Using Performance Measures to Drive Improvement in Pediatric Emergency Care

EMSC Webcast 11/2/2010

DANIEL KAVANAUGH: Good afternoon. Welcome to our webcast on using performance measures to drive improvement in pediatric emergency care. My name is Daniel Kavanaugh and I will be moderating today. Before we introduce our speakers for this afternoon I want to go over some housekeeping rules regarding the webcast. The first thing is that the slides will appear in the central window and should advance automatically. The slide changes synchronized with the speakers' presentations. You do not need to do anything to advance the slides. You a may need to adjust the slide changes to match the audio by use the slide delay control at the top of the messaging window. We recommend you change the setting to 12 seconds. That seems to work best for most people. We encourage you to ask the speakers questions at any time during the presentation. Simply type your question in the message window on the top of the lower right side of the interface, select question for speaker from the drop-down menu and then hit send. The questions will be answered at the end of the broadcast.

And if we don't have the opportunity to respond to your questions during the broadcast, we will compile an E-mail list of answers that will be posted along with the archive of this webcast later next week. And again, we encourage you, though, to submit questions at any time during the webcast and they will be presented to the speakers at the end of the broadcast. On the left of the interface is the video window. You can adjust the volume of the audio using the volume control slider by click October loud speaker icon. If you have selected accessibility speakers when you registered will see text captioning underneath the video window. At the end of the broadcast, the interface will close automatically and you will have the opportunity to fill out an on-line value indication. So please take a couple of minutes to do so. Your responses will help us to plan future broadcasts and also improve our technical support. Now I'd like to introduce our speakers for this afternoon. The first speaker is Dr. Evaline Alessandrini. She is an attending physician in the division of emergency medicine at Cincinnati children's hospital medical centre and a fess often pediatrics at the university of Cincinnati college of medicine. She is the director of the quality scholars program and healthcare transformation in the James Anderson centre for excellence -- evacuate, improve care and rigorously improve quality improvement methods. Dr. Evaline Alessandrini's research defines outcomes of quality emergency care and improving delivery of care to children. Dr. Marc Gorelick is professor and chief of pediatric emergency medicine at medical college of Wisconsin and the JE VICE-chair in emergency medicine at the children's hospital of Wisconsin, both in Milwaukee. His research interests have focused on clinical effectiveness and outcomes for a variety of acute pediatric conditions including gastrointestinal and asthma. Dr. Marc Gorelick

has been involved in the emergency applied research network since its formation in 2001 and is chair-elect of the American academy of pediatrics section of emergency medicine. Dr. Kathy Shaw is the Nicholas CROGNALI chair of the emergency medicine, chief of the division of emergency medicine at children's hospital of Philadelphia and the associate chair for quality and patient safety and fess often pediatrics of EPIDEMIOLOGY at the university of Pennsylvania. Currently she is chair for the American academy of pediatrics, an associate editor for annuls of emergency medicine and a senior epidemiology gist. Finally we have Dr. Stephanie Kennebeck, an attending physician in the division of emergency medicine at Cincinnati children's hospital medical centre and an assistant professor of pediatrics at university of Cincinnati college of medicine. Her research has focused on delivery of quality and efficient care especially as related to the implementation and usage of the electronic health record in the emergency department. Now I'd like to turn it over to Dr. Evie to lead us.

EVIE ALESSANDRINI: Thank you, Dan. Go to the next slide, please. Just want to start with a special thanks to the MCHB program to funded our work. A special thanks to Daniel Kavanaugh, our senior program manager for the EMSC program in the last years seven . --He's ban terrific leader. We're going to miss him and we just wish him all the best as he moves along to the division of state and community health. Another special thanks to PECA RN, the first federally funded pediatric emergency medicine researching net work in the United States and has really provided the infrastructure and the engine for the work that we do. Also want to recognize a terrific investigator team and the EMSC stakeholders who have really helped this work to move forward.

Next slide. Our agenda too, is we want to talk first about the importance of pediatric emergency care and make sure everyone realizes that the relevance here is not only pediatric emergency care but all of emergency medicine and even healthcare in general. I'm going to talk about the methods that question use in the con sense us is development proposes that we used to provide a balanced report card for pediatric emergency care, then we want to talk about how we integrate the performance into the E.R. health record and understand the current state of ability to capture measures electrically. We'll end up the webinar w with a review of three examples of how measures have been used to improve care and how electronic health records are used to capture measures. And from the children's hospital of Wisconsin we'll hear about how their electronic health record was developed with operational definitions with performance measures in mind. From chuck we'll hear about use of integrated data from multiple source 120S to define performance measures-of. And from Cincinnati children's we'll use about an integrated EMR to capture data. Next slide. Today I think it's a good way to start with talking about why we should measure performance in the first place. We could think about three large things. The first is to prove and innovate, to improve health care, so really the ultimate purpose is to improve the health. Everyone in the united states and globally, and that's where we'll focus the majority of this webcast. We realize that performance measures yard stick business which all healthcare providers and oh, determine how successful they are in delivering recommended care in improving patient outcomes. But in addition to improving, it's also important to think about informing and being transparent about outcomes and assisting with consumer decision-making rationalization of care, certainly public

