

INTERCHANGE

Society of Critical Care Anesthesiologists Newsletter Volume 34 | Issue 1 | March 2023

PRESIDENT'S MESSAGE

Colleagues,

Seeing so many SOCCA members in person at the SCCM meeting in San Francisco last month was great. SOCCA members were well-represented on many SCCM panels, workshops, roundtables, and other educational events. The SCCM anesthesia section reception was exceptionally well attended and could have easily been a SOCCA business meeting! We look forward to seeing everyone in person at the annual meeting in Denver in April.

We have a fantastic annual meeting program starting with SOCCA women in a critical care meet-up and an early career group networking event. The annual meeting program on Friday, April 14, is packed with fantastic educational sessions, oral and abstract poster sessions from 0700 in the morning until 1930 at night. Wow! We close out this busy day with a reception from 1930 to 2130. Saturday, April 15, is the IARS, AUA, and SOCCA-aligned meeting day, with several excellent presentations of interest to our SOCCA members throughout the day. It will be an extraordinary meeting.

SOCCA continues to grow and offers opportunities for all our members to become more engaged by joining



Michael H. Wall, MD, FCCM President, SOCCA University of Minnesota Minneapolis, MN

and participating in our new workgroups and taskforces. These workgroups and taskforces are entirely open for any volunteer to participate. The membership committee has added several new workgroups, including early career, medical student residents and fellows, physicians and practice, women in critical care, and diversity equity and inclusion. If you're interested in participating in any of these, please get in touch with the chair of the membership

committee, Alisha Bhatia or vice chair Jing Tao.

We have also formed a new clinical practice committee chaired by George Williams and vice chaired by Gozde Demiralp. There are several new workgroups on this committee as well. These are just getting started and all are looking for volunteers to join them. These workgroups include critical transplant care, mechanical circulatory support/ECMO/CT ICU, Neurocritical care, and Service Chiefs Advisory Council. The newest one formed during the SCCM meeting last month is the OB and critical-care workgroup. If you are interested in participating in any of these new groups, please get in touch with George or Gozde.

look forward to seeing you in person in Denver soon.



CONTENTS

President's Message1
Communications Committee2
Education Committee3
Membership Committee4
SOCCA Research5
Women in Critical Care6
2023 Annual Meeting Preliminary Program8
Of an Anesthesiologist
nd an Epidemic11
The Critically Ill OB Patient13
Veostigmine: Pulmonary Complications16
Ceaching Our Residents POCUS18
ob Board19
t's Time for a Makeover20
Board of Directors24
About SOCCA / Join SOCCA25
Call for Articles25

Click here to view or print the SOCCA INTERCHANGE newsletter.

Communications Committee Update

Over the recent years, it is no secret that SOCCA has made enormous strides in both its membership and mission. We have seen our ranks swell to over 1,150 in 2022 and our committees and workgroups similarly multiply as we seek to engage and impact all realms of critical care touched by anesthesiologists. The Communications Committee has the unique privilege of supporting and promoting all of these various initiatives in addition to continued general engagement with membership. I encourage all of our members both new and veteran to engage with us as well through our three main products: the *Interchange* Newsletter, SOCCA Drip Blog, and Twitter

(@SOCCA CritCare). Each of these outlets serves as a way to bring relevant up to date information to the membership on SOCCA webinars, society opportunities, recently published literature, and so much more! We are also always looking for exceptional content from the membership and welcome your submissions to these outlets as well.

This March edition of Interchange is specifically slated as the "Pre-Annual Meeting" edition and inside you will find content from our Education Committee on the Annual Meeting



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Chair, SOCCA
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program as well as a collection of excellent pieces from the membership on topics ranging from POCUS, Women in Critical Care Medicine, the Polio Epidemic, and the launch of our new Obstetric Critical Care task force in conjunction with SOCCA's collaboration with SOAP (Society for Obstetric Anesthesia and Perinatology).

With my term as Chair ending at the upcoming annual meeting, this edition of Interchange will also be my last as Editor. I am fully confident in the future of the Communications Committee, both in its excellent members and future leadership under Dr. Madiha Syed (Chair) and Dr. Kyle

Bruns (Vice Chair). Both have been ardent supporters of SOCCA and highly engaged with the committee throughout this phase of rapid expansion. Working with not only the committee but also the membership at large over the past years has been eye opening regarding the sheer number of exceptional anesthesia intensivists that are part of this organization and the immense potential of SOCCA. I look forward to the future of the organization as well as seeing many of you in person at the annual meeting this year!



EDUCATION COMMITTEE UPDATE Annual Meeting 2023

We are extremely excited and are looking forward to our first in-person SOCCA annual meeting since 2019! The Annual Meeting Program Planning Committee has been working hard over the last year and has put together an outstanding program that promises to deliver exceptional educational content. The meeting will kick off on Thursday night with the opportunity to network with colleagues during the SOCCA Women in Critical Care Meetup and the SOCCA Early Career Group Networking Events.

The main meeting on Friday morning starts with an education session challenging some of the existing dogmas in critical care. Dr. Kunal Karamchandani will discuss the current controversies related to analgosedation in critically ill patients, Dr. Ashish Khanna will address the challenges associated with defining blood pressure goals, and Dr. Talia Ben-Jacob will review the timing of renal replacement therapy initiation in patients with sepsis. Our second education session evaluates common hematologic issues plaguing intensivists while caring for critically ill patients. Dr. Sreekanth Cheruku will discuss the role of transfusion algorithms and factor concentrates, Dr. Kamrouz Ghadimi will review the reversal of DOACs, and Dr. Ingrid Moreno Duarte will address the need for anticoagulation for patients on ECMO.

The afternoon begins with the presentation of the Lifetime Achievement and Young Investigator awards. Immediately preceding our next education session, Dr. Hannah Wunsch will highlight the origins of critical care and its association with the polio epidemic of 1952, as eloquently described in her new book. Our third education session presents the multifaceted approach of the transplant anesthesiologistintensivist caring for patients throughout the perioperative period. Dr. Christine Nguyen-Buckley will discuss preoperative assessment and pre-habilitation in solid organ transplant recipients, Dr. Amit Bardia will speak on perioperative graft dysfunction after heart transplantation, and Dr. Andrea Miltiades will review the role of ECMO in lung transplantation. The final education session of the meeting will focus on post-ICU recovery, with Dr. Joy Chen reviewing post-intensive care syndrome, Drs. Somnath Bose and Meghan Lane-Fall discussing the present and future of recovery following an ICU stay.

