

Last week [Economic Sense #28](#) detailed the potential benefits of randomly testing 25,000 Washingtonians for COVID-19 antibodies and noted how our state's world-class educational and research facilities make Washington particularly well-equipped to conduct such a sampling within two weeks. Today it seems that goal could be within reach, and quickly: the University of Washington has the capacity to conduct 10,000 serology tests per day and simply needs samples to test.

Determining the prevalence of COVID-19 in our population is a smart path toward accurately calculating the fatality rate, tailoring policies that will protect those most vulnerable and gaining a greater knowledge and understanding of this disease. It's important for people to know about this opportunity to be part of research that has global significance.

-- Senator John Braun, April 29, 2020

Economic Sense - Twenty-Eighth Edition

Randomly Test 25,000 Washingtonians for COVID-19 Antibodies

One of the best things we could do for the state and world is to determine the prevalence of COVID-19 among our population and update the fatality rate accordingly.

Bottom line up front:

Washington is uniquely positioned to do a great service to our citizens and the world. As the first wave of COVID-19 crests, and policymakers debate the next steps, one of the critical unknowns is: "How many people have contracted COVID-19?" The simple but as yet unknown answer could be the key to the next steps in combating this pandemic.

With our world-class educational and research facilities, and with Washington having been exposed to COVID longer than any other state, we are particularly well-equipped to conduct a sizable randomized sampling of Washingtonians to answer this question.

1. Current State of Testing: Narrow Focus, Little Progress in Sight

To date, testing in Washington has focused on whether a symptomatic individual has COVID-19. This is important, especially for those who fear they may have it. But the notion of massively expanding such testing to ensure individuals can interact safely in public -- via in-home kits that could test the vast majority of the population daily/weekly -- appears far off.

Some *three months* after the first case in the state, *two months* after a state of emergency was declared, and *one month* after a state shutdown,¹ the Department of Health in Washington could not describe the state's current testing capability, the level of additional capacity it was aiming for or how that capacity would come about. The agency said it was "not impressed" with any in-home test kits nor had any been federally approved.²

In short, if part of getting back to normal depends on waiting for massive widespread testing to see if individuals presently have COVID-19, it sadly appears we may all be waiting a good deal longer.

But, if we listen to the scientists, there's another path forward we CAN take -- one with significant implications for determining the right policy steps to take in the future.

2. A Smart Path Forward - Figure Out Prevalence in Population

Germany. A Harvard econometrician. Stanford.

What do they have in common? All are either trying to conduct, or advocating for, a sizable randomized test to determine the prevalence of COVID-19 in the population.³

Why is this important? As a UCLA professor demonstrated in a recent National Bureau of Economic Research paper, in the early stages of a pandemic (first 120 days) a disease with a high infection rate and low mortality rate will yield the same deaths as a disease with few infections and a much higher mortality rate. Yet, as you get beyond the first 120 days, the

deaths each will cause begin to be wildly different, with the latter much more problematic from a public-health and overall-fatality perspective.⁴

Because we don't know the prevalence of COVID-19 in Washington, we simply don't know whether COVID-19 is the former or the latter. No one in the world conclusively does.

To its credit, Germany is attempting to do a randomized sample of 100,000 Germans to get a hold on this issue.⁵ (A similar serological study in a small German town found 14% of the population had contracted COVID-19 -- which would equate to over 1 million Washingtonians, if it proved comparable.⁶) Columbia University did a study of pregnant women delivering infants at two New York hospitals, finding a prevalence of 15% among that population.⁷

Indeed, there are several small studies indicating COVID-19 may be a "high infection rate / low mortality rate" disease, with the most severe health impacts occurring primarily among the elderly and medically fragile. For those that have died, we have data that it does affect primarily those two populations:

Washington

- Median age of COVID-19 deaths: 81 years old⁸
- Over half of deaths occurred in long-term care facilities for elderly⁹
- Less than 1 death per 100,000 people under age 60 in Washington¹⁰
 - The rate is 128 times that for people over 80 in Washington
 - British Columbia (age 86), Massachusetts (age 81), and Italy (age 79) all have similar median ages of COVID-19 deaths¹¹
- COVID-19 Deaths -- Almost invariably individuals with co-morbidities
 - While Washington does not report what percent of individuals who died had co-morbidities, or pre-existing conditions, such as

diabetes, hypertension, or heart or kidney disease, other governments do.

