

Managing COVID-19 over the long-term

Leslie Waters MD

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As a globe, we are now at nearly the 6 month mark enduring the effects of the COVID-19 Pandemic. While the first case was described in China in December and its genetic sequence was revealed in January, virologists believe that there may have been a case as early as November 2019.

China, S. Korea, Italy and numerous other countries in Asia and Europe are on the downside of their first round of COVID-19, but some of these have already begun experiencing a resurgence of cases as reopening begins. And in the USA, the country with by far the largest number of cases worldwide, the disease burden is still increasing; while New York and New Jersey are both beginning to experience relief in the daily case numbers, other cities and smaller communities are having more and larger outbreaks, often beginning in higher risk populations and spreading quickly to the community at large.

Unfortunately, the USA (and similarly, the EU) consists of states with differing approaches to reopening, and differing incidences of the virus, and there are no borders between the states that can keep the virus in or out. As we reopen, people who are eager to escape confinement can be expected to bring the virus to other states and other regions where the population may be more vulnerable. Such is the case in our own Tri-county area, where we have been lucky to have had few cases so far, but will be susceptible to infection as vacationers arrive, snowbirds return, families meet for weddings and funerals and people begin to let down their guard.

I am all for re-opening in an intelligent way. As a family physician, I have cared for citizens of our district for over 30 years and I know how hard it is to keep a business afloat even in normal times. While we do so, we need to realize that COVID-19 is a serious disease that WILL come here. And the better educated we are about how the virus behaves, the better job we can do to control the inevitable outbreak when it occurs.

My goal today is to clarify a few things regarding the danger this virus poses, and to offer some concrete recommendations that businesses and individuals can consider as we begin the reopening process.

Washington Experience:

In Washington state, though we have done well for a number of reasons, we currently have a growing problem in Yakima county, where the positive test rate is 20%, compared with 7% in Washington State as a whole, and less than 2% in our Tri-county area.

“The Yakima Health District’s case tracing has identified significant outbreaks among employees in the agriculture and food industry that involved, as of April 29, more than 190 workers in more than a dozen businesses across much of the county, according to [a document](#) released under a public-disclosure request. A Toppenish meat packing plant, Washington Beef, topped that list with 50 cases, but most of the other employers on the list are involved in growing and processing fruit, an industry that will soon be ramping up into much higher gear as many more workers arrive for the cherry harvest starting in June.”

In other words, Yakima County never benefitted from the stay-at-home order because several of its major industries are deemed essential, as they are related to food production or processing. And masks that were ordered weeks ago arrived only 2 days ago, so self-protection was unavailable for those workers.

I believe we in the Tri-county area are in a strong position because:

1. We are rural, with natural physical distancing easy to attain, and outdoor exercise non-hazardous
2. We have no “essential” industries that resemble meat packing or fruit processing plants, and no prisons, so we have not had an incubator for this virus. As far as we know, we do not have nursing home cases yet but since testing has not been done, we do not know for sure that no caregivers or residents are infected.
3. We live in one of the states in which the governor acted early to close non-essential businesses, stop gatherings and limit travel. Many people in our area have criticized these actions, but I think the fact that we have had only 1 death and just a few cases is due to that early intervention. We have been granted the time to take the right measures to protect ourselves, our loved ones in nursing homes and our small rural hospitals from the onslaught other small towns have already begun to experience.

One downside of our protected status is that our local population remains largely vulnerable. We do not know if getting infected confers immunity, and if so, for how long, but it likely provides SOME protection at least for a while. But very few local residents have been infected so far. The other major downside is that our area includes 3 of the 4 poorest counties in Washington, and the loss of commerce has been economically devastating.

Similar to some other countries that acted early and have had low numbers of cases and few deaths, we are going to be most at risk NOW, as our state and country begin to reopen despite continued spread of the virus. We are entering the summer recreation season, when people from all over Washington and from other states come here to camp, fish, and enjoy solitude, and to visit family. How we handle the challenge of potentially infected people moving through our area will determine how much of an outbreak we must endure.

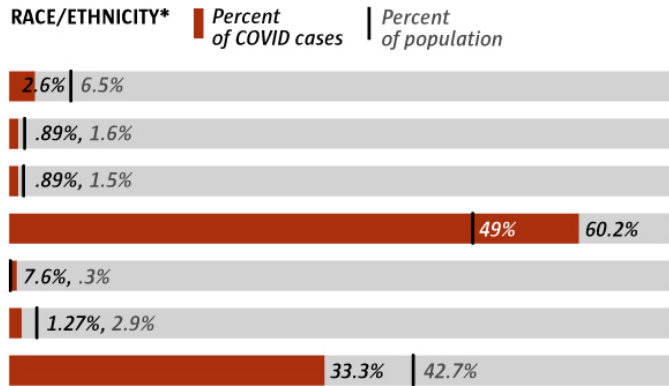
COVID-19's reach in Yakima County and statewide