In addition to the education sessions, there will be an opportunity to stay abreast with the latest research in critical care, as our colleagues and trainees present their research and medically challenging cases through moderated posters and oral presentations. There is also a variety of IARS/AUA/SOCCA aligned sessions, including a journal symposium late in the evening, reviewing the steps to mitigate healthcare

disparities followed by a joint reception. Saturday is the IARS, AUA & SOCCA aligned meeting day featuring the T.H. Seldon Memorial Lecture, "Imaging Pain, Pain Relief and Altered States of Anaesthesia-induced Consciousness" presented by Professor Irene Tracey.

After nearly four years apart, we look forward to being able to reconnect with all of you in Denver in April!





Allison Dalton, MD Chair, SOCCA Committee on Education University of Chicago Chicago, IL



Kunal Karamchandani, MD, FCCM Vice-Chair, SOCCA Committee on Education UT Southwestern **Medical Center** Dallas, TX



Membership Committee Update

The membership committee started off the new year with an Early Career Intensivists Zoom meet up in early February. The guest speaker was SOCCA board member Dr. Ashish Khanna, and the discussion was led by Early Career subcommittee members Drs. Lauren Sutherland, Christy Idichandy, and Alisha Bhatia. Participants on the call ranged from critical care fellows to anesthesiologist intensivists in their first few years of practice. We had a lively discussion about issues faced during the first few years out of fellowship, including establishing relationships with our surgical colleagues and getting involved in research. Dr. Khanna provided motivation and insight to everyone on the call and members benefited from hearing from multiple viewpoints.

Moving forward, the membership committee has several other upcoming events. Our private practice group will be hosting its first virtual gathering of the year soon. We hope to attract our private practice members to come together to meet each other and discuss important issues impacting our practices. Our mentorship program continues to grow. We would like to encourage all SOCCA members to participate in this program, either as mentors or mentees (or both)!

Last but not least, we are excited to have our first IN PERSON networking event at the annual meeting in Denver on April 13 at 7PM! The event has been virtual for the past few years, and we are excited to see everyone in person! It will be co-hosted by the Early Career Intensivists and the Women in Critical Care groups, and will be a great opportunity for all of our members to come together. We hope to see you all there!



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SOCCA EARLY CAREER INTENSIVISTS

The SOCCA Early Career Intensivists working group provides new members and members who are early in their careers with the resources needed to ease the transition from trainee to practicing intensivist.



SOCCA Researchers Expanding Cold Platelet Knowledge

The optimal storage temperature of transfused platelets for surgical and traumatic hemorrhage remains controversial. Standard practice since 1969 has been to transfuse platelets at room temperature (22°). This practice is based on decades old research demonstrating that platelets are removed from the circulation more quickly when stored at 4° than platelets at room temperature.¹ Since the most common indication for platelet transfusion is thrombocytopenia due to oncologic disorders in order to *prevent* bleeding, the increase in circulatory time with room temperature platelets was preferred.

However, the circulatory time of platelets is less important for patients with bleeding where they need to form a clot quickly. Trials in 1973 indicated that cold stored platelets were more hemostatically active than room temperature platelets.² With more than 30,000 deaths per year in the United States attributable to traumatic bleeding, finding a way to improve platelet transfusion efficacy and availability could save many lives.³ Several potential advantages of coldstored platelets over room-temperature platelets include: 1) longer storage durations (i.e., 14 days vs. 5-7 days), which minimizes platelet wastage due to outdating; 2) enhanced in vivo hemostatic function; and 3) lower risk of bacterial contamination.⁴

Members of the SOCCA research committee are aiding in understanding the implications of storage temperature of transfused platelets as investigators on key projects in this field. In anticipation of low inventories, Matthew Warner, MD and colleagues at the Mayo Clinic in Minnesota performed a single-center observational study converting about-to-expire room temperature platelets to cold storage, which extended shelf-life from 5 to 14 days.⁵ Through the first 45 days of this



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process, 61 chilled platelet units were transfused to hemorrhaging patients, with 95% transfused for operative bleeding. The researchers reported positive post-transfusion platelet count increments and adequate hemostasis without adverse events.

The CHIlled Platelet Study (CHIPS) is a Phase III, multicenter trial sponsored by the Department of Defense which aims to compare the effectiveness and safety of chilled platelets versus standard room temperature platelets in 1000 bleeding cardiac surgical patients (NCT04834414). Philip Spinella, MD is the primary investigator (PI) contact overseeing more than 20 sites involved in the study with Brigid Flynn, MD acting as site PI for the University of Kansas. The primary outcome for the CHIPS study is bleeding defined by the Universal Bleeding Score with the main secondary outcome being chest tube output. Adaptive trial design methodology is being used to determine the maximum storage duration of chilled platelets for patients with active bleeding. The trial is expected to be completed by January of 2025.

As bleeding affects many critically ill patients, results from ongoing and future studies evaluating the effectiveness, safety, and availability of chilled platelets are highly anticipated.

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- 3. Spinella PC, et al. Curr Opin Hematol 2017;24:529-535.
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Share Your Research Share Your Expertise





Women in Critical Care Update

February 3rd marks Elizabeth Blackwell's birthday. Dr. Blackwell (3 February 1821 - 31 May 1910) was a British physician, notable as the first woman to receive a medical degree in the United States, and the first woman on the Medical Register of the UK. In addition to being an academic infectious disease specialist, she was an advocate for social justice and equity for women. She founded the New York Infirmary for Women and Children in 1857 along with her sister Emily, and she played a significant role in the American Civil War by organizing nurses and educating women and girls. It is important when looking at history to include the contributions of Black women physicians who have equally contributed in the struggle to achieve the successes of today. In the book

'Twice as Hard: The Stories of Black Women Who Fought to Become Physicians, from the Civil War to the 21st Century', Jasmine Brown (Beacon Press, January 24, 2023) shares the incredible stories of nine pioneering Black women physicians beginning in 1860, when a Black woman first entered medical school. The stories of Dr. Rebecca Crumpler, Dr. Edith Jones, and Dr. Joycelyn Elders inspire and serve as a source of motivation to many young physicians on this Women Physician's Day, when we celebrate the accomplishments of women doctors before us, and their struggles. We have come a long way since the days of these pioneering women physicians. However, much work remains to be done, and WICC and SOCCA hope to play an essential role in closing this gap.

