

# INTERCHANGE

Society of Critical Care Anesthesiologists Newsletter Volume 34 | Issue 4 | December 2023

## PRESIDENT'S MESSAGE



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

Join us for the [2024 Annual Meeting](#), presented by IARS and SOCCA in Seattle, May 17-19. The education committee has created an outstanding program with a critical-care track running concurrently throughout the meeting. The format and content of the

meeting look extraordinary, with more critical-care content than we have ever had before. There will be three SOCCA-sponsored breakfasts, and all committees and subcommittees will have the opportunity to meet in person throughout the meeting. In addition, a dedicated SOCCA session will run on Sunday afternoon until about 5PM, including additional educational panels, the SOCCA awards presentations, and the SOCCA business meeting. I hope everyone stays for the entire duration of this exciting meeting.

The [Call for Volunteers](#) is open and will close on **December 31, 2023**. For 2024, the SOCCA Secretary and two Board of Directors positions are available for nominations. SOCCA committees are a great way to get involved and make a difference in the Critical Care Anesthesia community. As a committee member, you can engage with other SOCCA members and impact issues in critical care, grow


your knowledge and skills to support professional development, and network with other SOCCA members. Each committee is tasked with assisting the SOCCA Board of Directors in meeting the strategic goals and objectives set by the Board. The strategic goals of SOCCA are to:

1. Sustain and grow membership.
2. Foster and promote member engagement and contributions.
3. Develop an active research section.

If you are interested in volunteering to serve on the Board or a Committee, please submit a letter of interest, photograph, and curriculum vitae by **December 31, 2023**, to Vivian Abalama, IOM, CAE at [vabalama@iars.org](mailto:vabalama@iars.org).

I am also pleased to announce that The Board of Directors has chosen the Association Research Center (ARC) as our new association management company. ARC has been involved in association management for over 37 years for many anesthesiology-based medical organizations. ARC is an accredited association management company of the AMC Institute and has an excellent track record in handling client affairs. The Board felt that ARC would help SOCCA continue to grow and improve as a Society by providing excellence in governance, outstanding member service, consistent brand communication, and financial stability. The transition period from IARS to ARC is already underway,

and we will be fully transitioned to ARC **by January 2024**. I again want to thank the IARS, Tom Cooper, and especially Vivian Abalama, who have been fantastic partners and helped us grow and become the Society we are today. The Board of Directors also looks forward to our continuing relationship with IARS as the cosponsor of the Annual Meeting in 2024 and beyond.

I hope everyone is having a great fall, and I look forward to seeing you in Seattle in May. 

## CONTENTS

President's Message .....	1
Communications Committee .....	2
Education Committee .....	3
Annual Meeting Evolution .....	6
<b>Artificial Intelligence (AI)</b>	
What We Need to Know .....	8
Predictive Analysis in Critical Care .....	10
Women in Critical Care .....	13
Intensivists in Private Practice .....	14
From the PDAC .....	16
Pursuing an Anesthesiology Fellowship .....	19
Job Board .....	20
SCAC Update .....	21
Case Report .....	23
Board of Directors .....	26
About SOCCA/Join SOCCA .....	27


# Communications Committee Update

Our committee has experienced a dynamic year, marked by significant accomplishments. In September 2023, we released one of our largest issues to commemorate Women in Medicine Month, featuring insightful contributions from several of our dedicated members. The response was exceptional, reflecting our commitment to celebrating diversity and excellence in our field.

Our online presence has flourished, with the website garnering 37,417 page views from January to June 2023. The quarterly newsletter, a testament to our members' expertise, not only sustained but also fueled an uptick in website visits, underscoring the growing interest in our members' contributions to the SOCCA Interchange.

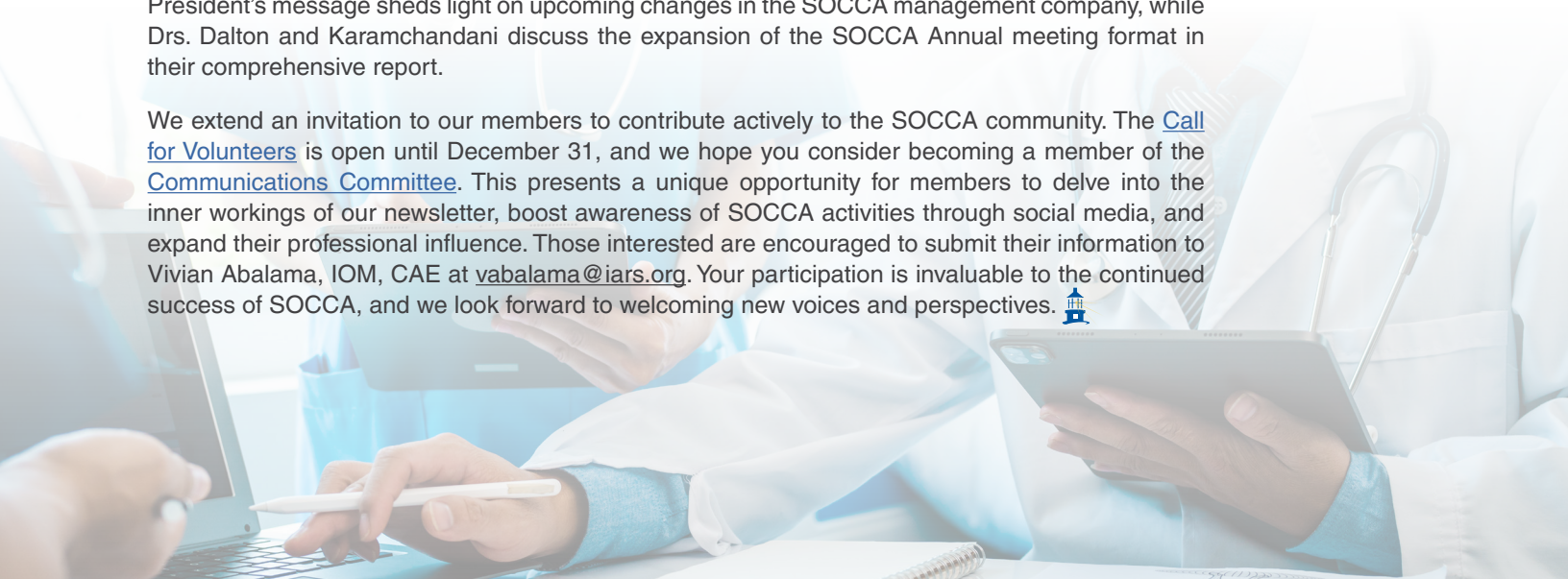
Under the leadership of Dr. Liang Shen, our social media Sub-Committee and its team of volunteers have actively engaged the community. Notably, our X (formerly Twitter) following has seen a commendable increase, growing from 3,175 in 2022 to a current count of 3,770. The ever-evolving landscape of social media has prompted us to strategize for future expansion. We aspire to diversify our social media presence to reach a broader audience and connect with members across various platforms.

In this edition of the Interchange, our focus is on updates from the SOCCA Committees. The President's message sheds light on upcoming changes in the SOCCA management company, while Drs. Dalton and Karamchandani discuss the expansion of the SOCCA Annual meeting format in their comprehensive report.

We extend an invitation to our members to contribute actively to the SOCCA community. The [Call for Volunteers](#) is open until December 31, and we hope you consider becoming a member of the [Communications Committee](#). This presents a unique opportunity for members to delve into the inner workings of our newsletter, boost awareness of SOCCA activities through social media, and expand their professional influence. Those interested are encouraged to submit their information to Vivian Abalama, IOM, CAE at [vabalama@iars.org](mailto:vabalama@iars.org). Your participation is invaluable to the continued success of SOCCA, and we look forward to welcoming new voices and perspectives. 



**Madiha Syed, MD**  
*Chair, SOCCA  
Communications  
Committee*  
Cleveland Clinic  
Cleveland, OH



**DON'T FORGET TO  
FOLLOW SOCCA ON X!**

**X @SOCCA\_CritCare**



# Education Committee Update

As the new year approaches, the education committee would like to announce some new and exciting changes to the structure of the education committee, as well as our offerings for 2024. As you will read in this month's Interchange, the SOCCA component of the 2024 Annual Meeting in Seattle will be undergoing significant changes. We are excited that we will now be able to incorporate three days' worth of educational offerings as a part of the combined IARS/SOCCA meeting. With this change likely to last beyond 2024, the Annual Meeting subcommittee will be continuing our work on grading and developing annual meeting content for years to come.

The board review course has had another successful year. The Board Review subcommittee under the leadership of Dr. Brian Wessman and Dr. Talia Ben-Jacob put on a [two-session review course](#) in late September and early October. The SOCCA board review course provides a high-impact review to help our recently graduated fellows study for the critical care boards in mid-November. Over one hundred examinees registered for the course, which covered topics ranging from complex ventilator management strategies, arterial blood gas analysis to nutritional goals in the ICU. The course is taught by junior faculty members who have recent experience with preparing and taking their board exams.

The education committee provided high-quality educational webinars last year and plans to continue doing so for 2024. Thank you to the Webinar subcommittee and its Chair, Dr. Ranjit Deshpande, and Vice Chair, Dr. Jason Brainard for developing a fantastic schedule of webinars for 2023 and [early 2024](#). We are grateful for the expertise within SOCCA membership and appreciate all the speakers and moderators who presented on varied topics, ranging from liver transplantation, increasing diversity in critical care, kickstarting a research career, the development of critical care as the result of the polio epidemic, and the emerging role of critical care anesthesiologists. The new year will begin with webinars co-sponsored by other SOCCA committees, sub-committees, sections, and working groups, including Women in Critical Care and Early Career Intensivists.

