

## **Trinity Presbyterian Church of Northern Kentucky Coronavirus Response and Description**

The Church of our Lord and Savior, Jesus Christ, has often gone through times of trial, and the current international pandemic is no exception. Despite trials the Church may face, it is given the imperative command to “Worship God” (Psalms 2:11; Revelations 22:9). God instruct us to “Remember the Sabbath day, to keep it holy” (Exodus 20:8) and to not forsake “the assembling of ourselves together” (Hebrews 10:25). The Session of Trinity Presbyterian Church of Northern Kentucky believes that it would be a violation of these commands to forsake the public assembly of God’s people during the current crisis. Yet it is the desire of the Session to honor both our Lord and the civil magistrate. As such, we have developed the following policy.

- The Session will meet each week during the crisis to decide whether circumstances warrant canceling public worship.
- As a small congregation with sufficient worship space, we are encouraging worshipers to maintain social distancing before, during, and after worship services.
- We are encouraging members who are not at high risk of severe illness to attend but broadcasting our services for those at high risk and for members who prefer to worship from home.
- We are instructing households with any illnesses among members of the household to stay at home and join us via the broadcast.
- We are making hand sanitizers available throughout the worship room and encouraging their frequent use.
- We have made several changes in how we serve weekly communion to minimize risk.

### **Our Hope**

Our God is sovereign over all things, so our hope as well as “Our help *is* in the name of the Lord, who made heaven and earth (Psalms 124:8). He has brought the virus upon us, for He says, <sup>5</sup>*I am the Lord, and there is no other; There is no God besides Me. I will gird you, though you have not known Me, <sup>6</sup>That they may know from the rising of the sun to its setting That there is none besides Me. I am the Lord, and there is no other; <sup>7</sup>I form the light and create darkness, I make peace and create calamity; I, the Lord, do all these things’* (Isaiah 45:5-7). But “the Lord is compassionate and gracious, Slow to anger and abounding in lovingkindness” (Psalms 103:8). So, we can trust Him because we know that “all things work together for good to those who love God, to those who are the called according to *His* purpose (Romans 8:28), and that God always has a good purpose for every trial: <sup>6</sup>“In this you greatly rejoice, though now for a little while, if need be, you have been grieved by various trials, <sup>7</sup>that the genuineness of your faith, being much more precious than gold that perishes, though it is tested by fire, may be found to praise, honor, and glory at the revelation of Jesus Christ, <sup>8</sup>whom having not seen you love. Though now you do not see Him, yet believing, you rejoice with joy inexpressible and full of glory, <sup>9</sup>receiving the end of your faith—the salvation of your souls (1 Peter 1:6-9).

We also know that the virus will not cause us death one day sooner than God has ordained for us or anyone else, for He has said, “<sup>13</sup>For You formed my inward parts; You wove me in my

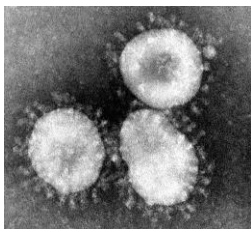
mother's womb. <sup>14</sup>I will give thanks to You, for I am fearfully and wonderfully made; Wonderful are Your works, And my soul knows it very well. <sup>15</sup>My frame was not hidden from You, When I was made in secret, And skillfully wrought in the depths of the earth; <sup>16</sup>Your eyes have seen my unformed substance; And in Your book were all written The days that were ordained for me, When as yet there was not one of them. <sup>17</sup>How precious also are Your thoughts to me, O God! How vast is the sum of them! <sup>18</sup>If I should count them, they would outnumber the sand" (Psalms 139:14-18a).

