Pediatric Sepsis: Updates and changes at UHS - Pediatric Grand Rounds-2-27-2026-Meeting Recording

February 27, 2026, 1:30PM

47m 10s

Calderon, Delia started transcription

Ranch, Daniel 0:03

Good morning and thank you everybody for joining UT Health San Antonio Pediatric Grand Rounds. As you log on, please don't forget to mute your devices. Also, the participation code will be placed in the chat box periodically, so you can check there. Otherwise, it is my absolute great pleasure to introduce our speaker for today, Doctor Whitney Rose Schwartz, who is a little bit post call. Excuse any garbled words, but otherwise she's here. She's here now. We're grateful for her.

Doctor Schwartz is currently an assistant professor for pediatric emergency medicine here at UT San Antonio. She was both a medical student and resident here at Utesca prior to going on to her emergency medicine fellowship at Dell Children's in Austin, TX. And I'll add quite frankly that my favorite resident ever working with her.

For those of you who know who worked with her, literally see her skipping down the hall during rounds, cuz that's the energy she brings. And let's see, somebody needs to mute. All right, thank you. But yes, so happy to have her back here.

SC

Sarah Chang 0:56

And then I'll do.

Ranch, Daniel 1:12

Doctor Schwartz currently does QI work for the Whoever just logged on, could you mute please? There you go. Yeah, she currently does QI work for the pediatric emergency department and is one of the projects she's working on with Doctor Andrew Meyer is on the Pecan teapot study regarding the use of nebulize.

SC

Sarah Chang 1:12

We have a lot of virtual meetings, so I'm kind of double dipping.

Ranch, Daniel 1:32

Transanemic acid. They get the right for post toxic hemorrhages. Otherwise, everybody, please welcome Doctor Whitney Rose Schwartz.

Wroe Schwarz, Whitney 1:40

Thanks, everyone. Appreciate. Thanks for having me here today. So, yeah, like Doctor Grant said, Whitney Rose Shores. I'm one of the pediatric training providers here at UT and and we're going to talk about pediatric sepsis updates and changes at university. And for the residents out there that are multitasking, you don't have to today because this is a little bit of a shorter presentation, so you.

You can put down your other work and listen in and you'll have time later to do your patient work. OK, so on that note, let's begin. Disclosures. I have no financial disclosures, just children. These are my Nuggets. Of course, I had to include them because I'm the mom. Morgan, Madison, City and Wind, 247 and eight.

But now we'll get to the topic I had. Sepsis. OK, so sepsis, as we all know, is a big problem. So worldwide, it affects about 25 million people, 3,000,000 mortalities worldwide. In the United States, it's about an 8% mortality rate in the United States. So big deal. In this presentation, we're actually going to talk.

A little bit backwards. We're gonna talk about the definition of sepsis, how we track it, and then how we screen for it. And we're gonna do that because early identification of sepsis is really challenging. And so I think this will kind of help demonstrate that. Additionally, for our learners out there, I know sometimes it's kind of things like a womp womp topic definition.

Tracking sepsis, but it's really important. And I know on the day-to-day you learn a lot of great bedside direct patient care stuff, but sometimes it's really important also to learn kind of the bigger picture of things. And so I think this presentation kind of touches on those topics. So on that note, let's talk.

So we talk about sepsis. Every disease process needs a standardized definition. You need a standardized definition so that you can study that topic and then from there you can improve outcomes. OK, so it's really important to have a good standardized definition to be able to study the topic and then improve outcomes.

Just as important, that definition needs to be applicable on a worldwide scale, right? Both first and third world countries need to be able to use that definition. So Sepsis has gone through many iterations of definitions throughout the year, and no surprise, it will probably continue to go through other iterations in the future. So we'll kind of skim through some of those iterations.

So in the 1980s, it was sepsis syndrome. Hey, you have concern for infection and there's some sort of organ dysfunction, poor profusion going on. That was it. In 1992, you had your first international sepsis conference, Sepsis one that kind of put a more formal definition to sepsis.
And so sepsis one said, hey, sepsis is a suspected or confirmed infection in the presence of the systemic inflammatory response syndrome, SIRS. So suspected or confirmed infection in the presence of SIRS. SIRS meant you had two out of four abnormalities in the following temperature, heart rate, respirate, white blood cells. Then you had severe sepsis, septic shock with different levels of in organ perfusion and need for pressors or rising lactate. Don't worry about that part for right now. SIRS, as we all know, was it 20-30 years later, 30 years later, is not great, cannot differentiate between sick or not sick. And so we really don't use it.
For that reason, but that's what you will hear a lot about in the world out there is SIRS, and that's what that means.
So that was a start. 11 years later, they met again. I had the sexes to conference and for all intents and purposes, they kind of kind of clarified some signs and symptoms recognized and started talking a little bit more about the host response. And we'll kind of leave it at that for that conference.
Up to this point, this has all been adult definitions, nothing pediatric specific. And in 2005 you had the IPSCC, the International Pediatric Sepsis Consensus Conference and they met and kind of put a pediatric definition to it or spin on it and they kind of defined what the organ dysfunction was a little bit more and then.
Added pediatric age vital signs.
Notably, they noted, hey, we got some limitations here. This includes mild illness, right? The SERS right does not identify those at risk for poor outcomes. They're studied discrepancy and how the clinical criteria are applied, which we'll see a little bit more about in the future. And then it hasn't been studied globally.
So progress needs more.
So in 2016 we had the Sepsis 3 and this is big. This is the first time you have more scientific data to support what's going on. They did this process through many different ways. You can read the paper for information, but in short, they said that. Sepsis is now a life-threatening organ dysfunction caused by a dysregulated host response defined by a SOFA score of two or more. SOFA being sequential organ failure assessment. So they're kind of making more solidified, like what is organ failure? How are we defining that and how are we how are we defining that? So

