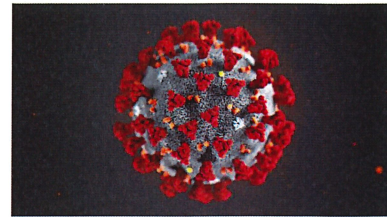


The Virus

- COVID-19 (SARS-CoV) is one of several coronaviruses: 4 are known to cause the common cold, one was SARS (2004) and the other MERS (2012).
 - SARS is considered contained and MERS is restricted to the Arabian Peninsula; neither have a vaccine.
 - They are far less infectious but more fatal (10-50% fatality rate) than the current COVID-19.
- It's called a coronavirus because of the "crown" of protein spikes on the surface
- All coronaviruses are spread through aerosolization and mucus exposure.
- COVID-19 has been shown to last about 4 days on impermeable surfaces and about 2 days on permeable surfaces.
- The virus is a sack of fat with protein spikes on the outside and messenger RNA (mRNA) on the inside.
 - The virus itself is not alive, but the protein spikes attach to the cell it is infecting via the ACE2 (Angiotensin-Converting Enzyme 2) receptor.
 - The ACE2 receptor is a vasodilator that influences blood flow, making it a poor target for treatment or a vaccine.
 - The ACE2 receptor is found all over the body but is prevalent on lung cells lining air sacs, which is why this virus infection can cause pneumonia.
 - Once the virus attaches to the cell via the protein spike, it injects the mRNA into the cell which takes over cellular genetic reproduction, causing the cell to become a virus factory. Eventually the cell bursts and releases additional virus.



Infectivity

- COVID-19 is 3 times more infectious than other respiratory viruses.
- The chances of being exposed depend on how many virus particles you are exposed to and the length of time you are exposed.
 - **Maximum exposure time is only 15 minutes.**
- The infection rate in the US is 15 times that of the rest of the world, and the world is going through Phase 2 – including the US. **We do not have this under control.**
 - Countries that had previously controlled spread are re-experiencing rising infection rates: Europe, South Korea, New Zealand, Australia, Japan, China. India and Brazil have infection rates similar to the US.
- All ages can be infected. The severity of the symptomatic response is correlated to age and the presence of other underlying medical conditions, but not exclusively.
- All ages are infectious.
 - **40% of those who are infected are asymptomatic**, but they are still infectious (they just don't know it and neither do you).
 - For those who are infected and will go on to develop symptoms, **they are infectious (more highly infectious) for up to 8 days before symptoms emerge** (so again they don't yet know they are infectious and neither do you- and that could be 2 Sundays).
 - A recent study of young children in the US showed that children – who are mostly asymptomatic – have up to **25 times** the amount of virus in the nasal passages than hospitalized adults. They can be significant vectors of community spread. At last count, testing has shown that 40-90% of children in spots are infected.

- Demonstrated cases of re-infection have been documented (3 in the US to date, multiples globally). It is not known whether the virus becomes latent (stays in the body and re-emerges, similar to chicken pox becoming shingles later in life). The re-infection appears to be a mutated version of the virus, and the second infection brings more significant symptomatology. This means the virus is endemic – it will always be with us – and that eventual vaccines may be annual.
- “exposure” is multiplicative – if you’ve met with 10 people during the day and they’ve each met with 10 people, you’ve been potentially exposed to 100 people

Status

- Currently WHO reports more than 51.2 million confirmed cases of COVID-19 globally with more than 1.3 million reported deaths
 - 15 million cases currently globally
 - More than 217 countries are involved; only two report no current cases (British Virgin Islands and Montserrat)
 - In the US, we have more than 10 million confirmed cases and 245,000 deaths
 - Cases are rising again in countries who previously had it under control all over the globe

