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Please stand by for real time captions. Thank you for holding your conference will begin shortly. Welcome to the surviving sepsis early management saves lives conference call my name is Chris and I will be your operator for today's call. This time all participants are in a listen only mode. Feature we will conduct watching any answer session please note the conference is being recorded. I will now turn the call over to Gloria from MPRO. Please begin.

Thank you good afternoon and welcome to today's webinar it is part of Lake Superior quality innovation network. The webinars presented in partnership with the Great 8, which is a collaborative of 19 quality improvement organization across our country. Would like to introduce our speaker Pat. Has held various roles in healthcare in her 34 years of practice. Currently serving as a faculty for surviving sepsis campaign phase for collaborative.

As the national project for mechanically patients prior to her current role she was a critical staff nurse and educator and director of nursing and administrator of outpatient multispecialty primary care clinic. Paths passion and excellence in clinical practice has been involved in many programs hospital-wide sepsis management programs and statewide Keystone ICU patient safety initiative where she's a member of the advisory board. She earned her BSN from one State University and her Masters of Science and Administration with the healthcare focus from Central Michigan University. I would like to turn it over to pat thank you.

Thank you Gloria I am excited to be here talking to all of you as Chris the operator said we will have time for questions and answers at the end and you could put questions into the chat box. Excited to talk about something that I have worked with patients on sepsis since I began my career number of years ago. We are going to talk about the incidence of sepsis and the difference between sepsis cost severe sepsis and septic shock. We will focus on early recognition and what is the early recognition process for severe sepsis and discuss evidence-based interventions for severe sepsis.

A lot to pack into the next hour but hopefully it will be very helpful and you guys will have the ability to get the slides so you can reference them. We know sepsis has plagued our hospitalized patients for a long time and we now have current statistics telling us it is the sixth most common reason for hospitalization. One out of 23 patients in the hospital has set to see me out it is a major cause of morbidity and mortality worldwide. This is what gets me Passionate about improving sepsis care and saving lives is that just in the United States more than 500 people die of severe sepsis every day.

That is two planes crashing every day with no survivors. If you think about that awhile. We now know how to manage it well enough to significantly decreased mortality and we will talk about that. First we will start off with a polling question. Do you send, I know a number of you are from skilled nursing facilities or extended care, do you send your residence or patients to a hospital for infections qua if you will take a few minutes the polling question will be on the right side of the screen under the polling tab. Once you answer yes or no go ahead and hit the submit

button and someone will let me know. The poll has ended and we wanted you to answer really fast. Which is good and the results should come up. I would imagine we send it a lot of people from skilled nursing facilities to the hospital.

[Silence] I am not seeing the answer yet so if Gloria Koch and a per if you can help me out. Oh there is the answer caught so a large portion of you probably we did not give you enough time I don't know if there's a way to give more time to the polling questions for the next one. The significant portion of you are sending people to the hospital for infections and one of the things you will get out of today's discussion is how to not have you send them to the hospital for infections but to be able to identify sepsis and infections early and treat them to where you will not need to send them. One thing that we know about sepsis is that it is a time sensitive disease. Similar to a heart attack caused similar to strokes caused similar to how we approach trauma in the United States. Those are all time sensitive diseases and we have been able to significantly decreased mortality for all three of these. It has been because of identifying them early and implementing evidence-based intervention in a timely fashion. We now have those for sepsis.

We need to make sure we put in in interventions. We need to understand the difference between an infection sepsis and severe sepsis. Say that you have a patient has an infection and we will take an example of a patient with cellulitis on the right side. So this person has an infection locally on the right side and signs that the patient is infected as you will see redness, swelling and warmth to the area. You might have drainage. What is happening physiologically that local area of infection is we have increased capillary permeability and that is causing the fluid to leak out of intravascular space and we have basal dilation of the blood vessels so blood in the healing elements can get to the site. That's what occurs locally.