again, a life-threatening.
Organ dysfunction caused by dysregated host response defined by SOFA score of two or more septic shock. You needed pressors or an elevated lactate. There was QSOFA, Quick SOFA. It was attempted to be a three organ system screening tool, kind of shorter version of SOFA.
It's not very, it's not sensitive at all. So it's not a good screening tool. And then they said, hey, this is not pediatric data, but they put a piece of it and said, hey, we'll put pediatric vital signs and that's a piece of it. Notably, the Sepsis 3 conference said, hey, pediatrics, you really need to do this something similar, but with.
Pediatric literature and pediatric research. So come 2024 you have the International Consensus Conference for Pediatric Sepsis and Septic Shock and they came up with the Phoenix criteria. So this is super important. This is where you want to really listen in everyone. So sepsis in Pediatrics is now defined as.
Suspected infection with life-threatening organ dysfunction defined by a Phoenix sepsis score of two or more. So again, pediatric sepsis is now officially defined as concerned for infection with life-threatening organ dysfunction with that organ dysfunction defined by a Phoenix sepsis score of two or more.
Shock septic shock is when you have the Phoenix septic score with at least one in the cardiovascular section. OK, the Phoenix score applies to those less than 18. It does not apply to newborns or neonates less than 37 weeks. And again, we're not using SIRS. We're not using severe sepsis.
OK, notably, the Phoenix score helps with the definition of sepsis. This is not a screener, and it's really important that people understand this. This is a definition, not a screener. Those are two very different things.
So this is the Phoenix sepsis score and the table to help you calculate it. So it's for organ systems, respiratory, cardiovascular, coagulation, neurologic and it says, hey, sepsis suspected infection, Phoenix scored two or more septic shock, sepsis with greater than one in the cardiovascular.
Notably, the original Phoenix sepsis score had eight organ system models, but when they compared the eight to the four system model, they had comparable. They were very comparable and so for increasing utility, they decided to go down to a four organ system model rather than A8 system model. They exist a model included renal. Immunology and hepatology. So just kind of side note there. Now when they did the Phoenix score, the authors, they say, hey, we have some limitations. This definition simplifies the complex biological processes leading to sepsis.

It simplifies the variability in host and pathogen factors, and it does not characterize specific markers of dysregulated host response. So newsflash, this is we're going to talk about the future in a bit and those will be some of the topics we talk about. So progress steps in the right direction. We need more steps.
OK. So now that we've talked about the definition of sepsis concerned for infection with evidence of end organ damage defined by a Phoenix score two or more, how do we track and measure that data? How do we track and measure it? This is a lot harder than meets the eye. And so I think if you read Pediatrics 2021, it's so collaborative, you'll kind of gain some insight.
into how challenging this can be. And for anyone who tries to do sepsis work at a future hospital, I really highly encourage you to read this paper because it'll give you a lot of insights into the challenges so you don't have to repeat them. So IPSO stands for improving pediatric sepsis outcomes. IPSO, improving pediatric sepsis outcomes, and I'll use that term throughout this presentation.
It was a 56 US hospital collaborative and they tried to develop variables, metrics and a data analysis plan to track QI based patient outcomes specifically related to sepsis. OK, so when you try to do this.
You need some metric development. So different metrics need to be thought about. So one is outcome metrics. Is what I'm measuring truly matter to my patient, right? Sounds important. Process metrics. Does it directly influence outcome, right? That's really important. Does it directly influence outcome?
Balancing metrics. What are my unintended consequences? Or am I going to get user fatigue, right? So unintended consequences of what we're doing?
Abstraction of metrics. We need to make sure that we can obtain the data, we can optimize it, and we can make it sustainable. So can we abstract that data easily? And is it reproducible and sustainable? Because if it's not, a lot of our effort's going to go to waste, right?
And then lastly, our outcome process measures must be effectively linked, which is a little bit repetitious, but I think it's really important because if you're trying to do process improvement, you need to make sure what you're measuring is actually affecting your outcome. Additionally, now that we have a lot more pay for performance out there, this is going to be more and more important.
So this slide is a little busy, but that was my intent on this figure. So this figure demonstrate just some of the measures that Ipso is tracking. So these are some of the measures they say, hey, these are the variables needed.

