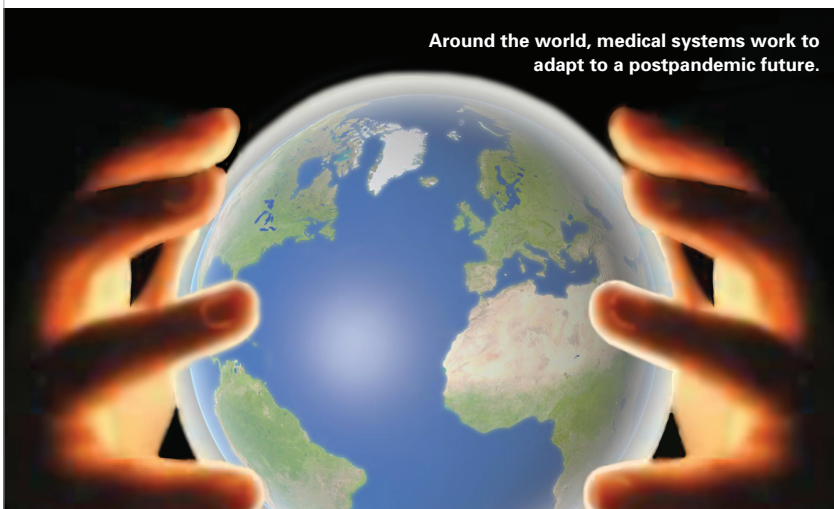


# The AJT Report

News and issues that affect organ and tissue transplantation

## A Glimpse into the Future: Can We Learn Lessons from the Pandemic?

*As transplant is forced to take a pause, experts see opportunities for systemic improvement*



Around the world, medical systems work to adapt to a postpandemic future.

“The world as we know it has changed,” says Roslyn Mannon, MD, associate chief of nephrology for research at the University of Nebraska Medical Center in Omaha, commenting on the impact on the spread of COVID-19 (or SARS-CoV-2). However, as the virus spreads across North America, it is clear that its effect on the transplant community has varied based upon geography. Timing and experience have become major factors. As New York City and Boston hospitals saw their transplant floors dominated by COVID cases, Omaha watched, learned and prepared for the surge that would eventually reach its neighborhoods. Farther north, Toronto, Canada, which had successfully battled SARS years earlier, leveraged its lessons learned to meet this new challenge. This prompts the question: What lessons can be learned from the current pandemic that will better prepare the transplant community for future challenges?

“What SARS did for us is prepare us for a pandemic like this,” says Shaf Keshavjee, MD, surgeon-in-chief and director of the Toronto Lung Transplant Program at Toronto General Hospital. “It helped psychologically a bit: OK, we’ve been here. We’ve been through it. . . A lot of the really alarmist and anxiety-provoking conversations are a little bit better.” Dr. Keshavjee also cites a key difference: SARS did not require the medical system to

significantly pause to accommodate an influx of patients—but it did expose some of the vulnerabilities of the health system. Toronto responded by addressing those vulnerabilities, and it is in a better position to meet today’s challenges with initiatives such as a province-wide centralized data system with real-time knowledge of intensive care bed capacity and the ventilator stockpile as well as centralized centers of expertise for extracorporeal membrane oxygenation.

“It is still shocking to me that we are in the midst of a seemingly medieval pandemic—a rude awakening in the 21st century. Hopefully, the development of a vaccine will help, but we could be wearing masks for a very long time,” says Ron Shapiro, MD, professor of surgery at Mount Sinai Hospital in New York City, the epicenter of the pandemic in North America.

Around the world, medical centers have suspended transplantation. For kidney transplants, dialysis offers an alternative. For other organ transplants, however, suspensions have been due to a decrease in deceased donations, an inability to test donors for COVID-19 infection and uncertainty surrounding the risk of transplanting infected organs. “The issue with transplant patients is that they are missing an opportunity that will never come back,” says Dr. Keshavjee. As the pandemic stretches from weeks to months, the pause increases that cost.

### KEY POINTS

- Although its impact varies by region, the COVID-19 pandemic provides opportunities for meaningful change in the medical system.
- Telemedicine, expanded teamwork, and accelerated research and drug approval processes spurred by the pandemic have benefits going forward.
- Newly emphasized health needs of underserved populations should be addressed by the transplant community.
- The transplant community should take this opportunity to reinvent organ procurement organizations and develop a closer relationship between transplant centers.

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And what happens when the pandemic is over? “When this is all a bad memory then everyone will be jumping back in and going forward,” says Dr. Shapiro. He describes a transplant community anxious to proceed safely and effectively, but how can that energy be channeled to profit from the changes forced onto medicine by these remarkable times? Jay Fishman, MD, director of the transplant infectious diseases and compromised host program at Massachusetts General Hospital in Boston, sees this pause in transplant as “an opportunity to look at the system in a creative way.” All systems are inherently change-resistant, he points out, and the medical system is one of the most difficult ones to remodel. The pandemic has forced transformation on the medical system. “To come back and do the same things that we were doing before would be a lost opportunity,” says Dr. Fishman.

