

NUTRITION & IMMUNITY PODCAST SERIES

A REVIEW OF THE SCCM/ASPEN COVID-19 RECOMMENDATIONS

Featuring :: Stephen McClave, MD

TRANSCRIPT

Maura: We're recording this podcast episode on the 15th of April, 2020, a day where—according to the World Health Organization—the number of confirmed Covid-19 cases is approaching 2 million globally. There are more than 100,000 confirmed deaths, and more than 200 countries, areas or territories with confirmed Covid-19 patients. These numbers will continue to increase until a vaccine is approved and available for global distribution. In the meantime, the path to Covid-19 response continues to be a combination of scientific, data-driven decision making, rigorous ingenuity, solidarity and resilience.

Maura: So, talk about that data-driven science today, especially as it relates to patients around the world who are suffering the most extreme cases of this viral infection. I'm Maura Bowen, podcasting for Abbott Nutrition Health Institute, and I'm here today with Dr Stephen McClave, who plans to review the SCCM/ASPEN guidance on nutrition therapy for Covid patients in the ICU.

Maura: Dr McClave is Professor of Medicine, Division of Gastroenterology, Hepatology and Nutrition at the University of Louisville, School of Medicine in Louisville, Kentucky.

Maura: Dr McClave, welcome.

Dr McClave: Hello Maura. Glad to be part of this a podcast. This is an incredible pandemic we're in the middle of. We need to share and disseminate information as it comes in and make sure we understand how it impacts the nutritional management of our patients.

Maura: I totally agree, and we're so glad you're here. There's one quick I want to note for our listeners, and it's that this podcast recording may sound softer than you're used to hearing. That's for the sake of social distancing. Dr McClave and I are both dialing in for today's discussion rather than sitting in the studio.

Maura: Dr McClave, before we start, can you tell us a little bit about yourself, your current role, and what brought you to this area of focus in your career?

Dr McClave: I am a gastrologist in Louisville Kentucky and I've had a career-long interest in critical care nutrition of the physiologic response to early enteral feeding achieving enteral access techniques, tolerance of enteral feedings. I've been heavily involved in guidelines, indirect calorimetry.

Dr McClave: This experience with Covid came on abruptly. Three or weeks ago—and we'll talk about that in a minute—basically it was a group of us who had worked on guidelines before for ASPEN and SCCM, and all of a sudden we realized that we needed recommendations for nutritional therapy. And that brought us together in a very rapid sequence of events that I will share with you.

Maura: Great, thank you. Globally and here in the US, intensive care units (ICUs) have become overwhelmed with patients with the severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2) induced respiratory failure leading to COVID-19 disease. If there's one thing we're trying to spell out in this podcast series, it's that the provision of critical care nutrition is an integral part of the care of these patients.

Maura: So. Earlier this month, the Society of Critical Care Medicine—that's SCCM—and the American Society for Parenteral and Enteral Nutrition—that's ASPEN—released guiding principles and recommendations for the nutrition care of these patients. And that guidance is presented in a publication called "Nutrition Therapy in the Patient with COVID-19 Disease Requiring ICU Care." It was updated April 1 this year. And, as you mentioned, you're one of the authors on these recommendations. It's so great to be able to go right to the source and ask: How did SCCM, ASPEN and the expert authors come to these recommendations?

Dr McClave: This was a very rapid process that began in the last week of March on Thursday and Friday, March 19th and 20th. The SCCM posted the surviving sepsis campaign guidelines for the management of the Covid-19 patient, that Taylor—one of our blue-blood ASPEN dietitians, an RD, PhD, who was also on the SCCM board—was in the process of reviewing those guideline recommendations and noticed there was nothing about the nutritional management of the patient. She contacted the board; they said, "Oh yeah we *need* recommendations for nutritional management." SCCM has been very good about posting the recommendations on their website. This is a very rapid turnaround; they wanted to get information out about managing ECMO, managing the ventilator available treatment. So they realized this was a hole they were missing.