In 2024, the Education Committee plans to launch some new education initiatives and create corresponding subcommittees. First, we have an opportunity to partner with Anesthesia Toolbox to curate critical care education and curricular content for trainees. Anesthesia Toolbox was first started at Oregon Health Sciences University (OHSU) as a collaborative for resident educational content and was recently acquired by ASA. Currently, there is a gap in the educational content related to critical care, which will provide an opportunity for SOCCA members to create high-impact content for anesthesiology residents. Secondly, the education committee has identified a lack of exam preparatory materials specific to the ABA's critical care exam. In 2024, we will be creating a bank of questions, which will be the first (and only) specific question bank resource for the ABA exam. Thirdly, we are in the process of creating virtual journal club sessions, where the SOCCA membership can discuss high-impact research in critical care. This will be a great opportunity for our fellows and junior faculty to present important research impacting clinical care and hear from experts within our organization.

We would like to thank the SOCCA Board and all SOCCA members for their support for all the educational endeavors over the past year. All this content would not have been possible without the work of every member of the education committee, and we sincerely appreciate their enthusiasm and hard work. We highly encourage anyone with an interest in developing and creating new educational content for SOCCA to apply for committee membership in the coming year. 🏛️



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



**Kunal  
Karamchandani,  
MD, FCCM**  
*Vice-Chair, SOCCA  
Education Committee  
University of Texas  
Southwestern  
Medical Center  
Dallas, TX*

## ► SOCCA Call for Volunteers is Open!

# SOCCA COMMITTEES

**Deadline: December 31, 2023**

SOCCA Committees are a great way to get involved and make a difference in the Critical Care Anesthesia community. As a member, you have an opportunity to:

- Engage with other members and make an impact on issues in Critical Care Anesthesia
- Collaborate and grow your knowledge and skills to support professional development
- Network with other SOCCA members

Each committee is tasked with assisting the SOCCA Board of Directors in meeting the strategic goals and objects set by the Board. The strategic goals are:

- Goal 1: Sustain and grow membership**
- Goal 2: Foster and promote member engagement and contributions**
- Goal 3: Develop an active research section**

**GET INVOLVED** Review what each committee is responsible for:

**THE CLINICAL PRACTICE COMMITTEE** will coordinate all clinical practice activities within SOCCA. The following subcommittees will be formed with members of the committee:

- CTICU & SCA Subcommittee & Work Group
- Mechanical Circulatory Support/ECMO Subcommittee & Work Group
- Neuro Critical Care & SNACC Subcommittee & Work Group
- CCM Division/Section Head/Vice Chair & Work Group
- Quality and Safety Subcommittee & Work Group

**THE COMMUNICATIONS COMMITTEE** is responsible for the development and distribution of the SOCCA Interchange quarterly newsletter. Develop a comprehensive social media strategy to communicate industry news timely and effectively to SOCCA members. Lead discussions on SOCCA social media platforms and post relevant industry news and articles for the SOCCA community.

**EDUCATION COMMITTEE** members and supervise the Educational & Scientific content of the SOCCA Annual Meeting. Collaborate with the ASA CCM track committee to assist with planning and content of the ASA CCM track and engage in exchange with other societies by organizing and hosting joint panels at their meetings.

Identify and create professional development tools and resources for SOCCA Members to engage them in improving their professional knowledge, competence, skill, and effectiveness as a Critical Care Anesthesiologist.

**THE MEMBERSHIP COMMITTEE** will be representative of all aspects of the SOCCA membership. The committee will serve as the communication avenue between SOCCA Leadership and its membership. Committee members will recognize and address the diverse professional needs of SOCCA members, while upholding the values of SOCCA as the professional home for anesthesiologists providing critical care services.

**THE NOMINATING COMMITTEE** provides recommendations to the Board of Directors for potential Directors and officers of the Corporation. The immediate Past President shall serve as the Chair of the Nominating Committee. Other members of the Nominating Committee do not have to be current or former directors, officers, or committee members.

**THE RESEARCH COMMITTEE** is responsible for identifying opportunities for SOCCA to facilitate critical care research by SOCCA members, recommend and triage initiatives and opportunities focusing on critical care research to the SOCCA board, and triage requests for SOCCA mailing list. The Research Committee may also advise the SOCCA president on SOCCA recommendations for the AUA/IARS/SOCCA IMPACT Award.

**VOLUNTEER** The Call for Volunteers will close December 31, 2023 at 11:59 pm PT. Should you require further information, please contact Vivian Abalama, IOM, CAE at [vabalama@iars.org](mailto:vabalama@iars.org).

### **SOCCA SECRETARY AND BOARD OF DIRECTORS ELECTIONS:**

For 2024, the SOCCA Secretary and two Board of Directors positions are open for nominations.

Those interested in serving should submit a letter of interest, photograph, and curriculum vitae by December 31, 2023, 11:59 pm PT to Vivian Abalama, IOM, CAE at [vabalama@iars.org](mailto:vabalama@iars.org) with subject line 2024 SOCCA Board of Directors Election – Secretary or Board of Director.

SOCCA is committed to diversity, equity, and inclusion across race, gender, age, religion, identity, and experience. Organizations that are diverse are proven to be better organizations. SOCCA is committed to ensuring its volunteer leadership represents the diversity of its membership.

Please view the Volunteer Leadership Selection Criteria if you're interested in a future leadership volunteer position.

# 2024 ANNUAL MEETING

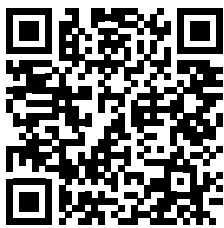
PRESENTED BY IARS AND SOCCA

## Abstract Submission is Now Open!

Submit your abstract for the opportunity to present your research at the 2024 Annual Meeting, presented by IARS and SOCCA, May 17–19 in Seattle, WA.

Don't miss your chance share your expertise, gain recognition, and interact with colleagues in the anesthesiology community.

We welcome submissions from anywhere in the world for both oral and poster presentations covering all aspects of Anesthesia Research, and Critical Care Anesthesiology.



SUBMISSION DEADLINE

**December 17, 2023**

SUBMISSION GUIDELINES &  
AWARD INFORMATION

[meetings.iars.org](https://meetings.iars.org)



**IARS**

International Anesthesia Research Society

# Annual Meeting Evolution

We would like to share with the SOCCA membership some of the changes around the annual meeting for 2024 as well as for future meetings. Unlike previous years where SOCCA had a separate meeting (a day before the IARS meeting) with a sprinkle of SOCCA sessions during the IARS meeting, the 2024 annual meeting in Seattle will be a combined IARS/SOCCA meeting. What this entails is an integration of SOCCA sessions within the IARS meeting, and the creation of a separate “critical care track” exclusively for content related to critical care medicine. This would ensure that SOCCA educational sessions will run throughout the duration of the meeting. In addition to the critical care medicine related education content throughout the IARS/SOCCA annual meeting, a dedicated half-day session of exclusive SOCCA content is also being planned after the IARS meeting ends. We believe that the SOCCA-only half-day meeting on Sunday, May 18 would allow us to present the various SOCCA awards as well as host the SOCCA business meeting and may provide an opportunity to accommodate additional education sessions. Discussions around the feasibility and logistics of this additional session are currently underway.

We are excited to announce that after extensive discussions, we will also have a SOCCA-conducted workshop on the use of POCUS in managing medical emergencies as part of the annual meeting. This will give our membership hands-on experience with POCUS along with some great didactics. As in previous years, there will be oral and poster research presentations interspersed throughout the meeting.



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



**Kunal  
Karamchandani,  
MD, FCCM**  
*Vice-Chair, SOCCA  
Education Committee*  
University of Texas  
Southwestern  
Medical Center  
Dallas, TX

In addition to the education content, new workshops, and research presentations, there will be opportunities for the members to network and meet throughout the meeting. SOCCA committees will have the option of holding networking breakfasts and their respective committee meetings throughout the meeting with dedicated space for SOCCA on all meeting days to conduct such meetings. The leadership of various committees and workgroups has been asked to provide their preferred dates and times for these events. Members will be able to attend both IARS and SOCCA sessions using a common registration and will also have the option to network with colleagues from other specialties of anesthesia. All in all, we feel that this integration will be a win-win situation for both IARS and SOCCA members.

As part of the integration, the SOCCA education committee members were involved in the grading of the proposals submitted by the SOCCA membership. Additionally, the education committee leadership was asked to be a part of the annual meeting oversight committee (AMOC). We received many great proposals and considering the amount of time we had at our disposal for critical care content, we were able to integrate a significantly higher number

of proposals into the combined IARS/SOCCA meeting than prior years. We will also be including additional proposals into the dedicated SOCCA half-day meeting, once that is finalized. With such an abundance of time available for SOCCA content, it provides a great opportunity for SOCCA members to be able to contribute and present at the annual meeting. On behalf of the education committee, we urge the SOCCA members to keep submitting high-quality session proposals with diverse speakers for future annual meetings.

