September 8, 2020

Via electronic submittal: jonathan.quick@duke.edu

To: Dr. Jonathan Quick – Rockefeller Foundation

Subject: Wastewater Based Epidemiology (WBE)

Dear Dr. Quick:

The undersigned represent a diverse group of stakeholders seeking to implement credible solutions to inform public health decisions related to the SARS-CoV-2 (COVID-19) pandemic. The Centers for Disease Control and Prevention (CDC) is developing the National Wastewater Surveillance System (NWSS) through partnerships with state, local, tribal, and territorial health departments to inform public health actions relative to the COVID-19 pandemic. The nations wastewater agencies are actively engaged in sampling and analyzing wastewater for SARS-CoV-2 and stand ready to assist local and state health officials in their effort to manage the pandemic. However, we are writing to request your assistance in implementing this valuable tool by ensuring wastewater plants can continue sampling, that public health officials receive meaningful and credible data, and there is a national coordinated repository for receiving and interpreting the data. This assistance is needed to bridge and fund efforts by the CDC, EPA, State Health and environmental departments, universities, and the wastewater sector. We estimate a minimum of five million dollars will be needed to support this effort.

Wastewater Based Epidemiology (WBE) is a Proven Tool

Fortunately, COVID-19 has not been shown to remain viable in wastewater but its genetic signal (RNA) can still be detected and serve as an effective diagnostic tool. Testing the raw (influent) wastewater and primary sludge can detect the RNA of SARS-CoV-2 whether it is infectious or not. Such testing is known as Wastewater Based Epidemiology (WBE) and has been used for decades around the globe for other viruses such as polio and for opioid use. Individuals infected with COVID-19, both asymptomatic and symptomatic, shed the virus in bodily excretions that find their way to the sewerage system. Many wastewater agencies in California, across the nation, and the globe are pursuing analysis of their influent wastewater and primary sludge to determine the presence or absence of SARS-CoV-2, and to ascertain if the trend is increasing, decreasing, or staying level in their communities.

WBE Can Help Public Health Officials Respond to the Pandemic

The issue of determining when to relax or reimpose shelter-in-place policies and whether to physically return to school during the pandemic has become a lightning rod issue across the globe as we move into fall. WBE has the potential to provide advance notice of between four to seven days before an outbreak is observed in a community. This early warning can then be used in conjunction with clinical data to help inform public-health decision making such as the extent and duration of shelter-in-place policies, including when to open or close schools, bars, or restaurants; how to prioritize testing; and where to allocate medical resources. The tool is flexible and can be used to trace an outbreak by testing upstream in the sewershed. If the trend is increasing, then testing can be done within smaller areas to determine hotspots, such as at assisted care facilities, industrial complexes, or schools. The University of Arizona (UA) recently
identified its presence in wastewater from a dorm, retested all residents, and found two asymptomatic people which would have been undetected without the surveillance. Many wastewater plants in California and beyond stand ready to be collaborative partners in federal and state efforts to conduct WBE. Stanford University, in partnership with the University of Michigan, UC Berkeley, UA, USEPA, and many other public and private laboratories are actively perfecting and/or conducting WBE analyses.

**Funding is Needed to Implement WBE**

CDC is working closely with EPA, state health officials, and the global research community, along with the Water Research Foundation and the Water Environment Federation to establish standard methods for sample collection, preservation, quality assurance and control, and analysis. To date, the work of sample collection and analysis has been borne by the public wastewater agencies and university research laboratories. Funding is a critical need to ensure capacity and credibility for WBE. Funding of this public health data out of public wastewater agencies general operating budgets is not sustainable over the long-term. We respectfully request financial assistance for state health departments, the wastewater sector, and other key partners to implement an effective WBE program.

The wastewater sector stands ready to increase its efforts to assist and to provide data as appropriate, should additional funding be made available. We welcome the opportunity to provide you more information on this opportunity. Please contact Greg Kester with the California Association of Sanitation Agencies with any questions or for further clarification at gkester@casaweb.org or at 916-844-5262.

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