When a patient moves from infection to sepsis instead of having a local response to a local infection may now have a systemic response to a local infection. We will talk about what that response looks like in a few moments. To have a systemic response to the local infection and how do I know my patients having a systemic response we look for two out of four criteria. Today have a temperature greater than 38 or lower than 36 her respiratory rate greater than 20 in a white lead cell count over 12,000 or a 10% immature neutrophil. If I have two of those and an infection I have sepsis. So infection +2 or more of those equals infection sepsis. Then we continue on to a worsening degree and move into severe sepsis. The difference between sepsis and severe sepsis is with severe sepsis I now have an organ dysfunction as a result of the sepsis process. The patient with cellulitis now all of a sudden their urine output drops to less than .5 mL per kilogram per hour for greater than two hours, or their oxygen saturation drops and we need to supply them with oxygen, what happens is the systemic response of the infection is causing the inability of the tissue to receive oxygen and as a result they move from aerobic metabolism to anaerobic metabolism. They do not create enough energy for the South and they create a byproduct of lactic acid. I do not have enough energy for the cells to function in then the tissue and organs begin to dysfunction. He will see it in a variety of organ systems. Respiratory will see an increase in oxygen requirements the saturation drops less than 90%. Cardiovascular you'll see a drop in blood pressure and renal eye drop in your output or a rise in your crotch in and of .5 or more. Neurologically caught this is often in elderly populations it will be an altered level of consciousness. This is unrelated to the primary neural pathology. Subtle confusion cough forgetfulness and hopefully you'll catch it before they become unconscious. Metabolically we are

looking for an unexplained metabolic acidosis. High lactate greater than four is pretty severe in any lactate greater than two would be considered metabolic dysfunction. That is considered an organ dysfunction.

What we know now and what we have known since Sir William Osler in 1904 is he shared with us except on a few occasions caught the patient appears to die from the body's response to the infection rather than from the infection itself. This is significant and what we have been trying for the last 50 years is how do we prevent that from over responding because that's where organ failure and the ultimate death is often caused from. So what happens in severe sepsis qua we have too much coagulation going on caught too much inflammation and not enough fibrinolysis. We make a lot of little clots in the clutch off the capillaries and we don't get enough oxygen to the tissue and at the same time we are not breaking down the clots. This is a schematic membrane that lines your blood vessels in this the target organ for this over response. You see the bugs come in and the body responds by sending neutrophils and monocytes and those neutrophils cause the release of cytokines that cause the inflammatory response like vasodilatation and now it's not just happening locally but systemically and they cause increased capillary permeability. Monocytes in the tissue that ignites the cascade and now we are making all of these little clots. At the same time we are not breaking down the clots like we would normally do because the fibrinolysis is suppressed.

Here's what happens the microcirculation of the capillary level should look like. On the right side you have a big venial and on the left side here you have the small arterials with the capillaries here. This is good circulation. We have a good gas exchange led to now let's look at the septic patient. This is someone who is in septic shock and you can see the difference here. I do not see this capillary loops. I do not see good circulation, and I see a bunch of micro emboli that are clotting off the capillaries. I am not getting oxygen to the tissue and that results in increased lactic acid production because we moved to anaerobic metabolism and it also results in organ dysfunction.

How do we manage this awful disease qua first and foremost we have to work on prevention and we will talk a few minutes on prevention. There is some pivotal research that was done here in Michigan at Henry Ford Hospital where they identified a significant impact on mortality when early on the patients were recognized in the emergency room process and they provided fluids and were getting lactate and resuscitated to certain goals in a quick time frame. The early interventions proved significant and for the first time we saw a significant reduction in mortality for this population.

Early intervention is important to identify these patients and early identification and screening and we will talk about that and intervening with controlling the source of the infection by providing antibiotics or if you need a surgical removal of the source. Getting a blood culture and implementing evidence-based practices, the initial resuscitation bundle in the septic shock but don't. So we will talk a little bit about each of those. We will talk about prevention first. I know this is something that we are all worried about jerk the first piece is handwashing Eric I see that I would be remiss if I did not talk about it and it is important. The five moments of hand hygiene before patient contact for aseptic task and after body fluid exposure. After patient contact and after contact with the patient's surroundings. You cannot reinforce this enough. This is the key to

infringe and section prevention and I know in a few years over this in the hospital world we have worked on decreasing infections from devices. So central line blood associated and catheter associated urinary tract infections. We have done a good job at reducing these infections and I would encourage you to look to see if your processes to reduce and prevent these infections are adequate for central lines are you changing them correctly qua any sterile fashion and are you trying to get central lines out as quick as possible. Work catheter associated UTIs are you not using them when they are not indicated and when they are in are you asking every day if they can come out and are you ensuring that you are preparing them correctly, that there are incurred and you do daily washing of the anus and making sure there is a good flow of the year into the back and the bag does not sit on the floor and it gets emptied one it is greater than a quarter to half full.