And this is the statistical analysis to look at that.
Same this one's a little bit busy, but my point is a little bit in that sense too. So this figure says, hey, this is how Ipso defines the earliest point of sepsis recognition. And if you look at it, there are six different times.
That they identify as time 0 for earliest recognition of sepsis 6 different times for time zero. You're like, wait, what? And I think this alludes to the fact that sepsis is a very heterogeneous phenotype. It can be very hard to recognize early on. It's different than asthma. Asthma is a more narrow phenotype. Sepsis is very broad-headed. Genus phenotype and so retrospective data collection can be really, really challenging and oftentimes coding can be somewhat unreliable. Additionally, there's a lot of overlap with other disease processes, so making an automated system can also be problematic sometimes.
So again, sepsis heterogeneous phenotype. It can be subtle how it's it how it starts off. It's unreliable coding sometimes because of that, and it overlaps with other conditions, also making it challenging to do data abstraction. Hence 6 different time zeros for earliest recognition of sepsis in the Ipso collaborative.
Same this one is how ITSO tracked like what are we saying is sepsis? So they had eight different ways to identify sepsis retrospectively, which again goes to the fact that this can be really, really challenging. So that was a brief skimming over how we do data or what the ITSO collaborative did for data tracking.
And but I think it eludes the point that this can be really challenging to do. So we've talked about definition.

Ranch, Daniel 13:39
Oh, sorry, Doctor Schwartz, you got muted accidentally. Let me see.
It won't let me fix that.
Do you actually hit your spacebar? There we go.

Wroe Schwarz, Whitney 13:51
Oh, I did. OK. Sorry about that. OK. Could y'all hear me from this letter now?

Ranch, Daniel 13:59
Uh, right when you're starting the slide.

Wroe Schwarz, Whitney 14:00

OK, perfect. OK, so now we're talking about screening. So we have, we talked about definition tracking and now let's talk about screening for sepsis. So when a patient arrives in ED, you just have vital signs and their history and how they look, right? Sometimes not even that. We don't have the Phoenix score, which by the way, the Phoenix score gives us.
Our definition, not our screening. And you might not have labs for hours. OK, so can't use that. I think it gives you insight that's challenging in that it so had so many different ways to recognize time 0. Screening is really challenging. And so in fact, it's so challenging that we do not have a standardized pediatric tool for screening for early sepsis.
There is no standardized pediatric tool for screening for early sepsis. In fact, every children's hospital has slightly different versions, and some hospitals have one version for the ED and a different version for inpatient, chemo and PICU. OK, so challenging. We talk about screening tools. They need to be accurate, so they need to have a high sensitivity.
They need high sensitivity and high positive predictive value. They need to be timely. So it doesn't mean no good if you're like the screen goes off and says, hey, you're something. You're like, yeah, I'm on pressers, right? We need it to Alert me in time to actually make change before things happen. It needs to be easy. If it's not easy, it won't be utilized. And that's just human nature.
Yeah.
So what are we doing at university? So old UHS screening and mortality data. So in 2017, Pediatrics published kind of a a screening. I say like recommended a screening tool, but it was pretty useless to put it best.
So university had that screening tool and these were our numbers. The sensitivity of that screening tool was 22%. So it identified one out of every four to five patients with sepsis. So that's not good. And the positive predictive value was 7%. So every time it said, hey, you have sepsis, if it did that 14 times.
13 were false positives, so not a great screening tool. Again, screening tools need high sensitivity, high positive predictive value ideally.
On mortality, University in 2023 was 16.713.8 for pediatric attributed sepsis and the national average is 8.2 for the Ipso Collaborative. So then comes the wonderful Doctor Shanley. I don't know if she's on today, but in summer of 2024, Doctor Shanley started the.
Pediatric Sepsis Workgroup Initiative to help us with our screening, our processes,

our tracking and decreasing mortality rates. And she has done a phenomenal job. So all the credit goes to Doctor Shanley. She's created a team of many epic analysts and then a bunch of nurses and faculty from all different depart from.
PICU, the floor, the ED, et cetera. So our goal was for us to redo our screening tool and then implement the Ipso metrics. So for screening, because there's no standard screening, we decided to mimic chops, which I think arguably everyone could say is not bad. So we mimic chops screening tool for the ED.
'Cause that's where we started. And then we started with the building of some IFSO collaborative measures. So how does that look?
So this is the PD/ED sepsis screening tool. We started this process about a year ago, so February, mid-February of 2025. And this is how we're screening for sepsis. So let's dive into it. So if a kid comes to the ED, if they have hypotension and tachycardia, Epic gives the nurse an OPA. That stands for our practice advisor.
It was formerly known as a BPA. So hybrid tachycardiac. The nurse gets a flag on her screen that says stop. You need to do a PD sepsis screen and if they have fever, hypothermia or infections suspected plus one of the following abnormal perfusion, altered mental status, a high risk condition.
Then it flags a second OPA that says stop, you must do a sepsis huddle. And that means within the 1st 15 minutes, within 15 minutes of that huddle being triggered, the nurse and the Ed faculty specifically, not residents, faculty must meet at bedside and determine.
The outcome of the huddle. Are they not sepsis green? Not sure if they're sepsis yellow or sepsis red. OK, and we'll get into that in a bit. Green, yellow, red. So again, a two OPA trigger to do a sepsis huddle. Now at any point during this, if a nurse is like, hey, I'm concerned for sepsis and they're not.
Triggering the sepsis huddle, they can automatically trigger a sepsis huddle themselves and that's what you'll see on the right hand side of the screen. And this applies to a lot of our at risk for sepsis patient population. And I'm gonna use that term at risk a lot throughout the presentation. What I mean by that is that our immunocompromised and fever patients.
So they may arrive in the Ed and they look great. They have a fever at home, but they're not tachycardic hypotensive. But the nurse knows, hey, those kids need to get it worked up and have antibiotics and fluids within 60 minutes, and so they'll actually manually put that in.
At risk for more details on that, that specifically applies right now to if you have a