Within WICC, we are dedicated to providing a community of mentorship, sponsorship and support that promotes the recruitment, development, advancement, and well-being of women in Critical Care Anesthesiology. In our first year, we have made substantial strides towards these goals. We have hosted a wellness webinar and several Fireside Chats with inspirational women leaders and academics, published a survey of our members exploring what women intensivists value and find a source of motivation, and published a white paper with holistic recommendations for organizations and



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societies on supporting our community. We have also submitted several abstracts and panel proposals to major meetings in Anesthesiology and Critical Care in the country and are also embarking on a systematic review on Women leadership in critical care across the world.

Our December Fireside Chat featured Professor Natalia Ivascu Girardi, who related a personal journey through academic achievement and tips on promotions and how to navigate the demands of personal life with a busy career. Dr. Girardi's talk, like all other Fireside Chats, remains available as a recording on the WICC website. For 2023 programming, we have planned talks from inspirational women leaders including Drs. Margaret Wood, Rebecca Aslakson, Laureen

Hill, and a panel on "Tackling Challenges in a Career in CCM" at different stages of a career, with Drs. Emily Vail, Brigid Flynn, and Sheela Pai Cole. We also held a Webinar on February 15 on the pressing topic of "Enhancing Women Applicants for Fellowships: Strategies for Success" (socca. org/2023-webinars) featuring leading program directors from across the country (Drs. Hennessy, Sreedharan, Moitra and Williams). We also are hosting a networking event at the Annual Meeting in Denver (SOCCA Women in Critical Care and SOCCA Early Career group meet-up 7:00-9:00 PM on Thursday, April 13).

In summer 2023, we plan to launch a Podcast miniseries in collaboration with Stanford Medcast, a brainchild of our own Vice Chair, Dr. Kirsten Steffner and steering committee member, Dr. Amanda Kore Schilling. These podcasts will focus on non-clinical aspects of life in critical care medicine which may be particularly pertinent to women intensivists. Stay tuned for further announcements.

We hope you can join WICC and further our mission and vision by helping us contribute towards community, clinical science, mentorship and academia. We are always looking for energetic and committed members who will help carry the mantle of Drs. Blackwell, Crumpler, Jones and Elders.

SOCCA MENTORING PROGRAM

SOCCA's mission is to support the development of anesthesiologists who care for critically ill patients. Recognizing the key role of mentorship in development, SOCCA is thrilled to offer mentorship resources to its membership.

Members at all levels of experience can now connect with individuals who have elected to volunteer their time and expertise to help others learn and grow in their knowledge about clinical practice, administration, leadership, research, organizational volunteerism, and other domains. These bidirectional relationships are not only mutually beneficial but foster a robust spirit of community within the organization.

Members seeking to identify a SOCCA mentor may navigate directly to SOCCA's Mentor Directory (member login required) where mentors are organized by their primary area of interest. Upon reviewing the directory, mentees are encouraged to identify their preferred mentor via the brief Mentee Submission Form.

You may also navigate to the <u>Mentor Directory</u> from SOCCA's public Mentoring Program page.

Thank you for your interest in becoming a SOCCA Mentee—and thank you to the many SOCCA members who have graciously offered to serve as Mentors.

Visit
SOCCA's
Mentor
Directory
today!





We at SOCCA would like to invite you to join Women in Critical Care—our initiative to form a women's group within the ACCM community.



PRELIMINARY PROGRAM

SOCIETY OF CRITICAL CARE ANESTHESIOLOGISTS

ANNUAL MEETING 2023 | DENVER, CO | APRIL 14-15

THURSDAY, APRIL 13

SOCCA Women in Critical Care Meetup and SOCCA Early Career Group Networking Event 7:00 pm - 9:00 pm MST

FRIDAY, APRIL 14

Introductions from the BOD President & Education Committee Co-Chairs

7:00 - 7:05 am MST

Michael H Wall MD, FASA, FCCM, University of Minnesota, Minneapolis, MN, SOCCA President Allison Dalton, MD, University of Chicago, Chicago, IL, SOCCA Education Committee Co-Chair Kunal Karamchandani, MD, UT Southwestern Medical Center, Dallas, TX, SOCCA Education Committee Co-Chair

Education Session I: Current Controversies in Critical Care: Challenging the Dogma

7:05 - 8:00 am MST

Moderator: Hannah Wunsch, MD, MSc, University of Toronto, Toronto, ON, Canada

7:05 am - 7:20 am Is Analgesia First Strategy Right for ICU Sedation?

Kunal Karamchandani, MD

UT Southwestern Medical Center, Dallas, TX

7:20 am - 7:35 am Blood Pressure Targets in the ICU, Striving for the Right Answer

> Ashish K. Khanna, MD, MS, FCCP, FCCM, FASA Wake Forest School of Medicine, Winston-Salem, NC

7:35 am - 7:50 am Does Timing of Initiation of RRT Matter in Sepsis Related AKI?

Talia Ben-Jacob, MD, MS

Cooper University Hospital, Camden, NJ

7:50 am - 8:00 am Moderated Discussion and Q&A

Breakfast with Exhibits

8:00 - 8:30 am MST

Oral Scientific Abstract Session

8:30 - 9:30 am MST

Poster Session I

9:30 am - 10:30 am MST

Break with Exhibits and Poster Viewing

10:30 am - 11:00 am MST

Sessions approved for ABA MOCA 2.0® Patient Safety CME credit.

Preliminary as of Publication

Please refer to the

2023 Annual Meeting Website for Updates



PRELIMINARY PROGRAM

SOCIETY OF CRITICAL CARE ANESTHESIOLOGISTS

ANNUAL MEETING 2023 | DENVER, CO | APRIL 14-15

FRIDAY, APRIL 14

Education Session II: The Crossroads of Hematology and Intensive Care Medicine

11:00 am - 12:00 pm MST

Moderator: Ian J. Welsby, MBBS, Duke University Medical Center, Durham, NC

The Role of Transfusion Algorithms and Factor Concentrates in the ICU Sreekanth Cheruku, MD, MPH, UT Southwestern Medical Center, Dallas, TX

Does it Work to Reverse DOACs if My Hospital Does not have Specific Reversal Agents? *Kamrouz Ghadimi, MD, MHS, Duke University Medical Center, Durham, NC*

Do I Always Need to Anticoagulate My ECMO Patient?

