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Pediatric Surviving Sepsis: Insights From the Leadership

This World Shared Practice Forum Podcast episode offers an expert, behind-the-scenes look at the 2026 international Surviving Sepsis Campaign guidelines for children. Drs. Scott Weiss and Mark Peters discuss how the recommendations were developed through a rigorous, multi-year process using PICO questions, systematic evidence review, and structured consensus methods. The conversation highlights several important updates, including the lack of sufficient evidence to recommend routine systematic sepsis screening, evolving guidance on early vasoactive therapy, new attention to long-term outcomes after pediatric sepsis, and selected changes in oxygen targeting and supportive care. Particularly valuable for clinicians, educators, and trainees, the session connects evidence appraisal with practical decision-making and emphasizes how pediatric sepsis care must be adapted to different clinical and resource settings.

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Sarah Marcley *00:04*
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Jeff Burns *00:18*
Welcome to the OPENPediatrics World Shared Forum Podcast, I'm Jeff Burns from Boston Children's Hospital, and today we have a very special session. We're here today with the two leads of the Surviving Sepsis guideline updates, the European representative, Dr. Mark Peters and the American representative, Dr. Scott Weiss. Dr. Mark Peters is Professor of Pediatric Intensive Care at the University College and Great Ormond Street Institute of Child Health, as well as the consultant in Pediatric Intensive Care at Great Ormond Street, both in London. Mark, welcome.

Mark Peters *00:56*
Thanks, Jeff, good to be back with you.

Jeff Burns *00:58*
And also we're pleased to have with us today, Dr. Scott Weiss. Dr. Weiss is Professor of Pediatrics and Pathology and Genomic Medicine at the Thomas Jefferson University. He is also a division chief of Critical Care Medicine at Nemours Children's Hospital in Delaware. Scott, welcome to OPENPediatrics.

Scott Weiss *01:17*
Thanks, Jeff. It's great to be here, thank you for hosting us.

Jeff Burns *01:20*
So as I mentioned on the opening here, we're here today to discuss really kind of an insider's view of the Surviving Sepsis campaign, international guidelines for the management of sepsis and septic shock in children, that was published jointly online ahead of print in both Pediatric Critical Care Medicine and Intensive Care Medicine on March 23, 2026. That citation is available on your web browser. But can I ask you both, you know I understand from the presentation I was in Chicago and Scott, I heard the presentation that you led live at that meeting. And I understand that it was really the long effort, I believe, two years of 68 international experts representing some 13 international organizations, as well as, apparently, six methodologists, that took you through the process of really how you were going to update these guidelines. Could I ask you to give us a little more detail on how the guidelines were developed, what was the methodology and the process that you followed?

Scott Weiss *02:30*
Sure, I think it's very important to understand the process by which we arrived at the at the recommendations. So, you know, we start this process every cycle with really identifying the panelists who are going to participate. That is a rigorous process that we rely on, you know, the panelists from the prior iteration, from the prior guidelines, and then try to incorporate new experts from around the world who are active in generating the evidence that will ultimately contribute to the guidelines. Once we have those panelists, we're able to really examine the PICO questions that were addressed previously. Insert any new topics of importance that have emerged and and then really hone that set of questions based on what the panelists know to be new and evolving evidence in those areas. We then contract with the methodological team at McMaster University and apply the grade process for doing a very rigorous literature search and evaluation of the evidence based on the PICO questions to arrive to a evidence to decision framework where the panelists are walked through the sort of collated meta analyzes of the different studies for each PICO question to look at the different aspects that ultimately lead to the recommendation. So we assess not only the impact on previously or a priori identified outcomes, but also the potential biases, the cost effectiveness, the generalizability across different settings with different resource availability, and ultimately, all of that allows for draft recommendations, which are then reviewed by all the panelists over multiple iterations to arrive at the final recommendations.