central line access fever and fever in oncology, fever in transplant, fever in dialysis, fever in sickle cell, fever less than 60 days of life, those are all kind of in our at risk for sepsis patient population.
So that's that part. Sepsis huddle. So you have a sepsis huddle 15 minutes within within it being triggered with the ED faculty and RN and they determine if the kid is green, yellow, red. So green is hey, this is not sepsis, this is not organ dysfunction and screen.
Or you can have red this is sepsis. I'm concerned about this. Put in the order set and screen the order set and has the order set. It has the fluid to antibiotics which should be administered within 60 minutes per the surviving sepsis campaign guidelines and Ipsa recommendations.
OK. And then also has like your nursing vital sinus assessment minimum, which is every 15 minutes at the minimum. Usually it's a lot more than that, but that's the minimum. Now Yellow zone, Yellow zone is the mystery box. This is why we don't have a standardized screening tool in Peds for early identification of sepsis because it's a mystery still.
So this packs gives you a lot of leeway to do different things. This box will say, hey, this kid has fever. They're a little tachycardic. They kind of look a little punky. I think it might be the fever though, and not anything else. Let me get the Motrin and reassess them and see what they do. 60 minutes later, every 60 minutes, you get a rehuddle on these patients in the yellow box to see if they're still.
Still there elsewhere. And you're like rehuddling, like they're jumping around the room, they're bouncing off the walls. This kid's different best and they look phenomenal. OK, it was the fever. Good. You're good to go home. Or you're like, man, this kid still doesn't look good. Something's up. Let's go ahead and do a workout.
So it gives you some wiggle room. Additionally, this is where a lot of your at-risk patient population goes. And again, you order your sepsis at-risk order set and within 60 minutes they should get their work up done. Vital signs for the at-risk patient population or for your sepsis watchers, your yellow box are every 30 minutes. Lastly, at any point during the ED stay, if they trigger nuance at hypotension, so any any patient ED nuance at hypotension, it automatically will trigger a sepsis screening tool. OK, that was a lot, but that's kind of how our screening goes right now.
You don't have to read this, but no, there's a sepsis huddle process for all our ED holds as well that have been verified or an agreement with our other services. And

some of y'all inpatient services might have gotten it before or not, but there is a process for sepsis huddles on boarding patients in the PDED.
So next, so this is our order set. We have one order set for all sepsis and at-risk patients. The reason is it's one name, one order is easier to remember than a bunch of different ones. So it leads to increased compliance and also it's easier to track. So it's PDD sepsis slash at-risk.
When you open it, there are a bunch of different subcategories that you can click from, all with associated clinical pathways, and we'll get to those in a bit.
Additionally, you'll have your nursing assessment, your watch and suspected sepsis. You'll have your sepsis time stamp as well.
We talk about clinical pathways. Clinical pathways, residents, they save lives. What can I say? They truly do. The clinical pathway, standardized care, so everyone gets evidence-based medicine. It's especially important in places like university where we have providers of different backgrounds. We have Penn, we have EM, we even have EM fellows sometimes.
And also learners from different backgrounds, PGI 1-2 and three from family medicine, EM and pediatrics. So it helps kind of everyone know we're doing all doing the same thing. Additionally, and I cannot emphasize this enough, these are great educational tools, residents, for you to learn about a disease process, how we treat it, and the basics of a process with lots of bounce off.
Questions from there.
So labs, I've got a lot of comments about this. So when we did the order sets in clinical pathways, the Phoenix score had just come out and we thought it'd be really interesting to go and include the Phoenix score labs within those order sets. We did it of course for like your generalized subsets, but we also did it for at risk patient population because we thought it'd be.
Interesting to track. And for those of you who are not in the receiving end or not familiar with some of those labs, we typically don't order coags and D dimer and lactate on a well appearing kid. But the Phoenix score requires that those be part of it to obtain the score. And so we thought, hey, this might be interesting to track like in the ED there's score of 0.
And on day three or day two, they had a Phoenix score of two. That was the intent. It's had some unintended consequences and that we've had some providers misinterpret the lab, specifically the D dimer. We've had a bunch of providers on the adult side unintentionally interpret the D dimer for.