### Postpandemic Medicine

One obvious change during the pandemic has been the adoption of telemedicine and the ability to be reimbursed for telehealth. “That’s been hugely helpful. Why couldn’t that have happened 20 years ago?” says Dr. Keshavjee. During the crisis, Dr. Fishman has seen telehealth extending into transplant, allowing remote recipient evaluations and donor screenings, both of which make life easier for patients and physicians. “We have been utilizing telemedicine—even I started doing it,” confirms Dr. Shapiro. “It was particularly nice for a post-op patient who refused to come in to see us. I have done a few pretransplant evaluations, which of course means that we will need to bring them back for a physical exam.”

The pandemic has also brought teleconferencing to the bedside. Dr. Fishman describes how Zoom conference calls, so ubiquitous in business and education, provide a model for future medicine. Such calls make it easy to break down the silos of medicine and place 60 or more experts in a single conversation over an unexpected presentation or a recurrent but yet-to-be-published observation. Such conversations have allowed physicians to immediately share their thoughts and experiences of arrhythmias and drug interactions—for example, right after the President began to promote the use of untested hydroxychloroquine as a treatment for COVID-19.

While the transplant community prides itself on its culture of teamwork, this approach is less common in medicine in general. The new shift toward a broad sharing of data and outcomes should benefit all patients. “That kind of sharing is atypical but can advance science in a way that we haven’t done in the past,” notes Dr. Fishman. He feels that the “all hands on deck” response and the willingness to change therapies on the fly could drive translational medicine in the 21st century.

### Accelerated Research

The desire to find valid treatments and vaccines for COVID-19 in record time has spurred the medical community and the US Food and Drug Administration (FDA) to rethink the requirements of clinical trials as well as the drug approval process. The current urgency means that animal-based research may be de-emphasized, as treatments and vaccines move swiftly into human trials. These trials are no longer the sole purview of pharmaceutical companies, but are performed jointly across multiple institutions and in partnership with the federal government.

The pandemic has revealed that a sense of urgency can drive innovation and the creation of novel paths to drug approval. According to Dr. Fishman, this stands in contrast to the more common response to new clinical syndromes, in which academics

may focus on basic mechanisms separately from pharmaceutical research groups whose data are shared only with the FDA. Instead, the pandemic has created a model where people are comparing experiences all around the world and, in the vacuum of uncertainty, physicians, scientists and regulators are coming together, striving to find and deliver the right drug and the right vaccine to the right patient. Every individual is considered a potential candidate for various clinical trials with the resulting real-world data expected to shine a light into the crevices of a horrific real-world scenario. The challenge, according to Dr. Fishman, will be to formalize and maintain these novel paths in drug discovery and approval and recreate a sense of urgency that can be applied to other diseases.

### Underserved Populations

In the course of the pandemic, the vulnerability of underserved populations has risen to the surface and revealed itself as a human tragedy. Dr. Fishman describes the experience in Boston, which at the time of writing had a surge of infections with large racial disparities. Disproportionate numbers of the critically ill affected by the virus are in Hispanic or African American populations, which are overly represented in intensive care.

Herein lies an opportunity to address an ongoing problem in health inequality. Had the healthcare system adequately addressed the underlying conditions of the underserved before the pandemic, the effect of the coronavirus would not have been amplified in these populations and many individuals could have been protected. “I think we have failed as a medical community to save those in greatest need,” says Dr. Fishman, who reports an infection rate among the homeless that approaches 30%. This is because this population and others of lower economic status experience crowding where they live and work, they reside in neighborhoods and homes (or shelters) where they cannot practice social distance, thus they are particularly vulnerable to infectious disease.

Dr. Fishman feels that the plight of underserved populations in the pandemic should serve as a wakeup call for the transplant community. He challenges each transplant center to examine its practice patterns and ask itself how it is serving traditionally underserved populations. This challenge includes dialysis centers and their listings of individuals for transplant and organ procurement organizations (OPO) and their outreach into under-represented populations. “In reality, what we need to do more of, for example, is to make a specific effort to bring in more minority donors and recipients,” he says.

Dr. Fishman believes that the best thing the transplant community can do to make use of this imposed pause is to reinvent OPOs. The pandemic has forced a bond between the National Institutes of Health and pharmaceutical companies, and Dr. Fishman suggests that this bond can serve as a model for a new relationship between OPOs—which now exist as separate entities—and transplant centers. The silos in data and collaboration among OPOs, transplant centers, patients, research sponsors and regulatory groups need to dissolve.

The pandemic has forced OPOs to adopt new testing strategies. Dr. Fishman suggests that these strategies and all other OPO practices should be critically evaluated and the identified best practices adopted throughout the US because, even though there is a national transplantation system, OPO requirements and criteria differ from region to region. According to Dr. Fishman, the pandemic pause provides a perfect opportunity to “blow it up and start all over again, look critically at every step in transplantation and see how we can improve it nationally... Shine some light on each of these things to serve our patients even better.” **AT**