Fatality, Co-Morbidity and Long-Term Sequelae

- COVID-19 is **10 times more fatal than the flu** (COVID-19 has an overall 1% fatality rate; the flu is about 0.1%)
- A 1% fatality rate in the US is 3.3 Million people
- The fatality rate is generally correlated to age and underlying medical conditions
 - Fatality is 30.5/1000 for 85 years of age and above (3%)
 - Fatality is 6/1000 for 65-84, 4/1000 for 50-64, 1/900 18-29, 0.3/1000 5-17
- The virus affects the respiratory system but also the heart, liver, kidneys, GI tract, central nervous system, pancreas (causing diabetes), thyroid (affecting metabolism), and causes significant clotting in small blood vessels
- The **long-term consequences** are far more significant than other viruses: for every 1 fatality there will be:
 - 19 hospitalizations (62 million)
 - 18 who develop permanent heart damage (in one study, 80% of those who recovered showed heart damage by MRI) (59 million)
 - 10 who develop permanent lung scarring and damage (32 million)
 - 3 who develop permanent kidney damage (10 million)
 - 3 strokes (10 million)
 - 2 permanent neurological defects (up to and including psychoses, especially in younger population) (6.5 million)
 - 2 significant cognitive dysfunctions (6.5 million)
 - Long-lasting nerve damage, affecting everything from smell to walking

Symptoms

- Early cardinal symptoms include loss of taste and smell, fatigue, shortness of breath, fever, dry cough, joint pain, heaviness in the chest
- Progressive symptoms include acute respiratory failure, sepsis, intravascular coagulation (blood clots), and multi-organ failure
- Symptoms are long-lasting – 3 months’ post recovery only about 12% are symptom-free, and symptoms can recur after abating
- Stillbirths with infection have been reported to be as high as 80% of pregnancies

Treatments

- There are very few significantly effective treatments for COVID-19
- Normal flu treatments (neuraminidase and endonuclease inhibitors) do not work on COVID-19
- Early in the infection treatment with an anti-viral (Remdesivir) showed some promise; later (smaller studies) have called that into question. Remdesivir just approved by FDA for COVID (10/20); the only approved treatment
- Later in the infection, to stem a hyper-immune response and cytokine storm (causing significant inflammation in the body, the cause of some of the long-term consequences), anti-inflammatory agents (Dexamethasone, a steroid) have been shown to be marginally useful
- Convalescent plasma has also shown some promise but has not been sufficiently tested to demonstrate proof. FDA has not approved convalescent plasma for treatment.
- Some physical manipulation, such as lying the patient on their stomach instead of their back, has provided some relief of lung damage
- Studies with monoclonal antibodies for treatment and potentially prevention are underway (Regeneron has one in trials with the NIH; this approach has been shown to be effective for Ebola)

Immunity

- The native immune response to COVID-19 has generally been shown to be weak and short-lived
- T-cell response (one of the types of normal immune cells in the body) to the virus may be a more important measure of immunity than antibody formation and duration, however, tests for antibody are quick and inexpensive, whereas testing for T-cell response is difficult and expensive
- Currently there have been antibodies demonstrated 3-4 months after infection
- Documented re-infections show that the immunity is too specific to cover mutations

Vaccines

- There are currently almost 50 vaccines in various stages of testing
- Eight vaccine candidates are currently in Phase III (large-scale human) testing
 - Two utilize an mRNA technology, using snippets of the coronavirus mRNA that will infect but not cause disease, to prime the immune system into recognizing the virus and providing early immunity (Moderna and Pfizer)
 - Pfizer vaccine has been shown to be highly effective but it is not known how long that protection lasts and there is not long term safety data yet
 - mRNA vaccines have never been commercialized in the US and require extreme transport and storage conditions (up to -70° F), making them difficult to use and requiring some additional safety information for review and approval
 - These manufacturers have promised all safety data will be available to consumers
 - These are showing results similar to the antibody and T-cell responses after recovery from the virus (similar to the body's response)
 - The early vaccine data shows that the vaccine appears as effective in older patients as in younger (not true for all vaccines).
- Other vaccines are using traditional vaccine manufacture processes, similar to the vaccines on the market today
 - Two of these, from Astra-Zeneca and Novavax, are also in large-scale human testing (Phase III)
 - These are showing results similar to the antibody and T-cell responses after recovery from the virus (similar to the body's response)
 - Others from known US pharma companies known for vaccine development – GlaxoSmithKline and Merck – are beginning to enter Phase III clinical trials

