Yakima County Medical Program Director

2403 S. 18th Street, Suite C, Union Gap, WA 98903 ● (509) 574-2145 ● FAX (509) 574-2159

To: All EMS Agencies and Providers in Adams, Benton, Franklin, and Yakima Counties
From: Kevin Hodges, MD, FACEP, EMT-P, EMS Medical Program Director (MPD)
Date: December 30, 2020

A Covid-19 Pandemic Update and FAQs from the MPD Office

Definitions:
Isolation – keeps someone who is infected with the virus away from others, even in their home.
Quarantine – keeps someone who might have been exposed to the virus away from others.
Morbidity – The suffering from a disease or medical condition (symptoms, loss of lifestyle, function, etc.)
Mortality – Death from a disease or medical condition
Covid – The common name for the virus and illness caused by the SARS-CoV-2 COVID-19 virus.

Some general comments on epidemics and epidemiology:

Epidemiology is a mathematical science and evaluates many measurable factors of a contagious disease including incubation periods, transmission rate, positive tests, ratio of positive tests to total tests, exposures, deaths, incidence of severe illness, risk factors, and many others. There are many factors that contribute to how transmissible and how deadly a disease is. Every small thing that can reduce transmission rate, such as wearing a mask and staying six feet apart will have a cumulative impact on transmission. That is why even marginally effective measures will have a major effect in effectiveness when combined with other measures, especially over the long-term.

Public heath recommendations are not “free-form” or “ballparked”. Even such mundane recommendations as the “six foot rule” for social distancing is based on the mathematics of transmission and droplet travel. Remember, just because you don’t understand how a number or recommendation is reached does not in any way invalidate the science behind that recommendation.

There is nothing in this world currently that is being more actively studied, by more scientists and physicians, and health agencies, than Covid-19. There is a tremendous worldwide effort to study and combat this epidemic. Because of this, the information available is changing quickly and will certainly affect future changes in recommendations. This can be confusing, but it is a sign that the process of science is at work. The CDC, the WHO, and the Washington State Department of Health will continue to publish, and update recommendations based on the best information and science to date.

The numbers to date in our counties (Source: CDC, WA DOH SitRep 12/29/20):

	Total Cases	Last 7 Days	Deaths	Population	% of Pop. Infected	% Death of Infected
Adams	1,594	25	16	19,983	7.98%	1.01%
Benton	11,345	478	156	204,390	5.55%	1.38%
Franklin	8,586	296	79	95,222	9.02%	0.92%
Yakima	19,069	1,239	310	250,873	7.60%	1.63%
WA State	227,795	12,296	3,195	7,615,000	2.99%	1.40%
USA	19,300,000	1,258,540	334,029	382,200,000	5.05%	1.73%

As you can see from the table above, our counties have been very hard hit with 2-3 times the percentage of infected, compared to the state average. Washington numbers overall have been significantly below the national average despite being the first state hit. Credit goes to effective State and County public health measures so far.

Want to track it yourself? *https://www.doh.wa.gov/Emergencies/COVID19/DataDashboard*

CDC – Current Isolation and Exposure Recommendations

- If you have been in close contact with a person with Covid-19 ***without appropriate protective equipment***, the CDC recommends you quarantine and watch for symptoms.

  What counts as "close contact"?
  - You were within 6 feet of someone who has COVID-19 for a total of 15 minutes or more
  - You provided care at home to someone who is sick with COVID-19
  - You had direct physical contact with the person (hugged or kissed them)
  - You shared eating or drinking utensils
  - They sneezed, coughed, or somehow got respiratory droplets on you

- You should quarantine for 10 days if you elect to not be tested for Covid-19 and have no symptoms
- You may leave quarantine after 7 days if you have a negative test on day 5 or later and have no symptoms.
- After stopping quarantine, you should continue to watch for symptoms for a full 14 days after exposure.
- Immediately self-isolate if you develop symptoms.

CDC guidelines for return to work/public after Covid-19 illness
The most recent guidelines state that someone who has had Covid-19 can discontinue isolation once they have met all of the following criteria:

1. It has been more than 10 days since your symptoms began
2. You have been fever-free from more than 24 hours without the use of fever-reducing medications such as Tylenol/acetaminophen and Advil/ibuprofen.
3. Other symptoms have improved

The CDC is no longer recommending a negative Covid-19 test before going back out in public.
Source CDC: *https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html*

FAQs

Can I get re-infected with Covid-19?
Cases of reinfection have been reported but are rare though they are expected in this type of virus based on what we know from similar viruses. Our best information to-date says that if you have already been ill due to Covid-19 that you are very unlikely to be re-infected for 3-6 months.

