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Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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August 12, 2020

Mr. Andrew R. Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Wheeler:

We write to request information about the actions that the U.S. Environmental Protection Agency (EPA) has taken to help the Centers for Disease Control and Prevention (CDC) improve surveillance of COVID-19 in the United States. Surveillance, in combination with a robust testing strategy, is paramount to knowing where and how many COVID-19 infections are in a given geographic location in the U.S., especially given the estimated rate of individuals infected with COVID-19 who are asymptomatic. In addition, surveillance helps to collect data and learn more about SARS-CoV-2, the virus that causes COVID-19, which in turn helps public health officials and policy makers with critical decision making. A robust surveillance system could provide invaluable feedback to decision makers at all levels of government, especially state and local levels of government, with respect to what level of mitigation strategies need to be implemented at any given point.

Energy and Commerce Committee Republicans released a report in June, examining COVID-19 testing and surveillance in the U.S., and developed several recommendations for officials to consider in order to improve COVID-19 testing and surveillance in the U.S.[1] The report discusses the various systems and epidemiology networks that are used "to generate an ongoing picture of disease spread, intensity, and severity, and produce data to address the key questions for directing and refining the US response."[2] However, the report found that it was

[1] H. Comm. on Energy and Commerce Republican Staff Report, *COVID-19 Second Wave Preparedness Part 1: Testing & Surveillance* (June 2, 2020), *available at* https://republicans-energycommerce.house.gov/wp-content/uploads/2020/06/COVID-19-Second-Wave-Report_Testing-Surveillance_FINAL.pdf.
[2] *Id.*; Centers for Disease Control and Prevention, *CDC Activities and Initiatives Supporting the COVID-19 Response and the President's Plan for Opening Up again* (May 2020), *available at*

unclear how effective the existing surveillance networks will be in terms of detecting signals of COVID-19, and that while the existing surveillance systems for influenza and the tools that have been developed to survey COVID-19 are a good baseline infrastructure of systems that the U.S. should leverage, they need to be evaluated and enhanced to ensure quality data collection and surveillance for the purpose of COVID-19 surveillance.[3] Further, in preparation for the fall, the report contained a recommendation that Congress and the Executive Branch should continue to consider additional short-, medium-, and long-term solutions on the issue of surveillance, highlighting that these solutions will be even more critical in the fall when influenza season begins again and there is an increase in influenza-like illnesses across the U.S.[4]

The Republican Report notes that private companies and academia have announced initiatives, partnerships, and tools that will help serve as early warning systems and/or track the spread of COVID-19.[5] One of the recommendations that we made was that other ideas being explored, if effective, should be considered to create a more comprehensive surveillance system.[6] One example being explored by researchers is sampling wastewater in wastewater systems to detect whether there is virus in a community because "[v]iral RNA fragments – parts of a large molecule (ribonucleic acid), which, like DNA, are considered the building blocks of life – are present in the feces, and can be used to identify communities with COVID-19, whether individuals have symptoms of the illness or not."[7] This approach could serve as a sentinel system that tests wastewater instead of people. In addition, this would be a surveillance tool that could help detect the presence of disease in a population, while preserving testing supplies. We believe that new and innovative ideas like this one should be considered in the event that they could substantially contribute to a more robust surveillance system.

The concept of wastewater epidemiology is not new. In fact, it "has been used for decades to detect polio in countries where the disease remains endemic, and more recently, to estimate the prevalence of opioid abuse in U.S. communities."[8] This type of surveillance tool could serve as an early alert and be critical for COVID-19 surveillance, and "[s]tudies in the U.S. and the Netherlands, among others, have shown you can pick up a signal about a week before the first clinical case."[9] Furthermore, the detection of COVID-19 in sewage samples has correlated with the arrival of the virus in different communities, including detecting "'significant amounts of viral material' in Boston sewage weeks before cases arrived in March."[10] In addition to

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https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/CDC-Activities-Initiatives-for-COVID-19-Response.pdf.