- **Italy:**
 - 96.5% who died had at least one co-morbidity, and
 - 61% had at least three¹²
- **Massachusetts:**
 - 97.5% who died had a pre-existing condition of the sort detailed above¹³

The bottom line:

To enact proper policies, one needs to know both how widespread COVID-19 is among the population and, consequently, how deadly. If only a small percent of the population has been exposed (and thus the fatality rate is comparatively high), then the likelihood of a sizable outbreak and deaths once policies are lifted is pretty high. If, instead, COVID-19 has already reached a larger share of the population, then we know the fatality rate is quite low, which calls into question the continuation of the 'Stay Home' and business-closure policies.

3. Washington is Well-Equipped to Do This

Few states or countries around the world are better positioned to assess the prevalence of COVID-19 than our state.

- First, we have been exposed to COVID-19 longer than any other state, based on the first diagnosed case of January 21. On that alone, we are well-positioned to test prevalence and immunity.

- Second, and most importantly, we have a talent pool in our state that is nearly unrivaled. The University of Washington. Fred Hutchinson Cancer Research. Amazon. Microsoft. The Gates & Allen foundations.

Germany, with a population of over 80 million, has a goal to test 100,000 people. To do an equivalent sample, given its population of under 8 million, Washington would need to do a randomized test of 10,000.

With our talent pool, we can do better: we should strive for a **randomized sample of 25,000 Washingtonians** to test for antibodies and exposure to COVID-19. The sample should be geographically and demographically diverse. And we should aim to do it within the next two weeks.

Conclusion

Our state should lead the way to a greater knowledge and understanding of this disease. A random serology test of 25,000 Washingtonians would allow an assessment of COVID-19's prevalence and fatality rate, and let us make a sizable contribution to a world struggling with how to address this virus.

Footnotes

1. January 21: First Case diagnosed in Washington. February 29: State of Emergency declared. March 23: Stay at Home order.

2. DOH response on April 17 to reporter Austin Jenkins' questions on testing.
<https://twitter.com/AustinJenkinsN3/status/1251253393403768832/photo/1>

3. Germany:
<https://www.dailymail.co.uk/news/article-8170903/Germany-100-000-people-coronavirus-antibody-tests.html> Harvard Econometrician Professor James Stock:

<https://drive.google.com/file/d/1Vu0wl-9K2dh8MpMqaO85MvE6UH7gcRLx/view>; Stanford Santa Clara study: <https://www.medrxiv.org/content/10.1101/2020.04.14.20062463v1.full.pdf>

4. "How Deadly is COVID-19? Understanding the Difficulty with Estimation of its Fatality Rate" - Prof. Andrew Atkeson <https://www.nber.org/papers/w26965.pdf>

5. Id.

6. MIT Technology Review,
<https://www.technologyreview.com/2020/04/09/999015/blood-tests-show-15-of-people-are-now-immune-to-covid-19-in-one-town-in-germany/>

7.
https://www.nejm.org/doi/full/10.1056/NEJMc2009316?query=C19&cid=DM90482_NEJM_COVID-19_Newsletter&bid=186123144

8. DOH, email 4/20/20

9. Seattle Times,
<https://www.seattletimes.com/seattle-news/at-least-137-long-term-care-facilities-in-washington-have-coronavirus-cases/>

10. DOH data, combined with OFM population data: Death Rate per 100,000 - 0 under age 30; 0.2 age 30-39; 2.1 age 40-49; 3.5 age 50-59; 9 age 60-69; 28.8 age 70-79; and 128.2 over age 80. Data through 4/20/20.

11. Italy: <https://markets.jpmorgan.com/research/email/-9ovokf4/6P7NFgmilotx-biD-kR1g/GPS-3334428-0>;
British Columbia: https://news.gov.bc.ca/files/COVID19_Update_Modelling-BROADCAST.pdf;
Massachusetts: <https://www.mass.gov/doc/covid-19-dashboard-april-20-2020/download>

12. Italy: <https://markets.jpmorgan.com/research/email/-9ovokf4/6P7NFgmilotx-biD-kR1g/GPS-3334428-0>

13. Massachusetts, p. 12: <https://www.mass.gov/doc/covid-19-dashboard-april-20-2020/download>