Or pulmonary embolism things and other ideologies. So we're working on that. Will we always keep it in the at-risk patient population? If they look OK, we always make it automatically clicked or we maybe in the future we'll make it opt in to be determined. We'll talk with the sepsis work group about that, but that was the intent behind that.
This is where you can score the Phoenix sepsis score in Epic and then just scoring tools. Also, truthfully, Metcalf makes it super easy. Metcalf's easier to use and you can just calculate in there and put it in Epic as well.
OK, so now I've talked about how we do our sepsis screen university. Let's talk about how we're tracking it with Ipso. OK, so every month the sepsis work group gets this e-mail and the data is abstracted through Epic and Midas. So processes.
This is a busy screen. Don't worry, you don't have to read it. Just know, hey, there's 12 graphs and tables they're looking at. Awesome. That's a lot of stuff. And so these are the process measures we're looking at. How often are the OPAS firing? How often are nurses completing the OPAS and the sepsis huddles?
What are the outcomes of those? Green, yellow, red. What are the dispositions? What are our time to antibiotics? What are our time to fluids? What is our ED disposition? OK, that just kind of skims it there.
And then these are some of the outcomes. So our outcomes, what are what is our and this goes and this some of this is being pulled the the prior screen was pulled from Epic. This screen, some of it comes from Midas which is a program that tracks safety, risk management and clinical data. I'm not as familiar with Midas, but this is how they're getting some of the mortality.
And associated with sepsis. And then we even have it for like, was it present on arrival? Was it not present arrival? And we're learning more and more about the outcomes page specifically regarding sepsis mortality as we speak. So on that note, let's actually talk about our mortality levels now.
So in 2025, so this process has been rolled out now for almost a year and our mortality rate is 7%. So that's awesome because previously it was 13 and 16% and the national average is 8%. So excellent job team. I think there's a lot of factors at this. Before we go into that, let's talk about a little bit more about this number. What that means, cuz we're still trying to learn about that. So it pulled 7%, seven patients mortality rate that had somewhere in their chart and at some point in the chart the name sepsis when we actually pull those patients and look at those patients charts.

Only 2.7, so only three of those patients actually had sepsis attributed mortality. So this is where it gets challenging because sometimes automated data abstraction isn't always the most accurate. And so for example, last month the team got three patients to review to determine if they were.
Sepsis or not sepsis. Two of them were not mortalities and it was like a kid that had a mucus plug and got discharged the next day. One was a kid that had a foot abscess and got admitted for an ID with podiatry and a resident one point put sepsis in the chart, but they were discharged the next day. Like both of those were not sepsis, right? But somehow they got it like coded.
The coding data abstraction got their names and then the mortality was a kid that aspirated on a grape at home and the grape was removed by EMS and he came in coding, right? Like that's not a subsystem attributed to mortality. So I don't know how that got into there my.
Why I'm saying this is we data abstraction is not perfect and we're working on trying to fine tune it. And so that's how you go from 7 to 3% is that when we actually look at that 7% is what is being pulled for everyone for comparison with if so, but that 3% is really more reflective of what's going on at our institution.
And even if we're not sure about how those numbers are being pulled, we can say, hey, over the past three years, our inpatient encounters have uptrended, our final diagnosis of sepsis has uptrended and our mortality has overall downtrended. So I do tend to believe that our mortality rate truly is going down with that being.
Said. So excellent job, University. We're making progress. OK, so next steps you. So this has been rolled on the PDED. Dr. Shanley and the sepsis team are going to are now starting to work on inpatient processes for inpatient screenings. And so you'll start hearing more and more about that on your end if you haven't already.
Now the future. What is the future of sepsis? So when we talk about sepsis, it is a complex biological process made-up of a whole slew of pathogen and host factors, and what differentiates sepsis from an infection.
Is the presence of a dysregulated host response and organ dysfunction. So again, super important. We're going to repeat that. Sepsis is a complex biological process made-up of a bunch of host and pathogen factors, and what differentiates sepsis from infection is the presence of a dysregulated host response and organ dysfunction.
So our current definition of sepsis is way too simplistic, right? So on that note, what's the future? So we need improved screening tools. We need screening tools with high

sensitivity and reasonable precision. OK, it needs to be adaptable to different healthcare settings, right? And it needs to be applicable.
To all ages and those with and without chronic conditions. OK, so we're actually making some progress on that a lot. We're gonna probably start using a lot more computer models for this. And so in 2024, JAMA, they actually had a study they published using a computer model that.
Validation of predictive models for early pediatric sepsis. Now this is not prime time. This is not prime time, but it's a step in the right direction saying, hey, we're going to start being using computer models to try to get better screen tools for identifying early sepsis. And this article is really interesting because they.
Took patients in the ED and said, hey, you don't have sepsis in the first four hours, but you go to develop sepsis in the next 48 hours. How do we identify a tool that a tool that identifies you? So in the future, we didn't even talk about pre-term and neonatal infection and none of our numbers even include the newborns or neonates. So that's another discussion.
We need to design studies that incorporate phenotype based criteria reflective of individual biology. So we probably need in the future, maybe we'll have some targeted therapies for different subtypes of individuals. So for example, right now sepsis is kind of all comes in the same category, whether it's the infection at the.
Site of an organ damage versus infection within organ damage at a different site. Those are presumably probably two different processes or processes with some differences, right? And so we might have more targeted therapies for those.
Next, an improved understanding of the host response. So the pro and anti-inflammatory responses, modifications to non-immunologic pathways. And then lastly, test efficacy and effectiveness of novel clinical and molecular markers that can assist with delivering targeted antimicrobial therapy, right. So antibiotic resistance is a big thing. How do we do?
More targeted therapy.
Now on that note, so so far we've talked about screening, tracking and definition of sepsis. I specifically not talked about treatment of sepsis. I think that is a different presentation. That was not the point of this presentation. However, I oftentimes have residents ask me all the time, how do I treat sepsis? How do I treat sepsis? And so this is a plug for them, just a quick plug.
If you want to learn about treating sepsis, please read the Surviving Sepsis Campaign. They have a long version and they have a short version. Take your pick. But it's a