Our desire is that all people would know everlasting life through faith in the passive and active obedience of Christ. In His passive obedience, He alone fulfilled all the commandments of God's Law under the Old Covenant, thus being "the Lamb of God who takes away the sin of the world" (John 1:29). In His active obedience He "humbled Himself by becoming obedient to the point of death, even death on a cross" (Philippians 2:8). There He took on the full penalty for our sins so that by Christ's death and resurrection we are saved from eternal death and are justified (that is, declared righteous) in God's presence and promised eternal life (Romans 3:23-26; 5:6-11; Galatians 2:16). Although we wish long life for all on this earth, we also recognize that death of God's people ushers us into a place of pure joy in God's presence, a place where "there will no longer be *any* death; there will no longer be *any* mourning, or crying, or pain" (Revelation 21:4). So, we can assert with the Apostle Paul "that the sufferings of this present time are not worthy to be compared with the glory that is to be revealed to us (Romans 8:18).

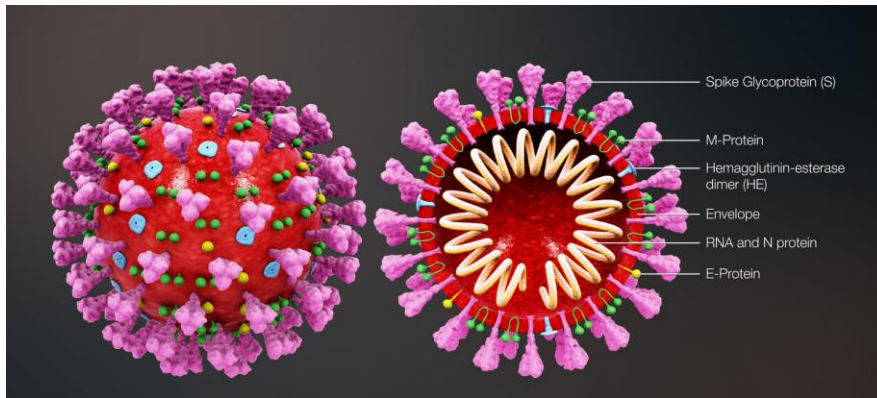
### **Coronavirus and Coronavirus Disease**

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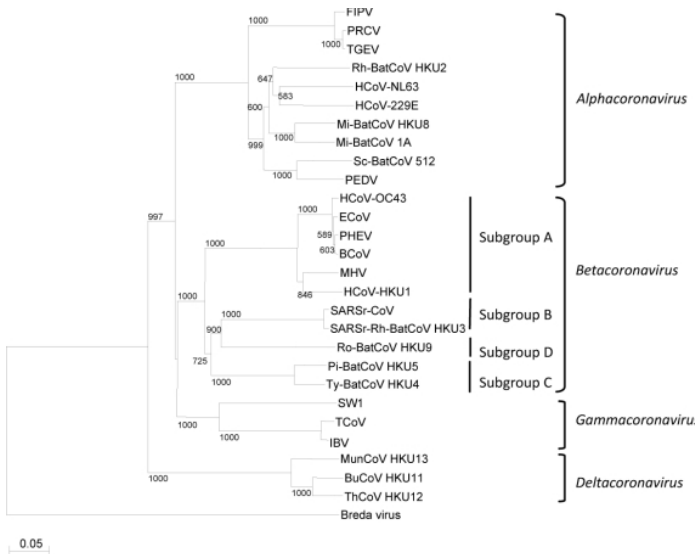
Coronaviruses are a large group of viruses infecting humans and animals. They have an ribonucleic acid (RNA) genome surrounded by a protein and lipid shell. Among RNA-containing viruses, they are large in terms of size of the virus itself (120 nanometers or 1/700<sup>th</sup> of the width of a human hair) and of its RNA (around 30,000 nucleotides). For comparison, the most common human RNA viruses, such as hepatitis A virus, rhinovirus (common cold), and noroviruses are 30-40 nanometers and 7-8,000 nucleotides. The larger size means that it can make more proteins and be more effective at infecting us. An electron micrograph of a coronavirus looks like this:



The following is a cartoon showing the structure of the virus in more detail:



There are four major groups of coronaviruses: alpha, beta, gamma, and delta:



The alpha and beta groups infect both people and animals, while the gamma and delta groups only infect animals. The alphacoronaviruses cause only mild upper respiratory/respiratory disease. The more serious ones are betacoronaviruses. This figure shows the relationship among the four groups on basis of the sequence of the RNA of each virus isolate.

