SOUTHEAST CHAPTER UPDATE

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JUNE 2022 Quarterly Meeting In Review

TOPIC: The Why, How, and What of the 2022 Critical Care Nutrition Guidelines

By Ashley Depriest, MS, RD, LD, CNSC

Jayshil Patel, MD
Associate Professor
Pulmonary Medicine - Center for Advanced Care
Froedtert Hospital

On June 21, 2022 the Southeast Chapter of Society of Critical Care Medicine (SESCCM) and Georgia Chapter American Society of Parenteral and Enteral Nutrition (GASPEN) held its annual joint educational lecture featuring Dr. Jayshil Patel, Associate Professor of Medicine at the Medical College of Wisconsin discussing, "The Why, How and What of Critical Care Nutrition Guidelines." As an author of the 2021 ASPEN Guidelines for the provision of nutrition support therapy in the adult critically ill patient, Dr. Patel sought to clarify several questions many practitioners had following publication of the new guidelines including why there were so few recommendations, guidance on how to use previous recommendations that were not addressed in the updated version, and the future of nutrition critical care guidelines.

Dr. Patel described the methodology ASPEN adopted to create the 2021 guidelines. Steps taken for guidelines creation were interrelated but not necessarily sequential and were the result of a collaboration between a panel and several supporting groups who ultimately reported to the ASPEN Board. The GRADE method was utilized for the 2021 guidelines in order to provide a transparent framework for the development of questions, collection of evidence and the translation of that evidence into recommendations using consistent language. A major change to the ASPEN guidelines with the utilization of the GRADE method was the exclusion of non-randomised clinical trial data as well as the exclusion of "expert opinion". This was cited as the reason for the limited number of recommendations as compared to previous guidelines published in 2009 and 2016.

The guidelines team, including Dr. Patel, delineated five questions they sought to answer, utilizing the PICO format. The team then collected and summarized the evidence related to each question and judged the quality of evidence. According to Dr. Patel, quality of evidence was based on whether "confidence in the estimate of the effect of a study or outcome is adequate to support a particular recommendation." Dr. Patel then discussed several factors that could affect the quality of evidence such as limitations in study design or execution (risk of bias), inconsistency of results, indirectness of evidence, imprecision, and publication bias.

Once the body of evidence was collected and a judgment made on its quality, practice recommendations were made. These recommendations

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were assigned a level of strength (Strong or Weak) based on whether desirable effects outweighed undesirable effects. In some cases a "No Recommendation" was made.

Next, Dr. Patel discussed considerations in grading the evidence for each of the five PICO questions included in the 2021 guidelines, including why others may have been left out.

Question 1: *In adult critically ill patients, does provision of higher versus lower energy intake impact outcomes?*

The RCTs included in the body of evidence needed to include an intervention in which energy exposure was studied without causing secondary competing interventions (for example, a shift from EN to PN). The included evidence, given a moderate grade, showed no difference between patients receiving higher versus lower energy provision, and a weak recommendation to provide 12 - 25 kcal/kg in the first 7-10 days of ICU. Dr. Patel stated that the "less is more" approach was favored by the committee due to potential harm that may come with full feeding during the acute phase of critical illness such as feeding intolerance, increased endogenous glucose production, risk of refeeding syndrome in malnourished patients (must counterbalance with the need for full nutrition in this high risk population), mitochondrial failure under oxidative stress, and considerations for the benefits of autophagy which may be turned off if providing excess calories resulting in more oxidative stress.

Question 2: *In adult critically ill patients, does provision of higher versus lower protein impact clinical outcomes?*

There were three criteria for RCTs to be considered in this question. First, the study needed to report protein provision in grams/kg/day. Next, the intervention groups had to differ by at least 0.2 grams of protein/kg/d and finally, both intervention groups had to have equivalent energy intake. Ultimately, no new recommendations beyond the 2016 suggestions were made due to lack of new data. However, Dr. Patel reviewed new publications that may impact future recommendations including the EFFORT and REPLENISH trials.