reporting of performance data holds healthcare providers accountable to both could be assumers and purchasers of care. And that transparency over time can build trust. We see that with paper performance in national rankings. Next slide. There have been three medical reports that have spurred on improvements and performance measurement in healthcare. In 1999 to err is human brought to the nation's possession that healthcare is not in the state that it should be or can be. In 2001, crossing the -- crossing the quality chasm provides the rational and framework for the redesign of the U.S. health care system. And finally in 2005 a report was published called performance measurement, accelerating improvements. And this really focusing on the selection of measures to support the quality improvement efforts of a diverse set of stakeholders. Next slide. so how does this fit in with emergency medicine? And I think most of us recognize not only the problem but the opportunity on the attached graph. We can see that over time, total emergency departments have been increasing, but definitely during that same time period we're seeing a decrease in the number of hospitals and emergency departments resulting in crowding and opportunities for limitations to provide quality care. And each day nearly 70,000 children visit EDs nationally and well over 80% of these visits occur in general emergency departments, not pediatric EDs. So it's very important to assure that the measures that we create are relevant to all EDs where kids get care. next slide. In 2006 an ILN report was published specifically for emergency care and it's -- the future of emergency care. One component was related to children, and that's called growing papers. I think a really compelling statement from that report was if there's one word to describe pediatric emergency care in 2006, it's uneven. next slide. So these things

directly motivated us to undertake the current project. If you look at the IOM report, the future of emergency care, in order for us to be able to achieve the vision of wonderful emergency care, we'd have to have coordination, reorganization and accountability. One of the recommendations for accountability was specific lip the work that we undertook which includes convening a panel with emergency care expertise to develop evidence-based indicators of emergency care system performance. In addition to being motivated bybyE51 the IOM report, healthy people 2010, one 4-7 B is relevant because it recommends to increase the number of states that have documented and disseminated pediatric guidelines that categorize acute care facilities. And the regional agenda consensus committee drove us as well, development of other outcome measures was ranked second by this research committee, effective ways to measure, improve and upgrade the quality of EMSC systems in care was ranked fifth. This committee also recognized fundamental issues in the development of medical and finformatics for EMSC as a research priority, ranking it fourth on the list. So overall this project addresses three of the top five research priorities published in the document. next slide. So there's a link between measuring outcomes and the quality of care we provide. And as Lord Calvin said quite a while AGO, you cannot improve what you cannot measure. Next slide. So that really results in what our main project goals with. And our goal is to develop three EMSC deliverables. First is a comprehensive and balanced set of performance measures that form a quality report card for hospitals providing emergency care. And second, we wanted to develop a prioritized list of data requirements that would inform development and maturation of ED health information systems planning to capture performance many measures. And third, we're

developing a prioritized list of key performance measures to improve their evidence base. We'll spend most of our time today discussing that first deliverable; we will touch on the data requirements deliverable and show how three different installation of -- have used their electronic record. next slide. So our primary aim of this work was to identify quality performance measures that comprehensively reflect hospital based pediatric emergency care through consideration of three important dimensions. First was the institute of medicine quality domains. Second the Donabedian pressure and outcome framework for quality. And third is pediatric emergency care for frequency and severity. To so we wanted a report card that was balanced on things that were common, as well as things that were rare but considered high risk. So we developed this new framework to overcome the limitations of prior work. Next slide, please. So the primary limitations of prior work in this area includes that much of the work had come from single centers or single geographic locale S and much of the work focused on conditioned specific indicators. So there might be a -- indicators on asthma or a group of indicators on ankle injuries but certainly nothing that was comprehensive from the perspective from all kinds of kid that's you see in the ED. There's definitely a process of process oriented measures and the bench marks were focused on timeliness and through-put. Then we have the satisfaction measures a best work done so far in this area come from some Canadian groups and both of these groups reported performance measures for both general and pediatric ED. But in total, all of their measures only accounted For approximately 25% of all patients that visited EDs in Canada. and obviously another important rational is to be able to advance some meaningful use of electronic health records. Next slide. So the first measurement

framework -- that we included was the institute of medicine quality doe mains and the IOM quality domains built around coordinating for healthcare to be safe, effective, efficient, timely, patient-centered --. And I thought it might be nice to just quickly review a clinical scenario to make the quality doe maybe deaf Nicks Marjorie O'Connor create. So a 12-year-old boy presents to ED with a severe exacerbation of his high rain headache. Go to the next slide. So the first IOM domain is state. And state healthcare provides so patients should be as safe in the healthcare environment as they are in their own home. And an example for this patient is that he receives the correct doze of I.D.s and is carefully monitored for side effects. The second is effective, so effective healthcare provides service based on scientific knowledge to all who could benefit and refrain from providing services to those not likely to benefit. Effective care provides underuse of effective therapy, overuse of unproven therapy organization misuse of clinical care plans and procedures properly. So here, the child receives a non-steroidal anti- inflammatory disease and these improvements result in an improvement in his pain score. Next slide. The third IOM domain is efficient, including waste of equipment, supply, ideas and energies. And our scenario here, this child has not had prior to adequate pain management. The dimension of timelessness is health care reduces waits and sometimes harmful delays in both who receive and those who give care. Timely for this child is that he receives treatment to relieve pain quickly. His neurologist returns a call to the ED, when requested and the patient is given a timely follow-up with the patient to discuss use of daily medications. Next slide. Another domain is patient centeredness, so patient-centered measure, healthcare provides care that is respectful of and responsive to individual patient