- Many manufacturers are taking a risk and beginning to produce stockpiles of the vaccines before approval to be ready as early as possible
- Manufacturers and scientists are also engaged in an unprecedented open-source data share
- It is likely that vaccines (multiple types) will begin to be approved towards the end of the year
 - First vaccinations will go to first responders, health care workers, those at highest risk
 - The majority of the population will not likely be vaccinated before the middle of next year (June-August)
 - Current surveys show that 76% of Americans say they will NOT get the vaccine
 - **Only vaccinations will protect – simply having the vaccine and expecting others to be vaccinated will not provide epidemiologic protection sufficient to stop virus spread**

GET YOUR FLU SHOT THIS YEAR!

Session Responsibilities

Spiritual

- Session Elders are spiritual leaders of the church, so if people are feeling disconnected, part of your role is to keep in touch and make sure they know they are still beloved and in prayers. This is not just the responsibility of the pastor!
- Consider creating an Elder-in-Touch list by dividing up congregational members amongst Elders so there's always a primary contact for each person. Cards (especially with holidays coming up), calls, emails, are all great and easy ways to stay in touch.

Administrative and Worship

- Session is responsible for the use and conditions of use for the building, and for decisions around that.
 - Because of that Session is also then responsible to monitor and enforce any conditions of use of the building you establish. This is NOT the responsibility of the pastor.
 - Whatever conditions of use you establish must be enforced both for the congregation, committees, and outside groups.
- Create a decision tree that takes into consideration the COVID status, vulnerable populations, the building itself, and vulnerability (if any) of your pastor, as well as the ability of the church to conduct virtual worship.
- Pick a CREDIBLE data source on which to base decisions (hint – Facebook isn't it).
 - In Ohio, use the Ohio government color-coded system – it's made up of 7 medically-relevant and medical system utilization data points that are objective and unbiased. Presbytery STRONGLY urges churches to meet virtually if your county is red or purple.
 - In Kentucky and Indiana, use the system at covidactnow.org - it's made up of 5 medically-relevant and medical system utilization data points that are objective and unbiased. Presbytery STRONGLY urges churches to meet virtually if your county is orange or red.
 - CDC also has a county-by-county search tool and is very credible, objective and unbiased.
- Pick ONE data source and stick to that – you will drive yourself crazy if you try to reconcile data from multiple sources, as reports are compiled at different times.
- Presbytery STRONGLY urges churches to stay virtual right now
- Presbytery STRONGLY urges churches that elect to go back to in-person worship to do the following:
 - Masks are mandatory and to be worn at all times.
 - Session members should plan to either provide masks for people who have signed up in advance (see below) and don't have one, or turn them away

- Singing only if masked. Better to not sing at all; there are ways to have hymns played on the piano (maybe words on a screen if you have one).
- Nothing that blows air around during worship – if your heater blows air over the congregation, pre-heat the room, turn the blower off during the service (encourage coats and sweaters if you must)
- More than 6 feet physical distancing between family groups – estimate in advance how many people your sanctuary can realistically hold with at least 6 feet distance
- Limit anything that is passed around or touched by multiple people.
 - Leave collection plates in the back for people to put offerings in
 - Leave communion elements in the back for them to pick up in advance or have them bring their own
- Have a sign up sheet before the service so you can estimate how many people want to come (and cut off the sign up when you've reached your calculated maximum).
 - If people try to come in who have not signed up in advance, Session members need to be at the door to tell them no
- Have a sign up sheet before service in case you need to do contact tracing should there be an exposure
 - If there is an exposure, contact the local Board of Health immediately and shut the building and in-person meeting down for 2 weeks
 - Exclude use of bathrooms or any other part of the building (or limit bathrooms to one person at a time and provide alcohol wipes for them to clean surfaces they've touched)
- Understand your personal and church liability if someone is exposed during a church service