Question 3: *In adult critically ill patients who are candidates for EN, does similar caloric intake from EN vs. PN as the primary feeding modality in the first week of critical illness impact outcomes?*

The committee presented the evidence, which showed no difference in clinical outcomes between the two groups based on two large pragmatic RCTs, a high grade with a strong recommendation that either route (EN or PN) is acceptable during the first week. Of note, this is only one of two recommendations in the guidelines to have a high grade and strong recommendation. This recommendation is contrary to the 2016 ASPEN/SCCM guidelines which recommended to withhold PN for the first 7 days in patients who were not at high risk of malnutrition.

Question 4: *In adult critically ill patients receiving EN, does provision of supplemental PN (SPN), as compared to no SPN, during the first week of critical illness impact outcomes?*

Six RCT met criteria, five of which reported on mortality as an outcome. The evidence, which excluded malnourished patients, showed no benefit to supplementing PN in the first week of critical illness was given a high grade and the strong recommendation to not initiate supplemental PN in the first week of critical illness. Of note, this was the second of two recommendations to have high quality evidence and strong practice recommendations (see Question 3 above).

Question 5A: *In the adult critically ill patient receiving PN, does the provision of mixed oil injectable lipid emulsions (ILE) as compared to 100% soybean ILE impact clinical outcomes?*

Included RCTs had to compare PN provided with a mixed ILE with PN provided with 100% soybean ILE and report clinical outcomes. Nutritional and biochemical outcomes were excluded. Evidence included seven trials that met criteria and was given a weak grade due to varied interventions and duration, no trial being powered for mortality, most trials not reporting energy provision, and a variability in mixed oil ILE. Additionally, two trials did not use intention to treat or analyze the difference between the groups who completed the trial versus who did not. The authors concluded that there was no difference in clinical outcomes between mixed-oil and soybean oil ILE. One major change from previous ASPEN/SCCM guidelines was the statement that ILE may be initiated during the first week of the ICU stay. Previous 2009 and 2016 ASPEN/SCCM guideline recommendations stated to withhold or limit ILE during the first week of the ICU stay.

Question 5B: *In adult critically ill patients receiving PN, does provision of fish oil (FO) containing ILE compared to non-FO containing ILE impact outcomes?*

Included RCTs needed to compare FO ILE to non-FO ILE and report pertinent outcomes. Nutritional and biochemical outcomes were excluded. While 10 trials were included in the body of evidence evaluated, the quality of evidence was determined to be low as most trials focused primarily on biochemical or inflammatory marker outcomes. Because only one clinical outcome showed statistical significance (decreased incidence of pneumonia)

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and the authors stated that these data were not supported by downstream outcomes (duration of mechanical ventilation), the recommendation was that either FO ILE or non-FO ILE could be provided to critically ill patients who are appropriate candidates for PN including within the first week of ICU admission.

Ultimately, the weak recommendation was made for both questions 5A and 5B to provide either mixed or soybean ILE, including in the first week of critical illness. However, a major question many practicing in nutrition support have is why this recommendation differs from those made by the 2019 European Society of Parenteral and Enteral Nutrition (ESPEN) critical care guidelines and recently updated 2022 Canadian Critical Care Guidelines. Dr. Patel explained that some of the evidence cited by ESPEN did not meet ASPEN's inclusion criteria and that ASPEN excluded any studies prior to Jan 2001 as critical care practices have vastly improved since that time. Dr. Patel's assessment of this evaluation was that the ASPEN group maximized the quality of data available. He did not comment on the recent Canadian Critical Care Guideline updates which utilized only RCT.

Dr. Patel wrapped up his robust discussion with an outline of the evolving knowledge and dissemination process ASPEN plans to take with any future guidelines development. This effort is led by ASPEN statistician Liam McKeever, PhD, RDN. ASPEN plans to publish the guideline protocol in order to enhance transparency and to provide a one month timeframe to solicit feedback. ASPEN also plans to establish both clinical and bias panels to better assess bias by incorporating the latest bias assessment tools. An algorithm for study inclusion was developed to avoid data conflation. This algorithm makes clearer the rationale to restrict the body of evidence to just RCTs but also offers an option to utilize the Delphi technique, validated by multiple external clinical panels, in cases where high quality data is not available.