We are grateful to the leadership of SOCCA and IARS for making this integration possible and look forward to bringing the SOCCA membership some great educational content spanning over 3 days in the upcoming combined IARS/SOCCA meeting. We are very excited and look forward to this new format as this would mean more educational content dedicated to critical care than ever before and more opportunities for SOCCA members to present. 🏛️

## 2024 SOCCA WEBINAR SERIES PRESENTS

### Challenges Faced by Women Physicians in Academic Medicine

Date & Time  
To Be Announced

#### MODERATOR



**TALIA BEN-JACOB,  
MD, MS, FCCM**  
Cooper University  
Hospital, Cooper  
Medical School of  
Rowan University,  
Camden, NJ

#### PANELISTS



**ANNA  
BUDDE, MD**  
University of  
Minnesota  
Medical School,  
Minneapolis, MN



**MONICA  
LUPEI, MD**  
University of  
Minnesota  
Medical School,  
Minneapolis, MN



**LIZA WEAVIND,  
MBBCH, FCCM,  
MMHC**  
Vanderbilt University  
Medical Center,  
Nashville, TN

### How to Get Your Ducks in a Row When You Can't Swan: A Review of Alternative Cardiac Output Devices

February 15, 2024  
6:00pm – 7:00pm ET

#### MODERATOR



**LIANG SHEN,  
MD, MPH**  
Weill Cornell Medicine,  
New York, NY  
Pulse Contour Devices:  
What Are the Differences?

#### PANELISTS



**DIANA KHATIB, MD**  
Weill Cornell Medicine,  
New York, NY  
Can the Echo Replace  
the Pulmonary Artery  
Catheter?



**CHRISTOPHER  
TAM, MD**  
Montefiore Medical  
Center, New York, NY  
Maximally or Minimally  
Invasive: PAC Versus  
Non-invasive Techniques  
of Cardiac Output  
Monitoring

### Critical Care Billing: The What, Why, and How for Graduating Fellows and Junior Faculty

Co-sponsored by SOCCA Early Career Intensivists

March 21, 2024  
4:00pm – 5:00pm ET

#### MODERATOR



**VIJAY  
KRISHNAMOORTHY,  
MD**  
Duke University School of  
Medicine, Durham, NC  
Introduction

#### PANELISTS



**JAMES HERBERT,  
MD, PHD**  
Duke University  
School of Medicine,  
Durham, NC  
The Basics of Critical  
Care Billing



**NITIN  
MEHDIRATTA, MD**  
Duke University School  
of Medicine, Durham, NC  
ICD-10/CPT/wRVU:  
How to Make Sense of  
the Alphabet Soup

**REGISTRATION IS FREE**

## FEATURED ARTICLE

# What We Need to Know About AI: A Snapshot for All Critical Care Anesthesiologists

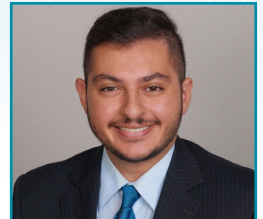
The integration of Artificial Intelligence (AI) in various industries has progressed rapidly in medicine, particularly in critical care. The number of articles published regarding AI in critical care medicine tripled from 2018 to 2020.<sup>1</sup> From the use of AI to predict the likelihood of sepsis, intensive care unit (ICU) mortality, and length of stay, many predictive models have been developed for use in the ICU setting. It is essential for the modern intensivist to understand the basics of how AI works and how to analyze studies based on AI. This article aims to fulfill these two goals and provide a foundation of knowledge that can be used to implement AI in your practice.

The first step is to understand what AI is as well as the terminology surrounding the topic. AI in its most basic form works through machine learning. Machine learning (ML) is when an algorithm can make predictions, which aren't explicitly coded, based on a data set they are exposed to. There are two major subtypes of machine learning: supervised and unsupervised learning. Supervised learning involves inputting data with a certain label and allowing the algorithm to learn the link between the two. For example, AI has been used to predict the likelihood of sepsis in the ICU. The algorithm was exposed to multiple data points including vitals and labs for patients that developed sepsis while in the ICU. It was able to successfully link the relationship between the data and the label (patients who developed sepsis) to accurately predict which patients would develop sepsis 4-12 hours before onset.<sup>2</sup> Unsupervised learning involves inputting data without the use of labels and allowing the algorithm to discover patterns or groupings within the data.<sup>3</sup>

When evaluating studies involving AI there are a few key things to look for to assess the quality of the study. One of the most important factors is the quality and quantity of data the algorithm was exposed to.<sup>4</sup> When developing the ML model, the algorithm should be exposed to a training set, test set, and validation set. The training set is the initial data that the model is exposed to and learns from. The labels assigned to the data must be truly accurate, so it is important to note how they were created. Were labels automatically generated based on a diagnosis in an EMR or using expert opinion or using a pathological diagnosis? After this initial learning process, the model is exposed to a test set which allows the programmer to adjust certain parameters to increase the accuracy of the model. The test set is vital as it prevents the ML model from completely memorizing the training data. This is known as "overfitting" when an ML model only works well on data it was trained on and not on new data.<sup>5</sup> Finally, the algorithm should be exposed to a completely new dataset for external validation.

In an article by Fleuren et al, which looked at 172 articles regarding AI in critical care medicine, only 5% of studies had a validation set that was different from the training and tuning set.<sup>6</sup> Ideally, all three data sets should have no overlap to yield the best possible study. During this validation process, the reference standard must be of high quality and blinded as this can drastically affect the results. For example, in developing AI that could detect diabetic retinopathy based on fundoscopic images an ML model was validated against a panel of retinal specialists. Krause et al showed that when using a

*continued on page 9*



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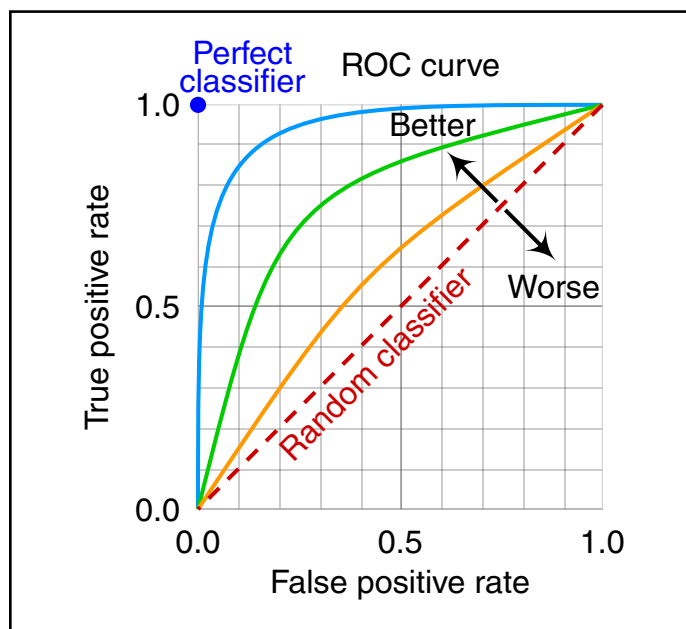
**Piyush Mathur, MD, FASA, FCCM, FAMIA**  
Staff Physician,  
Cleveland Clinic  
Foundation  
Cleveland, OH






majority vote of 3 retinal specialists as the reference standard the ML model had an error of 6.6% but when using a reference standard with adjudicated grades from 3 specialists, the error by the same ML model was 4.6%. This shows the impact that a higher quality and more stringent reference standard has on the ability to estimate the model's performance.<sup>7</sup> It is important to keep in mind that certain things in critical care medicine have a subjective aspect which can make it difficult to set up a reasonable reference standard. For example, in a study conducted by Sjoding et al. which looked at interobserver reliability for the diagnosis of ARDS using the Berlin definition it was found to have a kappa of 0.5. A kappa of 1 being perfect agreement between observers and 0 being no agreement.<sup>8</sup>

The most common way to report the performance of AI models is by presenting a receiver operating characteristic (ROC) curve and reporting the area underneath the curve (AUC) (Figure 1). The ROC curve plots the true-positive rate against the false-positive rate and the area underneath it summarizes the test's overall performance. An AUC of 1 is a perfect model that has 100% sensitivity and specificity. It is important for the model to not only have a high AUC but also affect clinical outcomes. It is important to look at all the data and not just the AUC to come to an accurate conclusion regarding the model. There are numerous other metrics that can be used to evaluate performance including F1 score, precision, and recall, which the intensivist should familiarize themselves with. This is discussed by the transparent reporting of a multi-



**Figure 1:** Receiver operator characteristic curve that demonstrates that an area under the curve more closely approaching a true positive rate of 1 is more sensitive and specific and therefore “better” than an area under the curve that approaches a true positive rate of 0 which would be less sensitive and specific, “worse.” *aROC Curve. cmglee (2021, September 9). CC BY-SA 4.0*

variable prediction model for individual prognosis or diagnosis (TRIPOD) guidelines.<sup>9</sup>

With increasing research and development in the field of AI applications in healthcare and growing application in critical care ranging from sepsis prediction models to automated ejection fraction estimation, critical care anesthesiologists need to familiarize themselves with the basic understanding of AI. This understanding equips them with knowledge to not only review the literature, evaluate AI enabled devices in clinical workspace but also contribute to the growing field of AI in perioperative medicine. 

