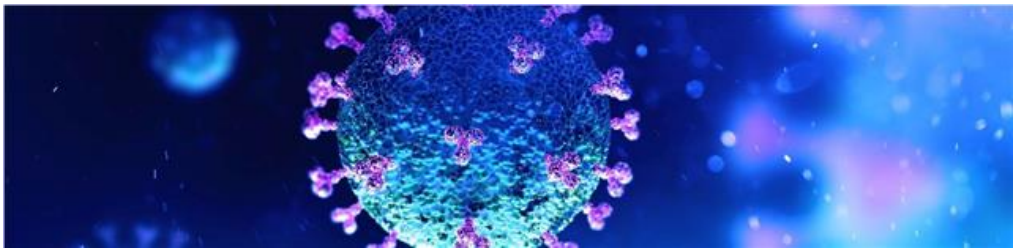


April 20: COVID-19 Clinical Update

Abbott Alere Test Alert and Impact of COVID-19 on the Gastrointestinal Tract

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 Northwestern Medicine.

Today's issue focuses on changes in the Abbott Alere rapid diagnostic test and the gastrointestinal manifestations of COVID-19 provided by gastroenterologists Stephen B. Hanauer, MD, and John E. Pandolfino, MD.

ABBOTT ALERE RAPID DIAGNOSTIC TEST

On Wednesday, April 15, Abbott Laboratories issued notification that viral transport medium (VTM) should not be used for respiratory samples intended for SARS-CoV-2 testing using their Alere ID NOW™ platform. As a result, nasopharyngeal (NP) swabs used to collect samples for SARS-CoV-2 testing on the Alere ID NOW™ platform should no longer be placed in VTM but should instead be placed in a dry tube for transport to the Lab. In preparation for dry tube transport, Lab personnel have delivered NP swabs and dry tubes to all EDs.

If a patient is being tested for both SARS-CoV-2 and other respiratory pathogens, the NP sample should be placed in VTM for delivery to the Lab. In such instances, SARS-CoV-2 testing will be performed using the Cepheid platform located in Microbiology. The need to test for respiratory pathogens other than SARS-CoV-2 is expected to be limited.

COVID-19 AND THE GI TRACT

SARS-CoV-2 enters cells via the angiotensin-converting enzyme 2 (ACE2) receptor. The spike protein of the virus is primed by the transmembrane protease serine 2 precursor, which facilitates virus-cell membrane fusions. ACE2 receptors are expressed on different cell types in the body and appear to be most expressed in the intestine, but can be found in many other organs including the heart, lung and kidneys. Less frequently discussed are ACE2 expression in the pancreas and tongue, the latter of which may explain the frequent initial, or singular, symptom of loss of taste and smell.

The most common symptoms of COVID-19 are fever and respiratory symptoms, but it is now understood that a significant proportion of patients with COVID-19 will have alterations in bowel habits or other digestive symptoms. These symptoms may reflect inoculation of the gastrointestinal (GI) tract from swallowing virus and due to the ACE2 expression in the intestines. Additional recent reports have focused on GI-related manifestations of COVID-19, as well as the fact that virus is detectable in stool — and even in the oropharynx — long after resolution of respiratory symptoms. It has been established that, while viral RNA has been identified in roughly half of patients with COVID-19 and persists for weeks even after respiratory samples turned

negative, there has not been a clear association with GI symptoms and the presence of viral RNA in the stool.

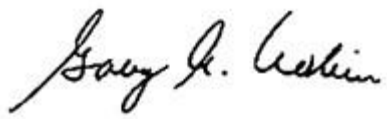
Diarrhea (patient-defined) was present in only 10% of hospitalized patients with COVID-19 in Wuhan, China (17% of those in the ICU). While another study showed that roughly half of patients had digestive symptoms as part of their presentation to the hospital with COVID-19 and pneumonia, only one third had diarrhea. Of interest, patients with GI symptoms from the Zhejiang Province had a much lower incidence of GI symptoms (11%), reflecting the possibilities of different viral strains, reporting differences or both. In each of these reports, patients with digestive symptoms most frequently had concurrent fever and respiratory symptoms as well. However, in one series of Chinese patients with low severity COVID-19 (no dyspnea, respiratory distress or oxygen desaturation), over half of the patients reported digestive symptoms with or without respiratory symptoms. Nearly 20% reported mild diarrhea (about four BMs/day) as the first symptom with an average duration of five days. Fecal viral shedding was noted in 75% of patients with digestive symptoms compared with less than 15% with respiratory symptoms. The diarrhea was usually non-bloody and without fecal leukocytes, reminiscent of other viral enteritidis. Despite speculation regarding the risk of fecal-oral spread related to viral shedding in the stool, this route of contagion has not been confirmed and would be mitigated by current hand-washing recommendations.

While the digestive symptoms of COVID-19 patients appear to be relatively mild, the impact of SARS-CoV-2 on GI patients and practitioners is obviously more dramatic. While the virus has not been demonstrated to cause disease flares, patients with underlying inflammatory bowel disease are often treated with immune suppression — both conventional and biologics — which have risks of susceptibility to other viruses, including EBV and herpes zoster, and live vaccines have been considered contraindicated. Nevertheless, surveys of patients with IBD and confirmed COVID-19 infection appear to follow the same trends as the general population, with age and comorbidities being the greatest risk factors for ICU and death, whereas we have not noted trends regarding risks of any of the therapeutic classes, including thiopurines, TNF inhibitors or other anti-cytokine therapies. As we have heard, anti-cytokine therapy could potentially be beneficial in the setting of the late-phase cytokine storm.

There are also numerous downstream impacts for patients who are immunocompromised and entering infusion centers. Working with rheumatologist Eric Ruderman, MD, we continue to develop strategies for maintaining physical distancing, PPE use and potential testing prior to presentation to the infusion centers. Currently, we are attempting to shorten infusion duration, switch to home infusions or consider injectable agents to further mitigate risks.

Another critical impact has been on GI procedures, and interventional gastroenterologists Srinadh Komanduri, MD, and Rajesh Keswani, MD, have been essential participants in developing NM algorithms to maintain and expand access while maintaining the safety of clinicians, staff and patients.

Thank you to all Northwestern Medicine healthcare providers on the front lines of this crisis. To honor and celebrate your extraordinary work and courage during the COVID-19 crisis, we have launched the ***Heroes for Better*** campaign. If you would like to share the story of an NM hero, or if you have any questions, please submit them to covid-19md@nm.org.



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