Lastly, many practicing clinicians are curious as to why there was such a dramatic reduction in the total number of guideline recommendations from 95 in 2016 to only 5 in 2021. The main reason for this was the removal of expert opinion. Dr. Patel shared his concern with including expert opinions in guideline, which he feels may lead to awarders shying away from giving grants for studies that are seeking to randomize an already published guideline recommendation.

The full recording of this lecture can be found HERE.

AUGUST 2022 Quarterly Meeting In Review

TOPIC: Promoting Best Practices in the ICU with Safe Medication Use Guidelines

By Sam Pournezhad, PharmD

Sandra Kane-Gill, PharmD, MSc, FCCM, FCCP
Critical Care Medication Safety Pharmacist, UPMC
2022 President, Society of Critical Care Medicine

On August 30, 2022, the Southeast Chapter of SCCM had the pleasure of hosting SCCM President Dr. Sandy Kane-Gill, who reviewed the 2017 SCCM safe medication use in the ICU guidelines (Crit Care Med 2017; 45(9):e877-e915) where she served as lead author. The guidance document summarizes evidence using the GRADE system for 3 key components, including 1) environment and patient, 2) medication use process and 3) patient safety surveillance systems.

Starting with the environment and patient, adult and pediatric patients have different risk factors for both adverse drug events (ADEs) and medication errors (MEs) compared to the general population.

As for the medication use, the term encompasses prescribing, dispensing, administering and monitoring pharmacotherapy. The guidelines suggest implementing Computer Provider Order Entry (CPOE) as well as clinical decision support systems (CDSS) to decrease MEs and preventable ADEs. Furthermore, the guidelines recommend compliance with safe medication concentration practices to reduce the number of MEs and preventable ADEs. This is achievable via some of the following strategies: use of premade intravenous (IV) preparations, requirement of pharmacists to prepare all IV medications, standardization of all concentrations in one institution and the use of titration charts.

In regards to medication administration, the guidelines suggest use of smart IV pump infusions that

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contain "drug libraries" that assist providers with selecting the correct prescribed infusion and calculate both dosing and delivery rates. Interestingly, despite being widely advocated, evidence for the use of smart pumps is not strong due to different study designs and ADE/ ME definitions.

Moreover, patient safety surveillance systems can be built to include non-targeted and targeted patient chart reviews (both 2B grade recommendations). The process to implement chart review in practice (targeted and non-targeted) includes assembling a multidisciplinary team that would perform the reviews and data collection in a central location that is later accessible for quality/ process improvement purposes, as well as identifying the patients the reviews are needed for. Non-targeted medical record reviews are very involved and include a comprehensive chart review, while targeted reviews evaluate a specific section of the medical record (e.g. ICU, discharge notes, etc) or review a chart section based on a trigger alert (e.g. abnormal lab such as hyperkalemia, administration of a reversal agent such as naloxone or 50% dextrose). In addition to these chart reviews, voluntary reporting should be encouraged and made accessible.

Last, but definitely not least, the implementation of patient/family reported outcome interviews at or after ICU discharge about possible MEs or ADEs complements the aforementioned surveillance strategies (2C grade recommendation). Practically, this can be conducted via a standardized survey that is administered to patients at defined time-points after their consent.

At the end of the talk, Dr Kane-Gill highlighted the importance of adopting a multi-pronged approach that prioritizes safety in the ICU, ensures resources to achieve a safer medication use process, and adopts more than one patient safety surveillance method as different strategies can detect different events.

A recording of Dr. Kane-Gill's lecture can be found HERE.

Bite Size Lecture: Fluid Stewardship

De-Resuscitation with Diuretics

By Carly Loudermilk, PharmD and Ashley Taylor, PharmD, BCCCP

While initial fluid resuscitation is often a crucial part of critical care medicine, excessive cumulative fluid balance can lead to increased mortality and organ dysfunction in critically ill patients. Dr. Brittany Bissell walks us through the process of fluid de-resuscitation with diuretics in critically ill patients who have been over-resuscitated. She provides insight into determining who would benefit the most from diuresis, when diuresis should occur, and diuretic strategies for de-resuscitation. Dr. Bissell shares her experience of using a protocolized diuretic strategy using furosemide, which ultimately showed a reduction in the need of renal replacement therapy in critically ill patients.