preference, needs and values and ensures that patient values guide all clinical decisions. So our patient, we want to be sure that the healthcare team discusses best pain management strategies for him and his family. He's had this in the past; he's pretty good at knowing what workforce him. And the final domain is equitable. So this is not varied because of gender, geographic location and social economic status. So our patient and the quality of his care does not vary because of the color of his skin or where he lives. Next slide. so the second measurement framework dimension that we use to create our balance report card includes the Donabedian framework of healthcare quality. And this includes measures of structure, process and outcome. So first structure measures indirect quality of care measures that are related to a physical setting and resources and these include staff-based equipment and financial resources. So real examples from our measurement set, structure measures include presence of an on-site pediatric physician and nurse coordinator. And another structure measure included in our report card includes presence of all necessary equipment for the care of pediatric pet patients as defined in the October 2009 policy statement. Until Donabedian framework, second comes process measures and process measures value indicate the method or process by which care is delivered including both technical and interpersonal components. So some examples of process measures from our report card include the proportion of children with minor head trauma who include a head CT and timely. And finally and perhaps most importantly include outcome measure, which are really important from the patient perspective. Outcome elements describe valued results related to lengthening life, relieving pain, reducing disabilities and satisfying the consumer. And our outcome measures, some

examples of them include objective improvement in asthma severity scores for patients with acute asthma exacerbations as well as reducing pain in children with acute fractures. Next slide. Finally, our third measurement dimension includes pediatric emergency medicine disease frequency and severity. So again we wanted to make sure that we had measures that were relevant to every child that walked into the ED regardless of their complaint or the diagnosis they were ultimately given. We put these measures into one of three bins. So first were condition-specific bins where they were obviously relevant to a particular disease. And an example from our report card includes proportion of patients with CROOP receiving corticosteroids. Second was a group with general measure, relevant to every patient that visits the emergency department. An example includes the proportion of visits by patients less than 18 years of age with a weight in kilograms documented during the current ED visit. Finally we had a bit of measures called cross-cutting measure, which may not be relevant to every child that has an ED visit by certainly is not limited to a particular condition. And so an example here is proportion of patients less than 18 years of age with an -- tube, whose placement is confirm bid the CO2. So this patient may have had a traumatic injury, shock or seizure, as to so these are just cross-cutting measures. Next slide, please. Would we used a proper diagnosis grouping system that we also did as a project that was funded by the EMSC program and use the infrastructure of P-cards. And this diagnosis grouping system takes kinds puts them into clinically report groups. -- applied the diagnosis grouping system to two data set, first the national hospital care survey, shown in blue on your slide, as well as the data project, shown there in green. So this could give our expert panel members an idea about what types of visits were

most frequent in the EDS. The blue gives you an idea of what's happening at the national level and the green shows what happens at local hospitals. We had the ability to drill d down within these diagnosis group to ascertain and each diagnosis within these groups were given a severity rating according to their resource consumption is. So we used this analysis to understand dishes were common, not too common, as well as severe. So you can see here and this will be relevant throughout the rest of the webcast that is that clearly there's a lot of trauma visits. So we wanted to make sure that we had measures that were included in these various groups. next slide, please. So the method that's we used, first we wanted to try to comprehensively identify existing performance measures. And so we used literature review, healthcare quality organization website reviews and interviews with leaders and experts to identify existing performance measures. As demonstrated on the previous slide, we used secondary analysis of existing data sets to understand what was common and what was severe. And then finally we identified an expert panel and stakeholder groups. And both those groups of individuals used consensus techniques including the nominal group and electric -- survives to come up with our report card. Our expert panel had about 20 individuals on it and those people really did the majority of the work for this project. And those 20 individuals included general and pediatric emergency medicine physicians, emergency nurses. We had some measurement specialists and parents on our expert panel. Next slide, please. So our measurement development process was adapted from the agency for healthcare research and quality pediatric quality improvement indicators, development process. Again we used three streams to identify measures. We used the literature. We used measures that were in actual use,

including websites and interviews with medical directors and sometimes we had to use concepts. You'll see that new measures were developed by our expert panel in areas where there were gap across our framework. So we used these three source 120S to create a performance measure library. our expert panel members worked in groups based upon the institute of meadow mains and they identified measures and they tried to keep their measures balanced within their group with respect to the Donabedian classification and to each frequency and severity. You'll see that over time during in-person meetings and electronic surveys using our con send cease techniques the expert panel ultimately recommended 60 measures balanced across our three dimensions. Next slide please. So again you can see here thon slide the development in elimination of performance measures over time. Our panel members used the performance measure library and they initially nominated 333 measures using the no, m nominal group technique. After two rounds of electronic surveys measures were eliminated and 104 remained for further consideration and then a subsequent in-person meeting of it expert panel members to consider balance across our three dimensions of interest and further decreased our measures to 60. Next slide, please. so in order to eliminate these measures and create our balanced report card the expert panel members used the national quality forums measure valuation criteria to assist them in their work and there are four criteria for the MQS. The first is importance and importance means that measure reflects a priority or high impact aspects of healthcare. And the measures strongly linked to improving outcomes and the measure addresses an area of considerable variation, where poor performance of cross-providers or population groups. Next slide. The second criteria is scientific

