

A Miracle of Modern Medicine and Mobility

By Katelyn Whitlock, PT, DPT, MSEd

Early in my career I worked very closely with a patient who many on my ICU team said was a "once-in-a-career type of patient." In working with her I not only learned about her condition and complicated care, but about myself as a clinician and human being.

The Challenge

My patient was a 24-year-old woman named Morgan. Four weeks before being admitted to the Cardiovascular Intensive Care Unit (CVICU) where I was working, she had come into the Emergency Department with persistent neck, shoulder, and calf pain, and difficulty walking. Her neck and shoulder pain started after she tripped and fell while running. When they did not resolve after a week and she began having difficulty with calf-cramping and walking, her husband encouraged her to seek medical attention.

The hospital team determined the source of her pain was septic shock secondary to MRSA pneumonitis, which quickly progressed to acute respiratory distress syndrome and multisystem organ failure. The physicians speculated that the trauma from her fall had caused a MRSA-infected blood clot to dislodge due to a hairline fracture in her clavicle, and travel to her lungs, causing a severe antibiotic-resistant pulmonary and systemic infection.

One day after arriving in the ED, Morgan was placed on a ventilator, sedated, intubated, and placed on continuous hemodialysis in the medical ICU. Despite aggressive interventions, her condition continued to worsen, and her acute respiratory failure required extraordinary measures. She was transferred to the CVICU and placed on veno-venous extracorporeal membrane oxygenation (VV-ECMO)—the highest level of life support possible—to provide her body with the oxygen it needed to survive.² The ECMO machine removes blood from the patient's venous system through a large tube (cannula), adds oxygen to it, warms it, and then returns it through another cannula, allowing the lungs to rest.

I was introduced to Morgan's care by the director of the ECMO program, who was also the primary lung transplant surgeon. I had completed an acute care residency just six months prior and was working full time in the cardiovascular and surgical intensive care unit, often described as the ICU for the "sickest of the sick." My residency training had prepared me to mobilize patients on invasive support devices and advocate for early mobility for individuals in the ICU. However, being the sole physical therapist in this unit (due to two other therapists being on maternity leave), and essentially a new graduate, this sudden responsibility proved to be overwhelming and emotionally demanding for

me.

To have the ECMO director approach me personally to initiate Morgan's mobility was intimidating, but more so were the words he said next:

“Katelyn, if you cannot get her walking in the next two weeks, she is going to die.”

He was asking me, in August 2020, to facilitate and direct the mobility of a patient who was currently cannulated through her femoral vein in her upper thigh on VV-ECMO. While we had progressed the mobility of other patients that had their cannulas placed at their necks or shoulders, we had not yet mobilized someone who was femorally cannulated.¹ At the time of this request, Morgan had been in the hospital for over a month, with most of that time spent sedated and chemically paralyzed. The physician's concern was that if her mobility did not quickly progress, complications such as infection or bleeding would make a lung transplant and survival impossible.¹⁻⁴ Per our hospital's criteria, a patient must be ambulatory to be listed for transplant.⁴ At this point, Morgan had only been awake for a few days. She had not sat up in bed, much less stood and walked, for over a month.

My Response

I simultaneously felt a combination of fear and elation. Fear of failure, fear of being underprepared or underqualified, and imposter syndrome led me to question my capabilities. At the same time, however, I felt empowered. I experienced a sense of belonging, and a potential for impact that had driven me to seek physical therapy as a career, and critical care as a specialty area. I would not only have an impact on this patient's quality of life, but on her opportunity for survival. I was not just an adjunct member of her healthcare team; I

was an integral part of it.

I went to meet Morgan, the woman who, at 24, was just a few years younger than me at the time. She was intubated on the ventilator, and in addition to the myriad of other ICU lines and monitors, had a tube the size of a garden hose in her thigh's femoral vein that was cycling all of her blood out of her body and into an oxygenator on a rolling cart with a large monitor and oxygen tanks, and returning it to a similarly-sized tube in her neck. Her medical presentation was all I knew about her when we first met, as her communication was limited to nodding yes or no in response to my questions, and facial expressions around her endotracheal tube. She was too weak to even point her finger. But through our “yes/no” interview and her sleepy, scared expressions, we began a relationship and friendship that ultimately led to her survival—and to my learning more about myself, patient care, and ECMO than I ever thought possible.