If I have had a positive test, do I need to be tested again?
If you have tested positive in the last three months, you do not need to be re-tested unless you develop symptoms of Covid-19 and no other cause is identified. People who have no symptoms and have had a positive test in the last 3 months do not need repeat testing.

Is Covid that bad?
As of December 24, 2020, there were 227,795 confirmed cases of Covid-19 in Washington State, 14,096 hospitalizations, and 3,184 deaths. In the USA, there have been over 333,000 deaths from Covid-19. Covid-19 has officially overtaken cancer and heart disease as the number one cause of death in the USA for 2020. ***Did that register?*** **COVID-19 IS NOW THE NUMBER ONE CAUSE OF DEATH IN THE UNITED STATES**. Even if the illness is not fatal there can be significant and long-term impact from the illness (morbidity). Although we are justifiably concerned about the number of people killed by Covid-19, the economic, societal, and individual health impacts can be substantial, even if you don't die. We are learning more about this as time goes on and this is a very active area of research.

Yakima County Medical Program Director

2403 S. 18th Street, Suite C, Union Gap, WA 98903 ● (509) 574-2145 ● FAX (509) 574-2159

VACCINES

There are currently two FDA-approved vaccines in the US, the Pfizer-BioNTech vaccine and the Moderna vaccine. The initial data is showing 90% and 95% effectiveness, respectively. There is some evidence that the Pfizer vaccine may provide longer protection, but this is still being evaluated. Both vaccines have been, and continue to be, very closely scrutinized and more data is coming as time allows scientists to evaluate their effectiveness, safety, and duration of protection. Vaccine protection periods are estimated to be 1-2 years, but data is not yet available on this.

There were dozens of other vaccine candidates that did not show the effectiveness, or the safety demonstrated by these two vaccines and were abandoned or kept as alternatives in other parts of the world, i.e. Oxford, Sputnik, Australian, and Chinese vaccines.

Was the vaccine rushed?
Because of a combination of massive worldwide effort in combination with a new technology for stimulating the immune system (m-RNA) and groundwork already done after the SARS virus outbreak of 2003 some prior technical hurdles were already solved. This allowed the vaccine to be developed very quickly. This, in combination with the worldwide sharing of research data, sheer numbers of infected, and the rapidly transmissible nature of the illness, allowed us to evaluate the effectiveness and safety of the vaccines in hundreds of thousands of people in a time frame that would typically take years to get.

Was it rushed? **Yes.** *Was it amazingly fast?* **Yes.** *Were important safety checks skipped in order to get it to the population?* **No.** These two vaccines are the best and most successful ones of the dozens that were developed and tested.
Note: When I say, "massive worldwide effort", I mean just that. It has been a true international effort. Using shared research data from labs and research teams worldwide, the Pfizer-BioNtech vaccine, for example, was largely the work of a husband and wife physician and immunology research team, Ugar Sahin and Ozlem Tureci, Turkish immigrants living in Mainz, Germany.

Is the vaccine safe?
All the information we have says **YES.**
Are there side effects?
As anyone who has had a tetanus booster can attest, yes, of course. Here are the numbers…

- 1 in 10 people report *ONE* of the following: pain at the injection site, fatigue, headache, muscle aches, chills, joint pain, low fever.
- 1 in 100 people report enlarged lymph nodes or feeling "unwell" briefly.
- 1 in 100,000 people may have an anaphylactic reaction to the vaccine. None have died.
- No deaths or other serious adverse consequences have been reported after over a million vaccines given to date.

Put that into perspective – more than 333,000 Americans have died from Covid-19 already and as of the time of this writing over 3,000,000 have received the vaccine with no vaccine-related deaths, so… a 1 in 100,000 chance of nonfatal anaphylaxis and 10% chance of minor inconvenience vs hundreds of thousands, or eventually millions of preventable American deaths… I'd say those odds are fantastic.