[3] H. Comm. on Energy and Commerce Republican Staff Report, *COVID-19 Second Wave Preparedness Part 1: Testing & Surveillance* (June 2, 2020), *available at* https://republicans-energycommerce.house.gov/wp-content/uploads/2020/06/COVID-19-Second-Wave-Report_Testing-Surveillance_FINAL.pdf.

[4] *Id*.

[5] *Id*.

[6] *Id*.

[7] Dean Narciso, *Human waste offers genetic clues to COVID-19 spread*, THE COLUMBUS DISPATCH (Aug. 2, 2020), *available at* https://www.dispatch.com/news/20200802/human-waste-offers-genetic-clues-to-covid-19-spread.

[8] Sharon Begley, *Wastewater testing gains traction as a Covid-19 early warning system*, STAT (May 28, 2020), *available at* https://www.statnews.com/2020/05/28/wastewater-testing-gains-support-as-covid19-early-warning/.

[9] *Id*.

[10] *Id*.

detecting presence of the virus, one company's analysis of wastewater can distinguish between 10 cases and 100 cases in a given area.[11] While not exact, this level of specificity can detect when the prevalence of the virus in a community goes up or down and could greatly assist public health experts and local decision makers in making more tailored decisions and adjustments with respect to mitigation measures for a community.

Given the supply and resource limitations, the U.S. is still largely utilizing its COVID-19 diagnostic testing resources to test individuals who have symptoms and have had known exposure to the virus. Wastewater surveillance can serve as a surveillance tool which does not require additional COVID-19 diagnostic testing to be performed, and therefore helps to preserve much needed diagnostic testing supplies. In addition to preserving testing supplies, such information could also help the health care system forecast where there may be an increased need for medical supplies, such as testing supplies or personal protective equipment for health care workers; hospital beds; or medications being used to treat COVID-19 patients. In addition, such information could help those who are performing clinical trials for vaccines or therapeutics identify locations best suited to successfully carry out their clinical trials.

The CDC estimates that on average 40 percent of infections are asymptomatic.[12] When considering the rate of individuals who can contract COVID-19 and be asymptomatic, and therefore never develop symptoms, this type of system can help detect when there is transmission of the virus within a community that might otherwise go undetected. This would help detect disease prevalence within a community, including individuals who are pre-symptomatic or asymptomatic. In addition, detecting those who are pre-symptomatic or asymptomatic can help prevent pre-symptomatic or asymptomatic individuals from unknowingly spreading the virus in the community and provide public health officials with the opportunity to take swift action to prevent further spread, without waiting for individuals to present with symptoms, get tested, and wait for their results, all of which may never happen.

This type of surveillance tool could prove critical not only for communities as a whole, but also for specific locations, including those with individuals who are at high-risk of developing severe disease, such as hospitals or nursing homes. Such a surveillance tool could also help detect the presence of the virus early and prevent large outbreaks in congregate settings such as schools, universities, jails, and prisons.

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[11] *Id*.

[12] The percent of cases that are asymptomatic, i.e. never experience symptoms, remains uncertain. Longitudinal testing of individuals over time is required to accurately indicate the absence of symptoms for the full period of infectiousness. Current peer-reviewed and preprint studies vary widely in follow-up times for re-testing, or do not include re-testing of cases. Additionally, studies vary in the definition of a symptomatic case, which makes it difficult to make direct comparisons between estimates. Furthermore, the percent of cases that are asymptomatic may vary by age and studies also vary in the age groups included. Given these limitations, the range of estimates is wide. The best estimate is the midpoint of this range and aligns with estimates from: Oran DP, Topol EJ. Prevalence of Asymptomatic SARS-CoV-2 Infection: A Narrative Review [published online ahead of print, 2020 Jun 3]. *Ann Intern Med*. 2020; M20-3012; Centers for Disease Control and Prevention, *Coronavirus Disease 2019 (COVID-19), Pandemic Planning Scenarios* (last updated July 10, 2020), *available at* https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html (last visited Aug. 3, 2020).

