Pooled Saliva Surveillance Testing

The New York State Commissioner of Health has endorsed a pooled saliva surveillance testing program developed by SUNY Upstate Medical University to be performed across SUNY campuses and a small number of other schools to help detect and prevent the spread of the virus that causes COVID-19. SUNY Upstate is being assisted in this effort by Quadrant Biosciences, a biotechnology company with headquarters on the SUNY Upstate campus that has more than 5 years of experience in collecting and testing saliva for different diseases.

What is being done during surveillance testing?

Students and staff are instructed on how to collect saliva from their own mouth using a soft absorbent swab that they place into the front of their mouth for 10-15 seconds to soak up saliva. That swab is then placed in a collection tube with a solution that inactivates any viruses and preserves the saliva for testing at another location. Once 12 samples have been collected, these are pooled together into a single larger tube, and all the larger tubes are then sent to SUNY Upstate for testing.

Who is doing the testing?

The saliva pools that are created are being tested in a dedicated COVID-19 testing facility at SUNY Upstate Medical University that has developed and optimized methods for detecting SARS-CoV-2 virus in human saliva samples.

What is the basis of this test and how sensitive and specific is it?

The method is based on the now well-established finding that SARS-CoV-2 virus can be present at detectable levels in the saliva of subjects, whether they have active symptoms or not.

The test uses a method of detection called Polymerase Chain Reaction (PCR) that is optimized for maximum sensitivity in stabilized human saliva.

The specific saliva testing method used will detect the presence of as few as 5 copies of the SARS-CoV-2 virus in a single PCR test more than 95% of the time. If more than 5 copies are present, the test is 100% sensitive. The test is also 100% specific to the SARS-CoV-2 virus and will not report a false positive result due to any other known viruses, such as those that cause the common cold or influenza.

The test is based in part on protocols developed and validated by the Pasteur Institute in France and registered with the World Health Organization. Those methods were adapted and modified for use with saliva and pooled saliva by the clinical research teams at SUNY Upstate Medical University and Quadrant Biosciences.

How will results be reported?

When a saliva sample is added to a pool, negative results indicate no levels of detectable virus in those pools, and all of the students in that pool are presumed negative (free of virus). If a pool tests positive, then each of the students or staff who contributed to the pool need further evaluation and an individual clinical test before they can be officially diagnosed. It is important to recognize, however, that people who do not have detectable levels of virus may still be infected, since detectable levels only appear reliably 2-5 days after exposure. Thus, having a negative result does not rule out the possibility of transmission occurring, and students must still remain cautious and use appropriate precautions to minimize their risks of exposure or transmission.