Dr McClave: On Friday, Beth came back to a group of us that had worked on the Aspen guidelines in 2016 2009. Bob Martindale and myself; also we contacted Jay Patel and Milwaukee, and Melissa Warren, a dietitian who worked with Bob. She said, "We've got a put together recommendations." And so over a four-day process we put together an early manuscript, and then over the next six days this was reviewed exhaustively by two boards with the SCCM and the ASPEN board. And at the end of 10 days, March 30, we had a manuscript that was approved by all three boards. It was posted online April 1.

Dr McClave: It was interesting that they requested Covid-specific recommendations. Our first response was, "Wait a minute. There is no data. We're in the middle of this pandemic, it's way too early." So we said, "What we're going to do is start with the basic principles of critical care nutrition and modify those based on the constraints of this disease process." So instead of Covid-specific recommendations, these are Covid-relevant recommendations. That's a very important distinction. And the other important distinction is that these are not guidelines. Guidelines designate a very well-defined process where you review the literature, you grade the quality of evidence of the literature, a committee puts together the manuscript, and then it's reviewed by external reviewers, as well as the boards. So these are not guidelines, they're just recommendations that are based on the information we have at the present time.

Maura: That truly sounds like a dynamic process—and truly impressive to pull something together that quickly, especially something of this magnitude. And practitioners are so hungry for this information. We're grateful you and the team were able to pull the guidance together so quickly.

Maura: Can you tell us what's different about Covid-19 patients than other critical care patients you see?

Dr McClave: This pandemic is crazy because this is a virus that humans have never been exposed to, so we have no immunity to it. World estimates now suggest that, by the end of this epidemic, 50% to 60% of the world will be infected by this virus. It's not as severe as some of the other corona-related viruses we've seen in the past. The mortality rate with SARS in 2002 was 14%; the mortality with MERS, a middle-east version of this respiratory syndrome in 2012 was 35%. The overall mortality of Covid-19 pandemic is about 4%. The vast majority of patients are asymptomatic. So if you start with 100% of patients, 80% are mild. 50% of that 100% are asymptomatic—they

don't even know they have it. Another 30% feel like they have the flu but can stay home. And then you've got about 20% who end up in the hospital. Of the original 100%, 5% of those end up in ICU, and probably 3/4 of those patients end up on the ventilator. A quarter of that 5% are in rapid deterioration. So this is a wide spectrum of disease.

Dr McClave: To me, this pandemic has brought out the value of a public health. I knew it was important in the past, but I had no idea how important until we got to this pandemic. Adequate testing has been a problem all along. We have to know who has it, who doesn't, who is now immune—and we don't know that. These public health officials, we're very dependent on them. I never even was aware of social isolation.

Dr McClave: This disorder has a long incubation period and infectivity before the patient even knows they have it. So if you get exposed, it may be a couple of days before you become infected, and you may go 8 to 10 days in which you're shedding the virus before you actually become symptomatic.

Dr McClave: With this pandemic we have this personal loss. Loss of employment, loss of personal liberties, we're telling people they can't go to church. There as an epidemiologist in Chicago who made the comment, "The healthy and the optimistic doom the vulnerable." So if we to around, we're healthy, we don't know we have this, yet we're spreading it, the people who suffer the most are the patients that are older, obese, diabetic and have comorbidities, and they will not do well with this virus.

Dr McClave: The last thing, Maura—and this is the tough thing—is where are you are as an institution on the curve. Are you in the middle of that aggressive surge, like New York, where it's like a war zone? Or are you more like where we are here Louisville, or Milwaukee, Wisconsin, in which show we're getting increase numbers but maybe less than 20 to 30 in our ICUs, half of which are on mechanical ventilation, in which the surge is very manageable. So, where you are on that surge effects the supplies that you have, whether you have pumps, how badly you need ventilators and dialysis machines So all of this is a moving target, and it's tough for us as nutritionists to get a handle on where we stand at our hospital.

Maura: Your last statement leads into this question, I think: how does infectivity and disease transmission affect the care for these patients?

Dr McClave: That is the part where it's hard for nutritionist who aren't used to managing infectious disease, it's tough for us. The CDC and the World Health Organization say there are three important aspects we have to worry about with this infectivity business.