acceptability. And scientific acceptability really means that there's a strong evidence base for the specific measure focus and that the measure is reliable, reproducible and accurately represent quality of care. Next slide. The third criteria is usability. And this means that the measure provides information that's actionable. You actually know what to do to make decisions that improve the quality of care and that you can understand the measure and it's meaningful. Next slide. finally, the fourth measure criteria is feasibility. So this is important as data for the measure is February rated during care delivery and ultimately would be terrific if it's available in the EHR or other electronic sources. So actually, we can measure this. The information provided outweighs the cost and burdens of data collection. Next slide. so this slide will show the measured distributional the institute of medicine quality domains for our balanced report card of 60 measures. And since measures can apply to more than one domain, the total here exceeds 60. So as you can see on the slide, measures of effectiveness do predominate and measures of efficiency are least common, but all six of the quality domains represented. The sixth domain, equity, is going to be recorded by measures being stratified by gender, race, age, ethnicity and. So this slide shows the performance measure distribution by Donabedian framework. So although more than half of measures of our 60 represent process measures, outcome measures and structure measures are included. Next slide, please. Shape slide shows our measures by the diagnosis type. So you can see here that 27 measures general measures that are relevant to every ED visit. Twenty measures condition specific measures and 13 of the measures cross-cutting. And these measures focused on pain and sedation, medication management and treatment of severe disease. next slide,

please. So finally, during this process we created 11 different content areas to aggregate measures and the handout of the operational definitions of the 60 measures are grouped in this order. So you should all have access to that through the webinar. The content areas really helped us to aggregate conditions in cross-cutting measures. So for example we could take all of our trauma measure which is we knew were most common in terms of ED visits from kids and put them into one group. But it also allowed us to provide more specifics to general measures relevant to every ED visit. You can see, there's a bin of initial care for every ED patient. ED infrastructure and personnel, so clearly all of those measures, general measures. Just for your information, other conditions here include mental health and APPENDICITIS. Next slide, please. So in the next phase of the measure development process, we recruited a group of EMSC -- stakeholders to perform a measure-by-measure value indication. The stakeholders completed a survey of a random sample of 20 of our 60 measures and rated them on the NQS criteria of important scientific acceptability, usability and feasibility. And these survey results inform the development of our first measurement set. Next slide. And this slide shows the stakeholder group that were involved in a measure valuation process. We took people from each of these groups and we categorized them broadly as academic emergency physicians, community emergency physicians, emergency nurses and parents. And we set out 217 surveys and we had a 56%s response rate. Next slide. This slide demonstrates the distribution of the importance results of our stakeholder survey. So this graph of small multiples was useful for us. Each of the 60 measure represent 234-9D ten-row, six-column figures for three of our responder type, academic physicians, parents and nurses. And this

allowed us to understand the distribution of scores overall and of cross-responsibility types. So for instance, the top left sickle illustrates the relatively norm distribution of response; whereas the lower right circle Illinois straights the broader array of responses for a given measure. Next slide. We had a lot of data and so we summarized the stakeholder survey results using a heat map. So on the left side of the slide it demonstrates the NQS criteria and the blue bar with importance at the bottom, acceptability, usability and feasibility at the top. Within each NQF criteria, responsibilities are b broken out by responder type, so you can see that academic physicians are at the bottom and it works its way up to other responsibilities at the top. So we used the means score to place each measure into one of six groups. A rating of one was given to the ten measures with the highest mean score and a rating of six was given to the ten -- the lowest mean scores. And you can see those in between. And we did this by responsibility type for each of the four NQS criteria. So on the slide dark colors represent high rankings and light colors represent low rankings. So a quick visual inspection shows that dark colors were uniformly rated highly and light colors were measures that were uniformly rated low. So using this process you can see that the first blue oval indicates a highly rated measure by all respondents and across all NQS criteria and this measure is documenting a weight in kilograms. The third oval demonstrates the fact that parents rated continuing education receipt of EM staff as very high, but at other responsibilities -- pretty low. And the wide oval demonstrates that in general, patient-centered measures such as satisfaction received low scores. Next slide. This next slide tee pictures the top ten measure business important scores of all respondent types. And one thing that's important to notice, these top ten

measures not balanced across our domain. So there's only one outcome measure and there are no patient-centered measures listed. But what we did is we had our expert panel use the stakeholder data to balance and prioritize measures for reporting and improvement. Next slide. This slide is an example of a measure card; the expert panel measures used to choose measures to prioritize for improvement and reporting. So remember we had 06 balanced measures. What we then asked our expert panel members to do was choose a smaller group of them that we can actually start working on now and reporting and comparing across the sites to drive our improvement work. So on these cards each measurement dimension is listed, so you can see, measurement for patients less than 18. That's an IOM database and in general a diagnosis group, where the measure is relevant to every patient that comes to ED. And even of our speakers will share these with you. Next slide. So these next two slides list the 15 measures that our expert panels prioritized for reporting and improvement. Again, these are a subset of the 60 measures in the balanced report card. And these are not in any order of importance scores of. But first was measuring weight in kilograms; second is the presence of all of the pediatric equipment per the AS policy statement; third is reducing pain in children with acute fracture; fourth is the corticosteroids in asthma patients with exacerbations; five, medication error rates; six, parent understanding of ED exchange instructions and 7th is ED door to provider time. Next slide. The following measures include presence after method to identify age based abnormal pediatric vital signs. ED return visits within 48 hours that result in admissions. Total ED length of stay, evidence based side flours and bronchiolitis, reducing antibiotic use in children with virus illness, children with minor head trauma

who suffer a CT scan, protocol for suspected child abuse and presence of an on-sight pediatric coordinator. And as you may know many of these measures that have been endorsed either by the national quality forum or by ARC, but we wanted to make sure that we included measures that were well accepted in addition to those what needed more evidence to be generated. Next slide, please. So ultimately these 15 prioritized measures distributed across the IOM domain, you can see that, and recall that measures will be stratified by various factors to assess equity. Next slide. So in contrast to the 60 measure, nearly half of the 15 prioritized measures outcome measures. And there. --

