The 2020 Pandemic

Simulation Innovations for Patient and Team Safety in a Pandemic

ASA Editorial Board for Simulation-Based Training

A new highly transmissible and deadly coronavirus appeared at the end of 2019. A few months later, the United States found itself in the midst of a worldwide pandemic. Physicians, health care workers, and systems quickly adjusted to care for patients with coronavirus disease (COVID-19) while learning "on-the-job" about how to manage patients with protean presentations and symptoms, including overwhelming ARDS. Education was disrupted everywhere to reduce transmission. This included the education of health care students and members of the health care workforce. The ASA Simulation Education Network rose to the challenge. This update shares some of the strategies that have emerged from the Simulation Education Network in response to COVID-19.

The Simulation Education Network is a consortium of 54 simulation programs (asamonitor.pub/3loZkCL) endorsed by the ASA through a rigorous process developed and managed by the ASA Editorial Board for Simulation-Based Training. For anesthesiologists practicing in the U.S., these programs are known for providing the only course that allows ABA diplomates to complete the five-year Part 4 element (Quality Improvement) of the Maintenance of Certification in Anesthesiology (MOCA®) requirement in a one-day simulation session and performance improvement plan. Since 2010, over 13,000 ASA members have taken advantage of these highly-rated courses that include intense simulations to hone their crisis resource management (CRM) and medical management skills in a safe and individualized learning environment. Like any disruptive event, the pandemic brought tough challenges but also unique opportunities to collaborate and innovate within the Simulation Education Network. The pandemic created an acute need to modify or postpone MOCA simulation courses while pivoting simulation activities to focus on preparing clinicians for the unique challenges of caring for patients infected with COVID-19.

Disruption

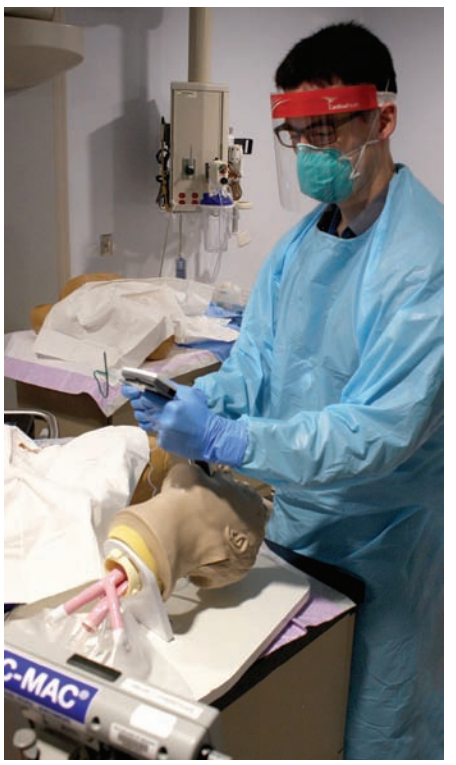
Some centers were closed as students were sent away for remote learning, and clinicians were pulled away from simulation teaching to manage the surge of patients. Early in the pandemic, many simulation centers canceled their MOCA courses due to safety concerns for participants and staff. To remain open, centers instituted pre-entry screening and required personal protective equipment (PPE) such as masks and face shields. Class sizes were reduced to allow for appropriate social distancing. Recognizing the growing demands on practicing anesthesiologists, the ABA waived MOCA requirements through the end of 2020 for all diplomates. This allowed programs and individuals to catch up with changing demands and restrictions. Despite limitations faced by simulation programs, 73 MOCA simulation courses were held in 2020, and some were even adapted to focus on managing patients with COVID-19 (*J Clin Anesth* 2020;66:109928).

PPE Training for Large Group.

Simulated Transport of a COVID-19 Patient for MOCA CRM Course.

Adaptation

Many centers were drafted into delivering new types of training. Large numbers of clinicians suddenly had an urgent need to learn how to properly don and doff PPE. Simulation instructors became particularly adept at developing "train-the-trainer" programs to quickly disperse educators who could provide simulation-based practice with feedback for this critical skill. The existing skills of anesthesiologists in emergency airway management, anesthesia care, and even pain and critical care changed essentially overnight (and often changed a week later) as clinicians learned to care for patients with known or suspected COVID-19. Anesthesiologists and other clinicians assumed new roles as the number of ill patients exploded in some parts of the country. Amid growing numbers of patients and high mortality rates, the Simulation Education Network programs provided formal interprofessional training to quickly develop staff who could effectively work together in an intensive care environment. The impact of these changes cannot be overemphasized. Network members have adapted program offerings to include simulation-based training that prepares providers for these new challenges where CRM skills are more important than ever.



Practicing Intubation in PPE.

Innovation

In addition to educational programs, the faculty and staff at Simulation Education Network centers provided leadership in novel areas. New policies and procedures were quickly developed based on the best evidence available. Network centers used simulation to test and improve these in a realistic environment (*J Clin Anesth* 2020;66:109928). This was particularly critical in regions of the country where COVID-19 had not yet surged. Protective equipment intended to reduce the transmission and exposure of health care staff, such as various shields and barrier devices, were developed and tested in simulation centers. Some devices that proved ineffective in a simulated setting were avoided without risking increased infections of

Continued on page 44

Facility Spotlight

Henry Ford Health System Defines Quality Care

Kelly Jong

Throughout its tenure, the anesthesiology team at the award-winning Henry Ford Health System in Metro Detroit has shown innovation, exceptional care, and the flexibility to meet patients' changing needs. At no time has that been truer than during the COVID-19 crisis, when the team came together like never before – even as its own team members faced the deadly disease.

