

COVID-19 Update

December 17: Vaccine Update, Global SARS-CoV-2 Surveillance Project, and the New NM COVID-19 Clinic

*Today's issue features the new Global SARS-CoV-2 Surveillance Project with information from **Lori Ann Post, PhD**, Buehler Professor for Emergency Medicine and medical social sciences director of the Buehler Center for Health Policy & Economics, Northwestern University Feinberg School of Medicine. It also includes an update on vaccine distribution and availability, as well as details about the new NM COVID-19 Clinic.*

VACCINE UPDATE

Northwestern Medicine hospitals have received initial supplies of the Pfizer-BioNTech COVID-19 vaccine and have begun vaccinating healthcare workers in a phased approach. Vaccination is available at no cost to all physicians and members of the NM workforce. If you have not already done so, you must complete the enrollment process to receive an invitation to schedule your vaccination. To enroll, visit nmsymptomcheck.nm.org, sign in with your NM user ID and password, and click on **COVID-19 Vaccination Enrollment**. You also can access the enrollment process through the NM Workforce App by selecting NM COVID-19 Applications. All physicians should complete the application process regardless of your desire to get vaccinated.

Invitations have already been sent to those who work or interact with patients who have COVID-19. As NM receives additional vaccine doses, more time slots will open across the system. If your hospital of choice has no available appointments, you can select a different location and view available time slots. Remember, this vaccine requires two doses given 21 days apart, and you must receive both at the same location. If you experience any difficulty logging in to access the enrollment form, please contact MyNM Service Center at 312.926.HELP (4357) or mynm-servicecenter@nm.org.

We are committed to making the vaccine available to any interested member of the NM workforce. For more information about the vaccine, please read the **Vaccine FAQ** and other vaccine information available on the **Vaccine and Treatment Resources page on Physician Forum** or the **Vaccine and Treatment Resources page on NM Interactive**. For additional information about government planning efforts, visit the **Vaccines page on the CDC website**.

Patient vaccination

NM is not scheduling any patients for vaccination at this time. To assist you in communication with patients, several resources are available:

- A new dot phrase **.covidvaccinequestions** is now available in Epic.

- For questions about vaccine availability at NM, please direct patients to the [COVID-19 Resource Center](#) on nm.org.
- For general questions about COVID-19 vaccines, direct patients to the [Vaccines page on the CDC website](#).

THE GLOBAL SARS-COV-2 SURVEILLANCE PROJECT

Northwestern University Feinberg School of Medicine scientists have developed a new COVID-19 global surveillance system that can dynamically track not just where the virus is now, but where it is going, how fast it will arrive and whether that speed is accelerating. The [SARS-CoV-2 Global Surveillance Project](#), the first system to track the virus dynamically, was rolled out in nearly 200 countries in early December. It also tracks the virus in individual U.S. states and metropolitan areas, and in Canadian provinces.

Even though data is limited to more severe cases, and suffer from incomplete case ascertainment and data contamination, metrics gathered as part of the SARS CoV-2 Global Surveillance Project will help us better understand the impact of the virus across the globe. To address data limitations, we validated additional novel surveillance metrics of speed, acceleration, jerk (change in acceleration), seven-day lag and seven-day persistence effect.

The basic question we are trying to inform is: How are we doing this week relative to previous weeks? From a public health perspective, in the midst of a pandemic, we would like (at least) affirmative responses to three statements:

1. There are fewer new cases per day this week than last week.
2. The number of new cases is declining from day to day.
3. The day-to-day decline in the number of cases is even bigger this week than last week.

Additionally, we would like some indicative information about significant shifts in how the pandemic is progressing — positive shifts could be the first indicators of the emergence of a new or recurrent hot spot, and negative shifts could be the first indicators of successful public health policy.

The basic indicator of the pandemic's status on a given day is the number of new cases on that day. Since new cases per day is a rate (value per unit of time), we adopt physics nomenclature and refer to this as the speed of the pandemic. This is consistent with heuristic descriptions of the pandemic as spreading rapidly (many new cases per day) or slowly (a small number of new cases per day). The public health ideal is to bring the speed of the pandemic to zero.