YAKIMA COUNTY



POPULATION: **255,950**
 TOTAL CONFIRMED CASES:
1,579 cases
 CASES PER 100,000 RESIDENTS:
617 cases

TESTING: **7,756 total tests**
 TESTS PER 100,000 RESIDENTS:
3,030 tests
 POSITIVE: **20.3%** NEGATIVE: **69.7%**

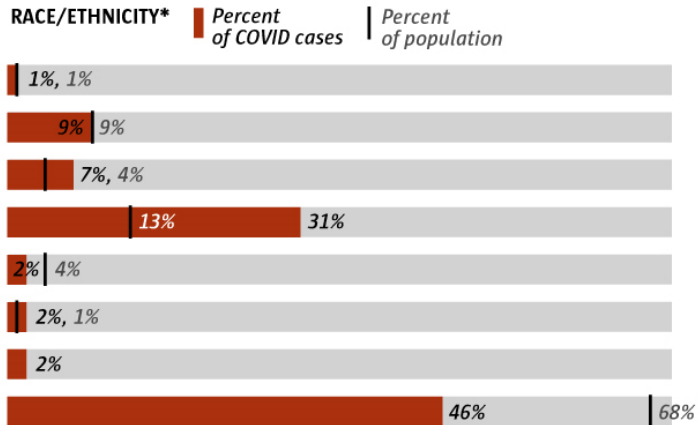


STATEWIDE



POPULATION: **7,546,410**
 TOTAL CONFIRMED CASES:
16,388 cases
 CASES PER 100,000 RESIDENTS:
217 cases

TESTING: **235,835 total tests**
 TESTS PER 100,000 RESIDENTS:
3,125 tests
 POSITIVE: **7%** NEGATIVE: **93%**



*Reflects confirmed cases in which the individual reported their race/ethnicity.
 All data as of May 7

Sources: Washington Department of Health, Yakima Health District,
 Washington Office of Financial Management (2019 population estimates)

EMILY M. ENG / THE SEATTLE TIMES

<https://www.seattletimes.com/seattle-news/in-yakima-county-tensions-grow-as-some-want-life-back-to-normal-while-agricultural-workers-want-more-protection-amid-coronavirus/>

<https://www.doh.wa.gov/Emergencies/NovelCoronavirusOutbreak2020COVID19/DataDashboard>

Unique aspects of COVID-19:

It is clear from the experiences of countries that went through the COVID-19 Pandemic earlier and from harder hit states that the most at-risk populations are in crowded residential facilities such as prisons, in places that house high risk populations such as nursing homes and veterans' hospitals, and in crowded work environments, including meat-packing plants and fruit-processing plants. Communities that house such facilities are in turn at increased risk, when workers bring the virus home to their families and in turn transmit it to their other social connections.

COVID-19 is problematic primarily for two reasons: it is very infectious (under normal conditions, each case gives rise to nearly 3 additional cases) and people who do not have any symptoms, and therefore do not know that they are infected can spread it. And even though the virus requires human cells in order to reproduce itself, it can linger on surfaces for days unless those surfaces are disinfected.

Once COVID-19 gets into a community, it spreads quickly. One case (lets say from an infected but asymptomatic person travelling to a wedding and interacting with others) will create 2-3 cases, or perhaps more in a large gathering. Those newly infected people can spread it unknowingly for several days before they get symptoms, so for every one of them, 2-3 new cases will develop amongst their friends, families, co-workers, co-church-goers and co-travellers, if they are not physically distancing. About 80% of those infected will have mild or no symptoms, but 14% will be more severely affected and about 6% will require critical care. This will overwhelm our local hospitals quickly.

Our national response adds to the difficulty because we still have insufficient testing, and the tests we do have are not accurate enough; because we have over the last decade decreased funding to our Public Health sector, thereby reducing the work force that would normally carry out contact tracing and help infected or exposed people to isolate; and because we have inconsistent national guidance and highly variable state by state responses to the Pandemic. Some people are confused and afraid. Others are skeptical because they have not seen it with their own eyes (yet.)

COVID-19 tends to hit older adults harder – MUCH harder. As many as 30-40% of nursing home residents can perish if COVID-19 gets into the facility, often through a caregiver who is asymptomatic. Even in healthy adults, the mortality rate for seniors is high. Mortality in people from 60-69 is 3.6%; from 70-79, 8%; and from 80-89, 14.8%. In younger people, the mortality is lower (1.3% in ages 50-59, <0.5% in people under 50), but if a person has other diseases like diabetes or heart disease, their chance of dying increases. It also appears that ethnic minorities and African-Americans have a higher mortality as well. Although children are less likely to become ill, there have been reports from several countries of a serious pediatric complication of COVID-19 that is immune mediated, and in some ways resembles Kawasaki Disease.

