



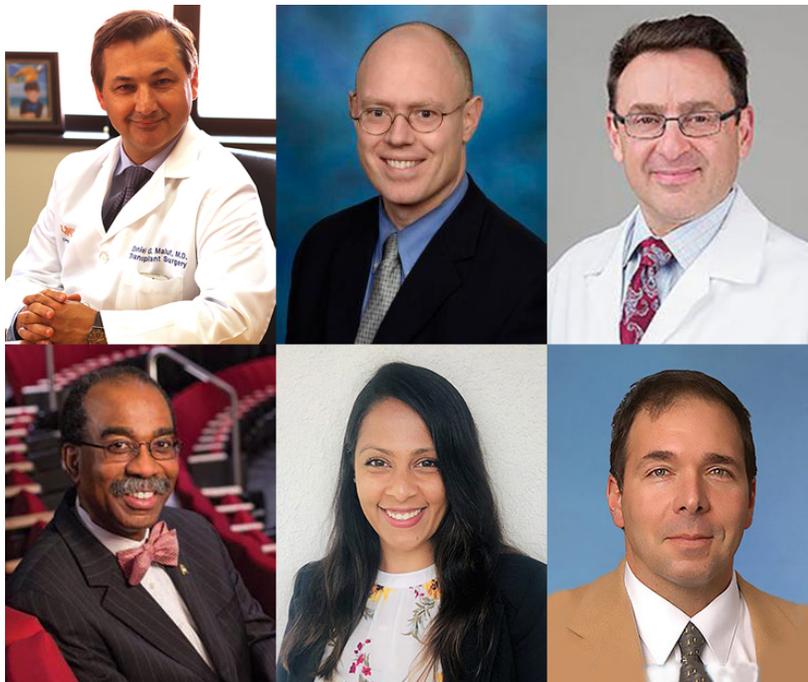
## UMB News

### COVID-19 Patients Receive Successful Lung Transplants

May 27, 2021 | By [Bill Seiler](#)

Two patients who were near death after COVID-19 destroyed their lungs survived and are thriving because of state-of-the-art care and double-[lung transplants](#) by [University of Maryland School of Medicine](#) (UMSOM) surgeons at the University of Maryland Medical Center (UMMC).

John Micklus, 62, of La Plata, Md., had healthy lungs before the coronavirus disease struck, but soon doctors at one hospital said nothing could help him and told him it was time to get his affairs in order. Another Maryland man, Anthony (who asked not to reveal his last name), had an underlying lung condition, but COVID-19 sparked an overwhelming struggle to breathe and he didn't think he would survive.



(clockwise from top left) Daniel G. Maluf, Robert M. Reed, Alexander S. Krupnick, Aldo T. Iacono, Katya Prakash-Haft, E. Albert Reece

The COVID-19 pandemic, with more than 32 million cases and more than 580,000 deaths in the United States so far, prompted some hospitals to pause organ transplantation as specialists scrambled to learn more about the pre- and post-transplant effects of COVID-19. UMMC has continued to perform organ transplantation throughout the pandemic, carefully balancing the care of hospitalized COVID-19 patients and the needs of patients awaiting transplant. Several UMMC patients who had recovered from COVID-19 received kidney or liver transplants, but their need for transplantation was unrelated to the coronavirus.

"The learning curve for lung transplantation in COVID-19 patients has been particularly challenging because the infection is centered in the lungs," said transplant surgeon **Daniel G. Maluf, MD**, professor of surgery at UMSOM and director of the [Program in Transplantation](#), which is a joint program between UMSOM and UMMC. "Add to that, we need to suppress the body's immune system to help an organ survive after transplant and reduce the chance of rejection. Immunosuppression also turns down the body's ability to fight infections. What happens if the coronavirus disease attacks the transplanted lungs, which are already quite fragile?"

#### 'A Different Ballgame'

Despite his underlying lung condition, Anthony was able to move around and exercise with little or no supplemental oxygen before getting infected with COVID-19. "After COVID, it was a different ballgame," he said. He required higher and higher levels of oxygen, but it became clear that he couldn't survive on a ventilator. He was placed on a transplant waitlist, and, to buy time, his care team put him on [ECMO \(extracorporeal membrane oxygenation\)](#), which works like the heart and lungs to remove carbon dioxide and return oxygen-filled blood back to the tissues. Then, on Feb. 6, Anthony became the first COVID-19-related lung transplantation patient at UMMC.