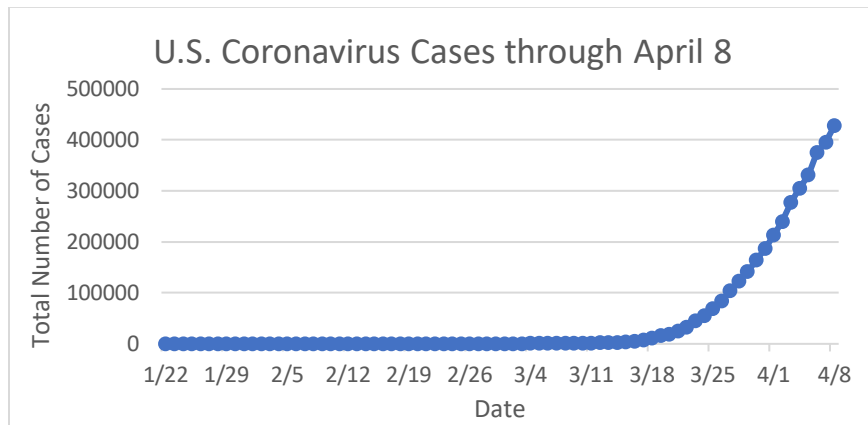
The latest coronavirus has been tentatively named SARS-CoV-2 for Severe Acute Respiratory Syndrome Coronavirus 2, with the “2” identifying its close relationship to the original SARS outbreak during 2002-2003. The virus also has been named 2019-nCoV, with the “n” standing for “novel” and the 2019 from its first appearing in China in December 2019. It is closely related to betacoronaviruses the infect bats, so it has been suggested that it came from eating bats. It appears however, to be even more closely related to a coronavirus that infects Chinese anteaters. This a protected species but considered a delicacy in Asia.

The virus is mutating, with early data suggesting that two separate clusters rapidly appeared in China. A cluster is a group of infected people who are infected with coronavirus with the same sequence. The latest data suggests that mutations in the virus RNA have led to as many as eight separate clusters worldwide. However, the differences among the clusters are very small and it is not known whether the changes have any effect on disease progression.

### SARS -CoV-2 Disease

The disease caused by SARS-CoV-2 is COVID-19 (COronaVirus Infectious Disease 2019). The number of U.S. cases is increasing exponentially as of 12:32 PM April 8<sup>th</sup> (see Figure) with

427,460 total cases and 14,696 deaths (3.4% death rate). However, the number of cases and the death rate are misleading statistics, as it depends on how many people with coronavirus infections are being tested and how many have an infection but don't show any symptoms. For the time being, the number of both cases and deaths is expected to continue to increase but the rate of increase may already be starting to level off.



Kentucky currently has 1,452 cases with 79 deaths and Ohio 5,512 cases with 213 deaths

Infection by the virus can be asymptomatic, meaning that you are infected and shedding virus, but you don't have any symptoms. This probably is more likely in younger people. For many others it may be mild, resulting in a sore throat, slight cough, fever, nausea, and diarrhea, although not all these symptoms may be present. Symptoms occur between two and fourteen days after exposure and about 80% of people with COVID-29 have only mild symptoms. The virus appears to start by infecting the mucous membranes of the mouth and sinuses and then move to the lungs, intestinal tract but may also start in the lungs. It also can spread through the blood stream and infect other organs, such as the liver and kidneys, and perhaps the heart. There is no treatment, so if symptoms are mild, there is no need to visit a physician except to be tested.

Older and immunocompromised people are more susceptible to the severe symptoms of pneumonia caused by death of alveolar cells in the lungs that are responsible for oxygen/carbon dioxide exchange. The body also responds to the infection with an immune response (called a cytokine cascade or storm) that can cause the lungs to fill up with fluid, resulting in severe shortness of breath. Some autopsies have appeared to show that death was due to the immune response filling the lungs with fluid while others point to cell death as being a primary factor. Anyone with fever and shortness of breath should see their physician.

