Society of Critical Care Medicine Presidential Address–51st Annual Congress, April 2022

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Welcome to our 51st Congress where once again, COVID had other plans for us. I know that we all looked forward to face-to-face learning and networking with our friends and colleagues in sunny Puerto Rico. But let me say, *emphatically*; by meeting with you virtually, we have demonstrated that COVID can be overcome with resilience and resolve. And that's a powerful message you will be hearing both in my remarks today and in the coming days ahead throughout Congress.

Our gratitude goes out to the program committee and staff for their tireless efforts to provide unparalleled educational offerings–whether in person or from your desktop. And we all look forward to meeting together in person in the not-too-distant future.

But what about the not-too-distant past? It's unthinkable what has occurred since the early spring of March 2020. We have seen our worst nightmare come true–a devastating virus that sickened those around us. Each of you has spent the past two years selflessly dedicated to patient care, sacrificing yourselves in the face of unanticipated adversity. You fought for your patients–day in and day out–when the pathways for treatment were unclear and outcomes uncertain. That takes a hero's dedication and compassion–and hope in the face of hopelessness.

Past President Craig Coopersmith said it best, "As I look around here, I see a room full of heroes. Along with our partners back home, you stand by the bedside of those in need of critical care, delivering remarkable care in the most compassionate, most effective, most timely manner possible." Although Dr. Coopersmith's comment was made before the pandemic, his remark about heroes who deliver remarkable care is more evident now than ever before (1).

Many of our colleagues lost their lives while caring for patients, friends, and family. The World Health Organization estimated that 115,000 healthcare professionals died from January of 2020 to May of 2021 due to COVID. I invite all of you to take a moment to recall those you have lost and recognize the heroes, including yourselves, that cared for them.

Despite having weathered some of healthcare's darkest days, today, we are hopeful for a brighter future. For me, today feels surreal–to have this incredible opportunity to serve as your President. I couldn't be more honored.

How did I get here? Many have asked about my path to leadership in a professional organization. Truly, I had no strategic plan. But, I believe that my friends and colleagues would say that "Sandy achieved this role through her sincerity, dedication, passion–and above all–her motto of doing the right thing even when no one is looking." These are all values I learned growing up in a small Canadian town from my parents and the mentors in my life.

Like all of you, I went into healthcare because I wanted to help people. As a young teen, I was inspired by the patient-pharmacist interactions I observed in my hometown community pharmacy. That was the future for me. My career direction was sealed forever. I know, I know, a little odd to know what I wanted to do so early on, but I have not regretted it for a moment. Back then, I didn't

DOI: 10.1097/CCM.0000000000005584

appreciate the scope and breadth of possibilities that a career as a pharmacist could provide. The biggest and most rewarding was becoming an agent for change. From serving on a patient care team to being active in professional organizations–I could make a difference. Not just me, but now, I was part of something much bigger–a community of healthcare professionals and colleagues who were doing the right thing and making a difference. With a unified approach through patient care and research, together we could make decisions to improve patient-centered outcomes.

I became involved with SCCM because of what they stood for…teamwork and inclusivity…providing right care, right now, equally for all patients. This commitment will be an even greater priority for SCCM's work in the future. A future that relies on you!

I must confess, I felt challenged as to what to say in these moments. But I kept returning to my motto of doing what's right…to improve patient outcomes because that is the common thread that binds us together. Doing what's right during a pandemic in a selfless way, is what our critical care community does–heroes not drawing attention to themselves, but just doing their jobs. That brings us to consider, what's the next right thing to do? Where do we go from here? Toward what future do we, as a community, want to focus?

Allow me to share how the future is being shaped through a new lens that embraces change–with each of us serving as an agent for change. I will focus on the vital importance of early adoption and how we can close the gap between guideline publication and implementation, the latest updates on SCCM's initiatives emphasizing diversity, equity, and inclusion, and a few highlights from my research.

It's been said that in order to look ahead, you must first examine the lessons of the past, and COVID was a cruel teacher. In the early, chaotic days of the pandemic, patient care teams struggled with overburdened workloads, burnout, fear, isolation, and hopelessness–to some degree we all still do. When drug shortages loomed, there was fear in hypothesizing effective treatment options that were unfounded by data. There was a sense of foreboding when forced to abandon evidence-based guidelines to deploy perhaps lesser, second- or third-line treatments. Fear turned to hopelessness as months passed and thousands of patients died. There was no end in sight. And then isolation set in, as long hours kept healthcare professionals away from their families. Even worse, self-imposed isolation to keep loved ones safe from infection was a heavy burden to bear.