Dr McClave: One is cluster care. That means you don't want to go to the patient's room more often than you need to. And so when you go in, you cluster all your things: your medicines, your suction, your repositioning of the patient, your monitoring of the feeding tubes...you cluster that care. And if you're on the ward, you might go in at the beginning of the shift, the middle of the shift, and at the end of a 12-hour shift. But you'll have to go in more often if you're in the ICU.

Dr McClave: Number two, they recommend minimizing exposure to Covid patients, which means you can't just go in and see them because they're your patients, and they're on your patient list for the day. If you aren't necessary, then you don't need to go in the room, because you can infect healthcare workers, you can carry the disease home but you your family or to other people in the community.

Dr McClave: And then finally, we have to preserve the use of personal protective equipment. These masks—everybody's talked about. Shortages there. We're within a week of running out of yellow gowns, here in Louisville, we haven't even hit the surge badly. So preserving that personal protective equipment protection or healthcare workers.

Maura: Let's get into the SCCM/ASPEN guidance. It includes eight recommendations addressing timing, route and monitoring of nutritional therapy based on the best available evidence, but also taking into account the key guiding principles related to the COVID-19 disease process. First, let's start with recommendation 2 – timing of nutrition delivery. Why is timing of nutrition delivery so important for these patients and what is the SCCM/ASPEN recommendation?

Dr McClave: This is, again, basic critical care nutrition. So this is Covid-19 relative care. The first thing we said as we got together in the group is, what that the most important thing that we do for these patients? And the answer was that we provide early enteral feeding to bathe the intestinal mucosa with enteral formula. How soon are we talking about? Well, arbitrarily within 24 to 36 hours of admission to the ICU, or within 12 hours of intubation and placement of that large nasogastric or gastric tube.

Dr McClave: Interestingly, the ESPEN recommendations that have come out in the last two weeks say the same thing, to start enteral nutrition early and try to get a goal by the end of one week.

Dr McClave: The key issue here is the physiologic response to enteral nutrition. That's why timing is important. The gut, remember, is the largest immune organ in the body, it has the greatest volume of immune tissue. It also has the largest microbial burden in the body. There are bacteria elsewhere. But the gut has the largest amount. And so, you can think of that gut as an accelerator. You come in with this Covid disease, you're already inflamed, and the gut can either impact that response to the critical Covid illness, which means that we have an opportunity to modulate that response via the gut. If we can get enteral nutrition in, that helps us maintain barrier defenses, appropriate immune response is immune tolerance, we support the commensal microbiome. Now, that sounds incredibly naïve when you're talking about patients that are this sick. But the key is if we aren't able to provide enteral nutrition, we lose what opportunity we can treat them via the gut, and instead we would get dysbiosis, an adversarial immune response.

Maura: That leads us to the next recommendation—recommendation 3—addresses route, tube placement and method of nutrition delivery. Can you walk us through the main points of this recommendation including that *enteral* nutrition is preferred to *parenteral* nutrition, and that the *continuous* rather than *bolus* enteral feeding is strongly recommended?

Dr McClave: Enteral feeding is preferred over parenteral nutrition because of that physiological response we discussed a minute ago. The ESPEN guidelines agree with this; the ESPEN guidelines for Covid 19, as well as the ESPEN guidelines for critical care that was published in 2018. Everybody says, “Start in the stomach.” That's the first step. And usually what happens with the really sick patients that get intubated, they get the top-tier intubator gets them intubated—the tracheal tube—into the lungs, they place a nasogastric or gastric tube, they put in a central line not in the IGA hopefully not in the subclavian they use pick lines because they don't want the central line right there at the head and neck, where all the droplet transmission is going on. And all that happens at once. So usually we have a large tube into the stomach that we can feed. If there's evidence of poor tolerance to that gastric feeding, the next step would be prokinetic agents, and then the next step after that would be to switch to post pyloric tube placements.

Dr McClave: The recommendation of continuous over bolus feeding again is based on reducing exposure of the healthcare team to the potential contamination. It decreases the frequency in which the healthcare team has to interact with the patient. ESPEN guidelines for 2018 that show there's less diarrhea with continuous feeding. That's not a huge deal, but mainly the intermittent bolus feed would require the nurse to go in at periodic intervals and shoot in some formula and then walk out.