Some communities in the U.S. are already utilizing wastewater surveillance. For example, a utility that serves 613,000 people west of Portland, Oregon is sending weekly samples to a wastewater surveillance company and is also doing some of its own research.[13] In addition, as part of Oregon State University's TRACE study, researchers have done tests on sewer systems in Hermiston and Boardman, Oregon.[14] Furthermore, engineers at the Southern Nevada Water authority and Hampton Roads Sanitation District in southeastern Virginia started sampling wastewater in March.[15] These are just a few examples of jurisdictions that have already been utilizing wastewater surveillance for COVID-19.

In addition to various jurisdictions and academic institutions conducting research, researchers at the EPA and CDC "are developing and applying methods for measuring SARS-CoV-2 levels in wastewater."[16] Two ongoing research projects at the EPA include 1) Standardize Methods to Assess Virus in Sewage; and 2) Monitor Virus Levels in Sewage to Assess Community Infection Rate.[17]

In addition to utilizing wastewater surveillance for COVID-19 surveillance, such a tool could also help researchers and scientists learn more about the virus, which would in turn help inform and improve the U.S.' overall response to COVID-19. For example, when combined with other tools, wastewater surveillance could help CDC with its COVID-19 surveillance goals to monitor the spread and intensity of disease in the U.S., understand disease severity and the spectrum of illness, understand risk factors for severe disease and transmission, monitor for changes in the virus that causes COVID-19, estimate disease burden, and produce data for forecasting COVID-19 spread and impact.[18]

The Committee is interested in learning more about if, and how, EPA is examining, developing, and utilizing wastewater as a surveillance tool for COVID-19 to improve the U.S.' COVID-19 surveillance efforts, including EPA's efforts to work with other agencies, private companies, academia, or other researchers already doing similar work on wastewater

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[13] Sharon Begley, *Wastewater testing gains traction as a Covid-19 early warning system*, STAT (May 28, 2020), *available at* https://www.statnews.com/2020/05/28/wastewater-testing-gains-support-as-covid19-early-warning/.
[14] Antonio Sierra, *Pendleton sewer tests show COVID-19 growth*, EAST OREGONIAN (Aug. 1, 2020), *available at* https://www.eastoregonian.com/coronavirus/pendleton-sewer-tests-show-covid-19-growth/article_2351fb24-d392-11ea-b6ff-6bb2de408bf5.html.
[15] Sharon Begley, *Wastewater testing gains traction as a Covid-19 early warning system*, STAT (May 28, 2020), *available at* https://www.statnews.com/2020/05/28/wastewater-testing-gains-support-as-covid19-early-warning/.
[16] U.S. Environmental Protection Agency, *Research on COVID-19 in the Environment, Detecting and Monitoring SARS-CoV-2 in Wastewater*, (last updated July 1, 2020), *available at* https://www.epa.gov/healthresearch/research-covid-19-environment#water (last visited Aug. 3, 2020); U.S. Environmental Protection Agency, *EPA's SARS-CoV-2 Research: Assessing Virus Levels in Sewage for Community Level Screening* (June 4, 2020) *available at* https://www.epa.gov/sciencematters/epas-sars-cov-2-research-assessing-virus-levels-sewage-community-level-screening.
[17] U.S. Environmental Protection Agency, *Research on COVID-19 in the Environment, Detecting and Monitoring SARS-CoV-2 in Wastewater*, (last updated July 1, 2020), *available at* https://www.epa.gov/healthresearch/research-covid-19-environment#water (last visited Aug. 3, 2020).
[18] Centers for Disease Control and Prevention, *Coronavirus Disease 2019 (COVID-19), COVIDView, Purpose and Method, available* at https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/purpose-methods.html (last visited Aug. 3, 2020).

surveillance. To assist the Committee in its efforts, please make arrangements to provide a briefing to Committee staff by August 26, 2020. We appreciate your timely cooperation in this matter. Should you have any questions or concerns about this request, please contact Brittany Havens, Alan Slobodin, or Jen Barblan with the Minority Staff at (202) 225-3641.

Sincerely,

Greg Walden
Republican Leader

Michael C. Burgess, M.D.
Republican Leader
Subcommittee on Health

John Shimkus
Republican Leader
Subcommittee on Environment
and Climate Change

Brett Guthrie
Republican Leader
Subcommittee on Oversight
and Investigations