If I've already had Covid or had the vaccine, do I still need to wear a mask and socially distance?
Yes. Because individuals who have been infected (even if they have demonstrated antibodies) still have a small risk of infection without symptoms when re-exposed, there remains a small risk of transmission to and from people who have had the vaccine. Remember, in epidemiology, success is made by a hundred small steps to reduce transmission. Every little thing helps.

What if I have been vaccinated and I have a "close contact" exposure? Do I still need to quarantine? This is a more difficult question because the data is not yet available. From a mathematical standpoint, any little bit helps control a pandemic. However, this must be weighed with the value of keeping our front-line EMS personnel on the front lines. A reasonable approach would say that if your occupation is critical to the community, and your co-workers are also immunized, then you may continue working after a close contact exposure while monitoring your symptoms. If your occupation is less critical, it would be wise to follow the normal quarantine guidelines.

What about "herd immunity"?
Herd immunity is a real thing. It is a mathematical calculation based on the average number of new people that a single infected individual can expose and infect. That number for influenza is about 1.3. For Covid-19 it appears to be between 2 and 3, unfortunately. For the math nerds the formula is here, where R0 is the basic reproduction number, though I will let you figure out on your own what it means mathematically:

$$\text{Herd immunity threshold} = 1 - 1/R0$$

For Covid-19, our best calculations show that we need about 70% of the population to have effective antibodies to halt community transmission of Covid-19. Note that this number is likely to rise with the emergence of mutations such as the UK variant which shows a higher transmission rate (though that variant has shown no changes in morbidity or mortality so far).

So, can we achieve "herd immunity" without the vaccine? Unfortunately, the answer is almost certainly not. It has been tried in Sweden already and they recently abandoned the attempt. The problem is, as you can see from the "by the numbers" chart, that only 5% of the US population has had Covid-19 to date. That means that to get to 70%, the best-estimate needed, it will take us another 13 years to reach this number. And that is under ideal circumstances such as an assumption of lifelong immunity after a single infection, infection rates don't increase or decrease, and other idealized assumptions that probably are not realistic. So, if even under "ideal" circumstances this would take 13 years… do we really want 13 more 2020s?

The short answer is that herd immunity is only realistically possible with a very high percentage of the population inoculated with a highly effective vaccine. The good news? We appear to have at least two highly effective vaccines! Now we just need to get it to people and get enough of the people to use it. Want more information about this? Here's a useful essay on the topic:
https://www.nature.com/articles/d41586-020-02948-4

Should I get the vaccine?
It should be abundantly clear already that the answer is **YES.** If we want to stop this pandemic and return to our normal way of life, every immune-competent human should get the vaccine as soon as it is available for them. They should also continue to receive boosters at the recommended intervals.

Will you get the vaccine, Dr. Hodges?
Yes, I received my first dose of the Pfizer-BioNTech vaccine Monday December 21, 2020 and will get my second dose on January 11, 2021. For the record, my shoulder was sore for about a day.

Last thoughts:
This information represents the best available data and research that I have access to at the time of this writing. I expect recommendations to change as more and better information and research becomes available – that's how science works! Despite the risk of this information going out of date, I felt it was important enough that I take the time to share it with all of you. I have tried very hard to make it useful and easy to read. I applaud all of you who have read this far.

Yakima County Medical Program Director

2403 S. 18th Street, Suite C, Union Gap, WA 98903 ● (509) 574-2145 ● FAX (509) 574-2159

As healthcare providers on the front lines of this epidemic we are at some of the highest risk of contracting Covid-19. We are also arguably some of the most important people in the fight against this and other diseases. We are therefore first in line to have the opportunity to receive the vaccine. Please consider carefully your decisions to protect yourself, your family, and your co-workers. Remember that, for good or ill, we are often looked to as an example of medical knowledge and information. We owe it to ourselves and each other to be knowledgeable in this. We have a responsibility to show our friends and family members that we trust in the science, in the numbers, in our scientists, in our physicians, and in each other to do the right thing to protect ourselves and our communities.

I'm very proud to be a part of EMS care in my part of Washington State. I'm proud to be affiliated with such a fine group of selfless people who also care about and work tirelessly for the health of the people in my community. Thank you for your questions, your support, and your efforts.

Sincerely,
Kevin Hodges, MD, FACEP, EMT-P
Questions? Comments? Corrections? Please contact me at BFCountyMPD@gmail.com