Reporter: also many structure measures and it seems that these are considered foundational to quality emergency care and are thus well represented in our first round. Next slide. Over half of our measures are general measures relevant to every ED visit, regardless of complaint or diagnosis. And then you can see the disease-specific categories represented, including asthma and bronchiolitis, which are really respiratory diseases; viral ill illness was the second most common set of diagnosis, head trauma is our trauma category, and child abuse. Next slide, please. So currently this set of measure under value indication for application and our next speaker also discuss some of those examples. Next slide. Just want to briefly tell you a little bit about the result of our data viability survey. And so the goal of this survey is to understand the current stated ED data systems and our ability to capture data electronically. And our rational is that using electronic health records to collect data will help us to scan tour larger amounts of data with less time and effort. Next slide. So we started this data

viability survey with element identification process. So we developed operational definitions for all of our 60 measures and each operational definition was broken down into their individual data elements. Our investigative team took those data elements and separated them into five categories. So the first category were elements that were require Ford all measure, including such things as a unique encounter number or date of visit. The second category are elements that are likely to be found in an electronic health record. And those things discrete and include such things as medication given or diagnostic test done. Our third category, NUMERIC non-click Illinois data collected at regular intervals, so example of those things might be include staffing hours or did your staff get CME credits? The fourth category is the possibility that they're not corrected had an electronic health record. So measures of these are typically satisfaction are which are not typically collected at nine point of care. And fifth were data that was collected manually and would require discrete responses. So many of these things structure measures such as does your ED use a validated pediatric triage system to. Get things off the ground again we used the infrastructure of PCARN and we surveyed our 22 PCARN hospitals on their valuebility and quality and we will a response from 20 of the 22 hospitals. Next slide, please. So this slide just gives an example of thousand we operationallize this. So for instance, children were minor head trauma who receive a head CT, we broke that down into element, ED arrival time, ED discharge time, head CT time, ICB9 code for head trauma. And sentence you can see those were broken down further into category one and category two elements. Next slide. The next slide is the similar thing for different measure, presentation of asthma patients with acute exacerbation receiving corticosteroids. And

in the second column you can see the individual data elements that are require Ford this measure and then again in the third column, the breakdown of the elements into category one and -- two elements. Next slide. So the results of our data viability survey demonstrate that we have moderate ability to capture data elements for P appears measures in T-card hospitals -- hospitals. 90% of sites indicate the ability to capture those category one elements. But the -- to electronic cap you're other suspected elements ranged as low as 7% and as high as 90% with the median ability to capture -- elements at %60. Next slide. So this slide demonstrates the electronic viability of the data elements. So 100% ever hospitals are able to capture data visits, date of birth , age and unique patient identifier and looking down at the bottom, about 60% of hospitals are able to electronically capture prescription and ED medication main data. Next slide. This slide demonstrates the electronic viability of selected performance measures. So we rolled up the individual data elements into a full performance measure. And so our results show that 90% of hospitals can report ED return visits resulting in admissions and left without being seen rates but only about 50% are able to electronically capture our asthma measures including timeliness of treatment and corticosteroids. Next slide. So now I'd like to turn it over to Marc Gorelick from children's hospital of Wisconsin, who will discuss application of pain measures. Mark?

MARC GORELICK: Thank you, EVIE and thank you for the opportunity to talk about what we've been doing. I'm going to talk about a quality improvement anywhere that we undertook around the issue of pain management and analgesic administration, which was performed by one of the performance measures and also to talk a little bit

about the way we did it and the improvement we saw and also some of the lessons learned, especially around the data --it that you just measured. So I think most people are aware that pain is a very common committee part of most child ED visits whether it's the initial complaint so the emergency department, we had a specific improvement aim with the goal of providing timely relief for children who present with pain. What we did was we implemented a simple triage based intervention with the aim of over a 12-month period seeing an improvement primarily an improvement in the rate of analgesic administration for children with pain in triage. And we hoped to achieve a 15% relative increase in the proportion of those children who would get an analgesic. So the measure this relates to, this is the measure card that EVIE referred to early --, it's measure 5.5, which is reducing pain in children with acute practice tours. This was one of the top 15 measures that was ranked 14 and it covers several of the -- M domains including timeliness. We are look act administration of analgesics although it could be used as an outcome measure if we're looking at changes in pain scores. Because pain can cut across multiple different diagnoses, it's a cross-cutting measure, but as written it also specifically applies to children with fractures N was a measure that 24th very high importance ratings from the shareholders with a mean important score of 4.nine out of five. You can see that 27 % of the stakeholders actually gave it the highest score. And the distribution of thing related to usability and feasibility was a little bit more mixed and part of that feasibility I think probably tie notice with. So challenges we discovered in terms of measurement, as you'll see. All right. Next slide. So we should be on slide 54. So this is the definition of the measure. The numerator is patients under 18 years of age with pain assessed using the same age-propane