wonderful document that really goes into like how do we treat sepsis and a little bit more than nuances of it. It's very educational if you want an even shorter read.
If you ever PALS card bada bing bada boom, they're the ABC's to how to do sepsis at bedside. If you're inpatient, I always carry my PALS card with me on every shift. I recommend you do 2 pediatric residents and the PALS card will help you there.
There's also a clinical pathway that university has for sepsis. It's somewhere on the Internet and it's also in the binder that's on the doctor.
And on that note, I'm done.

Ranch, Daniel 32:06
Thank you Doctor Schwartz for that great overview on a topic that I fortunately don't see often, but I know many people in the audience do. I'd like to open up to questions for questions. You can either place in the chat or raise your hand and mute yourself.
Seeing Doctor Sukowski with his hand up.

Wroe Schwarz, Whitney 32:29
Oh, yeah.

Sugalski, Aaron 32:30
Hey, Whitney. Good or excellent talk. And so I love you here. A lot of high points. I love the history and all that sort of stuff. I don't know if I'd say you're my favorite residents, but you're one of my most memorable residents. So I think that's hard to say. But I do remember every time you call in the middle of the night because it wakes me up immediately. So.

Ranch, Daniel 32:40
Just.

Sugalski, Aaron 32:50
Anyways, how good are we? So I love the data on, you know, decreasing mortality and so forth. So because there's such a variety of providers in the Ed, especially days and nights and so forth, how good are we at actually activating the right order set for these patients when they come in? Because I think that's probably the first step. Do you have data on that?

Wroe Schwarz, Whitney 33:10

I don't have it off the top of my head. I know that we've done a bunch of education for the Ed to be like, hey, please use these order sets and the nurses too. I don't know. I actually, I should probably look. I'm sure it's all one of those graphs. I just didn't look at. I can collect that data. I don't know.

Are you seeing a lot on your end where people aren't using it or what? What are you seeing on your end? This is helpful information for me.

Sugalski, Aaron 33:35

Yeah, no, I don't think so. I just, I'm just curious like I mean I I feel like our our patients you know that come in with fever and neutropenia or fever and a port that sort of stuff they get they use, I mean they get this pretty, pretty regularly. I mean the work up and antibiotics is the antibiotics is the most important thing and so like that's the that's the deal.

Wroe Schwarz, Whitney 33:50

Yeah.

Yeah.

Sugalski, Aaron 33:56

So like I, I, I think for us it's probably done, you know, majority of the time. So I mean a good majority.

Wroe Schwarz, Whitney 33:56

Yeah.

Yeah, I think when we when we first started the rollout, I knew we we did have a we did recognize that not everyone was using the order set. I think more and more people are using the order set. I actually that's a good I need to go back and see what is or actually.

Our compliance with the order set now that we're 12 months in, so I can, I can do that, but hopefully the education's helping.

Sugalski, Aaron 34:23

Great. Good job.

Assanasen, Chatchawin 34:25
Um.

Ranch, Daniel 34:26
Uh, we got Doctor Asanasan, then Doctor Medi.

Assanasen, Chatchawin 34:31
Hey, Whitney, great talk. Hey, I'm actually kind of interested in in the dashboard and the data you've been collecting. In light of the different populations, how well are you gonna, are you able to kind of sort out between the severely immunosuppressed?

Wroe Schwarz, Whitney 34:33
Hey!
OK.

Assanasen, Chatchawin 34:50
Patient populations in that dashboard as well as the data you're collecting as well as kind of the foot abscess you're talking about and and as you mentioned the neonatal group that you have that you haven't really kind of dived into yet.

Wroe Schwarz, Whitney 35:04
Yeah, that's a great question. So we actually, you didn't see on this file, but the Excel file actually, if there's any fallouts anywhere, it has attached MRNS with it and the mortality patients all have attached MRNS as well. And so we actually in the monthly meetings will actually go through any fallouts in there. None of the neonatal patients are included in.
Any of this data. So that's automatically excluded in terms of different genes, severely immunocompromised versus non, we would have to individually go through those MRNS to do it. But we do have there is a way to track and theoretically you can go in and track between the severely immunocompromised and.
If not, you would just have to build that out a little bit more or mainly do it.

Assanasen, Chatchawin 35:46

So right now they're mixed together. So there's there's kind of a couple of different populations in that dashboard with regard to downstream effects etcetera. And just because the initial criteria is probably going to be a little bit different between the as as Aaron mentioned on severely immune suppressed oncology fever neutropenia patient coming in versus.

