I think a pause it two to three weeks is a reasonable intervention** doing what we do right now?

Q: What should the general population do to protect themselves?
A: The precautions regarding **hand hygiene, social distancing, and avoidance of large crowds**.

Q: What's the good news?
A: **We're not seeing a logarithmic expansion** of cases on a daily basis. We haven't gone from an index case to 100 in day two and 1,000 in day three and 10,000 basically at the end of the first week. I'm grateful for that.