Post-pandemic Surgery: New Rules, New Tools

More than half a year into the pandemic, operating rooms have become busy places again—but it's hardly business as usual

MULTISPECIALTY PANEL DISCUSSION

Moderator: Dr. Ronald Silverman

Panelists: Dr. Timothy Alton, Dr. Richard Prielipp, Dr. Mark Rupp

Over the past several months, terms like droplets, distancing and personal protective equipment (PPE) have flooded the public discourse. What was unthinkable in 2019 has become routine in 2020. Within the healthcare sector, one of the most profound disruptions to normal life was the interruption of surgical procedures deemed elective. These surgeries gradually returned, but with several twists. In this Q&A panel discussion, three specialists with skin in the game—an orthopedic surgeon, an anesthesiologist, and an infectious disease specialist—talk to 3M Chief Medical Officer Ronald Silverman about surgery in a post-COVID world.

UP AND RUNNING

What is the status of surgery at your facilities?

Timothy Alton: When we returned to work after the cancellation of elective surgeries, we had a surge in patient load to catch up with the backlog, and for a while we expanded our capacity to about 25% above normal. To make this possible we had to add an extra day per week to our operating schedule. We have now settled back to normal capacity.

Richard Prielipp: Our ambulatory and hospital rooms are fully staffed and running at full capacity, though this doesn't translate to a full volume of surgeries because of the extra steps involved in following COVID-19 safety protocols.

Mark Rupp: As home to the country's only federal quarantine centre, we housed some of the first cases returning from abroad and quickly shut down elective procedures. Our operating rooms have returned to the same level of service as before the pandemic, though we have added several measures to ensure patients and staff feel safe.

How much COVID-19 are you seeing at your center and how does this affect your surgical protocols?

Timothy Alton: We have few COVID-19 cases in the intensive care unit (ICU), but the hospitalization rate is significantly lower than a few months ago, so we are able to perform elective surgeries without constraints on beds or PPE.

Richard Prielipp: After hovering at about 5 to 8 per day for a while, our daily cases have climbed back into the double digits. Hospital admissions are also starting to climb again, though for now our ICU capacity can easily handle the load. We have also expanded our operating room (OR) capacity by adding Saturday to our usual weekday schedule.

How do patients feel about coming in for surgery?

Timothy Alton: After we reopened elective surgery, we called our patients and shared what we planned to do to keep them safe. A few patients elected to wait longer, but most chose to go ahead with their surgeries. We had a wait list of about two months for hip and knee surgery, so some had no choice but to wait.

POLICIES AND PROCEDURES

What has to happen before a patient gets into the operating room?

Richard Prielipp: We now have the added step of sorting out each patient's COVID-19 status. COVID testing has a lot of nuance, and it can be tricky to coordinate the testing and get the results before the operation.

What OR procedures have you changed?

Richard Prielipp: We basically shredded our standard policy & procedures manual and rewrote our approach. For aerosol-generating procedures such as endotracheal intubation, we now require full PPE, which means either an N95 respirator or a powered air purifying respirator (PAPR) device. We also follow a rapid sequence induction protocol to minimize airway manipulation. As an extra precaution, we have added additional HEPA filters in our anesthesia circuit.

Mark Rupp: After the scary reports of perioperative personnel falling ill in Wuhan and Italy, we have transformed our perioperative procedures with an eye to safety. We also assess patients for possible COVID-19 symptoms and exposure risk.

On what basis did your center create its policies for surgery?

Richard Prielipp: Our protocols were driven by an ad-hoc COVID-19 leadership committee that included nursing, surgery and anesthesia. The committee used several documents from professional associations and government bodies as a basis for crafting policies.

Mark Rupp: We also put together a lot of committees, including a PPE and testing committee that helped adjudicate competing demands for tests and levels of PPE required.

TESTING, ONE TWO

Any challenges with testing patients for COVID-19?

Richard Prielipp: Sooner or later, testing is bound to produce a false negative. This happened at our center recently, and we ended up operating a patient who was later confirmed to have COVID-19. This meant about 20 perioperative staff had to quarantine, which caused obvious disruption in healthcare delivery as well as personal anxiety.

Mark Rupp: I agree that false negatives can't be completely eliminated, but a good lab can

make a big difference. Unfortunately, the convenience of rapid point-of-use testing comes at the cost of a higher false negative rate, so we can't rely on these tests to screen patients. There's also the issue of background pretest probability of COVID. In a population with a low probability, the false positive rate of an assay becomes much more significant.

What if the patient being operated on has COVID-19?

Richard Prielipp: With patients who have tested positive, we have a new policy of waiting 18 minutes after the end of an aerosol-generating procedure before allowing other healthcare providers into the room. This enables us to achieve 95% to 99% clearance of the air in the room. I don't see this policy changing in the foreseeable future.

Mark Rupp: If we have a known or suspected case of COVID-19, we delay the procedure if at all possible, but if it is urgent we go ahead with the appropriate PPE.