Ingrid Moreno Duarte, MD, UT Southwestern Medical Center, Dallas, TX

Lunch Break

12:00 pm - 1:00 pm MST

Lifetime Achievement Award and Young Investigator Award Presentations

1:00 pm - 2:00 pm MST

Break with Exhibits

2:00 pm - 2:25 pm MST

70 Years Later: The Copenhagen Polio Epidemic of 1952 and the Birth of Intensive Care

2:25 pm - 2:30 pm MST

Hannah Wunsch, MD, MSc, University of Toronto, Toronto, ON, Canada

Education Session III: The Transplant Anesthesiologist as a Perioperative Physician

2:30 pm - 3:30 pm MST

Moderator: Gebhard Wagener, MD, Columbia University Medical Center, New York, NY

PreOP Assessment, Frailty and Pre-habilitation for Solid Organ Transplants Christine T. Nguyen-Buckley, MD, UCLA Health, Los Angeles, CA

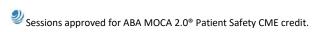
Graft Failure After Heart Transplant in the Operating Room and Beyond Amit Bardia, MBBS, Massachusetts General Hospital, Boston, MA

To ECMO or not to ECMO: Mechanical Device Support During and After Lung Transplant Andrea Miltiades, MD, Columbia University, New York, NY

Preliminary as of Publication Please refer to the 2023 Annual Meeting Website for Updates

Break with Exhibits

3:30 pm - 4:00 pm MST







PRELIMINARY PROGRAM

SOCIETY OF CRITICAL CARE ANESTHESIOLOGISTS

ANNUAL MEETING 2023 | DENVER, CO | APRIL 14-15

FRIDAY, APRIL 14

Poster Session II

4:00 pm -5:00 pm MST

Innovator's Award

5:00 pm - 5:15 pm MST

Education Session IV: Recovery Beyond ICU Stay: The Next Frontier

5:15 - 6:15 pm MST

Moderator: Christina S. Boncyk, MD, Vanderbilt University Medical Center, Nashville, TN

So You Survived the ICU Stay: Now What? PICS, its Implications on Survivors, Families and Healthcare Systems Joy L. Chen, MD, UT Southwestern Medical Center, Dallas, TX

Road to Recovery After Critical Illness: Where do We Stand? Somnath Bose, MD, MPH, Beth Israel Deaconess, Boston, MA

Future Roadmap of Recovery After Critical Illness Meghan Lane-Fall, MD, MSHP, Penn Medicine, Philadelphia, PA

Closing Remarks

6:15 pm - 6:20 pm MST

Allison Dalton, MD, University of Chicago, Chicago, IL, SOCCA Education Committee Co-Chair Kunal Karamchandani, MD, UT Southwestern Medical Center, Dallas, TX, SOCCA Education Committee Co-Chair

SOCCA Business Meeting and ASA Update

6:30 pm - 7:30 pm MST

Ronald Harter, ASA President-Elect

Aligned Session with IARS, AUA and SOCCA: Anesthesia & Analgesia Sponsored Journal Symposium: Moving the Needle: Strategies for Reducing Healthcare Disparities and Increasing Health Equity 6:30 pm - 7:30 pm MST

Alignment Reception with IARS, AUA and SOCCA

7:30 pm - 9:30 pm MST

SATURDAY, APRIL 15

Preliminary as of Publication Please refer to the 2023 Annual Meeting Website for Updates

IARS, AUA and SOCCA Aligned Meeting Day



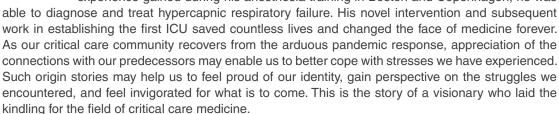
FEATURED ARTICLE

Of an Anesthesiologist and an Epidemic: How One Man Changed the World

Financial Disclosures: Dr. Wunsch has research funding from the U.S. Department of Defense (DOD), U.S. National Institutes of Health (NIH), and Canadian Institutes of Health Research (CIHR).

Conflicts of Interest: Dr. Wunsch is an author of the upcoming book, The Autumn Ghost: How the Battle Against a Polio Epidemic Revolutionized Modern Medical Care (Greystone Books, May, 2023).

This year marks the 70th anniversary of the opening of the first modern intensive care unit (ICU). Located in The Municipal Hospital of Copenhagen, the unit possessed many components that are recognized as integral to critical care today: a dedicated area set aside for the sickest patients, 24/7 coverage by specialized staff, frequent monitoring of vital signs, invasive mechanical ventilation, and blood gas analysis.¹ Although situated across the ocean, there was an American connection; the unit was opened by a trailblazing anesthesiologist, Bjørn Ibsen, who had trained for a year at the Massachusetts General Hospital. Ibsen's pioneering work was born out of his generation's health emergency, a polio epidemic.² Not unlike today's struggle with the coronavirus disease 2019 (COVID-19), Ibsen also faced the deadly respiratory sequela of a viral infection. By application of knowledge and experience gained during his anesthesia training in Boston and Copenhagen, he was



The summer of 1952 was the beginning of a deadly poliomyelitis epidemic in Copenhagen. The local infectious disease hospital, the Blegdam, was at the center of the response for the whole metro area and beyond. ^{1,3} Equipped with only one iron lung, its resources were quickly overwhelmed as the cases escalated. ^{1,3} By the middle of August more than 10 patients per day were admitted with respiratory failure and the death rate for those with bulbar symptoms reached nearly 90%. Moreover, around half of the patients were children. ^{1,3} Consequently, medical and ethical dilemmas ensued: who should get the one iron lung? Who should be left to die? And what could be done to prepare for the projected autumn peak of the disease with no other treatments?

However, the resources and logistics were not the only factors limiting the patient care at the time. As infectious disease specialists, the primary physicians caring for the sick were not trained in respiratory physiology. As a result, the stigmata of hypercapnic respiratory failure went unrecognized and misdiagnosed.^{1,2,4} For example, an elevated total bicarbonate level was misunderstood to represent a primary metabolic alkalosis, rather than a respiratory acidosis. And the signs of confusion, hypertension, and tachycardia were lumped together as evidence of polio encephalitis.¹ Moreover, while it was recognized that the iron lung was not sufficient for care in the cases of bulbar polio where aspiration occurred, there was no expertise to imagine what might take its place.