Wroe Schwarz, Whitney 35:49
Right.
Mhm.

Assanasen, Chatchawin 36:06
Uh, food access.

Wroe Schwarz, Whitney 36:07
Yeah. So the so where I think we're, there's two different things here. There's the processes one and the outcomes page. The processes page is we've been tinkering with that a lot. That's via Epic. And so we have a lot more control over that with our Epic analysts. And so for the processes page, that's a lot of the OPAS time to antibiotics, time to fluids.
The outcomes page, a lot of that is abstracted from Midas, which is a different program, which I'm not quite as familiar with. And Midas abstracts it from understanding. Midas gets its data from final diagnosis or any diagnosis during the time of the hospital stay.
And it's you get that data within five days. And so that's where we're getting the mortality data from. And because it is so much smaller, we actually are like we actually do look at all those patients to get more information on them. And that's how we're gonna be able to go from the seven patients mortality to the three patient mortality.
And then anything that comes up through Midas with the sepsis like final diagnosis code. So there were 91 final diagnosis codes for 2025. And when we get those, we can we screen for them and say like yes, this is sepsis or no, that's not sepsis. So like last month when we got the three, we said no, two of those are not sepsis, those aren't sepsis or actually three of those, none of.
The three that were flagged were sepsis related and so we can take those out. So it doesn't. In doing that, you do know if it's immunocompromised or not

immunocompromised patients, but in in our our one tonight is kind of differentiating like, hey, did we get inappropriate sepsis pools into the sepsis?
Midas tracking or not, and then we can take those patients out. I don't know if that answered your question or not.

Assanasen, Chatchawin 37:42
Yes, thanks.

Ranch, Daniel 37:46
Dr. Medin.

Medellin, Glen A 37:49
Hey Whitney, I'm always so thankful when you all evaluate my special patients down in the ED. I guess how do the my kids with autonomic dysfunction baseline with abnormal, you know, low temperatures, neurologic dysfunction, how do these kids fit into these pathways?

Wroe Schwarz, Whitney 38:09
That's a great question. Usually we err on the side of caution and we'll either put them in the yellow or red box, depending. If they have a known history of autonomic dysfunction, we'll probably put them in the yellow box. If the provider isn't aware, they might unintentionally do the red box, but they usually do get workups.
Because they are so complex and those patients specifically, I feel like just are sneaky with their sepsis, right? And so they'll usually get in the yellow box and get a workup done.

Medellin, Glen A 38:36
Yeah, although I do see a lot of variability. When it's the PDED doc on, there is often a workup, but no antibiotics and no running down the full treatment pathway. And then, yeah, an adult docs.

Wroe Schwarz, Whitney 38:46
Yeah, they might be in that yellow. They might be in that. Yeah. Oh, sorry. Go for it.

Medellin, Glen A 38:51

Yeah, sorry. No, no, I just say if it's an adult ED doc, I often have a full treatment pathway in there in the red box for sure.

Wroe Schwarz, Whitney 39:01

Yeah, yeah. I think it's different levels of comfortability, I think. Um, um. So yeah.

Medellin, Glen A 39:07

OK. Thank you.

Ranch, Daniel 39:09

A quick question in the chat box, then we'll get to Doctor Canty. Dr. Myers asking are we stocking pre-dose antibiotics for different weights in the Ed to maybe be able to give them more rapidly?

Wroe Schwarz, Whitney 39:19

Oh.

So actually super glad you asked that question because that was a big problem. Prior to this, we were not allowed. The nurses were not allowed to give antibiotics. They were not allowed to mix the meds at bed, which was kind of crazy because I'd always had nurses be able to mix the meds at bed. And so part of this initiative is we got approval to do 7:00 PM or seven. We can mix at bedside. So 7:00 PM or seven we can.

Pull from the Omnicell and give ourselves for more rapid administration to meet our time frames. We can't do it for VAEC or Pazosen and then for AMP and Gent for the neonates. Pharmacy did not want us doing it just cuz it's such small volumes like small errors can be big mistakes and so pharmacy does AMP and Gent for us, but we can do stuff.

7.

Medellin, Glen A 40:02

Doctor Kenti.

JC

JB Cantey 40:08

Hey, Doctor Schwartz, great presentation. I I have one one comment and one quick question. The comment is, I I mean I just in the last 10 minutes that you've been

answering questions, you've had a nephrologist, A oncologist, an intensivist, a another intensivist and now a neonatologist.

Wroe Schwarz, Whitney 40:42
It.

JC

JB Cantey 40:43
Can you just briefly talk about how's the workflow? Like is the huddle been pretty well received? Are people, do you get pushback? Are people rolling their eyes? Like how's it work down in the trenches?

Wroe Schwarz, Whitney 40:47
Oh, yeah.
Yeah. So actually it's not been bad because that was our big concern initially is how many of these huddles are we going to get pulled for? And it's not as often as one thinks. So that's really helpful. And we're also measuring that too, like are we in our our processes, like how often are you getting like a sepsis huddle called? It's not that often. It's not often enough to cause a problem, so.
So not alert fatigue. That's great. I don't think we're getting pushback. I haven't heard any pushback from other providers or let me rephrase that. I haven't heard nurses say that ever the providers are giving pushback. So I think it's being well received that way. And I think it also helps when we like go to the the ED and say like, hey, these are our numbers there. We need to improve.
It's kind of like, OK, yeah, we got to make some progress.