Dr McClave: Having said that, in a surge like in New York where they're running out of supplies, guess what—they ran out of pumps. They didn't have enough pumps to provide continuous infusion. So in that setting, you'd probably

go to gravity drain next, and only if you didn't have the bags, because some institutions ran out of bags, did they switch to a bolus feedings.

Dr McClave: One nice thing is the assurance that bolus feeding is OK. We recommend continuous, but if pump situations, gravity bags are in short supply, bolus is safe in these patients.

But the last thing—and this is very important—we think that in these recommendations in SCCM and ASPEN, we emphasized that your threshold for abandoning enteral feeding and going to parenteral nutrition should be lower.

Maura: Let's jump to recommendation 5 on formula selection. What type of enteral formula should clinicians be feeding their patients with COVID-19 in the ICU? And can you also address strategies for GI intolerance for these patients?

Dr McClave: Again, this is fairly straightforward critical care nutrition. Covid-relevant recommendations. And just like our guidelines in 2016, we would recommend a standard polymeric high-protein isosmotic formula, at least a 20% protein or higher. Critically ill patients should get fiber, and Europe—ESPEN—says they need the amount of fiber equal to a normal, healthy person, which is .5 g per kilogram per day. We still said in these recommendations for the Covid-19 patients that we're nervous about fiber early on, when they're in septic in shock, on pressor therapy, there's significant GI dysfunction. So you might want to hold the fiber, at least an insoluble fiber, early. But you want to add it back as soon as they're more stable.

Dr McClave: And finally, what are we talking about with GI intolerance? You do not want to use gastric-residual volumes. If your institution has been struggling to get rid of gastric-residual volumes, this is one opportunity in the Covid pandemic. Now is your chance to dump this marker, which is been a horrible marker of gastric emptying and aspiration for three decades. But what it does in Covid-19 cases is it increases the frequency of interaction between the healthcare providers and that patient.

Maura: Some patients with COVID-19 have to be in the prone position to improve oxygenation and outcomes on the ventilator. In terms of the SCCM/ASPEN recommendations, recommendation 7 specifically touches on Nutrition for the Patient Undergoing Prone Positioning. What are the key elements of this recommendation?

Dr McClave: What's different about these Covid-19 patients is that they come in, and you think, oh, it's just another patient with ARDS. But they're pretty easy to ventilate, and what they have is this horrendous, severe, unexplained hypoxemia. And I kind of mentioned this before, but it has to do with ventilation perfusion mismatch. But the mismatch is more on the side of perfusion. The management of this unexplained hypoxemia is to intubate early and leave them intubated longer. Well, some of these patients don't respond well enough, even to early and prolonged mechanical ventilation. And if the hypoxemia continues, that's when you have to go to the next step, which is proneing, and that helps oxygenate the lungs. If you could see a CT scan, when you lay on your back, fluid tends to accumulate in the lungs, they have these thick secretions that they can't clear, and the mechanics of the lung—the box of the lung—is such that they just can't ventilate easily. You prone them, you turn them over on their stomach, and they can clear the bronchial secretions much better. The mechanics of the lung expansion, the space in the chest that the lungs can expand, making it is easier to ventilate them.

Dr McClave: The amazing thing is that, when they're in the prone position, everybody is worried about aspiration. But it's tolerated very well. We do recommend that they increase the head of the bed, put the head of the bed up and tilt the bed, head up, to 10-25 degrees. Retrospective studies, small RCTs, showed that amazingly you could feed into his stomach and tolerance is good with no increase instances of aspiration or ventilator-associated pneumonia.

Dr McClave: The ECMO is the next step after proneing. They're already on mechanical ventilation, the proneing and

mechanical ventilation aren't working, and ECMO is the deal where it almost acts like a dialysis machine or cardiopulmonary bypass machine. They take the blood out of the body, they oxygenate and return it.

Maura: The recommendations also include some "Lessons Learned from the Field" which include practical, clinical advice for caring for these patients. Can you share with us some of these lessons? And also what you have experienced in your own clinical care of patients during this pandemic?