Jeff Burns *04:41*
And Mark, do you have anything to add to that? And if I could also transition into this question as well, I can imagine in such a process that you've got, you know, very knowledgeable, informed people, as Scott just said, but you also have passionate people. We're passionate about our science. We're passionate about the gaps in our science. Take us through how that process worked, the deliberations, and what worked well, and what were some of the challenges in those deliberations.

Mark Peters *05:12*
Okay, so isn't it interesting you can be passionate about supposedly objective evidence, but it's undoubtedly true. Just before we deal with that knotty question just to emphasize the amount of effort that went into choosing the questions that were addressed that the PICO selection was a major part of the process. And of course, that's a balance between the questions you want answered for the utility of the recommendation with your knowledge of where there's evidence. And the ones we ended up settling on are not necessarily every question you want to know about care of sepsis. They're the ones for which we had a strong sense from the group that there was likely to be sort of actionable evidence that could turn it into some sort of evidence. And the two things don't quite match up just because of the practicalities of doing research. But, you have a question about, how do you essentially, how do you stop someone shouting down the evidence to drive through their own beliefs. Well, there's numbers of stages to that, but the diversity of the expert group is one factor. So if a particular panel participant had been involved in the generation of evidence about directly relevant to a PICO, they were welcome to use their expertise in the panel discussion, but they were asked to refrain from, or required to refrain from, voting on the form of words that the recommendation then took. And so that happened in each of the smaller committees that worked on each of the subgroups. And then we have to have consensus across the wider committee in a voting process to meet the threshold for agreement to provide the recommendation. So there's sort of two stages at which the individual is sort of subsumed into the group, if you like, to make sure where we don't have outlier views dominating the recommendations. And that that was relevant for me, because I was involved in the oxygen and therefore I had to sit on my hands whilst the voting was going on for the oxygen recommendation, for example.

Jeff Burns *07:47*
And Scott, if I could turn back to you, and again, I don't mean to suggest that this is probably not the best process that we can come up with right now, but just for the sake of our audience, what percentage of the time was it an issue where maybe somebody was being a little too passionate, a little too dogmatic, and interfering with or trying to drive the consensus in a way that wasn't helpful. I would imagine it wasn't a frequent issue. But can you put any boundaries on that?

Scott Weiss *08:27*
Yeah, luckily, it didn't come across often in a way that was problematic. I would say that there were many recommendations, probably 15 or 20% in which there was some. There was enough variability in the evidence that one could view it in different ways, and that led to robust discussion. And sometimes that was very passionate. But I can't recall an instance in which there was, you know, any problem with somebody feeling like they were, you know, bullying in one direction or another. I think it was a very collaborative, professional approach. There were certainly instances where people's passion came out if they disagreed with the majority upon the in the voting process, and people were allowed to insert comments about it. In fact, they were required to insert a comment if they disagreed with the draft recommendation so that the panel could understand the alternative viewpoints. And sometimes those came across, perhaps a little bit contentious, but because it was able to be filtered back through the leadership group and turn it into a discussion that was responsive. It turned out to be, I think, a very collaborative and enjoyable process to actually have some of these robust, academic discussions that I think led to the best recommendations based on the available evidence.

Jeff Burns *10:19*
And that's very reassuring. And they did want to get the, you know, the approach and the methodology discussed upfront, because, of course, you know, to allow you both to express how that worked and mitigation of bias. Mark any additional thoughts on that?

Mark Peters *10:36*
So I think it's interesting to recall that times when there was quite a lot of discussion was often around or arose from the ambition of these guidelines to be truly global. So the scope is intended to cover low, middle and high income settings with qualifications to the recommendations. And a lot of the evidence, sadly, comes from higher resource settings. And so then there may have been things that could reasonably be recommended in a high resource setting that would come with a significant resource implication for lower and middle. So exactly where you draw that line, there's a perhaps a sense of clinical utility of some high resource intervention that if you were to try and introduce in a low and middle income, it would come with either it would be impractical, or it would come with an opportunity cost of not being able to do something else. So there were quite intense discussions about where that line should be drawn. I think appropriately so, because that's that's what we all wrestle with, is how best to use finite resources.