COVID-19 also was a different ballgame for the UMMC lung transplant team, which routinely performs 25 to 30 lung transplants each year. Unique to COVID is the rapid ebb and flow of symptoms. Within a matter of months, the two men were sick with COVID-19, then seemingly recovered from their initial infection only to get sick again, the second round producing significant lung deterioration. This contrasts with other lung conditions that may lead to transplant, such as chronic obstructive pulmonary disease (COPD) or pulmonary fibrosis (scarring of the lungs), which typically worsen gradually over many years.

In addition, lung transplant timing is a function of COVID-19 risk. "You cannot perform the transplant too early, because you have to be sure the patient is cleared of the COVID virus. But you cannot do it too late, because at that point, patients may be so weak they cannot survive the operation and meaningfully participate in rehabilitation," said **Robert M. Reed, MD**, professor of medicine, UMSOM, and associate medical director of the Lung Transplant Program at UMMC.

The ebb and flow for John Micklus began with flulike symptoms around Christmas 2020. A test result on New Year's Eve showed he was COVID-19-positive. By early January, he was admitted to a local hospital not affiliated with the University of Maryland Medical System for 10 days. He felt better at first after discharge, but within a week he was back in the same hospital, with severe shortness of breath. After another seven to 10 days, doctors said they could do nothing more for him. His wife desperately called several physicians and eventually learned that UMMC had recently completed Anthony's transplant. After a series of tests at UMMC, Micklus was listed for a transplant.

"I was lucky enough to be a match for a lung donor that the doctors felt was suitable for me within a few days," said Micklus, who was discharged from UMMC on March 30.

The two cases provided an important COVID-19 insight for the transplant team, said Reed. Despite failing lungs, the rest of their bodies were sufficiently intact to move forward with transplant and expect a good result. "The key message: This option of lung transplant is definitely not for every patient with COVID. It's for the patients who are still strong otherwise but have lungs that have been devastated by COVID."

One thing is clear, according to **Alexander S. Krupnick, MD**, professor of surgery, UMSOM, and vice chief, thoracic surgery and director, Lung Transplant Program, UMMC. Hospitalized COVID-19 patients should be seen early by lung specialists. "When a COVID patient is referred to us, we assess the lungs, and if we think the lungs will recover, we'll explore a number of treatment options. Or, if we think the lungs will not recover, our treatment will include steps to get the patient ready for transplant. Many patients will be able to leave us with their own lungs. By no means is transplant the preferred option."

#### Infectious Disease Strategies

As pulmonologists, surgeons, and intensive care physicians weighed whether both men could withstand the stresses of lung transplantation, UMMC infectious disease specialists focused on balancing the interval between the initial bout with SARS-CoV-2, the virus that causes COVID-19, and a virus-free status that could optimize the benefits of transplant.

Among the questions: "Is there a chance the patients may still actually have some viral persistence? Are they truly fully recovered and is it safe to proceed?" said **Kapil K. Saharia, MD, MPH**, assistant professor of medicine at UMSOM, and chief, Solid Organ Transplant Infectious Diseases Service at UMMC. "If there is any viral persistence, the concern would be that the new lungs could become infected. You'd be right back where you were before."

Performing lung transplants in those recovering from COVID-19 has the added complication of the rejection-infection balancing act that is key to the survival of transplanted lungs.

"Lung transplantation holds the promise of extending the lives of people with debilitating lung disease, but chronic rejection, with its resulting decline in function, can wipe out that hope. Patients are often as sick as they were before the transplant," said **Aldo T. Iacono, MD**, the Hamish S. and Christine C. Osborne Distinguished Professor in Advanced Pulmonary Care at UMSOM and medical director, Lung Transplant Program, UMMC.

**Katya Prakash-Haft, MD**, assistant professor of medicine at UMSOM and an infectious disease specialist at UMMC, said the immediate concern for these two patients was that a dampened immune system could open the door to COVID replication. The solution? Mild immunotherapy that protects key virus-destroying immune cells. "For Anthony, for example, we did not give him a high level of induction for transplant. We gave him just steroid induction instead of anything that would be T cell-depleting, because we know that T cells are very important for fighting the virus."

"COVID-19 has presented new challenges across the field of medicine," said UMSOM Dean **E. Albert Reece, MD, PhD, MBA**, University of Maryland, Baltimore executive vice president for medical affairs and the John Z. and Akiko K. Bowers Distinguished Professor. "The thoughtful deliberations that led to lung transplants for these two patients illustrate the value of a multidisciplinary approach as we rise to meet the individual care needs of our patients in the COVID era."

For more than 50 years, UMMC's transplant team has provided patients with world-class surgical and medical expertise, performing more than 400 transplant surgeries each year.

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