**Caution:** There is still a lot of unknowns and a lot of misinformation on the WEB. Many physicians and public health officials (so-called experts) do not have extensive training in virology.

### How its Spread

The bottom line: At this time **Every way should be considered possible: this is a highly infectious virus**

The virus has the ability to infect with a low dose. This means that perhaps as much as one virus particle may make you sick, although the exact number is unknown at this time.

The most common means of spread likely is through coughs. Coughs create invisible droplets that can move through the air for some distance. CDC is saying that you need to be at least six feet from a person coughing, but this is an estimate and air currents can carry the droplets much farther. CDC is now recommending that individuals wear masks when in public places. Masks can greatly reduce the risk of infection but must be worn correctly. If air can enter through a loose fit without going through the mask, it will be of little benefit. A man's beard also will reduce the effectiveness of the mask.

The virus also can be spread through contact with a surface that has the virus and can probably be spread through contact with bodily fluids, saliva, blood, nasal secretions. It may also be spread by drinking water or eating food contaminated with the virus. Freezing will not kill the virus, but heating to temperatures above 50° Celsius (122° Fahrenheit) for 10 to 15 minutes should kill it.

### **How is it Tested**

The current test is a rapid test that targets the virus RNA. This test takes about 2-3 hours to get a result, but the test has to be done in a qualified laboratory. There are claims of faster tests, but whether these work as well needs to be tested. Tests that measure antibody to the virus are being developed. It takes several weeks for antibodies to develop once infected. That means that these tests can't be used to determine whether someone is infected currently. They can be used to estimate the number of asymptomatic cases and how long immunity to the virus lasts.

Could the government have been better prepared by having these kits available in advance of the outbreak? **Absolutely not!** The kits could not be prepared until the RNA sequence of SARS-CoV-2 was known. To make a kit normally takes many months of testing to determine whether it works correctly. Kits have to be tested for what's called false negative and false positive results. False negative results happen when the test returns a negative result when a person actually is infected with the virus. A false positive result happens when the test is positive even though a person is not infected. For example, this could happen if the test were to detect the normal coronaviruses that circulate each year. The testing kits supplied by CDC are working but were developed quickly and may not pass standard operating procedures for kit design.

### **Are the Current Guidelines for Stopping Spread Adequate?**

The current guidelines for stopping the spread of the coronavirus will certainly slow the spread. There is hope that the virus has a winter/spring seasonality, which in itself would slow spread during the summer months. This seems to be the case, as the most hard-hit areas are in the Northern Hemisphere. Thus, staying home when sick and keeping social distancing will definitely help, but it is unlikely to stop it. We may slow it to the point where everything can go back to normal, but it's likely to keep coming back as long as there are people who are not immune to it. In other words, we will all eventually get it. The hope would be that by slowing it we can find means to fight the more severe symptoms and keep the hospitals from being overwhelmed with cases. One scientific paper suggests that the medication for Malaria may help,

but there is insufficient scientific support for using it on a widespread basis and double blinded human trials would be the only way to know for certain if it helps. Trials with this and other possible treatments are underway, so more data should be available soon.

### **Does Washing Hands and Using Hand Sanitizers Help?**

If you haven't been exposed to an infected person and haven't touched any surfaces that might have been exposed, there is no need for enhanced hand washing or hand sanitizers. But for most people who have been outside the home to stores or workplaces, then these practices will help. Washing hands with soap removes virus particle and soap may inactivate them as well. The data on hand sanitizers comes from work with the original SARS virus and other human and animal coronaviruses. It shows that 70% ethanol (and probably any with more than 60%) will kill the virus. However, it is not an immediate kill and depends on the virus concentration and time of contact. 70% ethanol will reduce virus concentration by 3-4 logs in one minute. That means that if you have 10,000 virus particles, after one minute 1-10 will still be infective. The bottom line is to put sanitizer on your hands and let it slowly evaporate without wiping any of it off.