We have been doing well in a you recent study that was published a year ago there was a study of infections in the hospital and the device related infections used to be number one and two and now they together the associated pneumonia only accounts for about a quarter of all of the hospitalized patients infections. One area that needs to be in focus for people is non-and ventilated pneumonia hospital acquired pneumonia. This is something that has not been a focus in the past but in that study of prevalence this was number two behind surgical site infection. It is a significant infection and we need to begin to worry about how to prevent it in our non-ventilated we have a whole host of things we have two prevent ventilator induced pneumonia and we need to create a similar list for non-ventilated patients and that will include head of the bed caught good oral hygiene and mouth care as well as mobility and good nutrition. Coughing and deep breathing. Those are things that if are not on your hit list of things to focus on I would encourage you to do so.

Now probably one of the biggest pieces that we can do to increase survival for patients that gets infections and to prevent them from moving down the sepsis list we talked to his screening and early identification. So let's talk a little bit more about that works

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First we will do a polling question and if we can extend the time limit to one minute that in me okay we did. You have a minute to answer the question. You have a screening process to identify patients with severe sepsis in your organization qua the answer is yes or no world we are putting one in place.

Here is an example of a screening tool. This is the tool we use at our organization and this was an early version of our tool and I included it for a specific reason related to the bottom of the page. In the screening tool there is a three-step process the nursing staff upon admission and at every shift they are going to look to see if the patient has the systemic inflammatory response syndrome. Two they have temperature, heart rate car restroom break off white blood cell count in a non-diabetic patient. So if I answer that no to those and I only have one or none of those the Met is a negative screen for severe sepsis and the nurse initials there. If they are checking to her more they move on to question number two which is does the patient have unknown or suspected infection qua and one of the symptoms is Ortiz is that they're being provided antibiotics or therapy. If I've answered yes then I move on to question three. If I answered yes to one meaning I have two or more and I answer yes to number to have a known or suspected infection now I have sepsis and we will look to see if they have new organ dysfunction and that would put them

into severe sepsis. We will look through all of the organ systems and if I have checked one of these now my patient has been screened positive for severe sepsis and we need to contact the physician and there needs to be some blood work obtained that the patient is hypotensive given a fluid bullet and this script was created for that call. This is the tool that we use from 2007 through 2010 or 11 and we have switched it since then. The fluid bowl parameter has now increased to 30 mL per kilogram but this was a great way to have the nursing staff call the physician with specifics. If they screened positive for severe sepsis this is how they screened positive and any other assessments or values or information that you want to share with the position. Most importantly is the recommendation. I need you to come and evaluate the patient while you are on your way can I get the following labs and are there any other labs that you would like. If the patient is hypertensive can I begin a P with fluid bullet. We use these tools as part of our process early identify these patients. I have the result to the poll and it looks like a third of you have screening processes in place and I commend you. That is the first step in being able to identify the population early to impact mortality. We have adapted it as the guidelines have adapted.

Here is an example we also have in our organization we placed them in a different level of care based on how they screened and if they screened positive and what their lactate is in their blood pressure. We also have instituted that if they are not going to the ICU we have bundles of intervention that we expect the nursing staff to do in conjunction with the physician to monitor the patient. If there screening for severe sepsis we increase beside getting blood culture and the physician to get antibiotics ordered, we increased the vital signs and we are monitoring their intake and outtake mostly so that we can look for the new organ dysfunction.

The only difference in the intermediate in the general care is the frequency of the vital signs because that patient had been hypotensive before or they had a very high line. In working with a group in southeastern Michigan they took some of the tools that we had and adapted them for an extended care facility and myself and other clinicians had been working with some extended care facilities to help them put in screening processes. This is a tool that these facilities are beginning to use and they are going to look for the infection first and you can see if the patient has an infection they want them to check their glucose because they want to look for an elevated glucose in the nondiabetic patients. If I have a known or suspected infection or I am on antibiotic therapy and moved to section 2 and there's a nice arrow here to tell you that you need to move and there are nice pictures to give it a little pizzazz and color. If I have checked two of them in my patient screened positive I need my patient to be placed on I and oh and look for organ dysfunction.