No one was exempt from fear, exhaustion, isolation, and anguish. When life-saving resources were limited, healthcare professionals agonized over who received the short supply of this drug or that ventilator. These were moral decisions that most never faced before–and it exacted a toll on both individual and collective mental health.

But this community–our community–rose to meet the needs of patients as well as one another. We had hope in the face of hopelessness: COVID could overwhelm our resources, but not our resolve. I became hopeful when hope emerged as decisive action. This was when a community of care came together–inside and outside of healthcare on a united front to fight COVID. It kept us going because it was the right thing to do.

A prime example was/is how the shortage crisis extended to staffing. Vast numbers of clinicians stepped into new roles to meet the unrelenting and ever-increasing demands of patient care. Doctors, nurses, and others without critical care training were educated

by societies like SCCM to serve in the ICU. They joined teams of critical care nurses, pharmacists, advanced practitioners, respiratory therapists, and dieticians to care for the critically ill and injured.

Clinicians took on new, and sometimes uncomfortable, roles because it was the right thing to do.Besides taking on increased workloads, I witnessed the critical care community come together to share resources and ideas both nationally and internationally. Professional organizations and social media provided platforms for knowledge exchange and fresh approaches.

Before COVID, we avoided substantial practice modifications until we had certainty supported by data. But COVID hit hard and fast. Therefore, patient care decisions arose based on limited information. COVID and our community drove change at an unprecedented rate. Through it all, roles and treatment protocols evolved as COVID was battled. It remains a war against an invisible enemy. COVID may have been a cruel teacher, but it gave us a new perspective. It provided a new lens to see how change is vital to advancing patient care. It forced us to rethink our ability to change and established that we must change to act and implement new therapies faster.

SCCM is a trusted leader for developing guidelines. Our guidelines help ensure that consistent, evidence-based care of critical care patients uses the most up-to-date and relevant knowledge. When the pandemic hit, SCCM responded by drafting guidelines for critically ill patients with COVID, in a handspan of months. Work began in February of 2020 with publication occurring only five months later (2). By January 2021, nine additional recommendations were released in an update (3).

Publishing guidelines is a well-established process, but implementing them in practice? That's often a different story. Implementation science tells us that it takes 10 to15 years to adopt a guideline. But during the COVID crisis, we didn't meet barriers to guideline adoption. Common barriers such as the lack of both knowledge and consensus along with institutional complacency were absent. Why? Too many lives were at stake. This proved that we can safely move forward faster to develop and adopt guidelines. By sharing knowledge and expediting both consensus and institutional responsiveness, we came together so that more lives could be saved. SCCM acknowledges this need for faster guideline development as well as a keen desire for living guidelines. We are currently revising our guideline process to meet these needs and serve our patients.

Nonetheless, change is understandably hard, and an adoption gap still exists. But it is steadily growing smaller. The reason? COVID broke down many traditional barriers and supported rapid evidence implementation and adoption. More importantly, COVID taught us that quick adoption was the right thing to do.

It shouldn't take another pandemic to motivate us to treat the most critically ill and injured patients with the most innovative therapies–in the shortest amount of time. The gap between knowledge and practice has been a persistent issue. I am proud to announce that SCCM is committing resources to creating implementation strategies for every guideline to facilitate rapid implementation and adoption.

I am passionate about implementation science. It is an important part of being an agent for change and is a core element of my patient safety research. No one goes to work with the intent to do harm. But harm does occur–not from intent, but from lack of knowledge, resources, and support. And that needs to change, so we can do the right thing.

This is where it gets personal for me. My work has explored preventing adverse drug events by identifying drug-related hazardous conditions–which are antecedents to ADEs–the missed opportunities for prevention (4, 5). One focus of my research has been on a common event–drug-associated acute kidney injury (AKI) (6). A contributing factor is ineffective approaches for early AKI identification. This is where I am an agent for change, an early adopter for kidney damage biomarkers in clinical practice to prevent drug-associated AKI with identification of injury sooner than traditional functional biomarkers. This is also where I use health information technology to enhance medication safety. Rule-based clinical decision support alerts updated with machine learning algorithms to optimize performance is part of my approach. And it is a team approach, just like what we do in the ICU. An impressive collaborative team at the Universities of Pittsburgh and Florida underpins my work, along with funding from NIDDK. When clinicians are bombarded with a constant barrage of irrelevant and ineffective drug alerts, it's easy to miss the very few that have life-and-death relevance. I imagine a future powered by machine learning where alerts will be less frequent and

more than 90% relevant and actionable. Clinicians will not be replaced by augmented intelligence such as machine learning, however, clinicians who do not adopt augmented intelligence will be replaced. If this is your passion as well, join me in driving this change, and help those for whom this is a new frontier–in their exploration, implementation, and adoption.