Fluid Removal with Continuous Renal Replacement Therapy, Javier Neyra, MD, MS

Fluid overload is a modifiable risk factor for poor outcomes, including increased mortality and major adverse kidney events (MAKE), in many critically ill patients. Dr. Javier Neyra encourages providers to assess fluid dynamics to prevent organ edema and overload in all these patients. Dr. Neyra discusses continuous renal replacement therapy (CRRT) with patient specific parameters as a pathway to fluid optimization. He emphasizes the importance of adequate, patient specific CRRT "prescriptions" and to continuously assess fluid balance to ensure fluid goals are met. The gap between what is prescribed and what is achieved is impacted by multiple factors and should be assessed to ensure quality CRRT delivery.

The full lecture can be reviewed through by clicking HERE.

Bite Size Lecture: Medical Twitter Tutorial

By Tilyn Digiacomo, PharmD

Spike Out Sepsis | September 16, 2023

Our annual Spike Out Sepsis fundraiser was a huge success! We had participants from throughout the Southeast join us in Chattanooga on October 15th for the festivities. We raised close to $5000 in donations towards the Sepsis Alliance. Thank you to our sponsors for their support and congratulations to our champions, Quad Sets! This year's event is scheduled for September 16th in Chattanooga. Please email us if you would like to get involved in volunteering or participating: communications@sccmse.org.

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PRAYASH PATEL, MD, FAANS
NEUROSURGERY

Ultrasound Course

Each year, the Southeast Chapter of SCCM hosts a one-day, hands-on ultrasound course for critical care practitioners. This year, the course was held on August 29th in Atlanta, Georgia. This event was led by 5 faculty members from Emory University School of Medicine. We had approximately 15 attendees from different healthcare organizations. During the course, attendees participated in didactic lectures to enhance their knowledge and understand the fundamental concept of ultrasound examinations. There were also multiple breakout stations set up to provide hands-on point-of-care ultrasound experience using standardized patients. We can't wait to see everyone again. Our next ultrasound course will be on August 2nd this year (more information to follow).

Congress Travel Award Winners

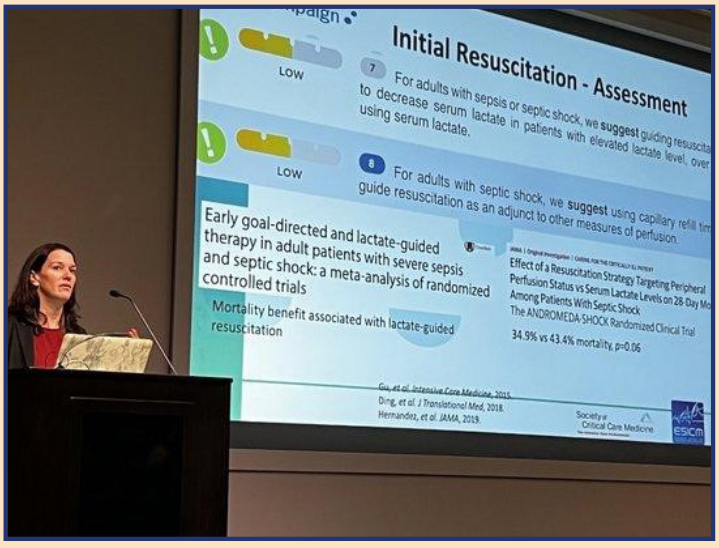
Our Chapter was proud to award the following healthcare professionals with a Travel Grant Award to the 2023 SCCM Congress. Congratulations to Chapter members, T. Vivian Liao, PharmD, BCPS, BCCCP (Treasurer) and Lauren Caldwell, PharmD, BCCCP (Outreach committee co-chair). Thank you for all you do for your patients and for your commitment to the Southeast Chapter!

