

On the Front Line of Testing

Emily Higginbotham 4/27/2020 04:15

Christopher Mason of Weill Cornell Medicine is developing a COVID test now awaiting FDA approval

A Weill Cornell Medicine professor is working to develop a coronavirus test that he thinks could be the most sensitive test on the market, and one that would ultimately expand the city's testing capacity exponentially.

In addition to his duties at Weill Cornell, Christopher Mason is the co-founder of Biotia, a health tech startup that was launched out of Cornell Tech. Biotia uses DNA sequencing and artificial intelligence to rapidly and accurately identify global pathogens in order to guide patient treatment and improve patients' health outcomes. Since 2015, Mason has been using this technology to swab New York's subway system for microbes in order to build a genetic profile of the city.

As the coronavirus outbreak began, Mason started swabbing the subways in New York, and in cities around the world, to see if the coronavirus was present there. He thought he could use the same types of methodologies on samples from people to not only provide a diagnosis, but analyze the sample to determine the likelihood of the spread of infection and where the sickest patients are located.

Mason and a team at Weill Cornell put out a study on this new testing, which is being refined and waiting approval by the Food and Drug Administration.

"I've been very excited because we basically get to help expand capacity for COVID testing in New York City, which is very critical for getting the country back to work," Mason said in an interview with Our Town.

Smallest Presence of COVID-19

The Biotia lab, which is run out of Brooklyn, is the first commercial lab to be certified to test for the coronavirus in the borough, according to Mason. They are offering the standard test that Mason said patients typically receive to test for a virus, and will begin using the new test upon approval from the FDA.

To test a sample, Biotia takes a swab, dips it into a chemical, the chemical heated to 65 degrees, and then if it is positive, it turns red. And if it isn't positive it turns yellow. The process takes only 30 minutes.

At the moment, Mason and his team are working on refining the test in order to make it more sensitive so that the test can detect even the smallest presence of COVID-19 in a sample, which he said involves “playing with the chemistry.”

“We know we can get down to 10 copies of the virus, but we think the technology looks good enough that we can get down to even if you have a single copy of the virus present that we can we can grab it and see it actually,” said Mason. “We’re testing all these samples with a variety of methods and seeing if we can get down to that be the most sensitive test that’s on the market, which is down to a single molecule.”

Mason said Biotia and a network of partnering labs could be able to test thousands of samples per day, and soon ramp up their operation to test tens of thousands of people per week.

“We have a vision of getting up to 100,000 [tests] by the time we get to June or July,” said Mason. “So if anyone anywhere wants to get tested, we want to make that possible.”

Connecting to Health Care Providers

In making that possible, Mason has been working with Council Member Ben Kallos to identify ways to distribute the test throughout the city. Kallos said he’s been connecting Mason to health care service providers throughout the New York, including City Med.

“They have something like 200 locations all over the city of New York as well as the metropolitan area,” said Kallos. “So we were working with them on having a situation where City Med could be a place to go and get rapid testing while [patients] waited, and that we could take one of the exam rooms and turn it into a lab processing room where we could be testing several hundred people an hour.”

Kallos said he’s been disappointed by how much time the United States lost by not having testing ready by the time the outbreak was declared a pandemic.

“I think the key thing here is when the President was saying we don’t need testing, when my colleagues in this government were saying we don’t need testing, I knew that the only way we were gonna get out of this crisis is with access to testing to everyone,” said Kallos, who is running to replace the term-limited Gale Brewer as Manhattan Borough President in 2021. Notably, Kallos’ opponent in the race, fellow Council Member Mark Levine, who chairs the health committee, had been calling on New Yorkers who were not extremely ill to stay home and not get tested for the virus to avoid overwhelming the city’s health care resources. “But that being said, we have the brightest minds on the planet

here in my district, and in the city, and I'm certain that between Dr. Mason and others in our city and in our country that will be able to shore up the kind of testing that you need to get back to work and back to normal as soon as possible.”

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