So going through the three steps in scene where the patient is on the sepsis continuum is enough evidence that infection and two they have an infection to as IRS or do they also have organ dysfunction in there and severe sepsis. Then we put in and as part script to talk to the physician with.

In places where we hope to extend this and add some additional tools that have been created and as you are putting this process into your extended care facility one of the things that we want to be able to do was to link with your current processes. For example in skilled nursing facilities a lot of places have to stop and watch and interact. As in the hospital the frequency of the sepsis

screening as we do it on admission costs every shift and we also to it with a condition change. Here would be where I would encourage you to do it at least once a day and maybe it's more frequent during the first few days of a patient's admission. Oracle had into it on anyone on an antibiotic but then also link it with your interactive process so if someone like a resident or patient triggers the stop and watch when the DNA is telling the nurse about that then the nurse with dense green. The top portion is information to provide to the patient or if you are a home care agency and you are wanting to educate the patient about what to look for to identify sepsis this is a good tool. Watch for skin redness cough listen for pains chills or breathing and is your pulse fast to the decreased appetite cough early warning signs and talk to a provider.

Surviving sepsis campaign was formulated and put together in 2002 or 2003 and it's a worldwide organization to improve the management of patients with sepsis and they put together evidence-based guidelines and guidelines into bundles and the bundles were published in 2004 initially and updated in 2008 in 2012 and just had a recent update to one of the bundles this past month. Starting in the hospital world in October it will be eight Starting in the hospital world in October it will be 8/4 measure and that's how you can see it here in the national quality forum in the surviving sepsis campaign and there is a three-hour bundle and that's exactly what it states. These interventions need to be completed in three hours and if you have a patient that screens positive for severe sepsis you need to measure the lactate obtain the blood culture and administer broad-spectrum antibiotics. And then if they are hypotensive or their lactate is greater than for administer a 30 mL per kilo greeted of Kristen Lloyd.

If you are in a nonhospital area you're not going to be included in this measurement it's going to be an inpatient measurement and if it's an inpatient measurement it can be extended in this first three-hour bundle as a whole intervention that can be done and an extended care facility and some even in a home. Again it depends on the level of access and what you are able to provide in your facility or in the home. The organizations that we are working with here in southeastern Michigan have committed to providing a three-hour bundle in the identify patients with severe sepsis and with the hope of being able to avoid sending the patient back to the hospital for an emergency room visit and most likely an admission. We are pretty early on in the process but we have heard anecdotally from the facilities that have put this process in place and we now have four that they are seen significant reduction in sending residents were pieces or needing to send them to the hospital. It does not mean that you never send them to the hospital because if you provide these interventions on a three-hour bundle and your patient is still hypotensive than that patient needs to come to the hospital and the hospital would probably place them in an intensive care unit ended additional intervention would be provided. These are the interventions that would be provided in the emergency room and to the ICU.

Applying these oppressors in continuing resuscitation and re-measuring lactate. I want to quickly go over a case study so that as you have been listening how we are going to take care of the patient together. She is an 88-year-old and she with 52 kg and she is currently residing in and use CF and she has a history of CAD cost COPD, dementia, Alzheimer's God depression and as the T. The chief complaint is rib pain chest congestion and SOB. She has a history of combative behavior. If you remember the screening process we have taken vital signs here and would you say that this patient screens positive for severe sepsis? So in your mind do you think that she screens positive for severe sepsis? Let us walk through the screening tool. The first piece is to