#### Disclosure Statement:

*This article received no specific grant from any funding agency in the public, commercial, or not-for-profit sector.*

#### REFERENCES:

- 1 Cui X, Chang Y, Yang C, Cong Z, Wang B, Leng Y. Development, and trends in Artificial Intelligence in Critical Care Medicine: A bibliometric analysis of related research over the period of 2010–2021. *Journal of Personalized Medicine*. 2022;13(1):50. doi:10.3390/jpm13010050
- 2 Nemati S, Holder A, Razmi F, Stanley MD, Clifford GD, Buchman TG. An Interpretable Machine Learning Model for Accurate Prediction of Sepsis in the ICU. *Crit Care Med*. 2018;46(4):547-553. Doi:10.1097/CCM.0000000000002936
- 3 Dike HU, Zhou Y, Deveerasetty KK, Wu Q. Unsupervised learning based on Artificial Neural Network: A Review. 2018 IEEE International Conference on Cyborg and Bionic Systems (CBS). Published online 2018. doi:10.1109/cbs.2018.8612259
- 4 Meskó B, Görög M. A short guide for medical professionals in the era of Artificial Intelligence. *npj Digital Medicine*. 2020;3(1). doi:10.1038/s41746-020-00333-z
- 5 Faes L, Liu X, Wagner SK, et al. A clinician's Guide to Artificial Intelligence: How to critically appraise machine learning studies. *Translational Vision Science & Technology*. 2020;9(2):7. doi:10.1167/tvst.9.2.7
- 6 Fleuren LM, Thorat P, Shillan D, Ercole A, Elbers PWG; Right Data Right Now Collaborators. Machine learning in intensive care medicine: ready for take-off? *Intensive Care Med*. 2020;46(7):1486-1488. Doi:10.1007/s00134-020-06045-y
- 7 Krause J, Gulshan V, Rahimy E, et al. Grader variability and the importance of reference standards for evaluating machine learning models for diabetic retinopathy. *Ophthalmology*. 2018;125(8):1264-1272. doi: 10.1016/j.ophtha.2018.01.034
- 8 Sjoding MW, Hofer TP, Co I, Courey A, Cooke CR, Iwashyna TJ. Interobserver Reliability of the Berlin ARDS Definition and Strategies to Improve the Reliability of ARDS Diagnosis. *Chest*. 2018;153(2):361-367. Doi: 10.1016/j.chest.2017.11.037
- 9 Burke HB. Transparent reporting of a multivariable prediction model for individual prognosis or diagnosis (tripod). *Annals of Internal Medicine*. 2015;162(10):735. doi:10.7326/115-5093

## What Every Intensivist Should Know About Using Data Science and AI in Prediction of Adverse Postoperative Events in the ICU

### UTILITY OF PREDICTIVE ANALYTICS IN CRITICAL CARE

Identifying the underlying cause of clinical deterioration in postoperative patients in the intensive care unit (ICU) can be difficult. AI can assist in identifying the root cause of clinical deterioration in postoperative patients in the ICU by predicting adverse events and providing a more precise diagnosis earlier and more accurately than human effort alone<sup>1</sup>. Many clinical scenarios and ongoing research are now using AI-driven models that utilize the data readily available in the ICU to predict patient deterioration or adverse events, optimize treatment plans, and manage resources<sup>2</sup>. The fundamental idea behind artificial intelligence (AI) is to enable computers to discover patterns within multi-domain and multidimensional data<sup>3-4</sup>. The goal is to allow clinicians to intervene early and prevent adverse outcomes, such as cardiac arrest or sepsis<sup>5-7</sup>.

### WHAT ARE THE BEST DATA TYPES AND MODELS FOR THE PREDICTION OF POSTOPERATIVE OUTCOMES IN THE ICU?

There are different data types and models used in prediction modeling, depending on the nature of the problem and the available data<sup>4</sup>.

#### DATA TYPES:

**Numerical data:** This includes continuous or discrete numeric values, such as age, weight, and blood pressure.

**Categorical data:** This includes data that fall into categories, such as gender, race, or medical conditions.

**Time-series data:** This includes data that are collected over time, such as hourly vital signs, waveform data, or daily lab results.

**Text data:** This includes data in the form of unstructured text, such as physician notes or patient history.

#### MODELS:

**Regression models:** These models are used for predicting continuous or discrete outcomes based on one or more predictor variables. Linear regression and logistic regression are common examples.

**Classification models:** These models are used for predicting categorical outcomes based on one or more predictor variables. Examples include decision trees, random forests, and support vector machines.

**Time-series models:** These models are used for predicting future values in a time-series based on historical data. Examples include autoregressive integrated moving average (ARIMA) models and recurrent neural networks (RNNs).

**Natural language processing (NLP) models:** Processing and analyzing text data is a major function of NLP. Examples include various forms of Transformer models including Bidirectional Encoder Representations from Transformers (BERT).



**Avneep Aggarwal, MD**  
Cleveland Clinic  
Cleveland, OH

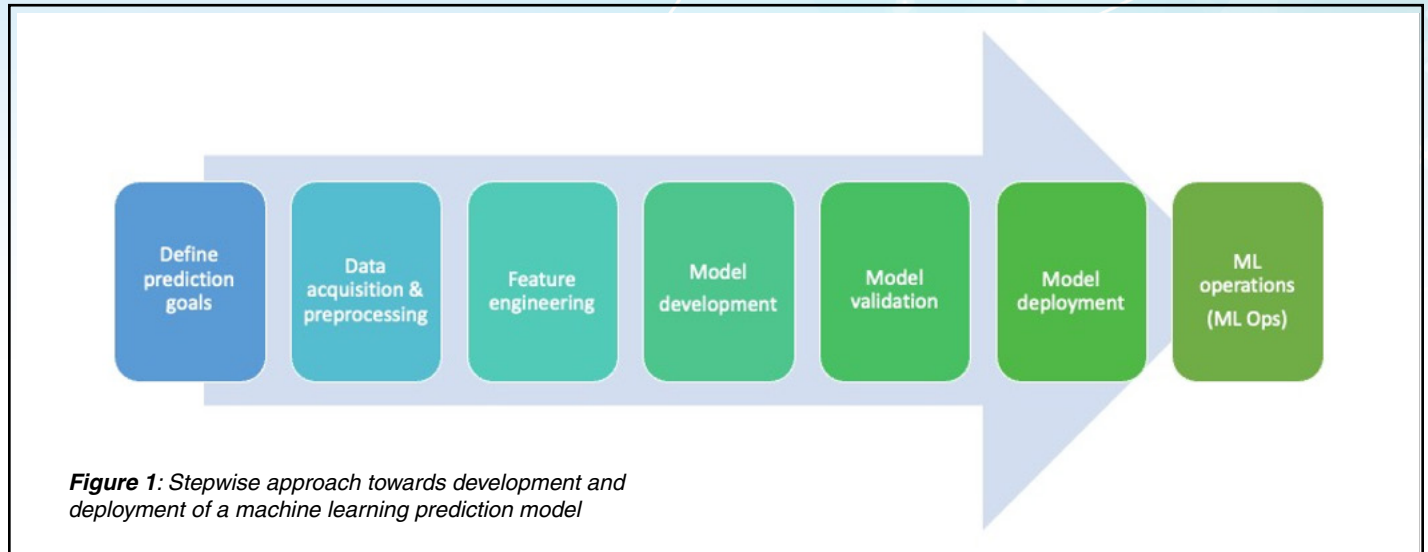


**Piyush Mathur, MD, FCCM, FASA, FAMIA**  
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*continued on page 11*



**Figure 1:** Stepwise approach towards development and deployment of a machine learning prediction model

The development of a model and implementation in a clinical workspace requires a series of steps to be executed (**Figure 1**). When selecting a model for prediction modeling, it is important to consider the nature of the data being analyzed and the research question being asked<sup>8-10</sup>. Typically, the data preprocessing step after the data has been acquired, is one of the most resource-intensive steps. Preprocessed data can then be used for training and testing the selected prediction model. Each model has its strengths and weaknesses, and choosing the right approach can help ensure accurate and reliable predictions<sup>11</sup>. Validation of the model, especially in an environment external to the model development data is important to address questions of bias, scalability, and generalizability. A validated model still requires implementation and translational steps to integrate the model output with the clinical decision-making interface, typically a device or the electronic health record. Methods for further maintenance of the models and monitoring of the model performance are important and continue to evolve.

### PREDICTING ADVERSE EVENTS IN ICU

AI can play an important role in predicting adverse events in the surgical ICU population by analyzing large amounts of patient data and identifying patterns and risk factors that may be difficult for human experts to identify<sup>12</sup>. Some clinical examples where AI may be used to predict adverse postoperative events in the ICU:

**Early warning systems:** Early warning systems that detect changes in patient status may indicate a pending adverse event. These can monitor vital signs, laboratory results, and other data to identify patients who may be at risk. Adams et al, developed and prospectively validated a sepsis alert system built using physiological and laboratory data — the Targeted Real-time Early Warning System (TREWS), which has been shown to reduce in-hospital mortality<sup>13</sup>.

**Cluster analysis:** Algorithms can be trained to analyze patient data and identify patterns that may indicate a higher risk of adverse events, so-called ‘pattern detection’. These algorithms can incorporate data from multiple sources, including patient history, comorbidities, and surgical factors, to predict the likelihood of complications<sup>8</sup>.

**Risk stratification:** AI in the surgical ICU can be used to stratify patients into different risk categories based on their likelihood of experiencing adverse events. This can help intensivists prioritize care and allocate resources more effectively<sup>14</sup>.

The overarching goal is to provide decision support to intensivists by providing real-time recommendations based on patient data<sup>15</sup>. The final common ground would be based on a personalized medicine approach to develop treatment plans based on each patient’s unique characteristics and history. This can help reduce the risk of adverse events by tailoring treatment to each critically ill patient. These have already been implemented in the operating room, using tailored approaches for intraoperative hypotension.

### CHALLENGES WITH PREDICTION MODELING

There are several challenges associated with prediction modeling in the ICU. Some of the major challenges include the complexity and heterogeneity of patient data. ICU data can be complex and often incomplete, with missing data and variability in data quality, making it challenging to develop accurate prediction models. The lack of standardization of data can affect the accuracy and generalizability of prediction models. Additionally, the interpretation and communication of model predictions to clinicians can pose a challenge, as can the ethical considerations, including bias, surrounding the use of predictive analytics in critical care.

*continued on page 12*

### PREDICTING THE FUTURE IN THE AI-GUIDED ICU

Overall, the role of AI in predicting adverse postoperative events in the ICU is to provide intensivists with tools and insights that can help them identify patients at risk and take appropriate actions to prevent complications. As intensivists, we can improve patient outcomes and reduce the risk of adverse events, by using AI to help us in the ICU. However, AI development and implementation currently encounter several challenges in the ICU. Data quality is one of the most important variables affecting the predictive value of any AI model. To successfully implement AI into clinical practice, collaborative research efforts are required, along with plans for data standardization and plans to ensure data security and quality control. It's important to remember that AI is only a tool, and AI-guided healthcare is not about replacing human expertise, but rather about augmenting it. Ultimately, the vision for the future of AI-guided ICU is one in which AI is used to enhance the capabilities of intensivists, providing them with powerful decision-making tools that can help them provide better care to patients. As AI technology continues to advance, we can expect it to become an increasingly important tool in the ICU.