PANDEMIC WISDOM

Mark Rupp: "So many people have claimed expertise in this pandemic. Suddenly everyone was an aerosol biologist or infectious disease specialist. That's why it's so important to defer to the people with true experience and expertise."

Richard Prielipp: "Some people are promoting the idea of expanding hospital precautions to include routine barrier measures against respiratory pathogens. It's an honest debate and we still don't have a clear answer."

Timothy Alton: "We could probably all do a better job as PPE stewards."

PPE PROTOCOLS

Nobody could have predicted that respirators and other face coverings would be so important this year. Can you comment on the use of these devices in your facilities?

Richard Prielipp: When treating COVID-positive patients, we require our staff to wear full PPE. If a patient has tested negative, the anesthesia providers can wear routine surgical masks, rather than N95 respirators, and the other healthcare providers can enter the room as soon as the patient's airway is secured and connected to a closed anesthesia circuit.

Timothy Alton: Testing is the fork in the road. We treat COVID-negative patients the same way we did before the pandemic. Unfortunately, we don't always have the luxury of testing patients, especially when dealing with unplanned operations. In such a case the patient is "presumed positive".

Have you adopted any practices to help extend the life of your N95 respirators in your centre?

Mark Rupp: We wear face shields over our N95 respirators to protect them from splash, with the caveat that face shields sometimes get in the way of performing procedures.

Timothy Alton: We tend to use and discard our PPE. Fortunately, our strong testing protocols have enabled us to contain our use of N95s, and access has not been a problem.

Richard Prielipp: For N95 respirators we have a dual preservation process: decontamination and, especially for anesthesia providers, "quarantining" the respirators for 5 days in a dry and clean environment after use. Our surgeons also wear routine surgical masks over N95 respirators to protect them from surface contamination.

In fact, 3M already offers reusable (elastomeric) respirators with replaceable filters. As we work to develop more options, what priorities should we keep in mind?

Mark Rupp: There is an urgent need for innovation in PPE. In addition to reusable products, we need to develop more comfortable, functional, and wearable PPE.

Richard Prielipp: Comfort is key. I often see healthcare providers touching and adjusting their N95s in an effort to feel more comfortable. This suggests a great opportunity to develop respirators that combine efficient filtering with ergonomic design. Respirators should also be designed for durability, so that they still fit well at the end of an 8-hour shift.

SILVER LINING

Do you have any general thoughts about how to deal with COVID-19 going forward?

Mark Rupp: Truly follow the science. Maintain a healthy level of skepticism about media reports and about preprinted papers that haven't gone through peer review.

Timothy Alton: We increasingly recognize that COVID-19 can cause multisystem dysfunction and need to remain vigilant when screening elective surgery patients. At the same time, we need to acknowledge the general stress caused by the pandemic and reassure patients we are doing everything to keep them safe.

Richard Prielipp: Our institution has adopted the dual priority of patient and care-provider safety in all our decisions.

Can you think of any positive outcomes from our collective experience with the pandemic?

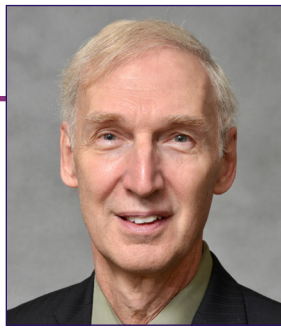
Mark Rupp: Before the pandemic we spent a lot of time talking about telehealth, but didn't make much headway. When the pandemic struck, we turned on a dime. This showed us how quickly we can pivot if the need is there. A lot of patients really appreciate the telehealth option, and I expect we will continue to use it in appropriate settings.

Richard Prielipp: The pandemic has led to an increased collegiality and interaction between different medical specialties. For example, at our hospital we have joined forces with the psychiatry department to provide ongoing wellness programs to health providers.

Timothy Alton: When a system is stressed, unexpected benefits can emerge. Within orthopedics, I expect we will see a shift toward outpatient procedures—a move that many patients will appreciate.

**3M has not evaluated the practice of wearing surgical masks or other coverings over respirators; it is not known how this practice might impact the respiratory protection performance of 3M respirators.*

Richard Prielipp, MD



Dr. Prielipp is a professor of anesthesiology at the University of Minnesota and an executive section editor in *Anesthesia and Analgesia*. Along with cardiac anesthesia, he takes a special interest in patient safety and risk management within the operating room.

Timothy Alton, MD

An orthopedic surgeon with the Proliance Orthopedic Associates in Renton, WA, Dr. Alton completed fellowships in fracture surgery and in adult reconstruction and hip/knee replacement. His interests include complex revision surgery and outpatient joint replacement surgery.

Mark Rupp, MD

Dr. Rupp is Chief of the Division of Infectious Diseases at the University of Nebraska Medical Center and medical director at the Department of Infection Control and Epidemiology in Omaha, NB. With interests in healthcare-related infections and antibiotic stewardship, he has served as a consultant for the FDA, the CDC, the NIH and the VA system.