share the known or suspected infection? So and looking at her chief complaint her issues are she's telling us she has read pain, chest congestion and shortness of breath. We would potentially suspect a respiratory process. Suspected respiratory pneumonia. Does she have two or more of the systemic inflammatory response syndrome? So those were the temperature greater than 38° which is or greater than 101. Her respiratory great is a greater than 20 and hers is 31. And the heart rate if it's greater than 90 and hers is 109. Even though it is atrial fed she probably is in a controlled rate and so the high rate is one of science. She has three out of the four STRS and we do not have a white blood count yet that we don't know shall have for him before. Chino is a suspected infection in two or more on the list. So she has severe sepsis. Let us see if she has organ dysfunction. She is on 2 L of oxygen and one of the caveats of organ dysfunction is that organ dysfunction needs to be in an organ system that is not the organ system that is infected. Example with her as we think she has pneumonia and we have to do a test to prove that but her need for oxygen is probably related to the local infection impacting her lungs and not the systemic response that is causing the microcirculation to have lots of micro emboli and not get enough oxygen to the tissues.

This it need for oxygen would not put her into severe sepsis with her presentation of rolled out to pneumonia. She does have another organ dysfunction and that is her blood pressure. It is less than 90 as systolic so when we call for her she respond positively. Hopefully you're all saying yes. So yes she does so the beauty of the screening form is that you put what to do next right there on the form so what we need to do next. We probably need to call the doctor and get some labs in some fluid. Because she's a hypotensive you could start out with a 10 mL and we want to get a lactate and a fluid blood count and if you have respiratory concerns you can get an arterial venous blood cast. If you do not normally draw blood at your facility's you could probably get away with it just as long as she's not in respiratory distress and not getting one.

We have just gone through our tools she has a suspected pneumonia, temperature, heart rate, respiratory rate and her organ dysfunction was respiratory but that is where her infection is and so we are not going to count that but we are counting the fact that her blood pressure is less than 90's were calling the physician and getting blood cultures which would be lactate, IV antibiotics and getting her on the critical list.

What you need to assess in your organization is are you ready to put into place early recognition of sepsis at your facility. Is your staff knowledgeable about the importance of early recognition and management of sepsis? To you have a sepsis screening process? Do not reinvent the wheel. We have talked about a screening process here and have provided you with a tool that you can feel free to use. In defining your screening process are you going to do it on a regular basis? Again the recommendation would be for those patients coming from the hospital that you would be doing it every shift or at least once a day upon admission plus every shift or once a day and that you would also link it with your interact process and to stop and watch if that occurs that you would scream and you would be screening all patients on antibiotics. I would encourage you to put together a process to set up an early identification program.

Here on this slide are the steps that you should take in putting this process together. First get a team together and you need to have your medical staff on board and the medical director should be part of that group. Your infection person as well as key nursing individuals like your DOM

and. And managers of specific units. You want to develop a screening tool. Like I said you're welcome to use this tool and make it your own. And define your process. Who will screen? When will you screen? Are you going to screen on paper or to have an EMR you will put it in? And if you will screen on paper then who does it? When are you going to do it? Where will you keep the forms and etc. You need to get your medical staff support and you also want to develop an educational plan educating people on sepsis as well as the screening process that you are putting in place. You can use this power plant point to educate on sepsis and you can use it and create your own forms or adapt the ones that we have shared with you for screening. You also want to evaluate how you will know whether or not your new process is working. One potential outcome metrics would be sending less patients to the emergency room or less patients getting readmitted for sepsis.

The process metrics might be okay I am supposed to screen every day or if the patient is on antibiotics I need to screen them every shift. Whatever your process is that you are establishing then you need to audit whether or not that is happening. Are we screening when we design the screening times and frequencies? If we screen positive are we doing the appropriate next step? Are we following calling the doctor and getting the appropriate antibiotic and blood cultures? That is sepsis. That is the importance and hopefully had been able to share the importance of identification in patients with sepsis and the importance of putting in a standardized process. Just providing your staff with education and what is sepsis is important but it is not enough. They will forget about it two weeks after the educational material and then it's not because the education is not good is just that's how much or how easy it is to lose and not retain information. You have to create a process in your organization that this becomes part of what you do.

I would be happy to ascertain questions. I know we have quite a few participants so we want people to put it into the chat box and I am looking at the chatter right now and we are a critical access hospital and did not answer question number one because not available was not an option [Indiscernible - low volume] I am sorry I did not deal with some of those having audio problems.

This is Gloria we can open it up for question and answer now we do have a question now regarding the core metric measures for sepsis. Could you give some information and highlights on data collection that begins in 2015 and the challenges for that and discuss some core measures between sepsis and sepsis shock?