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continued on page 12

Bjørn Ibsen

Of an Anesthesiologist and an Epidemic continued from page 11

Serendipitously, a resident physician at the Blegdam Hospital, Mogens Bjørneboe, had been exposed to the skills and acumen of an anesthesiologist during care for a patient with tetanus who was given sedation and curare. During this care, Bjørneboe observed the techniques and drugs used to control respiratory physiology and muscle function, and later realized that the anesthesiologist's skills might be applied to polio. As the epidemic was escalating, he was able to convince the head of the hospital, Henry Cai Alexander (HCA) Lassen, to invite the anesthesiologist for a consultation. The anesthesiologist was Bjørn Ibsen.

The events that ensued accelerated major changes in medicine. On August 25th Ibsen met with the hospital leadership and was provided an opportunity to examine patients in different stages of polio. It became apparent to Ibsen that the sickest patients were being under-ventilated, with the observed signs and symptoms often caused by hypercarbia and hypoxemia¹⁻⁴. He offered a solution consisting of a tracheostomy and positive pressure ventilation for correction of respiratory derangements and airway protection. Although skeptical, Lassen finally agreed to let Ibsen try his therapy on one patient. Ibsen's chance to trial his treatment plan came two days later.

Vivi Ebert was a 12-year-old patient admitted on August 26th suffering from spinobulbar poliomyelitis. 1,3 During rounds on August 27th, Lassen identified Vivi as a suitable patient for Ibsen's therapy, given the character of her disease and near certainty of death1. Vivi underwent a tracheostomy later that day followed by hand ventilation with a simple Waters to-andfro circuit. Vivi survived the procedure and showed prompt improvement; she became interactive as well as "immediately warm and dry".1,2 The importance of what had transpired was not lost on any of the participants. Lassen instantly implemented the new approach as the universal treatment for all patients in the hospital with bulbar polio. Tracheostomies were inserted by surgeons and positive pressure ventilation was provided by medical students from the University of Copenhagen who took turns hand ventilating the patients until respiratory function improved; additionally, all patients in need of ventilation were cohorted in specific locations for ease of access and care.1-4 The mortality dropped from 87% to 50% nearly overnight and down to 11% by the wintertime. 1-3

The clinical success of Ibsen's therapy initially did not translate into professional accomplishments, but ultimately resulted in accolades later in life. Lassen quickly published the

Copenhagen experience in The Lancet under his name only.¹ Moreover, due to lack of support from Lassen, Ibsen was not chosen to lead the first department of anesthesiology at the University Hospital.¹ This began a life-long feud between the two men.¹ Ibsen took a job at the Municipal Hospital, where in 1953 he opened a postoperative care unit that later in the same year became the first, modern ICU; it began to function 24 hours a day, and he took care of both medical and surgical patients.¹ Ibsen's model of care was replicated around the globe. By the end of the 1950s, 25% of American hospitals had ICUs, totaling more than 300 beds nationwide.⁵ Soon after, the specialty of critical care was born, with the first fellowship in the US in 1963, and the first US society established in 1971.⁵ Today, the Danish community of anesthesiologists considers August 27th "Bjørn Ibsen Day".⁴

The heroic response of the medical community to the COVID-19 pandemic is a direct result of our knowledge gained from the early giants of critical care medicine. Critical care anesthesiologists were able to contribute to the global emergency with countless hours of direct patient care and in particular, with expertise in mechanical ventilation, sedation, and ECMO. We are the direct (medical) descendants of Ibsen, bringing to bear the same skills he cultivated for the modern care of innumerable critical ill patients every day. Happy 70th anniversary.

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FEATURED ARTICLE

The Importance of a Dedicated Intensive Care Unit (ICU) for the Critically Ill Obstetric (OB) Patient

Severe maternal morbidity in the United States has increased 200% from 1993-2014, with maternal mortality rising to a rate most recently estimated as 17.4:100,000 making this a major public health issue.1 Half of these deaths occurred in the beginning of the postpartum period and 60% of the total deaths were classified as preventable.1 This rate is subject to disparities with the incidence of severe maternal morbidity being higher in every racial and ethnic minority category compared to non-Hispanic white women.2 The most common etiologies of maternal mortality in the United States is cardiac disease, followed by hemorrhage, and then sepsis.3 These high-risk patients would benefit from a dedicated obstetric intensive care unit (OB ICU). Between 1-3% of pregnancies require an ICU admission based on studies in high income countries.4 This number is likely to rise with the increase in maternal morbidity and should prompt a consideration of the best way to deliver critical care to this special population.

As the maternal population ages and has an increasing number of comorbid conditions, we can expect that the need for more intensive monitoring and interventions will also rise. Caring for complex OB patients requires input from multiple disciplines including obstetricians, anesthesiologists, neonatologists, and other specialties including cardiology, pulmonology, hematology, neurology, and infectious disease. Although interdisciplinary input is imperative, the

providers who care for pregnant patients on a regular basis and are familiar with obstetric medications, interventions, neonatal monitoring, and complications have a leading role



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in management. Obstetricians and obstetric anesthesiologists are the most experienced and well equipped to manage obstetric related issues in the immediate setting. Given the rarity of OB patients requiring ICU care, intensivists may not have the depth of experience with pregnant patients to acutely treat patients in labor and ICU staffing and unit acuity may present further challenges. Furthermore, most labor and delivery (L&D) suites have operating rooms in the immediate proximity that can facilitate emergent surgical delivery if needed — something that may not be available near a Surgical ICU (SICU). In a study of more than 500 women admitted to an ICU with severe acute maternal morbidity in France, 1 in 7 did not require any intervention for organ support and this suggests that an ICU admission may have been avoidable if a higher level of monitoring was possible on L&D.5

Keeping peripartum patients out of the ICU may also have advantages as it pertains to mental wellbeing and mother infant bonding. Mental health disorders are now coming to the forefront as a previously undescribed leading cause of death.⁶ Studies in the general population show that up to 35% of patients experience depression and/or anxiety and up to 20% of patients experience post-traumatic stress disorder while patients with pre-existing psychiatric disease are particularly at risk.⁷ One study in obstetrical patients showed that up to 20% of women who required ICU admission experience impaired quality of life 6

months after follow-up.8 If providing ICU care on L&D could facilitate keeping the mother closer to her child, this may have significant benefits in normalizing the birth experience, improving maternal fetal bonding, and breastfeeding.