Jeff Burns *11:56*
Well, in my hat, as President of WFPICCS, that certainly resonates, as you just said, if you're promulgating best practices that can't be uniformly applied, then those aren't international guidelines, especially since most sepsis morbidity and mortality occurs in low and middle income countries. I wonder if we could turn on now turn to another question. And Scott, maybe beginning with you. What changes that you announced in March and in this update on the guidelines on sepsis were most notable to you or surprised you?

Scott Weiss *12:36*
Yeah, I think the the biggest change that actually drew a lot of discussion during the process that we were just talking about was around screening tools for early detection of sepsis or septic shock in children. And you know, previously, the guidelines that were released in 2020 suggested that a screening tool should be used to detect to help augment early detection of sepsis among acutely unwell children who present to a hospital or healthcare setting. In the current guidelines, however, with updated and new data, the panel concluded that there was insufficient evidence to recommend implementing systematic sepsis screening. And that I think, I don't think there was, there wasn't really differentiation, there wasn't difference of opinion about the evidence, which was largely based on a new randomized, controlled trial that did not demonstrate objective improvements in care processes or outcomes when a screening tool was applied. Of course, that study, as Mark alluded to, was done in a high resource setting that also had a robust sepsis quality improvement tool, but that was the highest quality study that we had in this space. The other data was largely observational and a lot of heterogeneity. So ultimately, the panel didn't feel like there was evidence to suggest that we shouldn't use screening, but there wasn't enough evidence to really push for a recommendation to move forward. And I think that felt uncomfortable to a lot of us who work in institutions. Many of us have been working for many years on adapting or modifying or developing or implementing a tool to help our healthcare systems with early recognition of sepsis. And we know that that's important. We know that the you know, if things are missed early, the risk of poor outcomes increases substantially. So that was definitely one of the recommendations that led to a lot of discussion. I think it's one of the biggest

changes in the guidelines compared to the 2020 iteration, but ultimately, I think, highlights a point where we have evolved, right? We are doing a lot better globally in terms of attention to sepsis, early recognition and screening tools may have different roles in different environments. And in all environments they may not necessarily be as useful. But there's an opportunity to really do more research and for people to really publish what they're doing. And if they are making an impact, it'd be helpful to get that information out there so we can learn from that in a global sense, and apply what is working in one setting to other settings so that, you know, all of us can benefit from the work that people are doing in this area. But that change was definitely one that was, I think, most prominent and caused a lot of, I think, consternation when it was discussed at the Society of Critical Care Medicine Congress.

Jeff Burns *15:55*
And Mark, could I turn to you, what did you find especially notable in the guideline updates?

Mark Peters *16:04*
Well, I have to agree with Scott, that was, that was the big one. And I think it's just feels counterintuitive that a sort of formal screening program hasn't demonstrated benefit. But that aligns with screening in all sorts of diseases. It's often more difficult than you would imagine to show a benefit of screening. But in other areas, I think one of the more impactful changes was the higher level support for using peripheral vasoactive infusions early in care. And that's although it was in there, in the 2020 version, it's worded slightly more strongly in favor now. And that reflects a number of quite large observational series, including everyone's experience of the post-COVID syndrome that's has different names depending on where you are in the world, MIS-C or PIMS-TS, where a lot of fruitful vasopressors were given and low complications observed. So I think, I think that's useful, because the timing of vasopressors and blood pressure targets is one of the things that remains a sort of unknown. But at least the route to achieve those targets, once we agree what they are, is perhaps coming clearer.

Jeff Burns *17:37*
This is so helpful. I'm sitting here really enjoying getting this insider's view of from you both. Mark, maybe we could stay with you on my next thought and question. And that is, what changes in these guidelines will most change your practice going forward?