### BIBLIOGRAPHY

1. Mathis MR, Engoren MC, Williams AM, Biesterveld BE, Croteau AJ, Cai L, Kim RB, Liu G, Ward KR, Najarian K, Gryak J; BCIL Collaborators Group. Prediction of Postoperative Deterioration in Cardiac Surgery Patients Using Electronic Health Record and Physiologic Waveform Data. *Anesthesiology*. 2022 Nov 1;137(5):586-601. doi: 10.1097/ALN.0000000000004345. PMID: 35950802.
2. Mathur, Piyush MD, FCCM\*; Burns, Michael L. MD, PhD†. Artificial Intelligence in Critical Care. *International Anesthesiology Clinics* 57(2): p 89-102, Spring 2019.
3. Sanchez-Pinto LN, Luo Y, Churpek MM. Big data, and data science in critical care. *Chest*.2018;154(5):1239-48.
4. Obermeyer Z, Emanuel EJ. Predicting the future—big data, machine learning, and clinical medicine. *N Engl J Med*.2016;375(13):1216–9.
5. Yoon JH, Mu L, Chen L, et al. Predicting tachycardia as a surrogate for instability in the intensive care unit. *J Clin Monit Comput*. 2019; 33:973–85.
6. Nemati S, Holder A, Razmi F, Stanley MD, Clifford GD, Buchman TG. An interpretable machine learning model for accurate prediction of sepsis in the ICU. *Crit Care Med*. 2018; 46:547–53.
7. Komorowski M, Celi LA, Badawi O, Gordon AC, Faisal AA. The artificial intelligence clinician learns optimal treatment strategies for sepsis in intensive care. *Nat Med*. 2018; 24:1716–20.
8. Gambus P, Shafer SL. Artificial intelligence for everyone. *Anesthesiology*. 2018;128(3):431-3.
9. Rajkomar A, Dean J, Kohane I. Machine learning in medicine. *N Engl J Med* 2019; 380: 1347–58.
10. Topol EJ. High-performance medicine: the convergence of human and artificial intelligence. *Nature Med* 2019; 25: 44–56.
11. Esteva A, Robicquet A, Ramsundar B, Kuleshov V, DePristo M, Chou K, et al. A guide to deep learning in healthcare. *Nature Med* 2019; 25: 24–9.
12. Lee CK, Hofer I, Gabel E, Baldi P, Cannesson M. Development, and validation of a deep neural network model for prediction of postoperative in-hospital mortality. *Anesthesiology*. 2018;129(4): 649–62.
13. Adams, R., Henry, K.E., Sridharan, A., et al. Prospective, multi-site study of patient outcomes after implementation of the TREWS machine learning-based early warning system for sepsis. *Nat Med* 28, 1455–1460 (2022).
14. Castela Forte, J., Yeshmagambetova, G., van der Grinten, M.L. et al. Identifying and characterizing high-risk clusters in a heterogeneous ICU population with deep embedded clustering. *Sci Rep* 11, 12109 (2021). <https://doi.org/10.1038/s41598-021-91297-x>
15. Maheshwari K, Cywinski JB, Papay F, Khanna AK, Mathur P. Artificial Intelligence for Perioperative Medicine: Perioperative Intelligence. *Anesth Analg*. 2022 Feb 24.

Society of Critical Care Anesthesiologists

**LIFETIME ACHIEVEMENT AWARD**

**Nominations Deadline:  
DECEMBER 31, 2023**





## WOMEN IN CRITICAL CARE

QUALITY + COMPASSION + BENEVOLENCE

# Women in Critical Care: Year in Review

SOCCA WICC ended the year with a Fireside chat featuring three Intensivists in different phases of their career to share their unique journeys in academia, professional life, and career challenges. Drs. Sheela Pai Cole, Brigid Flynn, and Emily Vail joined Drs. Tabaie and Siddiqui to host the fourth and final Fireside Chat for WICC in November. Dr. Tabaie moderated the panel and asked varied questions of the speakers about mentorship, balancing academic focus and clinical demands, strategies for saying ‘no’ to opportunities when stretched, and pulling back and re-engaging with an academic career due to family obligations. The panelists spoke with candor and authenticity and shared wise pearls of experiential learning and advice on resilience. The chat provided a welcome semi-formal atmosphere for the audience to hear from successful academic intensivists and have them share workplace experiences, offering a space for support and for practicing methods to achieve career advancement.

WICC hopes to provide a sense of community, a chance for mentorship and clinical and academic opportunities for women in critical care to build a network and share stories. In 2024 we hope to continue our focus on mentorship and coaching. We hope to hear from our membership and to develop a list of women anesthesiology-trained intensivists in the U.S. who wish to join us in this vision and mission.

We also would like to hear from WICC members about any specific questions and issues faced in academic or private practice careers, work-life balance, clinical practice, or research. Our steering committee would be happy to hear from you, discuss your queries with previous Fireside Chat speakers who have offered their time and experience in helping us coach and mentor, and get back to you. McKinsey Research has revealed that most of the leadership behaviors deemed most effective for addressing future challenges—inspiration, participative decision-making, setting expectations and rewards, people development, and role modeling—are already exhibited frequently by women. We hope to use this enormous talent within WICC to augment important opportunities for women to become better equipped for the challenges and associated barriers faced in a competitive field. 🏠



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## WOMEN IN CRITICAL CARE

QUALITY + COMPASSION + BENEVOLENCE

## FIRESIDE CHAT PANEL

*Tackling challenges in a career in CCM*

RECORDING NOW AVAILABLE



**Emily Vail, MD, MSc**  
University of Pennsylvania,  
Philadelphia, PA



**Brigid C. Flynn, MD**  
University of Kansas Medical  
Center, Kansas City, KS



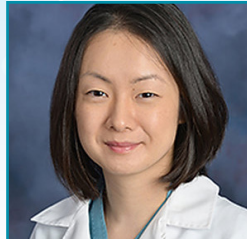
**Sheela Pai Cole, MD, FASE, FASA**  
Stanford University Medical Center  
Stanford, CA

# Intensivists in Private Practice Update

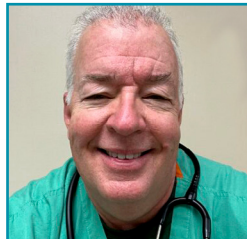
As we wrap up this year, we would like to take this opportunity to highlight the Intensivists in Private Practice subcommittee and provide an update on some of our recent activities.

Many of the medical professional societies and organizations are tailored to physicians in academic practice. However, approximately 70% of hospital care delivered in the United States is provided by non-academic facilities. Similarly, a significant percentage of SOCCA's membership works in a non-university hospital setting. SOCCA's Intensivists in Private Practice subcommittee, led by chair Dr. Frank O'Connell, was created to help physicians who transitioned to private practice stay current in their field and remain active in the critical care community. The subcommittee also acts as a forum for members to explore and discuss issues that are unique to non-academic clinicians. Some of the barriers and challenges include the creation of new intensivist programs, billing, program fund allocations by hospital administration, division of time between the OR and ICU, transition from academic to private practice, and private practice career opportunities for current fellows.

Our subcommittee holds quarterly Zoom meetings. While many of our prior meetings have been open forum discussions, our recent meetings have focused on specific topics relevant to critical care anesthesiologists who work in private practice groups or community hospitals. Recent meetings have delved into subjects such as contract negotiations, [the establishment of anesthesia critical care presence in the ICU, and the transition from open to closed units.](#)



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Throughout the year, our members have also been involved in various SOCCA webinars. This past year, Dr. Robert deQuevedo was a panelist on the webinar "[Critical Care Everywhere: The Expanding Role of the Anesthesia Intensivist.](#)" Dr. deQuevedo has been in private practice for over 20 years and he shared his experience with successfully establishing a community ICU practice. Dr. Pinxia Chen also had the opportunity to participate in the [Job Fair webinar](#) where she shared her private practice perspective. An ongoing goal is to increase our outreach and member engagement. This year, our Private Practice group welcomed a new member, Dr. Ryan Matika. Dr. Matika has been a wonderful asset to the group and has been an active contributor to our meetings.

In the upcoming year, our subcommittee hopes to engage more of our private practice and community-based colleagues. There are a significant number of critical care anesthesiologists working in the community and we hope that our group will grow and continue to serve as a resource. Potential plans include the creation of a Private Practice section on the SOCCA website, which will provide a platform for our members to share their experiences, concerns, questions, and perspectives. We are excited to see our current members as well as meet new colleagues in private practice in the new year. 🏠



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## SOCCA INTENSIVISTS IN PRIVATE PRACTICE RECORDING NOW AVAILABLE



**Pinxia Chen, MD**  
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**Robert  
DeQuevedo, MD**  
St. Luke's University  
Health Network



**Ryan Matika, MD**  
Banner University  
Medical Center



**Frank O'Connell,  
MD, FACP, FCCP**  
AtlantiCare

PRESENTED NOVEMBER 9



**Recording Now Available**

## **SOCCA JOB FAIR:**

# **HOW TO NAVIGATE TODAY'S CHANGING LANDSCAPE**

**Presented October 4, 2023**



**PINXIA CHEN, MD**  
Saint Luke's University  
Health System



**VIVEK MOITRA, MD, MHA**  
Columbia University



**LOUISA PALMER, MD**  
Brigham and Women's  
Hospital



**AMEEKA PANNU, MD**  
Beth Israel Deaconess  
Medical Center

## **SOCCA EARLY CAREER INTENSIVISTS**

**RECORDING NOW AVAILABLE**

**A Discussion  
Regarding Contract  
Negotiations featuring**



**Gerald A. Maccioli,  
MD, MBA, FCCM, FASA**  
Vice President, Medical Affairs,  
The Accreditation Commission  
for Health Care; Chief Medical  
Officer & Board Advisor,  
Quick'rCare; Chief Medical  
Officer, Care Angel; and  
Chief Medical Officer, Moterum

**PRESENTED NOVEMBER 15, 2023**



## FEATURED ARTICLE

# The Anesthesia Critical Care Medicine Fellowship Match Remains a Buyer's Market for the Second Year in a Row

### INTRODUCTION

Anesthesia Critical Care Medicine (ACCM) is the oldest ACGME board-certified subspecialty within Anesthesiology, and similar to other subspecialty fellowship training programs, our growth has outpaced the current interest in our field. This year's match proved again to be difficult for many programs in light of the low application numbers. With almost 40% of positions unfilled, programs are weary that the current market supply and demand curves will not become favorable in time for the upcoming 2024 match cycle. A glimpse at the trends in applicants, program expansion, and unfilled positions reveals that we should be prepared for another difficult year.