Gary Loyd, MD

Strength in diversity

Though the Henry Ford Health System has a wide variety of merits – including recent awards such as the American Hospital Association McKesson Quest for Quality Prize and the Malcolm Baldrige National Quality Award – Gary Loyd, MD, a specialist on the facility's anesthesiology team, said the system's greatest strength is its diversity. "The Henry Ford Health System serves a very large and very diverse community, with large Muslim and African American patient populations," he said. "We hire so that our departments are reflective of the cultural diversity in which we live, and it has made us stronger to have more perspectives on life across the spectrum."

In the anesthesiology team, that cultural diversity is bolstered by varying professional backgrounds that allow the team to flourish and provide services in a variety of ways. "Our anesthesiologists are recognized for the breadth of training and talent we have," Dr. Loyd said. Some members of the team offer expertise in medical billing, have business degrees, or expand their care to the perioperative home, allowing a multidisciplinary approach that optimizes care.

Kelly Jong is a contributing writer.

Facing COVID-19

That diversity was especially crucial as the team faced the first months of the COVID-19 pandemic, requiring innovation in care, resources, and team support. "In the early spring, everyone was scared to death," Dr. Loyd said. "We didn't know how terrible it would be, what we could do to stop it, or what our next move was to be safe." In response to the crisis, the health system adopted an early command crisis center modality, requiring minute-by-minute changes to policies, supplies, and communication. Despite the quick change, Dr. Loyd said the anesthesiology team worked hard to maintain constant flexibility and support for patients, meeting unparalleled demand for its services.

"To meet the patient care demands, we constructed several new ICUs in place of general practice areas," he said. "We pulled together construction, maintenance, IT, and monitoring personnel, and took innovative measures to make the spaces work, despite a lack of resources." For instance, when central monitoring systems were unavailable for the new ICUs, the team got creative by mounting baby monitors in each patient room. When a lack of protective suits meant only those staff members at the highest risk received personal protective equipment (PPE), the team diligently cleaned and reused hoods until new equipment arrived, sometimes just days before the team ran out.

> **"The national shortage of PPE and the mounting coronavirus cases throughout the Detroit Metro area meant staff had to lean on each other more than ever."**

The national shortage of PPE and the mounting coronavirus cases throughout the Detroit Metro area meant staff had to lean on each other more than ever – by being open to new ideas for operating, best patient care practices, and, perhaps most importantly, for emotional support.

Seeking support

As the team worked tirelessly to serve the Metro Detroit community, some of its own fell ill with COVID-19; one anesthesiologist almost succumbed to the deadly disease. "We had a few people that got COVID, and as anesthesiologists, we supported them through the isolation and sickness," Dr. Loyd said. In its two worst cases, one resident on the team fell ill and was on a ventilator, but eventually recovered. Heartbreakingly, another staff member was lost to the disease. "Your residents are like your children," Dr. Loyd said. "When you're taking care of your own, it's your family, and the emotional drag is just tremendous."

Dr. Loyd said the team took care to ensure the support of the team while it fought the daily ravages of the disease, and especially following the loss of their friend and colleague. In addition to mourning the loss, many staff members suffered post-traumatic stress disorder in the first few months of treating COVID-19, including the emotional toll of occasionally isolating from family to sustain exceptional patient care. "It takes a lot of coordination and a lot of communication to provide care for and take care of one another," Dr. Loyd said. "The greatest lesson we've learned about this disease is that it will wear you out, and having resilience is very important."

To care for its staff, the Henry Ford Health System identified multiple emotional support systems, such as group, individual, and art therapy. "We have to take care of our personnel, who will be too stressed out and burned out to function if they are required to maintain the level of care necessitated by COVID-19 over an extended period of time," Dr. Loyd said. "We have to be able to accept the resources available, to talk about our frustrations, and to check on our personnel by looking for signs of stress and breakdown."

As the pandemic continues to evolve and the staff flexes to accommodate new demands, Dr. Loyd said the team will maintain its dedication to quality care – for patients and caregivers alike. "We have to take care of ourselves in addition to our patients," he said. "Our people are just too valuable to lose." ■

Simulation Innovations

Continued from page 36

health care workers who might have used them. Highly innovative programs were supported to create and test new ventilators. Simulations of critically ill patients provided guidance on potential ventilator splitting, which was required when the surge in New York exhausted available critical care resources. Simulations were also used to assess the safety of modifications to CPAP devices that allowed them to function as ventilators.

Collaboration

Simulation experts are known for their collaboration. The COVID-19 pandemic enhanced communication among the different centers in the Simulation Education Network. ASA facilitated virtual town hall meetings where members shared innovative responses to the pandemic. Focus areas included evaluating and disseminating best practices in how to safely conduct in-person, high-fidelity simulation courses across the network. This has led to a modest increase in the number of offerings for MOCA credit. The Simulation Education Network is currently exploring new approaches for MOCA simulation courses that could provide additional options to safely participate in this unique, personalized CRM activity in the future. Planning has recently resumed for a 2021 joint simulation meeting between the ASA and American College of Surgeons that had to be cancelled last March. The planned focus is on enhancing communication in the perioperative setting using simulation.

Conclusions

The COVID-19 pandemic has presented health care providers and organizations with many challenges along with unexpected opportunities. Clinicians have adapted to new processes and even new roles. Moreover, rapid innovation of equipment and policies has leveraged simulation in novel ways that are essential for immediate deployment. Simulation Education Network member organizations have led simulation activities to help organizations and individuals meet these challenges and will continue to promote activities that improve patient care. ■