The Treatment Plan

I researched and asked for the help and advice of every ICU physical therapist I knew. I had a plan to progress Morgan's mobility first through standing on a tilt-table bed and doing leg strengthening exercises, then working on strength and balance sitting edge-of-bed, eventually progressing to standing and walking.^{1,3-6} I hoped progress would happen fast enough before a complication set in—as the medical team warned me was likely to happen. The ticking clock was always present. Internal bleeding, worsening lung function, a new infection; all of these possibilities were real and could worsen Morgan's condition at any moment.^{1,2,4}

I brought my occupational therapy partner in the ICU onto her case, an equally young and inexperienced therapist, but one whom I knew would also give her all

to helping Morgan. We learned the ECMO language together. Luckily Morgan's lung function mildly improved enough to allow the medical team to change her ECMO cannula position so that it was placed in one location below her left clavicle instead of in her groin and neck. She also transitioned to a tracheostomy, and began working with the speech language pathologist (SLP) on communication, swallowing, and respiratory function while still on the ventilator.

Morgan

Over the next few weeks during and outside of our PT sessions, I learned all about Morgan. Friends and family were able to share things about her with me and the team through FaceTime and texts. Morgan was also able to communicate more by mouthing words once she had her tracheostomy placed and her mouth was no longer obstructed by the endotracheal tube. I gleaned a host of other information just by spending time with her.

Morgan was a pediatric ICU nurse—and was intimately knowledgeable about the medical interventions being done to her. She had a high pain tolerance but would become nauseated when uncomfortable. She had lost weight while being in the ICU, and her glasses did not fit her face anymore, which made it hard for her to see people or the TV clearly. She desperately missed her mom, dad, sister, and husband, who could not be at her bedside because of the COVID-19 pandemic visitor restrictions. She was especially afraid of spending her second wedding anniversary in the hospital. She had two dogs—one her husband's, and the other recently adopted as a puppy, whose training and growth she was missing during her hospital stay. She was an Auburn Tigers fan, and her husband was a Georgia Bulldogs fan. She had a strong Christian faith. More than anything, I learned she wanted to live, no matter

what it took.

Knowing Morgan's strength and resolve, and learning more about who she was as a person, further connected me emotionally to her care. After her medical or physical therapy goals were met, I would go home elated, feeling like I could conquer the world. After hard days for Morgan, I would have trouble sleeping, knowing that I could come into the hospital the next day and she might have passed away in the night. With her permission, I had shared her journey with my immediate family and friends. She was often asked about by my own parents and sisters. My fiancé at the time (now husband) encouraged me to talk about other topics at the dinner table besides Morgan, as he could tell how emotionally tied to her case I had become. He was worried that if something went wrong, it would crush me. He was right. I was fully invested in her care, and she had become a member of my own family.

Two Hours a Day

As Morgan progressed, the ICU team wanted her to be seen twice a day by a physical therapist and once by an occupational therapist; my manager allowed me to decrease my caseload needs to allow me to see her at that frequency for a short time. I spent nearly two hours with her every day. We advocated for medical interventions to support her therapy from premedication for pain control and managing nausea, to increasing her oxygen on the ventilator and flows through her ECMO to make her as comfortable as possible and to optimize her functional capacity.³

The medical team was often fearful that by increasing her support on the ventilator or ECMO, even temporarily with PT or OT sessions, that she would be unable to return to her baseline oxygenation, or that the goal of weaning support would be delayed.³ Although

understandable, these fears were never realized. In fact, the more she participated in therapy, the more her settings lowered in the following days, indicating less reliance on oxygen support. The buy-in from nursing and the medical teams mirrored her progress—quick and substantial.

I often find myself in the position of needing to advocate for patients to receive more PT, but with Morgan, I often had to advocate for her to be able to have adequate rest and opportunities for active recovery. The weekend physical therapist did yoga with her, and the occupational therapist intermixed fine motor activities, crafts, and UNO games with higher-intensity ADL-focused sessions. Our challenge was to prioritize her mental and emotional health while progressing her physical mobility and strength as rapidly as possible. This occasionally resulted in conflict, once involving a nurse practitioner confronting myself and the occupational therapist in front of Morgan, demanding to know why she would not be walking during that session. The nurse practitioner at one point stated, “well, then she’ll probably end up dying,” with Morgan trapped passively watching this exchange and hearing every word. While it was clear that the medical team was very invested in her survival, her occupational therapist and I were often frustrated with the fact that, at times, we felt that we were the only ones who cared about her as a whole person and not just a cluster of organs that needed to be discharged from the ICU.

Progress, Sometimes Through Tears

Our team, with Morgan as its most integral member, persevered. My sessions focused primarily on building strength and walking capability. After several weeks, Morgan and I were drained, emotionally and physically,

by focusing on the most challenging interventions that were sometimes painful for her to perform. There were days when my presence and plan of care caused pain, tears, nausea, and emotional strain. While I was not always able to be a “friend,” I was always her advocate.