Given these considerations, there are a growing number of advocates for management of high-risk patients on the L&D floor. This can be facilitated by approaches such as the Consultation, Surveillance, Monitoring, and Intensive Care (COSMIC) program.⁹ The COSMIC program directs higher levels of care resources to patients at risk of decompensation or complications. Women who meet certain diagnostic criteria associated with increased risk are referred to obstetric

The Critically Ill OB Patient: a Dedicated ICU continued from page 13

anesthesiologists; surveillance using automated systems to identify decompensation trigger team-specific early warnings; monitoring using a remote high-fidelity system allows for ICU telemedicine to enable peripartum management on the L&D floor with ICU oversight; and finally, a care pathway facilitating ICU admission for higher level monitoring and therapy offers a streamlined approach to critical care of these patients. Other approaches to maintaining the patient on the L&D floor with telemedicine could offer smaller facilities the capability of caring for complex patients using teleconsultation with a larger center staffed with full-time intensivist and maternal-fetal medicine physicians, however, this is an area in need of formal study. 10

Although the management of critically ill patients on L&D shows promise, there are certain conditions and interventions that require admission to an ICU. Women with an increased risk of complications and/or those who develop severe illness should be managed at a level IV regional perinatal health center.¹¹ This is important as obstetric care providers should ensure that an appropriate system of coordination is in place to support transfer to a higher level of care when indicated. The American College of Obstetricians and Gynecologists (ACOG) recommends that patients who require mechanical ventilation, aggressive hemodynamic support, ongoing hemorrhage, mechanical circulatory support, electrical instability, or have complicated conditions with organ failure require critical care in a full service ICU.¹⁰

Building an OB ICU requires a significant amount of preparation. A variety of factors should be taken into consideration such as the specific model and location of the ICU, bed availability, supplies and dedicated staff. Additionally, specialized knowledge in areas of maternal and fetal physiology is required to care for these patients successfully.

When considering the model of the OB specific ICU, one should consider if this will be a rural service-based model or a concurrent management model. Is the SICU an appropriate location for the OB ICU or would L&D be better to facilitate the management of these very sick patients? Management in a SICU gives the advantage of having available staff that are familiar with advanced monitoring such as arterial lines, central lines, swan catheters, titrating medications such as pressors and inotropes; on the other hand, the complex physiology of OB patients and the rarity of their critical OB pathology may result in the ICU staff having limited experience and knowledge required to manage them appropriately. Obstetricians, midwives, obstetric anesthesiologists, and L&D nursing staff are familiar with the OB management but may

lack critical care management skills. So where do we go from here?

When building an OB specific ICU, it is important to have staff who are specialized in OB-specific physiology and pathology. The ideal intensivist should have an extensive background in OB and may include intensivist anesthesiologists with OB training or Maternal-Fetal Medicine Obstetricians with additional training in critical care as both are increasingly utilized pathways for intensivists who have a passion for OB critical care. The ideal nurse must possess both ICU and L&D experience as it is crucial to know how to manage invasive monitoring devices, titrate pressors and inotropes, and be familiar with obstetric medications. The bed availability may present a challenge at the hospital level, especially in level 1 trauma centers, however it is crucial to initially have two to three bed units reserved for the critically ill OB patient when constructing an OB-specific ICU. Communication between the departments of Anesthesiology, Critical Care, and Obstetrics and Gynecology is crucial to set up goals, expectations, appropriate training, and recruitment of new staff as well as providing extra training to the current employees. Simulations and standardized scenarios have been proven to increase knowledge, awareness and enhance the educational experience of personnel in specific topics.¹²

Is there an advantage to creating an OB specific ICU? The increasing maternal morbidity and mortality mandates the provision of more specialized care to these critically ill patients. Cardiac disease is the primary cause of maternal mortality in the United States. Patients with cardiac arrest, peripartum cardiomyopathy, and/or amniotic fluid embolism may need to be placed on mechanical support as a bridge to recovery and sometimes as a bridge to transplant. In the event that these rare cases occur, it is essential to have healthcare professionals available who can manage the complexity of their pathology and improve outcomes. The COVID-19 pandemic affected all populations across the world including peripartum patients and the nuances of managing a pregnant patient through mechanical ventilation, rescue therapies, and even extracorporeal membrane oxygenation requires expert knowledge for optimal outcomes of mother and baby. And despite the fact that hemorrhage is no longer the primary cause of maternal mortality in the United States, there is still a significant gap in knowledge when it comes to the resuscitation of the OB patient in the critical care setting.

In light of all this, the Society of Critical Care Anesthesiologists (SOCCA) has decided to create a new sub-committee, the Obstetric Critical Care task force under the leadership of Dr.

The Critically Ill OB Patient: a Dedicated ICU continued from page 14

Angelidis and Dr. Naoum with the goal to raise awareness on OB critical care issues that are heavily underrepresented in the annual meeting. Recently, SOCCA and the Society of Obstetric Anesthesiology and Perinatology (SOAP) have decided to join forces and collaborate with the goal to inform, discuss, and present to OB ICU knowledge in annual national conferences for both professional fields with the additional hope to inspire more professionals consider the avenue of OB Critical Care.

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The Society of Critical Care Anesthesiologists

BUSINESS MEETING | 2023

Friday, April 14 | 6:30 pm - 7:30 pm MT



FEATURED ARTICLE

Pulmonary Complications from Neostigmine Use for Management of Ileus in Lung Transplant Recipient

INTRODUCTION:

Neostigmine is a reversible acetylcholinesterase inhibitor that functions as a parasympathomimetic drug that has an on-label use for reversing neuromuscular paralytics. In addition, it is indicated in the off-label treatment of acute colonic pseudo-obstruction and critical illness associated ileus. Neostigmine is associated with side effects such as bradycardia, asystole, and pulmonary side effects including bronchospasm and increased pulmonary secretions. There are no studies or case reports describing the use of neostigmine in lung transplant patients. Presented is the case of a 68-year-old comorbid male who underwent bilateral lung transplantation with a post operative course complicated by ileus that was treated with a series of IV neostigmine boluses resulting in increased pulmonary secretions and oxygen requirements.