scale who show a documented improvement in pain discover within 90 minutes of arrival. So it incorporates several components in this numerator. One is the assessment of pain and the standardization of pain and its demonstrating improvement. Then there's a timeliness component because of the/hold that was incorporated into the measure during this process, and was the 90-minute threshold. The denominator here is all children under 18 years of age who come in with acute long bone fractures. And I think an important point to make about this measure and it relates to several other, while we believed was important to have a standardized pain assessment, we didn't feel the need to specify what was. There are a number of pain scores available and different ones may be used in different institutions. It's important here to show within an institution change within a standardized assessment and those changes could then be compared within institutions even if the specific score cost not be. Next slide, please, slide55i. So the operational definition here for numerator was the number of eligible children receiving an analgesic and the de nominator was children less than 18 years of age N our case we were focusing on several different painful conditions and I'll show you the results for extremity injury or fracture, because that's the definition. We also included other painful conditions in the protocol, including headache, tooth ache, sorry throat and ear ache. We were aiming at children with moderate to severe pain. On a 10-point scale, this would be a score of four or above. So the eligible children here are children with one ever these painful conditions and specifically fracture, who have moderate to severe pain as indicated by a score greater than three. Next slide, please. The data captured here was a little bit of a challenge for us. At the time and in fact currently we still do not have an electronic -- but not

clinical documentation. So identifying eligible patients require a combination of manual review of ED logs as well a query of electronic billing data to identify eligible patients from discharge diagnosis. It also required us to manually review triage sheets to look at the discharge and chief complaints. Finally most of the time we could get that from the medical administration record which is electronic. But as a double-check because these, the medications we're looking at, for instance, ibuprofen, documentation may not be as good as it could be. We also manually reviewed the nursing notes. So you can see a lot of effort went into data capture for this improvement effort. Next slide, please. The intervention was relatively straightforward, it was a triage intervention whereby the triage nurse was asked to identify patients with one of those eligible painful conditions I mentioned, assess and document a pain score and for patients with a score greater than three, that is moderate to severe pain, they would assess any contra indication, and if there were none, would administer ibuprofen. If they recently receive another non-steroidal, they were requested to receive another analgesic such as ibuprofen with a narcotic from the physician. Next slide, please. So this graph shows the rate of children receiving analgesics, children with, in this case arm fractures receiving analgesics in the 12 months before the intervention, which is to the left of the vertical line and then 129 months after the intervention. And each bubble represents a month of data at a proportion of children in that month who received an analgesic. Age the size of the bubble is proportional to the number of children seen that month, eligible children seen that month. And you can see that overall, there was an upward trend in that proportion. This is for all children with fractures from the month to the left of the line to the month to the right of the line. Next slide, please. You can

see here that the red bubbles are the patients with fractures who four a -- had a pain score of greater than three. So they were really the target of the intervention. And overall you can see that on average, the proportion of patients with moderate to severe pain who received an analgesic tended to be a little bit higher but the trend was similar many both group, even though the moderate to severe pain was the specific target of the triage plot call. Next slide, please. You can see that our administration rate of analgesics to children with fracturing overall went from 58% pre-intervention to almost 68% post-intervention, a 10% absolute charge or about an 18% relative change, which exceeded our goal. And focusing on the patients with a pain score greater than three, the ones specified in the protocol, we see a similar improvement from 63.5% to 75%. So interestingly although the protocol only called for administration of analgesics to those patients with a pain score greater than 3, other patients did seem to benefit, as well. Next slide, please. This shows a similar graph, but this is time in minutes receiving analgesics. And you can see this is showing, the blue dots begin are all fracture patient; the red dots are patients with moderate to severe pain as indicated by a pain score of greater than P timeliness went in general a little bit better for in a given month for those patients with more severe pain. But you can see that the time pre and post- intervention is fairly similar. We did not see an improvement in timeliness. Next slide, please. In this slide, it summarized the time to analgesic. And I think one of the important points here to note is this is a box plot so the horizontal blue line within each box shows the median time to analgesic. And both time periods, it was roughly 30 minutes. And you can see the horizontal black line at 90 minute; that's the target specified in this performance measure. In both time period the vast majority of patients

were well below that, subjecting that in terms of timeliness, there was less room for improvement. Next slide, please. So to summarize we found that by focusing on this improvement measure of pain reduction in children acute fracture, implementing a relatively simple triage-based intervention we were able to obtain a modest, but important improvement in the rate of analgesic administration for those children with fractures. We cannot see a real change in timeliness but again recall that the median both even before the intervention was close to 30 minutes as opposed to the 890 minutes threshold in the performance measure. But the other lesson that we learned that it was an enormous amount of effort to obtain that data. And this has helped us as we are now moving towards the electronic health records. We a vendor selected; we're New York of working now on developing that. And part of the process for us in the emergency department and I assume in over areas of the hospital as well is, as we think of the uses of electronic health records, quality improvement is a critical one. And we would like, as our teams work to customize this record for our use, to make sure that those measures that are particularly important to our institution for performance improvement and performance measurement, that the data are available in this electronic health record in a way that enables us to more readily monitor changes in our practice and monitor improvements in our performance. The next slide, please, and at this point I would like to turn it over to Dr. Kathy Shaw. Thank you.

