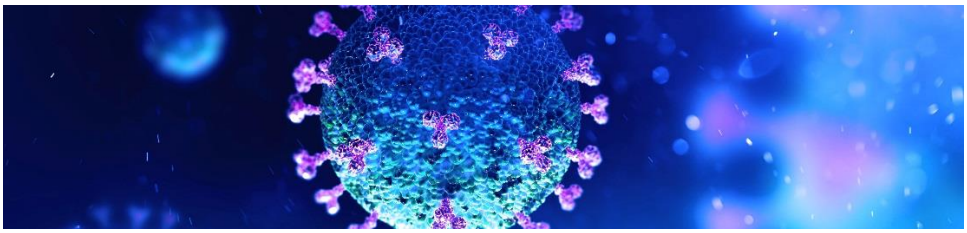


April 3: COVID-19 Clinical Update

Expansion to Rapid Testing

This daily communication is intended to facilitate the sharing of important clinical information during the COVID-19 healthcare crisis and to help respond to questions from physicians across the health system.

In today's issue, you will find information provided by Pathology Chair Daniel Brat, MD, PhD, and Vice President of Operations Kenneth Hedley, about the role Northwestern Medicine labs are playing to increase the speed and availability of COVID-19 testing.

DIAGNOSTIC MOLECULAR BIOLOGY LAB

In mid-March, the Diagnostic Molecular Biology (DMB) Lab at Northwestern Memorial Hospital began testing nasopharyngeal swab samples of patients and healthcare workers with suspected COVID-19. Under the leadership of Larry Jennings, MD, PhD, lab staff uses RNA extraction and real-time reverse transcription-polymerase chain reaction (RT-PCR) amplification to detect the SARS-CoV-2 virus, which causes COVID-19.

Rapid capacity expansion

Initially, the DMB Lab began processing about 80 cases per day; however they quickly ramped up, adding staff, shifts and equipment. They further expanded capacity by working with Northwestern University Feinberg School of Medicine, under the direction of Beth McNally, MD, PhD. Current RT-PCR testing capacity is now more than 300 samples per day, with 95% of the tests resulted within 24 hours, depending upon volumes. The rate of positive tests has been about 18%.

Move to rapid testing

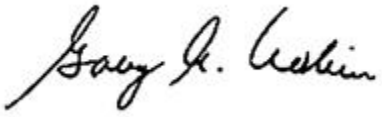
- **Results in less than an hour**: On March 30, the NMH Medical Microbiology Lab, under the direction of Chao Qi, PhD, implemented automated testing which does not require manual RNA extraction. The platform provides systemwide capacity for 2,000 tests per day. It's currently in use at NMH and Central DuPage Hospital, and will be rolled out to other regions when supplies become available.
- **Results in 15 minutes**: A rapid point-of-care test for SARS-CoV-2 viral RNA is also being validated at NMH and will be deployed across the health system the week of April 6.

Future testing assessment also may include laboratory-based and point-of-care-based serologic assessment for IgG and IgM. These tests can identify an immune response by

patients who have previously been exposed, which generally occurs 10 to 14 days after infection. This may be clinically useful in some settings, such as plasma donation or return-to-work clearance.

A limiting factor preventing more widespread testing continues to be availability of swabs, extraction kits and reagents. Supply Chain and Lab leadership are working to procure these items by working with current vendors and conserving existing supplies. Daniel Derman, MD, is facilitating a team of physician leaders to develop the algorithm to prioritize patient populations, identify preferred and secondary testing platforms, and determine how the prioritization and test selection will shift depending on the availability of supplies.

As always, thank you for your dedication to providing care to our patients and supporting each other during this challenging period. To help inform future communications, please submit any questions you may have to **covid-19md@nm.org**.



Gary A. Noskin, MD
Senior Vice President, Quality
Northwestern Memorial HealthCare
Chief Medical Officer
Northwestern Memorial Hospital