Mark Peters *17:55*
Well, recommendation 39 is one I have a particular attachment to. This describes what you do for peripheral oxygen saturation targets in intubated children with sepsis or septic shock and it's a conditional recommendation with moderate certainty of evidence to favor the conservative target of 88 to 92% inclusive, over greater than 94%. And I raised that because it's some work that our team were involved in, but also it's one of the relatively few areas that's completely new this time round, and it's a point of difference from the adult guidance in which there was no clear preference for one oxygen target over another.

Jeff Burns *18:40*
I can't resist telling you that one of our fellows is currently doing a project with alerts. She actually completed phase one on this very topic. Dr. Scott Weiss, which of the guidelines that were just announced by your group in March of 2026 is really going to change your practice going forward?

Scott Weiss *19:03*
Yeah, I think there's really, there's three that are most impactful for me. The first is the recommendation. It's really, it's an equivocal recommendation about initiating vasoactive medications either before or after 40 mLs per kilo of bolus fluid therapy. And while there wasn't sufficient data to issue a recommendation on one side of that volume or the other, what it helped me to understand as we went through that evidence compilation and review was the increasing evidence demonstrating the safety and value of early vasoactive therapy. And I think in combination with the point that Mark made earlier about safe use of vasoactive medications, at least for a short period of time through peripheral IVs, I think we can create a treatment plan that allows for modulation of myocardial contractility and vasoplegia without having to overuse and sometimes over correct the hypovolemia that is also present. The second is the series of recommendations that focus on long term follow up. This was a new set of PICOs that were identified for this iteration of the guidelines that really allowed us to get into the weeds of the accumulating evidence about the long term morbidity for those children who survive sepsis, which thankfully is the majority. And the long term sequelae and neurobehavioral, neurodevelopmental, emotional, social challenges that many of these children and their families suffer. And so incorporating programs that screen for those patients at high risk of those problems, as well as the recommendation to provide education and awareness to families so that they understand what their child's going through as they recover over weeks and months, I think, is really important. Then the third set of recommendations, again, was really new to this set of guidelines was focused on opportunities for immune modulation. And you know, of course, we understand that sepsis is a dysregulated host response to an infection, but we don't really understand exactly how to re-regulate or normally regulate that host response. And so again, this was a series of PICO questions addressed at whether we should tamp down the inflammatory response or bolster the immune response when there's evidence of immune paralysis or immune suppression. And although, again, the evidence didn't rise to the level, to the point yet, yet to the to the point where we can make strong or even conditional recommendations about treatments, it highlights the growing interest in research in this area. And I believe that reviewing the evidence and reporting the inability to create recommendation in this space will generate these as important knowledge gaps, which will then be taken up for research studies, which will allow us to move the field forward with the next set of guidelines in a few years.

Jeff Burns *22:35*
And Scott, could I—those are those are very interesting, the points that you both just made. Scott, can I ask you regarding vasopressor initiation. In your practice do you start, are you starting now at 40 after 40 mLs per kilo of bolus, you're going to start, you're going to bring in vasopressors? Or are you, are you, are you in some context, bringing them in earlier than 40 mLs per kilo fluid bolus resuscitation.

Scott Weiss *23:04*
Yeah, so our practice has really shifted to once we're thinking about that second fluid bolus, trying to understand better the physiology that we're treating, rather than sort of blind repetition of fluid boluses. We're trying to assess objectively for evidence of hypovolemia or other pathophysiological features that suggest you know either vasoplegia or myocardial dysfunction. So we employ early point of care ultrasound, which, again, is also recommended by these guidelines now. A lot of new evidence about the utility of point of care ultrasound for cardiac and lung function, so we employ that early and if we see evidence of myocardial dysfunction or indirect signs of vasoplegia we will start moving towards use of vasoactive therapy through peripheral IVs, rather than continuing to provide additional volume resuscitation, unless there are historical or other features that suggest ongoing hypovolemia.

Jeff Burns *24:11*
And Mark, could I ask you the same question on that point about where you introduce and in both, perhaps in your practice, and if there has been a secular shift at Great Ormond Street, London, what is the approach?