CASE PRESENTATION:

Case presented is a 68-year-old male with a past medical history of hypertension (HTN), asthma, obstructive sleep apnea (OSA), history of prostate cancer (s/p prostatectomy), atrial fibrillation (on Flecainide at home, unresponsive to beta blockers), and progressive interstitial pneumonia with autoimmune features who presented for bilateral lung transplantation.

After an uneventful intraoperative course, he was extubated on postoperative day (POD) #1 to continuous positive airway pressure (CPAP) given his significant OSA. This was expeditiously weaned to low flow nasal canula within few hours. Per our institution's lung transplantation postoperative care guidelines, patient was kept nil per oral (NPO) after extubation and a postoperative bowel regiment was initiated through his post pyloric small bore feeding access. POD #2 was also eventful due to the recurrence of his known Atrial Fibrillation with rapid response rate (RVR). Despite beta blockers and amiodarone boluses, due to refractory RVR, it necessitated cardioversion with subsequent amiodarone infusion.

On POD #3, patient had increased abdominal distension and pain with preliminary diagnosis of ileus. Subsequent abdominal x-ray showed bowel dilation concerning enough to prompt placement of nasogastric (NG) tube for gastric & bowel decompression. Patient's abdominal discomfort extended into POD #4 in which repetitive abdominal x-rays displayed worsening dilatation of bowel loops. A follow up computerized tomography (CT) of abdomen and pelvis displayed significant air with stool burden and without evidence of any mechanical obstruction. Due to ongoing clinical concern for ileus and failure to respond to conservative treatments with existent bowel regimen, decision was made to treat patient with Neostigmine.

Patient was given a cumulative dose of 7.5 mg of neostigmine in 2.5 mg increments over 30 minutes. Patient had a starting heart rate of 75 and reached a nadir of 50 during treatment. Patient had copious amounts of flatus and liquid bowel movements that started during the 30 minute period of neostigmine administration resulting in improvement of the abdominal distension and abdominal complaints subsided dramatically. However, several hours after treatment with neostigmine, patient started having copious pulmonary secretions and associated dyspnea in effort to clear his airways. Patient was switched from NC to HFNC to improve dyspnea. Aggressive pulmonary toilet was provided by Respiratory Therapists. Secretions and dyspnea slowly improved with adequate pulmonary toilet and HFNC approximately 12 hours after neostigmine administration.



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Neostigmine: Pulmonary Complications continued from page 16

DISCUSSION:

Neostigmine is an effective method to treat ileus in the ICU but can be accompanied by side effects. In the presented case, the patient did have a successful decompression of his bowels from Neostigmine administration, but it was accompanied by significant pulmonary side effects. Several different dosing strategies have been shown in the literature in the ICU of neostigmine administration for the treatment of ileus, varying from 0.4-0.8 mg/hr for 8 hours³ to a bolus of 2.5 mg over an hour⁴ to 2 mg over 3-5 minutes.⁵ The response to treatment does vary mildly depending on bolus or infusion dosing. In patients who were given a bolus dose of Neostigmine they had 80% response to treatment after two doses in comparison to continuous neostigmine infusions having a 70% response. There is a small amount of data to suggest that the safety and efficacy of bolus and infusion dosing of neostigmine are similar.⁶

effects neostigmine include, bradycardia, bronchospasm, hypoxia, increased respiratory secretions, and increased gastrointestinal secretions and motility.7 In the respiratory system the increase in acetylcholine from neostigmine leads to bronchial smooth muscle contraction that results in bronchospasm and hypoxia. It has additionally been shown that, neostigmine use for treatment of bowel dysfunction in patients with Spinal cord injuries will increase pulmonary resistance and that the addition of glycopyrrolate pretreatment significantly decreases neostigmine's bronchospasm effect and can cause bronchodilation.1 In the presented case, patient's copious airway secretions as well as hypoxemia was not an immediate side effect and worsened by peak effect at 4-6 hours after Neostigmine administration. Differential diagnosis included evolving primary graft dysfunction, ileus related regurgitation, hospital acquired pneumonia, as well as iatrogenic side effect of neostigmine. Due to refractory nature of his atrial fibrillation within 24 hours, glycopyrrolate was chosen not to be administered.

In summary the presented case, the post-surgical lung transplant patient did have successful decompression of his bowels with neostigmine treatment but at the cost of having increased secretions that caused an increased oxygen requirement and work of breathing for majority of an ICU

shift for the patient. In future cases, glycopyrrolate could be utilized as a pretreatment to help mitigate neostigmine's cardiovascular and pulmonary side effects. Careful selection of patient population should be utilized in the treatment of ileus with neostigmine to ensure that patients can tolerate the side effect profile associated with neostigmine. Bolus dosing vs continuous infusion dosing of neostigmine appear to have similar efficacy and incidences of side effects.

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FEATURED ARTICLE

Teaching Our Residents POCUS

Point-of-care ultrasound (POCUS) has become an integral part of the anesthesiologist and intensivist toolbox for the diagnosis and management of various disease states especially as ultrasound systems become more ubiquitous in our hospitals and increase in portability and ease of use.1 This has been emphasized by the ABA in adding the application and interpretation of POCUS cardiac, lung, and abdominal imaging to the Applied Exam.2 Working with residents and fellows, I often wonder about the most efficient and effective way to teach these skills in a busy clinical setting. How do we best integrate this into the trainee curriculum? How many exams are necessary for a trainee to become competent (independent)? Should residents strive for some sort of certification?

At the Medical College of Wisconsin (MCW), we have implemented a longitudinal curriculum starting from the resident's PGY 1 year and continuing into the resident's CA 3 year. This has integrated well within our existing simulation education. Given that each trainee has a different background and experience coming from medical school, we start with the basics. As an introduction, our PGY1 residents receive a didactic session followed by a handson course where we focus on cardiac and lung imaging on a standardized patient. Groups are

small and limited to five residents per faculty member to allow sufficient personal instruction. Our CA 1 curriculum gives our residents exposure through our trauma simulation workshop where they practice and implement the EFAST exam, which is used routinely in our trauma bay. During the CA 2 and CA 3 years our residents receive a five-part curriculum. We increased this from 3 last year as a response to our residents' feedback. The curriculum goes through ultrasound basics/knobology, cardiac, lung, and abdominal imaging. Each session has a didactic portion followed by practical hands-on experience, keeping with small groups to allow sufficient instruction. These sessions have been rated as "extremely effective" by more than 80% of our



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residents. On our pre and post-test given to the residents before and after our POCUS course, self-reported knowledge scores increased from a mean of 4.67 SD 2.11 (out of 10) to 6.88 SD 1.86 (Table 1). The residents continue to practice their ultrasound skills as the opportunities arise either in the operating rooms or in our intensive care units.