An interesting component of the ACCM recruitment cycle is the prospect of unique candidates securing their positions through a match exception process. The match exception process was developed to allow applicants who meet certain criteria to coordinate their training ahead of the match deadline. Overall, 60% of the ACCM positions are filled through the match exception process, and this past year, the make-up of those offers changed trajectories as well. Only 13% of candidates received exceptions to stay within their institution — a sign that applicants may be willing to move for a different or better experience in critical care training. We saw an increase in candidates from emergency medicine (who qualify for a match exception due to



**Erin Hennessey, MD, MEHP**  
 Chair, Program Directors Advisory Council (PDAC)  
 Stanford University  
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the need to coordinate the second year of training within the same program) and a decrease in those interested in a combined ACTA-ACCM two-year sequential training program. If these trends continue in this direction, programs will need to pivot their ability to train (and fund) emergency medicine fellows and create idealistic and inclusive training programs for one-year ACCM fellows.

### WE REMAIN IN A BUYER'S MARKET

As interested applicants have started filling out their SF Match applications as of last month, the Program Director's Advisory Council (PDAC) launched strategic projects that can be paralleled to the advice given to those selling homes in a buyer's market. An abbreviated list of things to consider when "selling in a buyer's market" as adapted from Zillow:

1. Hire an Experienced Agent
2. Inspect and Make Repairs
3. Update Home to Attract Buyers
4. Maximize Marketing Tactics
5. Offer Buyer Incentives

The PDAC convened on the sidelines of the Society of Academic Associations of Anesthesiology and Perioperative Medicine annual meeting during the critical care update session. Chaired by Dr. Erin Hennessey, the business

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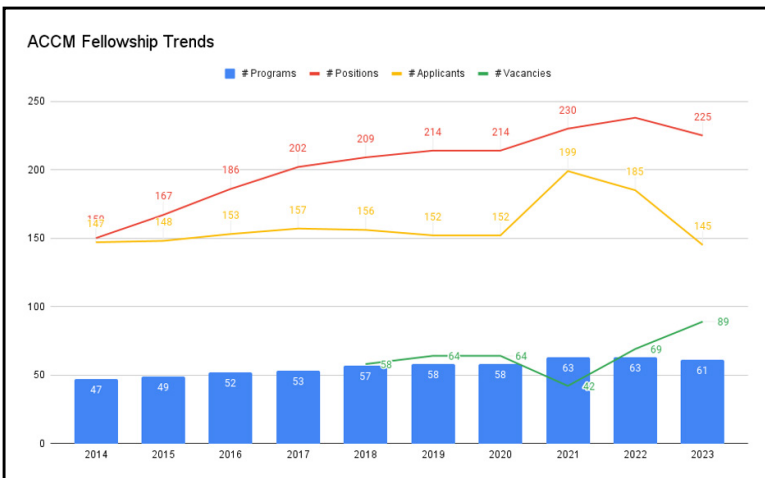


Figure 1

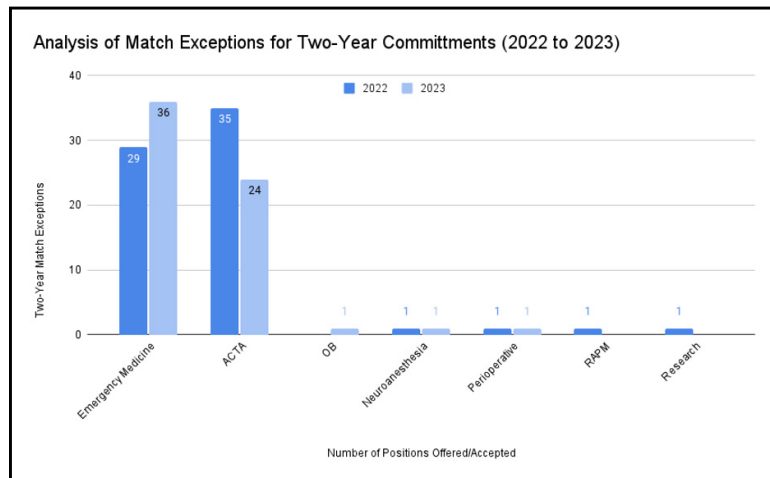


Figure 2



meeting facilitated a thorough exploration of contemporary topics facing fellowship program directors, sparking significant discussions, including an in-depth discussion of the above-mentioned weary fellowship data and trends. However, the PDAC is made up of resilient, forward-thinking, and change agent intensivists, and instead of dwelling on the difficult road ahead, they jumped into specialized working groups dedicated to improving ACCM fellowship conditions across the nation in an effort to change the landscape of the current market conditions.

### ***Hire an Experienced Agent: Investing in and Supporting Your ACCM Program Director***

Dr. Hennessey's working group focused on strategies and suggestions for new program directors to succeed. Essential tips emerged, including prioritizing efforts, understanding ACGME violations, relying on program coordinators' expertise, seeking guidance from senior faculty, and building relationships with experienced program directors in the department. The group emphasized the importance of cultivating relationships with the local GME/Designated Institutional Official (DIO) and leveraging resources, best practices, and networking opportunities provided by the SOCCA PDAC group.

### ***Inspect and Make Repairs: Updates Needed to the Fellowship Curriculum***

In the evolving educational paradigm emphasizing competency-based assessments, Dr. Ameeka Pannu's working group scrutinized essential areas for a graduating fellow to master. This encompassed patient care and procedural skills, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The group underscored the heterogeneity of critical care practices nationwide, emphasizing the importance of developing a standardized curriculum, particularly given the challenges of an increasingly complex patient population. This group is looking forward to coordinating with the SOCCA Practice Advisory Council to align fellowship training requirements with the needs of academic departments, divisions, and community practices.

### ***Update Home to Attract Buyers: Improving Residency Rotations in ACCM***

Drs. Babar Fiza and Vivek Moitra spearheaded the session on reimagining resident ICU rotations, a critical topic amid declining resident interest in critical care fellowships. The group highlighted the need to reconceptualize the structure

of monthly ICU rotations, proposing innovative changes such as condensing the rotation to 2-week blocks and strategically aligning it with other rotations to alleviate demands. Discussions extended to creating opportunities for independence within the resident experience, which would foster a more insightful understanding of critical care medicine for the residents as they progress through their critical care rotations.

### ***Maximize Marketing Tactics: Reaching Students, Residents, and Fellows***

Drs. Ameeka Pannu, Allison Dalton, and Nazish Hashmi have led herculean efforts in the past to advertise programs on social media platforms. Allison Dalton, in her role of Chair of the Education Committee for SOCCA, updated the group on the importance of using the SOCCA annual meeting as a way to engage future trainees for ACCM. This year the annual meeting, in partnership with IARS, will host a large portion of critical care educational tracks and create a space for networking and engaging. Program Directors are also interested in further educational spotlights for programs and resident-focused educational products developed through SOCCA. Maximizing our exposure to trainees in addition to our colleagues in anesthesiology is important and was highlighted through panel submissions and work coordinated with the ASA.

### ***Offer Buyer Incentives: Think Not Just Money but also Opportunities!***

Many programs may have minimal control over financial specifics such as salary, educational stipends, or loan repayment options. Program Directors should think outside of the box and expand the possibilities of incentives. Unique patient care environments, wellness initiatives, mentoring, and sponsorship are all opportunities that individual programs and

*continued on page 18*

## Fellowship Match Remains a Buyer's Market *continued from page 17*

SOCCA PDAC can continue to develop to incentivize training in critical care. Fellowship is a one-year training program and fellows frequently are already thinking about job opportunities when interviewing for fellowship. Discussing ways to partner with both academic and private practice groups to launch their job possibilities after training helps applicants see the forest for the trees when choosing anesthesia critical care training.

### ***Buyer's Market, Seller's Market, or Nobody's Market?***

The analogy of the housing market extends beyond appealing to the buyer. With a small applicant pool, program directors must still maintain the mission of their program and recruit and retain trainees that fulfill their programmatic, departmental, and institutional mission. If you recognize a resident who has the passion, drive, and compassion for critical care medicine, please encourage them to apply. This year ACCM programs will again be using the virtual interview format for recruiting and abiding by the match exception rules to facilitate a cordial and collegial environment for recruitment.

One could argue that despite over 90% of applicants getting

their first choice in fellowship, a market in which we do not have enough applicants, have programs struggling to fill vacancies, and have units that remain understaffed, is truly nobody's market because everyone loses. Programs have the strain of trying to staff and maintain their departmental mission, trainees lose out on a full fellowship class and the camaraderie built into training with other like-minded colleagues, and patients lose when they do not have access to subspecialty, board-certified anesthesiology intensivists in hospitals across the country. The SOCCA PDAC aims to change the landscape and through motivation, compassion, and persistence, create a market where everyone gains, including our patients. 🏠

Read "[The State of Anesthesia Critical Care Fellowship Programs](#)" from Drs. Hennessey and Fiza.