KATHY SHAW: Thank you, mark. The next project that we'd like to illustrate is one that dealt with improving the timeliness of emergency department care for asthma patients at the top. And the rational for this particular metric and project was, as we all

know, asthma is one of the most common childhood illnesses resulting in hospitalization from emergency departments. We also know from the literature that if a patient receives timely care with bronchodilator and corticosteroids, they can have a reduced hospitalization rate. Yes , at top, have an automated tracking system and can look at the time from arrival to treatment to evaluate our quality of care for children with asthma. And we were able to monitor this and we wanted to start an improvement project to try and improvement our timeliness by instituting an asthma cohort area in the emergency department to improve this metric. Next slide. So the specific aim of this quality improvement project was to increase the proportion of patients receiving bronchodilator and corticosteroids within an hour of their arrival to the emergency department. The overall outcome or global aim was of course to decrease the total ED length of stay and the hospitalization rate by providing timely, reliable and effective care to these patients. This is the card from the study. You can see that this metric was ranked 15, timeliness of reliever treatment for patients with acute asthma compass beiges and to review what EVIE has gone through before, it crossed many domains, two of the IM of OM domains, effective and timely, a process metric from the Donabedian measures and the group is asthma. This also, as did mark's metric, got a mean importance score that was quite high of 4.9. And as you can see the percent cent ever stakeholders thinking that 24 was the highest ranching metric in importance was 28%. The stakeholders' survey value indications thought that, again, very important and acceptable, but paragraph -- perhaps maybe not as feasible for some emergency departments who did not have as much like electronic data availability. Next slide. The metric also, we also measured the metric, systemic corticosteroids in

asthma patients with acute exacerbation, ranked higher at number eight; it fell into the categories of -- it was a explosion metric and again in the area of asthma. This got an even higher importance score as you can tell by the rank with 33% of stakeholder's rating it the highest score. And most people feeling, again, very important and little more optimistic about their ability to capture this information. Next slide, please. So the operational definition here for bronchodilator and corticosteroids treatment, the de nominator was the number of patients with a primary diagnosis of asthma, who were two years or older. That was to eliminate children who may in fact have will bronchiolitis and those under two. We also thought it was important to get rid of the less acute asthma which may not need the steroids. So we treated those -- we limited this to children who were triaged as a level two and in a 5-1 level triage system, so those in the acute category. And that received more than one bronchodilator. So they weren't cured with the simple use of bronchodilator. The new rater was the number of eligible patients receiving the medication within one hour of arrival. Next slide. For data capture, we had to use a combination of information systems. For arrival we used our registration system that notes the time of the first contact of the patient with a greeter; that's before triage at the ED front desk. For medication and administration, we needed to go into our computer -- our CPOE and look at the time that the medicine was administrated and documented bit respiratory therapist or the nurse in that system. Next slide. So this was a little complex. As you can see on the right, the sources of data came from three different systems where we were using at the time ethics for registration of patients, tracking system and the CPOE. So we had to define our sources and had a capture within three systems in order to look at this outside

metric of patient who is received systemic steroids. Next slide. This data went into a hospital-wide data warehouse, in Will were able to pull the data from. And using -- were able to graph it quite nicely. And this is an example from our dash board in the emergency department looking at our asthma cases by -- across years. Next slide. This slide really looks at what we were trying to accomplish here; and that is, reducing the time to corticosteroids by using this new co--location, our cohort of rooms that we had said would be just for asthma patient that we could provide respiratory therapist, nurses, physicians and nurse practice practitioners who are delivering just timely care for asthma and focusing on one disease process. So as you can see on the lower left-hand corner the patients came to triage. There is a nurse who acts as a flow fate dater in triage, would push these patients who had asthma into this cohort of rooms. Very important to this process and that has been in place are our critical path ways of which we have a standard regime for care of children with asthma that is available to all providers on their desktops and is web-based from our tracking system. So everyone knows the order and the importance of giving corticosteroids and getting bronchodilator to these patients in a timely fashion. In the kind of salmon color you can see that each order set is linked to -- each clinical pathway is linked to an order set in our CPOE, which also tries to reduce error by getting the correct dose of asthma medications and categories of asthma medications by the patients' weight to make it easy to order these medications. Next slide. Well, here you can see with this one chart the results. This was the meantime to corticosteroids by geographic location and you can see that nice drop-off in time from arrival to corticosteroids, which occurred post intervention. So, and we show this again for all patients. So even though the

respiratory cohort was open about 12 hours a day, it still reduced the overall time for all patients. Clearly we chose the peak 12 hours of the day. So this represented more than half the patients, probably more like two-thirds to three-quarters of the patients and it was able to drive the metric for all children with asthma in the emergency department. Next slide. Here we have the actual data from time to inhale Beta Agonist and to corticosteroids for children in the cohort versus those who were not in the cohort. And 23 of as you can see, the time to either inhale Beta Agonist or corticosteroids from arrival really decreased by about almost 20 minute, 17 to 19 minutes. And the time to receive these treatments from the time they were placed in the room reduced about ten minute, seven to nine minutes overall. So we considered this a successful intervention, revision of a respiratory cohort. Next slide. What about the overall emergency department length of stay and discharge rate? The overall length of stay was reduced for children, who were treated in the cohort. As you can see an overall reduction in there, length of stay by about 19 minutes. When we looked at the outcome metric of -- of decreased admission rates or the number that were able to be discharged, we really found no difference. So we were not able to affect that outcome that we were able 6D58 to affect timeliness. Next slide. So what do we conclude? Well, data about timeliness canning automated and used to track interventions to improve quality of care like we saw here with our respiratory cohort. As far as further work we'd like to look at other interventions to reduce admissions and methods to provide data to the staff in real-time. So it would be nice to know after your ED shift what was your, during your shift, what was the time to corticosteroids or for all of your asthma patients by provider, how timely are you in getting these metrics to the

patients? So with that, I will turn it over to Stephanie Kennebeck from Cincinnati children's.