From our new lens for change–diversity is more encompassing and more important than ever. Its goal is about achieving balance–from equalizing the gender and racial disparity among intensivists–to the fair and equitable treatment of patients.

On September 23, 2021, the National Kidney Foundation and the American Society of Nephrology Task Force announced their recommendations for a race-free approach to diagnosing kidney disease (7). As we know all too well, AKI affects patients with critical illness the most. How do we quickly adopt the revised CKD-EPI equation and use of novel functional kidney biomarkers in clinical practice? It all comes back to effective implementation strategies for change, to do the right thing. An SCCM taskforce is evaluating barriers to change and is charged with detailing implementation strategies to drive this practice transformation. This will not be the only important racial disparity that SCCM will help clinicians address. For example, we are actively advocating for a corrective approach to surmount the overestimation of pulse oximeter measured oxygen saturation in black patients.

We acknowledge that gender disparity exists in several shapes and forms in critical care medicine–academic advancement, career progression, leadership roles, and salary. And we have the data to back this up, some of which is published in our flagship journal, *Critical Care Medicine*.

Dr. Meghan Lane-Fall, one of this year's Congress Co-chairs, discovered that the percentage of critical care fellows from black and other underrepresented racial groups declined from 2004 to 2014 (8). Clearly, not the desired direction given that these data are misaligned with general population demographics. This needs to change! According to the *Lancet*, in 2017, only 27% of actively licensed critical care physicians in the USA were women (9). This needs to change! We need to equalize the racial and gender disparities. And that disparity also extends to leadership in medical societies, with only, 17% of presidential positions held by women (10). Importantly, four societies are cited as having the highest number of women presidents, and SCCM was one of them. So, it's no surprise that SCCM has been proactive in not only closing the disparity gap but being proactive in promoting inclusion and diversity.

In 2017, SCCM created a Diversity, Equity, and Inclusion (DEI) Committee. Some charges of the committee were to raise awareness about the benefits of increased diversity and encourage participation by underrepresented populations in SCCM activities. This year the DEI Committee will produce a lexicon to address underrepresented individuals. SCCM's speakers, sections, and committees will leverage this lexicon to educate volunteer members and implement appropriate language in all forms of communication. Also, we will require DEI to be part of strategic planning and research proposals. An explicit call for strategic planning proposals to enhance DEI in critical care medicine will be forthcoming. SCCM is dedicated to efforts that defeat racial disparities. One day culture will change, because it's the right thing to do. And diversity and inclusivity will be who we are, and not what we are trying to do. I am particularly delighted to help lead part of that journey within SCCM.

COVID may have been a cruel teacher, but it gave us a new perspective and roadmap for a path forward. Did we make mistakes? Yes, but we also made great advances by coming together to find faster and more efficient ways to treat patients through early implementation and adoption.

We can continue down this forward path together. We must simply take that first step, which is the hardest and the most important. We must be agents of change, we can emerge from the complacency that holds us back. It's our new resolve. Together, we can and must change to take action. Therefore, for all of us–it's a 'surreal' moment.

I started my address recognizing each of you as heroes and there are other heroes in my life that I would also like to recognize. As we progress in our careers, the more important it is to highlight those who helped us along the way. For me, the list is long, including students, residents, fellow faculty members, colleagues, and friends.

Along this path, I have been supported by some uniquely special people and organizations. These include the University of Pittsburgh, School of Pharmacy and Critical Care Medicine, UPMC Department of Pharmacy, The Clinical Pharmacy and Pharmacology

section of SCCM, SCCM Council, and the incredible SCCM staff. My dear mentors, Joe Dasta and John Kellum; Judi Jacobi, a past-president, for her guidance and work in establishing a leadership path for pharmacists. My parents have provided unwavering support throughout my career, I know I would not be here without them. And of course, my husband and biggest cheerleader, Michael, and our three amazing children.

Throughout this Congress there will be educational sessions that may inspire you to lead change within SCCM or in your daily work. Join me as we move forward as change agents who do the right thing. Thank you.

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