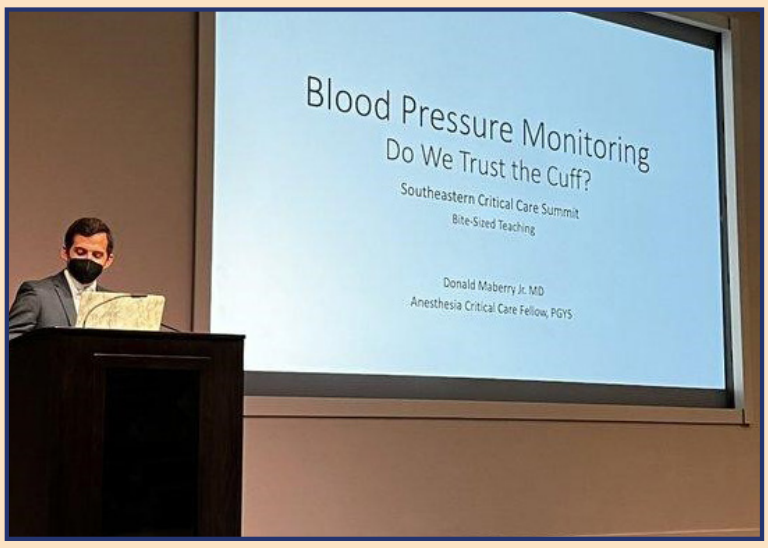
SCCM Congress

The 2023 Critical Care Congress was held January 21-24, 2023. The event brought the critical care community together in San Francisco, California. Our Chapter hosted a networking event at the congress, and we were glad to have connected with some of our old and new Chapter members. Also congratulations to the newly inducted FCCM, Ashley DePriest, RDN, CNSC, FCCM (Immediate past president) and L. Douglas Smith, Jr., NP, FCCM (Programming committee chair)!

Southeastern Critical Care Summit

The Southeastern Critical Care Summit held at Emory Critical Care Center was a huge success. Thanks to everyone who participated, and congratulations on successful presentations.





UPCOMING EVENTS

May is National Critical Care Awareness and Recognition Month

The Southeast Chapter of the Society of Critical Care Medicine (SCCM) acknowledges the unwavering and inspiring commitment of critical care clinicians worldwide! Thank you for celebrating National Critical Care Awareness and Recognition Month (NCCARM).

Through the events of NCCARM and Turn Your ICU Blue Day, critical care teams worldwide hold educational symposia, staff recognition ceremonies, or other special events with a blue theme. No matter how you mark the occasion, be sure to share your celebrations with SCCM and the critical care community using the hashtag #CritCareMonth.

Send your photos to communications@sccmse.org or tag us on social media so we can feature them in our next newsletter!

Quarterly CE Lecture

We are lucky to have Dr. Lauren Source, PhD, RN, CPNP-AC/PC, CCRN, FCCM, FAAN AND our SCCM president-elect joining us on June 28th for the next quarterly meeting. She will present on "Team Dynamics: Do we really need it to improve outcomes?" Additional information and the registration link will be available via our social media pages in the near future!

2023 Critical Care Summit and Ultrasound Course

The annual critical care summit will take place again this year from August 3-4th. Registration closes July 19th. Check out the link below for additional information https://www.criticalcaresummit.com/

We are excited to announce that we will kick off the critical care summit with an ultrasound course on August 2nd. Come make a long weekend out of your trip to Atlanta. Registration link and more information to follow. We can't wait to see you!

ANNOUNCEMENTS

Speaker Suggestions

Have any topics you'd like to hear more about in the future? Email our programming chair Doug Smith Jr. leland.d.smith.jr@gmail.com.

Needs Assessment Survey

Help make us better! Please take our 5-minute membership survey so that we can tailor our offerings to what you need.
Membership Feedback Survey

Committee Involvement

Are you interested in becoming more involved with the chapter? Perhaps you want to explore some of our leadership opportunities? Email communications@sccmse.org to inquire about ways to remain active in the organization!

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