We are also interested in understanding whether the number of cases per day is increasing, peaking or decreasing, and why. Again, we will adopt physics nomenclature and refer to this as acceleration. Since acceleration is difficult to ascertain on a daily basis and there are weekend effects in the data, we report the weekly average for the acceleration. A positive acceleration indicates an increasing number of cases per day, and a negative acceleration (deceleration) indicates a decreasing number of cases per day. An acceleration of 0 is indicative of a peak, valley or inflection point depending on whether the previous acceleration was positive or negative.

We now address the question of whether the day-to-day increase (or decrease) in new cases the current week is bigger or smaller than the day-to-day increase (or decrease) in new cases compared to the past week. Using physics nomenclature, the difference between these two acceleration rates is the jerk. A positive jerk indicates that the acceleration in the number of daily

cases this week is greater than the average growth last week. Such a finding would be consistent with a scenario in which the pandemic was experiencing explosive growth; where a policy shift such as reopening had augmented the acceleration of the pandemic, including a shift from deceleration to acceleration; or where super-spreader events had jerked the acceleration upward, among other scenarios. New cases per day tend to have an echo effect seven days later, like the echo effect in the population pyramid caused by the baby boom, reported as the weekly average number of new cases per day that are attributable to the weekly average of the seven-day lag of the number of new cases per day.

Northwestern University is hosting [The SARS-CoV-2 Global Surveillance Project dashboard](#) for the new COVID-19 tracking system, which is open to anyone. The dashboard includes the new metrics as well as traditional metrics. Each country's dashboard will be monitored in every U.S. Embassy in the world to inform policy leaders around the globe. The surveillance system can help U.S. Embassies and missions support partnering countries to formulate and implement policies that mitigate COVID-19 or adverse outcomes, such as food insecurity, and understand which policies are working best. These new metrics also can help developed countries and their health systems prepare for swift changes in the pandemic. The first U.S. surveillance report was published in the *Journal of Medical Internet Research* on December 3.

COVID-19 CLINIC

Northwestern Medicine recently launched a new multidisciplinary Comprehensive COVID-19 Center at Northwestern Memorial Hospital to provide coordinated and convenient care for patients who have recovered from COVID-19 but continue to have lingering symptoms, such as:

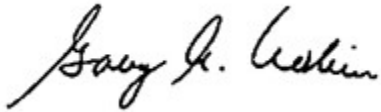
- Persistent fevers
- Neurological symptoms such as brain fog or difficulty concentrating
- Cardiovascular conditions that result from COVID-19, such as myocarditis and arrhythmia
- Pulmonary embolism or deep vein thrombosis
- Proteinuria or microalbuminuria
- Pre-diabetes or diabetes that develops within one year of being diagnosed with COVID-19
- New thyroid conditions

The Comprehensive COVID-19 Center coordinates care from several specialties, including Pulmonology, Neurology, Infectious Diseases, Cardiology, Endocrinology, Nephrology, Hematology and Social Work. Physicians from Internal Medicine and Transitional Care also provide support for patients who do not have a primary care physician or insurance. Additional specialties will be added soon, and additional clinics and centers are being planned for other locations across the health system.

Patients can become eligible to participate through physician referral, self-referral or the NMH Discharge/COVID-19 Monitoring Program. Once a patient is identified as eligible to participate, a clinical coordinator reviews the patient's medical records to determine which specialties are needed, and then contacts the patient to schedule pre-visit testing and the initial visit. Follow-up appointments and additional testing are coordinated as needed, and care conferences with providers are scheduled weekly to discuss patient care plans and increase awareness of long-term complications.

To schedule an appointment with the Comprehensive COVID-19 Center, use the Epic referral "NMG Comprehensive COVID-19 Center Program Referral." To contact the center, call 312.926.9900.

The availability of the COVID-19 vaccine is an important milestone in battling this pandemic. Thank you to all NM physicians and clinicians for your continued commitment to providing safe, high-quality, *Patients First* care.

A handwritten signature in black ink that reads "Gary A. Noskin". The signature is written in a cursive style with a large, stylized initial "G".

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