
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

may be especially important in high-risk procedures for healthcare professionals.[9]

The treatment algorithm of patients infected with COVID-19 was reported by Forrester and coworkers.[1] It was limited to surgical risks of emergency surgical approaches only. The RT-PCR test result is not awaited due to the urgency of the cases. However, in publications on COVID-19, the number of asymptomatic patients in society can be up to 81%.[10] Thorax CT, with a sensitivity of 97%, has never been evaluated in the algorithm.[4] Patients with negative RT-PCR were considered at standard risk. However, according to the way the RT-PCR test is done, false negativity can be up to 60%.[5] In our algorithm, thorax CT was provided for patients with suspected symptoms and negative RT-PCR tests.

In addition to determining whether there is potential COVID-19, emphasis is now placed on antibody testing to determine whether individuals are recovering. Although these tests can detect an antibody response to a possible virus infection, it is not yet known whether the measured antibodies can effectively prevent infection. Therefore, there is no guarantee that patients or healthcare professionals will not be re-infected, even if they have serology tests that show that they have recovered from COVID-19. Until the value of the serology tests is determined, all healthcare professionals should follow the recommendations regarding the use of appropriate PPE to avoid COVID-19 infection, regardless of serology results.[11] If possible, in highest transmission risk patients, we planned to use experienced healthcare professionals who have recovered from COVID-19 completely, and/or who have antibodies to care for the high-risk patients.

The unprecedented COVID-19 global pandemic required rapid development of new guidelines and protocols. Because COVID-19 is a new, but apparently not a short-term, threat, we have attempted to develop a practical decision tree algorithm for optimal and rational safety of the patients and healthcare workers in emergency, urgent, and elective surgical procedures. The algorithm is expected to be widely adopted by healthcare providers.

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# Concerns about Proposed Update to COVID-19 Screening Protocols before Surgery

## In Reply to Yenigun and Colleagues


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In their letter, the authors suggest that reverse transcriptase polymerase chain reaction (RT-PCR) testing is not adequate for screening patients before surgery for COVID-19, and concurrently, that CT scans of the thorax should be integrated into the preoperative screening algorithm. While the authors are to be commended for adapting our previously published algorithm[1] to reflect their institutional limitations, we have some concerns with the algorithm that they propose. First, the authors report RT-PCR sensitivity of 60% for nasal swab, with a lower sensitivity for pharyngeal swab.[2] Although this may reflect the sensitivity of RT-PCR performed in their

practice setting, we have found our RT-PCR sensitivity and specificity to be greater than 98%—findings consistent with published meta-analysis.[3] So, for our practice, RT-PCR is quite appropriate to use as a screening test. In our health system, we have done more than 4,000 procedures using our protocol, with no transmission to healthcare workers. Hopefully, as testing becomes widely available and widely applied, the utility of RT-PCR as a screening instrument will be increasingly appreciated.

Next, the authors argue that a CT thorax should be incorporated into the screening algorithm, arguing that the high sensitivity may make it a superior exam. However, we have several concerns about this approach. While CT is sensitive for COVID-specific pneumonia, its specificity is poor,[3] and the consequences of a false-positive COVID-19 diagnosis are concerning. This is a view shared by the American College of Radiology.[4] As we move into the fall and winter seasons in the Northern Hemisphere, this low level of specificity is also problematic. Patients incorrectly identified as having COVID-19, based on CT findings that are relatively ubiquitous among patients with viral respiratory tract infections,[4] could be mis-triaged to COVID-19 wards and their surgical intervention delayed. This mis-triage may also put them at higher risk of acquiring true infection. Finally, neither radiation accrued during CT scan nor the cost of the scan itself are insignificant, which adds unnecessary patient morbidity, treatment delays, and healthcare expenditure. These are unacceptable trade-offs during the current pandemic where we must *primum non nocere* (first, do no harm), and be responsible stewards of healthcare resources.

The authors are commended for developing their own institutionally relevant COVID-19 screening algorithm. While we appreciate their algorithm, their reduced reliance on RT-PCR testing, the current gold standard specific to SARS-CoV-2 virus, and promoting the use of CT is unnecessary and concerning.

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