Is COVID-19 like the flu?

No! It is much more serious than the flu. Any doctor who has cared for patients through year after year of flu seasons can tell you that. If you look at the mortality rate of the flu (0.1%) vs. that of COVID-19 (5-6% if you look at the worldwide numbers, but scientists believe that if we had a better idea of the total number of infected people it would be closer

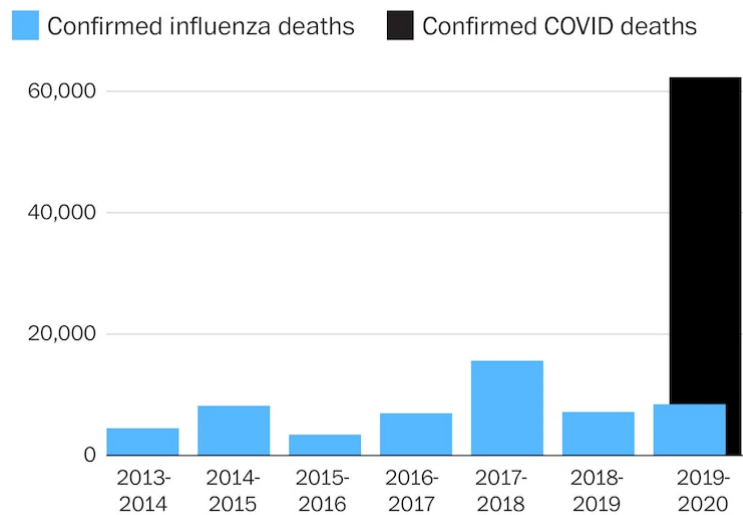
to 1%), you can see that COVID-19 kills AT LEAST 10 times as many people than does the flu, perhaps as high as 50 times as many.

Some politicians have repeatedly voiced statistics from the CDC, indicating that the flu kills up to 69,000 people every year, so why are we so worried about COVID-19? But it turns out that those CDC numbers represent “Flu Related Mortality” and include deaths that are not directly caused by the flu, like deaths from bacterial pneumonia, heart failure and emphysema in people who had a flu test or had flu mentioned on their death certificate. Furthermore, the numbers are not even a direct count of flu-related deaths, but are estimated using a mathematical formula that assumes that flu-related deaths are severely undercounted.

Therefore, to get a more accurate comparison, one must start with the number of **directly confirmed flu deaths**, which the CDC tracks on an annual basis. In the past seven flu seasons, going back to 2013, that tally fluctuated between 3,448 and 15,620 deaths. (See chart below)

Note that these numbers are very different from the CDC’s final official flu death estimates. For 2018-2019, for instance, the 7,172 confirmed flu deaths translated to **a final estimate of between 26,339 and 52,664 deaths**. Again, that’s because the CDC plugs the confirmed deaths into a model that attempts to adjust for **what many epidemiologists believe is a severe undercount**.

Flu vs. COVID mortality



Source: CDC FluView, Washington Post COVID tracking THE WASHINGTON POST

<https://www.washingtonpost.com/business/2020/05/02/theres-more-accurate-way-compare-coronavirus-deaths-flu/>

Also, we are only 3 months into the USA’s experience with this Pandemic. As of this writing, the USA has now topped 80,000 deaths and we are nowhere near done with the first year.

What about Herd Immunity?

Some countries and some individuals have raised the possibility of letting the virus run its natural course, thereby attaining “herd immunity.” This is the percentage of immune people in the population that is needed to keep a virus from being able to spread, and is different with each virus, depending on how infectious it is.

A virus like the Measles, which is highly contagious and in which each case gives rise to 12-18 new cases, requires 95% immunity to avoid repeated outbreaks. COVID-19, in which each case gives rise to 2-3 new cases, would require about 60% of the population to be immune in order for it to stop spreading. If we were to allow COVID-19 to infect 60% of our population we would have to reach about 200 million cases in the USA alone, and we would endure about 2 million to 10 million deaths just to attain herd immunity. In my view it is immoral for a leader to propose this as a strategy. A vaccine will help, but it is at least a year away.

Here is a real story to illustrate COVID-19 transmission:

“Just to see how simple infection-chains can be, this is a real story from Chicago. The name is fake. Bob was infected but didn't know. Bob shared a takeout meal, served from common serving dishes, with 2 family members. The dinner lasted 3 hours. The next day, Bob attended a funeral, hugging family members and others in attendance to express condolences. Within 4 days, both family members who shared the meal are sick. A third family member, who hugged Bob at the funeral, became sick. But Bob wasn't done. Bob attended a birthday party with 9 other people. They hugged and shared food at the 3-hour party. Seven of those people became ill. Over the next few days Bob became sick, he was hospitalized, ventilated, and died.