So the core measures are going to be the bundles and so the CMS has designated sepsis management as one of the core measures that data collection would begin in October 2015. Have not come out with what the expectations are for compliance and they have not shared with us yet when it would be tied to reimbursements that we do not know those details. You can find on the CMS website under hospital metrics for hospital indicators the 62 page core measure for sepsis definition. You will be sampling patients in the hospital and they give you some examples of sampling methodology. The items that we are measuring as if the lactate is obtained copy blood cultures prior to antibiotic administration, administering broad spectrum antibiotics indicating a 30 mm per kilogram fluid for someone who's hypo 10th of an has a heart rate of less than 40 90. And so times zero is where the clock starts in the emergency room at that time of triage. If they develop it in the hospital it is when the chart adaptation consists of all of the elements of sepsis

or septic shock. All four of these measures will be part of the core measures and they will measure if oppressors are being applied and number six is changing. It just won't be CD SNC PO to. You will get a choice of a physician doing a physical exam between hours three and six and a specific documentation post exam to identify if the patient is adequately resuscitated or you can pick two out of the four. You can measure the CVP or be 02 and you can measure the dynamic response to fluid through a passive leg raise or fluid bolus and the fourth one is an echo looking at IVC diameter.

The final measure is three measuring lactate. Each component of the bundle is part of the core measures.

Thank you, Pat. Operator could you please open up the line for question-and-answer?

Thank you we will now begin the question-and-answer session. You have questions please press star and named one from your touchtone phone. If you wish to be removed press the pound key if you are using a speaker phone you may need to pick up the handset first before pressing numbers. Once again if you have a question press star and one from your touchtone phone work

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Before we take the first question I can answer one in the chat. [Indiscernible - low volume] will the core measure of antibiotic be in three hours or is it one hour?

The core measure will be three hours and what the literature tells us is that you want to call the best practice for the patient is to get the antibiotic within an hour to have the first one hung to increase survival. Every hour you delay decreases survival by seven points 6% per hour. But the and QF in CMS is going to look at that and the antibiotic has been provided within three hours. So it should be that three-hour numbers. To have any other questions?

We have Barber on the line with a question. Please go ahead.

Yes excellent presentation and you just answered one of my questions. I thought of another question. You said that time zero would be from the triage time. So from the triage time is when all of the intervals would start although in some patients like a patient on a beta blocker with a poor autoimmune response they could present with a zero or one over four with a zero or one over 4 inch early be severely set deck and that might not be an identified until later in time when they have labs available. So with their time still start at the triage time?

Yes. That has been a big debate. CMS, when doing a core measure, they want to ensure they have a reliable time zero that is reproducible. They understand that probably patients that have severe sepsis or are in septic shock in the emergency room only 60 or 70% of them present that way. The others are not recognized until later in the process after the lab work gets back etc. they recognize that but they still are committed that triage time will also ensure that we too are passed as an organization to identify these patients early.

Okay thank you.

[Indiscernible-multiple speakers] there was a question in the chat I had given an example that had 20 mL per kilogram and that was from a patient when we were doing the guidelines before it was switched to 30. The core measure would be 30 mL per kilogram.

With Kathy and align with a question please go ahead.

Kathy if you are on mute is on mute yourself.

We do have Barbara on the line with the follow-up question is go ahead.

Another question is who do you expect to be excluded from the core measures? Patients with end-stage renal disease, stage IV cancer caught do they have any exclusions for these patients?

Exclusions are spelled out. I do not remember all of them off of the top of my head. I know a patient in hospice for comfort care within so many hours of admission would be excluded. I do not think end-stage renal disease patients would be excluded. So all of those exclusion criteria have called out and they are on the 62 page document.

Thank you.

Once again if you have a question please press star one from your touchtone phone.