We looked for ways to sneak mental and emotional care into PT and OT sessions. We did “spa” days, consisting of hair braiding, stretching, foot rubs and face scrubs after getting Morgan into her bedside chair. We would FaceTime her family during each session to give Morgan and them the emotional support they needed. We ensured she was able to get outside of the hospital walls, despite the fact that, with all of her ECMO and ventilator equipment, it required multiple team members to keep her safe. We would occasionally “accidentally run into” her family, who would be conveniently walking safely nearby outside, despite no family being allowed to visit during this time. I did my best to care for her as a person, but also to help her reach her goals of ambulation (and thus survival) as quickly as possible. Together, we pushed forward.

FIRST MONTH, FIRST STEPS

Morgan made enormous physical progress over the first month we worked together. Her legs grew stronger, her core strength increased rapidly, and although it took double the amount of time allotted me by her physician, Morgan eventually took her first steps. As soon as she did, it was like a fire was lit inside of her body. Despite having “irreversible damage” to her lungs where the infection had eaten away the tissue, including multiple pneumothoraces and bronchopleural fistulas, Morgan’s lungs began to heal. The ICU attending physicians with their crowd of residents and trainees around them would show her chest X-rays and CT scans during rounds, noting that her lungs had progressed from looking like “Swiss cheese” to slowly

returning to normal.

REAL PROGRESS

Less than one week after taking her first steps, Morgan was able to wean off of the ventilator. She doubled her walking distance every other day, with less and less support needed from the ECMO and ventilator. Less than one month after her first steps, she was liberated from both the ECMO and the ventilator—breathing, walking, and surviving completely on her own. She left the ICU after 60 days of being on ECMO, and three months in the hospital in critical care, without needing a lung transplant. One day after discharging from the ICU, she was cleared to eat solid food by her speech language pathologist. Morgan, her occupational therapist, her speech language pathologist, and I ordered Chipotle and had a picnic just outside the hospital back doors. She ate the entire burrito bowl in one sitting.

Reflections

Modern medicine is truly miraculous. A young woman, a nurse who cared for sick children, who had no other comorbid conditions, became inconceivably ill by exposure to a relatively new, antibiotic-resistant bacteria.² Her life was saved by medical technology and pharmacology that was not available 20 years ago.³ Being able to provide physical therapy—movement-based medicine—to a person who was being kept alive by machines, initially scared me. After working with Morgan every day for nearly two months before she was discharged home without even needing oxygen, I was far more confident. I was now comfortable not only with the technology and critical care environment, but the level of involvement and teamwork required to ensure optimal outcomes for a patient this critically ill.

I know how important physical rehabilitation is in the

medical care of our patients. Through this experience, I learned being a patient's advocate means supporting their physical, emotional, and mental wellbeing as well. At times it means advocating for more physical therapy, and at other times for peaceful rest. It looks like encouraging other providers to do their part in caring for the patient, collaborating to time medicine deliveries, tests, and procedures, and other hospital tasks around her therapy schedule whenever possible. It means getting involved in a patient's case as soon as possible during their hospitalization, so the patient has a quality of life to return to after their life has been saved. It means being creative, flexible, and a team player. It means treating a patient like a person, not just a patient.

Patients in critical care often experience depression, anxiety, pain, nausea, fear, exhaustion, fatigue. For Morgan, all of these were realities. Death felt imminent. Her goal was to get back to skiing in Colorado. We thought her goal should have just been to survive. However, just over one year after leaving the hospital, she surpassed all of our goals and met hers. Her case provided me with knowledge, hands-on skills, stronger relationships with other team members, and the confidence to successfully treat numerous patients just like Morgan in the coming years.

I now teach Morgan's case in critical care and cardiovascular and pulmonary courses for entry-level Doctor of Physical Therapy students and in national continuing education courses and conferences. I learned my joy comes not just from treating amazing patients, but also from bringing students and other young therapists into the ICU and inspiring them to think creatively, beyond the scary lines and tubes, to provide exceptional care.

I have learned to take care of myself and how to better

leave my patients and my day “at the hospital” when I go home to my family, although I understand I will still become irrevocably attached to my patients. I have learned I am a stronger, smarter, and better physical therapist than I ever thought possible, and, that I am a kind, compassionate, and stubborn person, who is an asset to her patients and students. Morgan may have moved on from our care, but the impact of treating her has molded not just my career, but who I am as a person. While I have since treated many other ECMO patients, her story will always be a “once-in-a-career” one for me.

Keywords: ECMO, Early Mobility, ICU Physical Therapy

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Figure 1: Photo of Morgan skiing one year and two months after leaving the hospital. Photo and all story details shared with patient permission.

About the Author



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