Ranch, Daniel 41:43
Additional questions from the audience.
While we're waiting, I was gonna kind of piggyback on that comment and it will get to Doctor Lopez. Um.
I guess do you think that for certain groups like say my patients, especially patients, that might be one possible barrier cause of delay for implementing these steps, waiting for call back from the specialist because they're worried about a certain issue or?
Have you gotten that feedback? Just hearing a couple of patient experience.

Sometimes things are slower, but may not. You know, there's many things going on the Uh all at once, so I just wanted to make sure that wasn't a barrier for you guys.

Wroe Schwarz, Whitney 42:14

I had gotten it.

Yeah.

I don't think so. I think so when the specialty patients come like on the board, the tracking board, if they're at risk patient population.

Ranch, Daniel 42:37

Oh, no. Did we just lose this doctor shorts? Oh, there you go. You're back. You're back. You're back.

Wroe Schwarz, Whitney 42:39

Rival. Oh, no, no, no. OK, back. So when an at-risk patient arrives, they're triaged as a triage level 2, which one is you're dying, two is you need to see within 30 minutes, three and four and five. Five is like you shouldn't be there, right? So they're trials there too. So I should see them within 30 minutes, ideally.

And so we always try to get those order sets in as soon as possible. So the order sets are usually put in pretty rapidly. A lot of times it's the delay in waiting for the ultrasound results. Like ultrasound can take forever to come back, especially in the middle of the night.

And RADS is, I'm sure y'all are familiar. RADS is they're working on some of their times, but in the middle of the night, ultrasound reads can take forever and so or sometimes waiting on some of the final laps can take a long time. So I think probably a lot of that delay is either I'm curious, it's not, I don't think it's putting the orders in, I think it's.

Waiting for the results, that's taking a long time, but never waiting for that. The consultants are always super fast on answering their phones and responding to us.

Ranch, Daniel 43:41

Glad to hear that. Thank you. All right, Dr. Lopez, go ahead.

Lopez, Cynthia 43:47

Hi, Whitney. Really, really good presentation. I will be the outpatient representative

for now, so you can check all your boxes and everybody who is interested in this talk. So you you really went through it all really well for this topic and I know you're involved also with asthma and so.
As a teaching point, I guess for our residents and especially those who want to go maybe into academia or fellowship, like how many other like disease processes have you worked on in the emergency room and is this like reimbursable time for you or?

Wroe Schwarz, Whitney 44:26
Oh, that is it. That is a great question, Doctor Lopez. I will gladly let the residents know what I did. So when I came back to university, I.

Lopez, Cynthia 44:27
You're doing it on your own time.

Wroe Schwarz, Whitney 44:39
Make sure I state this the right way. I knew the PDED had a lot that needed to be done and I wanted to be able to do that thing, but also maintain my mental sanity, right? I have 4 kids. I enjoy my job. I want to be able to like do my job and make it better and have the bandwidth to do it all. So I negotiated protected time to do quality improvement.
And so that was actually part of my contract. I got a shift buy down to do quality improvement. And so this is part of my job. Let's do quality improvement.

Lopez, Cynthia 45:09
That's awesome because that was actually the last part of my question. Does it, do you think it increases burnout or it helps you overall making a change?

Wroe Schwarz, Whitney 45:17
Oh, that's great. I I love this stuff. I think it helps overall. And I remember in fellowship my faculty would tell me like Whitney having a niche in medicine like backtrack. My faculty would tell me if you just do the day-to-day EDM stuff, you're going to get burnt out. It's going to get old, it's going to get, you're going to get burnt out. But if you have a niche, it keeps you in the game longer.
I definitely find that to be true. I like the quality improvement stuff. It also honestly makes my job in Ed better. It's safer, it's better workflow, it's better overall cuz the

whole system's improving. So I like it cuz it's fun to do and it feels like there's a mission. And I also like it cuz clinically it makes my shifts that much easier as well. But I do say like everyone needs to have a niche in medicine, and that niche can change throughout the years. But the niche will keep you engaged and to keep you from being burnt out, whatever that niche might be.

Ranch, Daniel 46:11
Fantastic points, especially in this current environment of of medicine. So, all right, additional questions or comments for Doctor Schwartz.

Lopez, Cynthia 46:11
Thank you so much.

Ranch, Daniel 46:28
Well, if not, thank you again, Doctor Schwartz, for presenting to our team. So glad to have you back. Glad to see you're just as awesome as you were many years ago as a trainee. So for the audience, please.
Don't forget to place your attendance code which is in the chat if you still need it. Also, please don't forget to complete the post grand round survey that helps Doctor Schwartz with feedback and also helps us support our program. Otherwise, thank you again Whitney. Great to see you and you guys have a great rest of your day.

Wroe Schwarz, Whitney 47:03
Thank you.

Calderon, Delia stopped transcription