### REFERENCES

- 1 Umbrasas K. Selling a Home in a Buyers Market. 10.26.2019. <https://www.zillow.com/learn/selling-home-in-buyers-market/>



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Applications are now open and the deadline for international and domestic students is April 1, 2024.

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**Further questions? Send BGSC an email at [global.surgery@ubc.ca](mailto:global.surgery@ubc.ca).**

# Perspectives on Pursuing an Anesthesiology Fellowship in Critical Care Medicine

It is an exciting time to pursue an anesthesiology fellowship in critical care medicine (CCM). As we emerge from COVID-19, there is a renewed energy for scientific investigations, making connections, and integrating wellness strategies to mitigate burnout. Technological advances in hemodynamic monitoring, the use of artificial intelligence or data analytics, and application of novel biomarkers are all captivating areas of investigation. Moreover, the integration of bedside point-of-care ultrasound (POCUS) continues to grow and offers opportunities to be at the forefront of clinical care. If you've had a chance to attend recent regional or national anesthesiology or CCM meetings, you have likely noticed expanded opportunities to network and for mentorship at all stages of training. There has been a palpable energy around these connections and a desire to collaborate. It has been a real pleasure to connect with former colleagues, meet new friends and learn from a diverse collection of experts in the field.

While historically common to staff an ICU with one intensivist per week, there is significant heterogeneity in staffing models and a growing trend of flexible work schedules that aim to improve work-life balance and mitigate burnout. For example, splitting the week into day and night coverage with multiple intensivists or decreasing the consecutive days of coverage. As Drs. Hennessey and Fiza suggest in a recent SOCCA article on the state of anesthesia critical care fellowship programs, re-evaluating traditional month-long resident ICU rotations to mirror these novel faculty staffing models might similarly improve resident and fellow well-being and improve specialty recruitment.

In speaking with Dr. Lopez, a current CCM fellow, he notes his interest in pursuing a career that blends anesthesiology and critical care medicine began while completing his PhD research. "It provides a unique opportunity to bring the skills learned in the operating room to the ICU and apply the knowledge obtained from the ICU to those critically ill patients requiring anesthesia care". He goes on to note that a career in CCM provides "a lifelong intellectual challenge" and allows for opportunities to "improve leadership and interdisciplinary teamwork, diversify skills and overall play a larger role in the care of patients". He advises future applicants to seek out fellowships that offer a "diverse critically ill patient population, opportunities to learn alongside CCM fellows from other specialties, strong training in POCUS and cardiac support devices, and a curriculum with diverse didactic opportunities". Thankfully, he found it "challenging" to narrow his top programs, as so many offered not only robust CCM curriculums, but also featured topics in leadership, education and administration. He envisions a future career that "blends anesthesiology, critical care, research, and other academic endeavors", and recognizes opportunities to do so in both academic and private settings.

As Dr. Nowak, immediate past CCM fellow and current cardiothoracic (CT) fellow notes, "I toyed with doing either or both cardiac and critical care fellowships until the middle of my Clinical Anesthesia-2 year, when I finally decided the compliment was superior". "Rather than responding only in the microcosm of the operating room (OR), I pictured OR and ICU care as smaller pieces in the larger painting of the patient's hospital stay, with each location affecting the other". For example, "I am thoughtful about re-dosing paralytic medications at the end of an OR case given the timing efforts of the ICU team to liberate the patient from invasive mechanical ventilation". Dr. Nowak goes on

*continued on page 20*



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*SOCCA Membership Committee-Resident & Medical Student Subcommittee*  
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**Ernesto Lopez  
Valencia, MD, PhD**  
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**Lindsay D.  
Nowak, MD**  
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Salt Lake City, UT

to discuss how she is more mindful when it comes to vascular access, hemodynamic management, and perioperative pain control, and has “greater confidence in caring for very sick patients”.

In terms of choosing where to do a CCM fellowship, Dr. Nowak considered several priorities: “relationships with intensivist faculty and ICU nurses from residency, a learning environment that balanced clinical load with didactic opportunities, a diverse patient population, and flexibility for both ICU and non-ICU rotations”. Upon completion of her CTS fellowship, Dr. Nowak anticipates pursuing an academic position that allows her to best utilize her dual training.

Now that we have piqued your interest in this diverse and fulfilling field, it is time to become a member of the Society

of Critical Care Anesthesiologists (SOCCA) and prepare your CV! Membership is complimentary for medical students, residents, and fellows, with further information to be found at [socca.org/socca-membership](https://socca.org/socca-membership). CCM fellowship applicant registration for 2025 positions open on November 1, 2023 at [fmatch.org/registration/applicant](https://fmatch.org/registration/applicant). Best of luck, and hope to see you around. 🏠

### References

- 1 Hennessey E and Fiza B. An Introspective Reflection on the State of Anesthesia Critical Care Fellowship Programs from the Program Director’s Advisory Council (PDAC). *SOCCA Drip*. 2023; 34(2).



## JOB BOARD

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### [Visit SOCCA’s Job Board](#)

If you would like to post a job, please email a short description and/or PDF flyer including location, contact information, and closing date to SOCCA Society Director, Vivian Abalama, IOM, CAE at [vabalama@iars.org](mailto:vabalama@iars.org).

# Service Chiefs' Advisory Council Update: 2024 and Beyond

The SOCCA Service Chiefs' Advisory Council (SCAC) aims to include representatives from every organization with an active anesthesiology critical care practice, specifically the one or two individuals with the broadest and most directly relevant administrative purview from each organization. Depending on the size and scope of any given practice, this may be a vice chair for critical care, a division/section/service head, and/or an intensive care unit medical director. In support of SOCCA's mission to support and develop anesthesiologists who care for critically ill patients, the SCAC seeks to facilitate a greater understanding of the national clinical, operational, and administrative landscape to better inform SOCCA and our national practice while facilitating collaboration and mutual aid. The SCAC is currently composed of approximately 174 individuals from over 110 organizations around the country, including academic and community practices with and without critical care medicine fellowship training programs. Participation in SCAC is agnostic as to any given individual's SOCCA membership status in support of cultivating a comprehensive national scope.

Having formed in May of 2022, the SCAC recently celebrated its first anniversary and related accomplishments. Initial priorities for the group arose via self-determination and were largely administrative in nature, recognizing the challenges associated with the creation and organization of a large coalition of the willing: growth and maintenance of the group, early steps to promote collective benefit, and zeroing in on inaugural collaborative efforts. To that end, the SCAC now boasts a robust, internally available, contact directory, better incorporation of community practices, and several successful external collaborations.

Looking ahead, the SCAC has identified several ways to make meaningful contributions to our collective national anesthesiology critical care practice landscape.

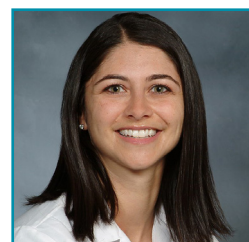
1. Surveys have been an important tool to better understand the national anesthesiology critical care practice landscape. Fundamentally, such surveys are snapshots in time that reflect the current state of the respondents who participate. It has become increasingly apparent that there are gaps between the current state and the ideal state when it comes to anesthesiology critical care timekeeping models, staffing models, compensation models, and other key administrative aspects of practice. To that end, the SCAC is planning to undertake a Delphi-backed consensus effort to generate a methodologically robust set of statements about best practices in these domains, which will help to bridge the gap between the current state and the ideal state. The SCAC, as a coalition of individuals with relevant administrative expertise, will be able to contribute expert opinions to such an effort. These efforts will serve to bolster those from other aligned groups, such as the ASA's Committee on Critical Care Medicine.
2. A highly competitive anesthesiology labor market has led to rapid evolution in compensation for anesthesiologists. This has not only forced organizations to critically evaluate their approaches to physician compensation but is also a likely driver of residency graduate behavior when it comes to career path selection. Due to substantial structural differences in the delivery of and reimbursement of anesthesiology and critical care medicine, broad insight into relevant aspects of compensation for anesthesiology critical care services is necessary to better



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*continued on page 22*

support individual physicians and their practices in their local advocacy efforts. To that end, SCAC plans to design, conduct, and then report a national anesthesiology critical care compensation survey, inspired in part by similar efforts from the Society of Cardiovascular Anesthesiologists<sup>1,2</sup>

3. The SCAC also remains committed to external collaborative relationships. To that end, members from the SCAC constituency are planning to collaborate with individuals from SOCCA's Program Directors' Advisory Council to explore and define what aspects of our clinical practice should be core elements of fellowship training versus those that may reasonably require additional training, development, or mentorship in practice based on their specialized nature. The SCAC also offers an opportunity for job-seeking critical care anesthesiologists to gain better visibility into employment opportunities, and we are exploring related ideas in partnership with SOCCA's Committee on Membership.

In closing, as the SCAC's current leadership team, we would like to extend heartfelt thanks to its participants for continuing to grow and develop this endeavor. Please do not hesitate to reach out with questions about your organization's representation and/or if you suspect your organization may not yet be included. Similarly, we welcome opportunities for collaboration within SOCCA or beyond to further the cause of anesthesiologists practicing critical care medicine. 🏠

#### REFERENCES

1. Dalia AA, Vanneman MW, Bhatt HV, Troianos CA, Morewood GH, Klopman MA. Trends in cardiac anesthesiologist compensation, work patterns, and training from 2010 to 2020: a longitudinal analysis of the Society of Cardiovascular Anesthesiologists Salary Survey. *Anesth Analg.* 2023;137(2):293-302.
2. Shaw AD, Glas K, Shernan SK. Cardiac anesthesiologist compensation and working patterns: 2010-2020. *Anesth Analg.* 2023;137(2):289-292.