Mark Peters *24:27*
Okay, so the approach is similar to what Scott described. But the real decision making point is, can you recognize the trajectory the child is on? How rapidly are they deteriorating? Or, conversely, how well have they responded to your initial care? So I'm not, I'm not so persuaded as Scott and that we can still be within the guidelines and say this. I'm not so persuaded about the value of early point of care ultrasound, but I am about close attention to the vital signs and how you respond to fluid. And I'm absolutely certainly that we should be preparing vasoactives as soon as we are in the resuscitation phase. Whether we use them or not, is another question. But, but the picture shifted because meningococcal vaccination has been so effective in the UK, the whole population of sepsis that we see is so different. If you'd asked me the same question 15 or 20 years ago, when we were still seeing 50 purpura fulminans a year, we would have been very aggressive with fluid because you just had to keep resuscitating until you got on a more favorable trajectory. I have only seen one in the last five years, and that's the difference that immunizations has made. And so everything has to be calibrated to your context a little bit.

Jeff Burns *25:41*
Thank you. How do we overcome what I'm going to call the power problem in pediatric critical care? How can we get better data going forward? Mark, maybe I could turn to you first.

Mark Peters *25:53*
Thank you. This is one of my favorite questions. Okay, because we've got no shortage of patients. The power problem is that we have largely not built research networks that are sufficiently embedded that we can learn from every patient that comes through the ICU, but we are making some progress. I mean, Scott, I'm sure will mention the extraordinary study that him, he and his team, PRoMT BOLUS has delivered with more than 8000 participants being resuscitated, fluid resuscitation choices in sepsis. And we've recently completed a four and a half thousand patient study about whether it's worthwhile to perform gastric aspiration to predict fluid tolerance feed tolerance. So these things can be done and and we've recently established and just such, in the last month, a Bayesian adaptive platform in the UK that recruits the majority of PICU admissions to learn about sedation choices, fluid choices and transfusions. So we're getting to the point where we're learning from nearly every patient that comes through the ICU. That's the way we need to do it. It needs to be embedded in our processes that we learn from every patient.

Jeff Burns *27:12*
And Scott, your thoughts on this?

Scott Weiss *27:15*
Yeah. I mean, I agree. I think there's some great work being done across the world, setting up platform trials, platform networks, you know, through PALISI, Mark's involved with one in the UK, there's work in France as well as Australia and New Zealand. So these are providing the infrastructure that will allow

for rapid and comprehensive testing of therapies and different management approaches that I think are going to help us generate data at a pace that you know was not feasible before. I think one of the other you know opportunities that we have are to streamline our enrollment and consent models for these trials. In my experience, most families and patients, really, you know, are happy to be involved in research that offers them some potential benefit. Of course, there are requirements and ethical obligations that we must adhere to. But there's definitely consent models that allow us to maximize opportunity for both knowledge generation as well as patient and family autonomy and satisfaction. Mark mentioned the PRoMPT BOLUS trial, which was a recently published study comparing balanced fluid to saline as the initial resuscitation fluid, came out unfortunately, about a month after the guidelines were published. We found no difference in patient centered outcomes for by type of fluid. But what, what we also were able to show is that we could enroll patients as part of early resuscitation across, you know, dozens of emergency departments around the world and different healthcare systems, different models, different settings and do so in a way that was both respectful of human subjects regulations, but allowed us to answer really important vital questions without, you know, having to wait so we could we can incorporate both research and clinical care practice simultaneously to allow us to answer really important questions. Hopefully we continue to use those kind of models, I think that will allow us to identify, to address some of the knowledge gaps that were, you know, identified in these guidelines.

