NIST COVID-19 RELATED RESEARCH

Biological Measurements

NIST developed a new way to increase the sensitivity and accuracy of the common swab test for COVID-19, critical for understanding and controlling the outbreak. The math-based approach could reduce measurement errors in the test, potentially detecting more asymptomatic carriers of the virus. Read the e-print.

One approach to diagnostic testing for COVID-19 involves detecting the RNA (genetic material) of the SARS-CoV-2 virus in a nasal swab. Manufacturers of test kits need a way to measure how effective their tests are at detecting this RNA. To help with this, NIST will produce synthetic fragments of SARS-CoV-2 RNA that manufacturers can use to calibrate their instruments and develop quality controls. This research grade test material will be safe to handle, as it is composed of RNA fragments, rather than the virus's full RNA genome.

NIST will research how the diagnostic assay for COVID-19 deployed by the CDC will be affected by mutations in the coronavirus that causes the disease, and potentially identify issues in the test before the virus mutates enough to escape detection.

NIST is co-organizing a pilot study with three other National Metrology Institutes through the International Bureau of Weights and Measures (BIPM) CCQM Nucleic Acid Working Group. The study will expand measurement capabilities and help standardize the performance of analytical methods used by diagnostic test manufacturers, clinical laboratory-developed tests and international test standardization efforts.