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# COMMUNICATIONS COMMITTEE: CASE REPORT

## Emergent ECMO for a TE-Fistula: Fundamentals are Key

This case report describes a young man who developed a tracheal-esophageal fistula (TEF) from endotracheal intubation with prolonged elevated cuff pressure after a traumatic fall. This case report describes the intra-operative management of profound hypoxia, shedding light on crucial pre-operative indicators that could serve as vital cues to prevent the occurrence of this potentially serious complication.

### CASE SUMMARY

A 37-year-old man presented as a level 1 trauma after a fall from a second-story balcony. He had several injuries including subarachnoid hemorrhage, grade 1 blunt cerebrovascular injury, right temporal bone fracture, right iliac wing fracture, grade 3 liver injury, bilateral rib fractures, C7 transverse process fracture, right pulmonary contusion, and pneumothorax. He was brought to the hospital intubated for altered mental status and agitation. He was extubated on hospital day 4 only to be emergently re-intubated less than 24 hours later. He was unable to be weaned from the ventilator secondary to pneumonia and acute respiratory distress syndrome (ARDS). After a discussion with the patient's primary decision-maker, the team prepared him for tracheostomy and gastrostomy tube placement.

The percutaneous tracheostomy procedure was performed at the bedside after 8 days of mechanical ventilation. A bronchoscope via the endotracheal tube (ETT) was used during the procedure to visualize the needle, catheter, and dilators. When the tracheostomy tube (TT) itself was placed and the bronchoscope placed through the tracheostomy, the feeding tube was visualized which raised concern for esophageal placement of the TT. The ETT was advanced distal to the tracheostomy site. An additional attempt was made bedside to place the TT into the airway, however, despite good visualization of the guidewire with the bronchoscope, the TT continued to move into the esophagus. The patient was brought emergently to the operating room for neck exploration. The injury to the anterior esophagus was identified with an endoscope, through which the trachea and endotracheal balloon were seen. The Gastroenterology team was consulted and emergently deployed an esophageal stent.

Through the tracheoesophageal injury, the trachea appeared pale, ischemic, and ulcerated circumferentially. The patient remained hypoxic, and another attempt was made to place an open TT, but again, entry into the esophagus was made. The ETT was re-advanced past the injury. Post-advancement, the patient became profoundly hypoxic. The ECMO team was consulted intra-operatively, and the patient was deemed a candidate. Inhaled nitric oxide therapy was initiated while awaiting cannulation to Veno-Venous (V-V) ECMO. The neck was closed, and the patient was prepared for cannulation.

Following 23 days on V-V ECMO, the patient underwent decannulation. Ten days later, he underwent definitive repair of his TE Fistula with tracheal resection. After a culminative 70 days in the hospital, he was discharged to a long-term acute care facility.

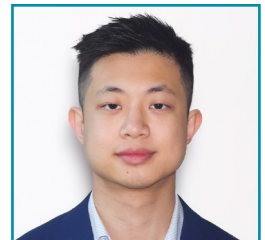
### CASE DISCUSSION

Tracheo-esophageal fistula (TEF) formation is a rare complication of endotracheal intubation, thought to occur in less than 1% of patients<sup>1</sup>. In this patient population, it is reported that up to 65% could receive a secondary TEF due to overinflation of the cuffs<sup>2</sup>. Further risk factors for TEF formation include trauma and cancer. Risk factors for development include rigid nasogastric tube, poor

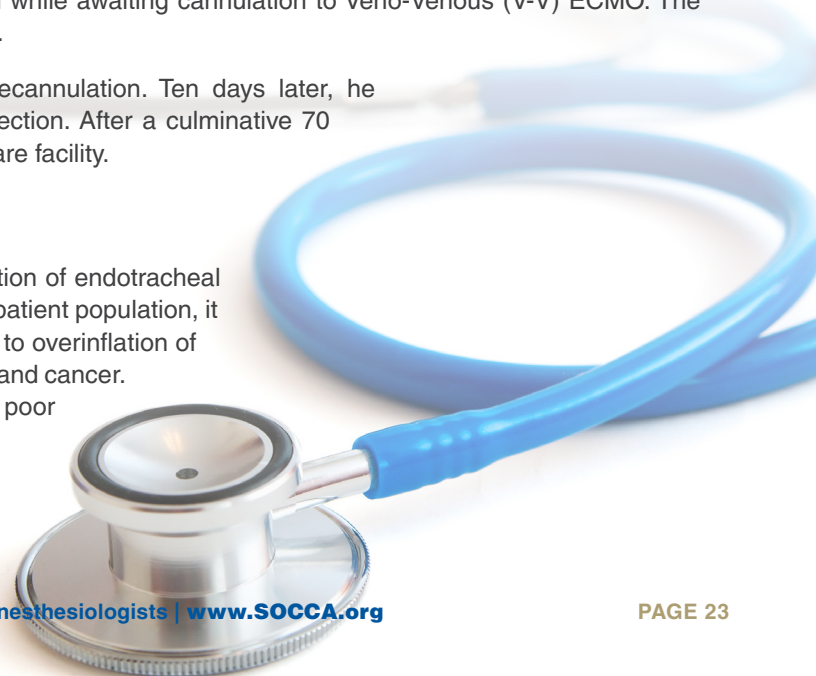
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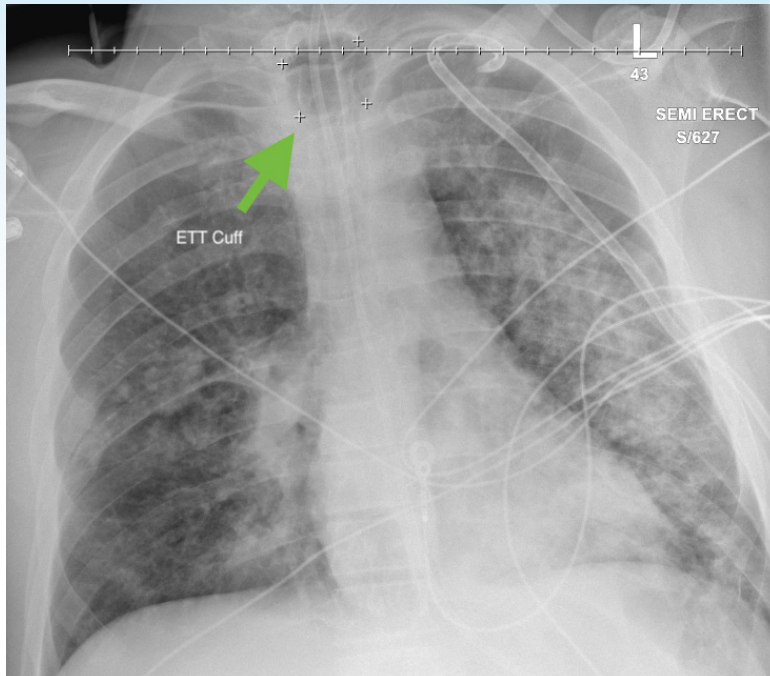


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**Image 1.** Chest X-ray from the morning of bedside tracheostomy. Note the enlarged endotracheal tube cuff, likely due to overinflation.

nutritional status, respiratory infections, and agitation/TBI leading to excessive head movements<sup>3,4</sup>—all of which were present in this patient. The culmination of these risk factors led to increased difficulties with his management.

High-volume, low-pressure endotracheal tube cuffs adoption has decreased the incidence of TEF formation. However, measuring and reporting cuff pressures is still necessary. It is thought that cuff pressures greater than 30 cm H<sub>2</sub>O contribute significantly to mucosal ischemia<sup>1</sup>. In our institution, the respiratory therapist measures and reports at least twice a shift; the lead respiratory therapist reports this during rounds with the team.

Factors such as a cuff leak or severe agitation leading to excessive head movements can also contribute to TEF formation. In this case, excessive cuff pressures were not reported to the team, although a cuff leak was noted intermittently. The patient was initially very agitated; we were unable to assess from the notes the extent of this. This patient had daily x-rays, sometimes several times a day, and there were several in the days leading up to the bedside tracheostomy where the endotracheal cuff was visibly enlarged.

Importantly, this case highlights the importance of critical care fundamentals. Paying careful attention to each detail in the patient chart, as well as a multidisciplinary approach during rounds can ensure the full complexity of each patient's care is thoroughly managed. A systematic approach to the evaluation of the intubated patient is important. Beginning with a physical assessment, an assessment of the ventilator, followed by a review of imaging is a reasonable approach to use when in the ICU.

#### REFERENCES

1. Mooty RC, Rath P, Self M, Dunn E, Mangram A. Review of tracheoesophageal fistula associated with endotracheal intubation. *J Surg Educ.* 2007 Jul-Aug;64(4):237-40. doi: 10.1016/j.jsurg.2007.05.004. PMID: 17706579.
2. Muniappan A, Wain JC, Wright CD, et al. Surgical treatment of nonmalignant tracheoesophageal fistula: a thirty-five-year experience. *Ann Thorac Surg.* 2013;95(4):1141-1146. doi: 10.1016/j.athoracsur.2012.07.041
3. Green MS, J Mathew J, J Michos L, Green P, M Aman M. Using Bronchoscopy to Detect Acquired Tracheoesophageal Fistula in Mechanically Ventilated Patients. *Anesth Pain Med.* 2017 Jul 22;7(4): e57801. doi: 10.5812/aapm.57801. PMID: 29430408; PMCID: PMC5797673.
4. Kaur D, Anand S, Sharma P, Kumar A. Early presentation of postintubation tracheoesophageal fistula: Perioperative anesthetic management. *J Anaesthesiol Clin Pharmacol.* 2012 Jan;28(1):114-6. doi: 10.4103/0970-9185.92460. PMID: 22345958; PMCID: PMC3275943.

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