Jeff Burns *29:52*
Well, I salute you both for leading those respective efforts, because we won't be able to move forward, unless we are more methodical in the ways that you both are demonstrating through your actions as researchers. I do want to do a shout out to our WFPICCS platform. We've spent a significant amount of resources in revising the WFPICCS platform, and one of the items that we've done is to bring into that platform a research map across the world of all of the various research networks. And so if you go to W F P I C C S .org, WFPICCS.org, and under the Global Health tab, you will find these research networks. You can find out who's leading the network, how do you get in contact with them? And we want to keep upgrading that so that you could click on it and find out what studies are they enrolling for. And we're not in the research business. We're in the convening and sharing knowledge business at WFPICCS. And so our goal is to connect the world on all of the various research networks in low and middle income countries as well as high income countries. So again, that's at WFPICCS.org under the Global Health tab, and you'll find that interactive map. Okay, gentlemen, one last question for you both, and that is, what book have you read that's really moved you and you'd like to share with our audience. Mark, can I turn to you first?

Mark Peters *31:25*
Difficult to pin down to one, I think depends on which way you mean moved, but Steven Pinker, "Enlightenment Now," that's not just because you're at Harvard, Jeff, but he's a wonderful author and thinker and an optimist, essentially. The book basically says that science will save us, and it tells reminds us that the world is amazing, and most people don't notice. You know, we're healthier, wealthier, more able to express ourselves than at any time in history, and we should take note of that.

Jeff Burns *32:04*
And one more time, the title of that book by Steven Pinker is?

Mark Peters *32:07*
It's called, "Enlightenment Now."

Jeff Burns *32:10*
That's a wonderful recommendation. Scott, what are your thoughts on this?

Scott Weiss *32:14*
Yeah, I'm gonna turn to a book that I'm currently in the process of reading, and it what's related to today's topic, although it's not as a result of it. It's called Blood Poison: The Untold Story of Sepsis. It's written by a physician in California named Parsa Shahinpoor who did an extensive amount of research from both looking at sepsis from both the healthcare perspective as well as the patient and family perspective. And he finds this incredible way to meld that story, those stories, to tell the historical perspective of sepsis back from sort of the ancient Greek times to now. And really provides a perspective around the devastating impact that sepsis can have and the amazing amount of success the healthcare system has enjoyed through better sanitation, public health, vaccinations as well as modern medical care. It's really, as someone who thinks about sepsis a lot, this book has really opened my eyes to a whole different perspective in thinking about sepsis and from different ways. So I highly encourage it.

Jeff Burns *33:32*
Absolutely wonderful recommendations. Well, Dr. Mark Peters from the Great Ormond Street London hospital, and European Chair of the Surviving Sepsis International Pediatric Guideline Updates, and Dr. Scott Weiss the US Chair of the Surviving Sepsis International Pediatric Guideline Updates, thank you for being with us today on OPENPediatrics. I have found this to be absolutely fascinating, and I learned from you both every time I read what you've written or speak to you. So thank you for being with us today on OPENPediatrics.

Mark Peters *34:05*
Thank you for the opportunity.

Scott Weiss *34:06*
Thank you, Jeff. Appreciate it.

Sarah Marcley *34:09*
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Articles Referenced:

Weiss SL, Peters MJ, Oczkowski SJW, et al. Surviving Sepsis Campaign International Guidelines for the Management of Sepsis and Septic Shock in Children 2026. Pediatr Crit Care Med. 2026;27(4):379-434.

Balamuth F, Weiss SL, Long E, et al. Balanced Fluid or 0.9% Saline in Children Treated for Septic Shock. N Engl J Med. *Published online April 24, 2026.*

Weiss SL, Balamuth F, Long E, et al. PRagMatic Pediatric Trial of Balanced vs nOrmaL Saline FlUid in Sepsis: study protocol for the PRoMPT BOLUS randomized interventional trial. Trials. *2021;22(1):776. Published 2021 Nov 6.*

Books:

Steven Pinker "Enlightenment Now" - https://stevenpinker.com/publications/enlightenment-now-case-reason-science-humanism-and-progress

Blood Poison: The Untold Story of Sepsis - https://amplifypublishinggroup.com/product/nonfiction/health-medicine-and-wellness/general-health-medicine-and-wellness/blood-poison/