Dr McClave: One of the interesting things is CMS or Medicare, the governmental group that decides what they're going to reimburse and what they're going to restrict reimbursement for has already I acknowledge that we are trying to reduce exposure of healthcare providers. And so they begin to lift restrictions and expand coverage. The process they're referring to is telemedicine. The idea of it is an outpatient and this would affect the dietitians managing diabetic patients or home enteral or parenteral patients, that you can manage them over the phone either by audio only, that means phone call, or audiovisual where you use Zoom or Skype or Bluejeans—one of these things where you can actually see the patients and they can see you. Just two days ago I had my first telemedicine clinic. [laughs] It was an absolute disaster! My first patient was over 80 years old. We got on the phone with a "we just sent you the email. Just click on that link." And there's a pause, and she says, "What's a link?" I said, "OK, forget that, we're just going to talk on the phone." Next patient, 78 years old, same thing.

Dr McClave: Interesting what we do as far as charges—and this is stuff you have to talk about!—if you're going to designate a level four or level five, if you're doing telemedicine with no physical exam, then you just back off one level of charge. In the ICU you could describe face-to-face meetings with a patient through the door and just say the physical exam is deferred. So, these are some of the lessons we've learned from the field.

Maura: Given the current stay-at-home orders around the globe, how is this impacting education for healthcare professionals and the need for distance learning? How can we best educate healthcare professionals on these new recommendations?

Dr McClave: This is a very important question, and I think all of us nutritionist need to start with being knowledgeable about national, state, and local trends. In Kentucky, I'm just incredibly proud of our governor. He meets us at 5 o'clock every day, he brings us up to date on where we stand, what they're doing to correct abnormalities, he answers questions, and he says the next day, "here is what we've done to respond of that problem." That's very helpful to know as a state what's going on.

Dr McClave: And then there are institutional trends. Every Wednesday morning at 7 AM we hear from our chief of staff at our university hospital. He tells us, "OK we're restricted to one visitor now; we have a total no visitor restriction; we're going to be out of yellow gowns in five days; we're getting ventilators from this source." It tells you where you stand in the surge, how you're responding to the changes that need to be made.

Dr McClave: As far as how to educate yourself on Covid-19, thank goodness for the age of Internet and computer technology, because there's a credible variety of online sources that we can use to educate ourselves. Podcasts like we're doing today; there's been some fabulous webinars that I've already attended; and society-specific webinars—ASPEN, SCCM—I had a webinar, ESPEN leaders are participating in webinars...There are subspecialty or specialty-specific recommendations online and in webinars.

Maura: Dr. McClave, these are excellent insights. We appreciate all you're doing to help build awareness for the important role nutrition has to play in the management of patients with this virus. And, by the way, your comments on distance learning are the perfect segue to mention that you're joining ANHI again on 23 April for a webinar: Nutrition Care of the Covid-19 Patient: Guidance & Strategies for Clinicians to Optimize Care in the ICU. Listeners, if you'd like to attend this webinar, visit anhi.org, click the EDUCATION link at the top of homepage, and register for this and any of the other webinars we're planning.

Maura: And, if you're hoping for more podcast episodes on nutrition and immunity, rest assured we're developing a series of additional episodes to help support you—including the two episodes we published on 2 April featuring Dr Nicolaas Deutz, and one we published on 14 April featuring Dr David Evans and Dr Paul Wischmeyer. You can find these recordings on anhi.org by clicking "RESOURCES" then "PODCASTS & VIDEOS" at the top of the page. Don't miss an episode: Become an anhi.org member today by clicking "REGISTER" at the top of our homepage to receive regular nutrition science news updates from our team. Or, follow the Abbott Nutrition Health Institute on LinkedIn.

Maura: Finally, our website, anhi.org, has a series of printable resources related to this topic—for instance, infographics on [nutrition and immunity](#), [dehydration](#), and [why maintaining muscle matters](#). You can find these resources on anhi.org by clicking "RESOURCES" and "PRINTABLE MATERIALS."

Maura: Thanks everyone. Stay healthy and safe.