So why we are waiting for any other questions a couple other questions that came into the chat. Will the core measure sample population be based upon ICD-9 or GRE? I think that they are going to other caught they gave some sampling strategy on how to find your patience prospectively or you could use coded data. I think the recommendation is I do not know what it would be in ICD-9 10 world but in an ICD-9 world it would be the code of severe sepsis which is 991 point be the code of severe sepsis which is 991.92 and septic shock which is seven 7.582. It is pro-calcitonin levels useful? Another question in the chat box. Pro-calcitonin levels are currently not recommended part of the surviving sepsis campaign guideline. I know a number of organizations are using them in the literature is strongest in using pro-calcitonin levels in order to de-escalate your antibiotics. That is where studies have proven effective and we are still trying to figure out if it has usefulness and in septic shock there was a study published that I have not read in the blue journal which is out of the American thoracic Society and it talked about use of pro-calcitonin when you have undifferentiated sepsis and you're not sure what the sources. That is actually how we're using it we just began using pro-calcitonin for that population.

To sepsis core measures include the CPC measurements? Yes it in the shock bundle you can have a focus exam by the physician or two out of four and it would be considered two of them and the other one is an echo and a dynamic fluid responsiveness through passive leg raise or a fluid collection. The CMS metric is definitely finalized now and they had been on hold for a while. Another question the chat is are all patients screened on a regular basis and if so including pediatric surgical patients? At our organization we are not screening our pediatric patient believe a very small population. We screen upon admission, every shift and with the change in the condition and then we also have an alerting process where our EMR is continually screening and will alert us to a change and then we will screen the patient. Surgical patients are included in this.

In severe sepsis is mentioned and organ dysfunction with any creating greater than two. So in the original guideline was a change from baseline and so looks like they tried to make it simpler by saying creatinine greater than two. Should we include only a [Indiscernible - low volume] dysfunction? A lot of people caught people are trying to digest the CMS specifications because they just came out last week. For there will be a lot of discussion and that should be one of the questions is should we only include acute organ dysfunction's theme with lactate for liver dysfunction patients who could have a normal one in a liver dysfunction patient however when it rises it will not clear very well and those are all good questions. Many providers are hesitant to load a congestive heart failure patient with more than that what is your suggestion? That the challenged matter what setting your Internet and in our organization we have worked with cardiology to help support this and those patients probably if they have known heart failure and active treatment for heart failure or an injection fraction or less than 35% they still probably need the fluid because the pathophysiology is going with the vasodilatation and leaky capillaries. You'll want to give it to them in smaller increments like 250 but not to 50 over an hour. 250 over half an hour and reassess the patient to see how they're doing and listen to their lungs and then see if they have increased oxygen demands and if not give another 250. They still need that 30 mL per kilogram in most cases but you will need to do it slower. I do not know if CMS has accounted for that or has excluded that patient population related to the fluid. I will try and find the 62 page document now give it to Gloria and send it out to all of the people that attended today.

Any other questions in the queue? I know we are past time.

Yes we have a question from salon please go ahead.

I wondered I think you had touched on it briefly about cardiovascular ultrasound as part of the six-hour bundle. Are they talking about a limited cardiac or what specifically?

Unlimited cardiac echo and a lot of ICO has portable echoes in their facility and I know that we do where intensive intensivist is trained to get a small diameter and the IBC diameters and what they typically will look for whether or not that is collapsed or not. It is definitely not a full echo and just looking at IVC would be sufficient enough. Someone put into the chat and thank you for that that the CMS core measures are going to allow any physician documentation to country indicate that 30 mL per kilogram volume for hypertension. Again the challenge there will be to have the physician document that it is not indicated. That we you will be able to consider to be met on that measure. To that answer your question?

She is now off-line.

We have an online with a question.

My question has been answered thank you.

[Indiscernible-multiple speakers] I am going to have to get off the line.

Thank you so much your presentation as I already know was riveting and engaging as evidenced by the many questions that have come in through the chat and online I really appreciate your expertise and sharing with us on surviving sepsis and early management. Please take a moment if you are so on to fill out the evaluation for today. Thank you for your participation. I would like to mention we will ensure that all of the participants have access to the PowerPoint presentation to the early sepsis screening document and the recording for today's webinar. Stay tuned and you can also go to BLS Quinn.org website where most of the material will be posted within the next week or two. Thank you so much Pat.

Thank you so much everyone and go out and find the sepsis patients and identify them early.

Thank you little ladies and gentlemen for participating you may now disconnect. [Event Concluded]