Table 1



Our CA3's can choose to take a two-week long POCUS elective. They focus on imaging patients in our PACU and our CVICU, with the ICU providing great exposure to various pathologies. A faculty member is available daily to review exams with each trainee. Each exam is saved into our PACS system allowing for quality review, not to mention a log of each exam the resident has completed. It is here that our residents can practice more advanced techniques such as calculating cardiac output, measuring valve gradients, estimating severity of valvular lesions and quantification of ventricular function. This elective course has received a lot

Teaching Our Residents POCUS continued from page 18

of positive feedback and has quickly become one of our most popular electives.

Regarding competency, Clunie et al recently published that their residents needed 36 exams to reach an entrustment score of greater than 4 (may use independently) for cardiac exams and 8 for lung exams.3 However, not each trainee learns at the same rate and there should be a system to evaluate resident competence prior to them being "signed off" to perform and interpret exams independently. Certification can be obtained through The American Society of Anesthesiologists Diagnostic POCUS Certificate Program. This is a structured online program which requires 100 cardiac, 20 lung, 20 gastric, and 20 fast exams as part of their certification process and requires mentor attestation. A motivated resident can certainly meet those numbers and obtain the certificate during the tenure of their residency with proper opportunities and mentorship. Certification can also be useful for hospital privileges in the future and maintenance of quality of POCUS examinations.

POCUS continues to gain popularity into our daily practice in the operating rooms and the ICU. At MCW we have integrated our POCUS curriculum within our existing simulation curriculum with encouraging results and good feedback from residents. Competency and certification are both goals that our residents can reasonably achieve.

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OPINION

It's Time for Anesthesiology and Anesthesiologists to Have a Makeover

There are many reasons why makeover shows are so popular. There is nothing like watching someone or something remain unchanged for years, emerge new and transformed. Sure, it's hard work, very expensive, and usually doesn't happen without arguments and some tears. But the result is almost always for the better. I think it's time for anesthesiology and anesthesiologists to have a makeover.

Medicine is facing some tremendous hurdles... rise in cost, poor reimbursement, increase in regulatory burden, medical mistrust, and high burnout, just to mention a few. However, I feel that anesthesiology is also suffering from a loss of respect from both patients and physicians as

well as from possible extinction due to the ever-increasing calls by CRNAs to practice independently. The reasons for our current predicament may stem from how the field has slowly changed in two major ways: an evolution from a traditional physician-patient relationship to shift work, and a retreat from being perioperative providers to mainly intraoperative providers.

Compared to most other specialists, anesthesiologists have minimal interactions with patients. They are usually referred to us by other services like surgery or gastroenterology. We often do not meet with our patients in clinic before or after procedures. And if we are practicing in a team model, most of our time is spent outside the operating room overseeing other providers. This confluence of circumstances has led to a lack of patient ownership, which in turn, has made it easy for us to be minimally present in the operating room unless we're needed, defer medical decisions to primary services, and hand off care. The rise in number of CRNAs and AAs has also improved our work hours to the point where graduating residents are routinely aiming to find jobs offering "7am-3pm shifts" or "only 4 days a week" schedules.



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Both a result and an addition to the issue above is our loss of insight into patient care beyond the operating room. Although we have protocols that enhance discharge after ambulatory surgery and recovery after major surgery, most anesthesiologists remain confined to the intraoperative phase. There are no standardized methods to be updated on our patients' postoperative course nor is it common practice within our field to seek out this information. As such, we end up practicing in a bubble where the priority is getting to "anesthesia stop". Furthermore, our absence in perioperative medicine also extends into the preoperative period where many, if not all, medical clearances are handled by consultants. Despite the ASA

providing clear guidelines on what is necessary for patients to undergo everything from minor to major surgery, we remain dependent on cardiology, pulmonology, or internal medicine to state that the patient is optimized.

Nevertheless, I believe there are multiple ways to right this ship. First, we must re-expand our care to beyond the operating room and back into the perioperative setting. This begins with increasing our involvement in preoperative evaluation and clearance. Anesthesiologists are experts at managing physiology while under surgical stress. There is no reason to believe we should not be the providers conducting medical clearances for procedures. Of course, follow up with outpatient specialists will be necessary to gather information on baseline medical problems, but is there really a specialty better than anesthesiology to say patients are ready for anesthesia?

Second, this expansion will also need to include the postoperative period. Although we may have no control over patient management once they are home, on the wards, or in the ICU, this does not mean we should blind ourselves to

It's Time for a Makeover continued from page 20

how our care affected them. Quality and safety has significantly grown as a subspecialty over the past decade, yet most of our QA targets remain limited to the operating room. Although some national groups such as MPOG provide postoperative measures like AKI, MI, and 30-day mortality, anesthesiologists are not routinely called upon to help improve them nor are we held accountable for their occurrences. As a result, it remains an area where great potential for improvement exists, such as taking an active role in partnering with surgery to identify areas where both pre- and intraoperative anesthetic management can be modified to ultimately improve patient care.

Finally, we need to refocus our energy back on patient care instead of work hours. Although this may sound obvious and a bit cheesy, it is difficult to achieve in practice. Staying longer to care for a sick or unstable patient or to avoid multiple hand-

offs when relief is available will not be easy. In addition, the sole driving force for this change will be nothing more than our sense of duty. But if we ARE able to practice in this manner, our actions will be noticed and our standing as physicians and not as shift workers will be regained. More importantly, our actions will speak louder than words for the next generation of anesthesiologists. No amount of "doctoring" will teach this than when students and residents see it in action. As any parent will readily tell you, children do what you do, not what you say.

I understand the points made here are idealistic and entail significantly more work in an era when physicians are already overburdened. However, it is impossible to expect continued good pay, increase in respect, and professional growth if we don't put the work into earning it.



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The Liver Transplantation Patient and the Challenges Associated

MODERATOR



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PANELISTS



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