But Bob's legacy lived on. Three of the people Bob infected at the birthday went to church, where they sang, passed the tithing dish etc. Members of that church became sick. In all, Bob was directly responsible for infecting 16 people between the ages of 5 and 86. Three of those 16 died.”

So what should we do?

There are several potential ways to control COVID-19. They include:

1. Finding a cure (we have some medications under study that may lessen the severity or shorten the course, but no cure yet.)
2. Developing a vaccine (probably about a year away)
3. Testing much more widely, finding cases before they become symptomatic, and isolating them to decrease spread and “starve” the virus
4. Taking care to isolate infected people from their family members until two tests, 24 hours apart, are negative, because most infections occur within households, from someone contracting the virus at work or an event of some kind
5. Reducing the contagiousness of the virus in other ways.
 - a. Physical distancing really helps. For example, when Wuhan locked down, each case of COVID-19 went from causing 3 additional cases to causing 0.3 additional cases! Several countries are using this measure of infectiveness to guide their reopening. In Australia, the number they are aiming for is less than 1, and several other countries are following that lead.

- b. Wearing a mask in the presence of other people helps too, both to prevent transmission of virus to others if we are sick and don't know it, and to reduce our exposure to others who might unknowingly infect us.
 - c. Careful disinfection of surfaces and hands, since the viruses lingers on surfaces for hours to days (depending upon the surface)
 - d. Taking particular care in public bathrooms, gyms, restaurants, in offices and conferences where face to face contact occurs for long periods of time, in indoor sports facilities, and in church and other indoor gatherings. The formula for "successful" infection = exposure to virus X time exposed. More time and/or more exposure means greater chance of infection
 - e. Learning how to lift distancing requirements in a way that allows people to have much needed social interaction in a sensible way (the bubble concept) <https://www.technologyreview.com/2020/05/09/1001547/coronavirus-bubble-pod-quaranteam-social-distancing-negotiation/>
 - f. Attending to our own physical and mental health during this period of stress, anxiety and worry
6. Paying specific attention to vulnerable populations. Test nursing home caregivers and residents, test prison guards and inmates, test workers in high-risk facilities such as meat packing plants. Develop systems that reduce spread and identify cases so that additional people are not infected.
 7. Creating guidelines for travel to help protect both travellers and people they visit or come into contact with.

Breathing Exposures	Relative Score
Doing a procedure on an ICU patient (intubation, suction, CPR)	500
Working a shift in an ER or ICU full of COVID patients	100
Walking through the cloud of a cough or sneeze from an infected person	50
Working a shift as a cashier in a busy grocery store	50
Walking as a customer in a grocery store or pharmacy for 20 minutes	10
Walking or talking for an hour with a group of adults. 6+ feet apart	5
Walking in a big city. Trying to stay six feet away, lots of people	5
Living in your house for a day (4 adults doing the basics, no guests in the past 48 hours)	1
Walking in a suburban yard or street (no people in sight)	0

Touch Exposures	Relative Score
Opening a door frequently used by other people	50
Hugging, shaking hands, with a couple of people	50
Getting the mail or a package from your porch	2

We are going to need science for this, and lots of it. The first thing that needs to be done is to assure that there are enough tests available and that they are ACCURATE! In contrast to what some politicians said 2 months ago, we in the USA are still not there yet even though we have had 4 months' lead time and other countries to emulate.

The more we learn about this virus, the better we will be able to protect ourselves, our loved ones, our communities and the rest of the world from getting sick and possibly dying from COVID-19.

It is possible that we will not be able to return to “business as usual,” at least not for a long time, without having to endure repeated major outbreaks of this virus. As a society, we may be compelled to continue some of the measures that have proven effective in slowing down the spread of the virus. Practices such as working and learning remotely whenever possible, spacing workers farther apart in better ventilated facilities, wearing masks, frequent hand washing or hand disinfecting, having meetings remotely to reduce contact and reduce the need for travel, and modifying how we manage gatherings may become the new normal.

We are also going to need to be better prepared for the next Pandemic, because there will be more. We have to be able to do better as a globe to respond in concert to this type of a threat that knows no borders.

“It’s time to remember that in a crisis of contagion, we’re all better off if we’re all better off. That in a collapse of public health, the community is only as secure as its least healthy members.” Eric Liu

References:

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What is the world doing to work together?

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A map of coronavirus with case graphs of individual countries:

<https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html>

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<https://www.nytimes.com/2020/05/10/health/coronavirus-plague-pandemic-history.html>

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How to form your social bubble:

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How to negotiate your social bubble:

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<https://www.pih.org/article/10-mental-health-tips-coronavirus-social-distancing>

How taking several steps together adds up to better protection:

<https://www.linkedin.com/pulse/saving-your-health-one-mask-time-peter-tippett-md-phd>

If you love maps and visuals, enjoy this treasure trove:

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