STEPHANIE KENNEBECK: Hello, and thank you for the opportunity again to present our work to you today. I'm going describe to you how we're using our electronic health records to help us improve the care for children who present with fever, central lines and neutropenia. The rational on why we chose this goal, there are several reasons. First, it was clinically important both to the improvement team and to our --. As a medical centre we see a higher pro progress of children with serious , but rare children illnesses such as childhood cancer. Second, cancer patients who have fever and central VENOUS access have a high likelihood of becoming seriously ill due to bacterial infections. With antibiotics. There's not much controversy in our group about focusing some effort to improve the care of these patients. Third, since these patients utilize a lot of ED resources for the small size of the cohort, the more we can streamline their care would also contribute to an overall Cincinnati children's strategic goal of reducing the ED length of stay. In my talk today I'm going folk us a little bit on how our health records are helping to achieve our goals. Next slide. Let's follow the guidelines of improvement science. So we'll state our aim in a clear, complete way and sets a measurable goal welcome back specific time period. Our goal is by 2011, we will neutropenia who received their first antibiotic within 90 minutes of ED arrival from 20% to 90%. It's important to be specific so we can focus on the interventions to this goal and that helps the team design what's in scope for the project and what is out of scope. With successful achievement of this goal we can hope to improve our ?--

goal of decreasing total ED length of stay. The largest goal is very important, but almost impossible to quantify as a specific improvement outcome. However, workable and achievable. As we look at our goal we realize that it contains two measures within it that we would have to address separately. Next slide, please. The measure one, our operational definition was our population receiving antibiotics at all? It's hard to improve efficiency if you have a large pro potion of patients who are not getting the therapy in question at all. We thought the best way to measure this electronic at children's, we have an institution wide medical record. We operate with an ethics system and we are live both in the emergency department and the in-patient unit and we're fully live on the same system since November of 2009. Contain provides documentation and electronic order entry and registration all within the same system. We have used different systems in the past and that led to very difficult data collection as illustrate bid Dr. Shaw's work. This integrated system makes it relatively easier tore us to locate populations of patients to work with. For our population, we queried the electronic record for patients who were admitted to either the bone marrow transplant service or the on -- cooling service from the emergency department with a diagnosis of fever. We then searched the record for those administered antibiotics within 24 hours of the admission. From that group we did a bit of chart review o ensure that the patient lists en come passed the denominator that we were looking for. Even though our record is completely electronic, we wanted to be sure that any data derived from the query would make clinical sense. When reviewing the charts, we looked at fever greater than 38.5 at any time within 24 hours prior to presentation or during the ED visit and AMC less than offer equal to 500N many way what is we

measured is a proxy, an easily measured data point that captures the patient of interest without many outliers. Then we look at the numerator. How many of least children got their antibiotics during their emergency department stay? We studied this against the time the patient was electronically admitted to the floor, again, a proxy, but with our flow, one that we took to be fairly reliable. We reviewed a few charts to ensure data was accurate, and it was. Next slide, please. This is the card from this measure. In the rank of improvement measures discussed early yes, antibiotics for treatment with documented neutropenia ranks number 19, slightly out of the top 15, but still very important T has a high importance score of 4.8. It covers the institute of medicine effective and safe care and it is strictly a process measure. Next slide. Back to our group of neutropenia patients, the first message from our project is if something isn't broken, don't work on T we found 81 patients in the eight months leading up to our project start. That may seem like a low number for a referral centre of our size, but of note is the referral office absorbs a number of children who had previously presented to the E.R. for fever. 100% of our population received antibiotics in the emergency department. But before we started patting ourselves on the back, we looked at the way in which they received their care. The triage system and room placement did a great job of getting these kids back to a room. They were priority assessed and time was usually a resident, with 21 minutes. Event improvement team was shocked to learn that average time to antibiotics was three hours and the average length of stay was five and a half hours. This seemed excessive to the clinicians, and we all agreed so this seemed to be a long time. Bottom line, we got antibiotic to the kids but we didn't do it in a timely fashion. Next slide, please. So we focused our improvement

project on the measure of efficiency of an antibiotic administration, again, trying to capture the same denominators previously use bud now we chose a number of minutes to study the time from ED arrival at the front desk to administration of the first antibiotic captured by time stamps in our electronic medical record N terms of statistics the best way to report this type of measurement mathematically is to give median types with an interquartile range. But this is very difficult for the clinician to grasp. We needed a way to tell the team care for the patients that they were doing a good job. And ED physicians are very finish-line oriented. They needed a goal to shoot for that defined good care. So we chose to report what proportion of patients met the defined goal of receives antibiotics within 90 minutes of presentation. We chose 930 minutes after meeting in a group with nursing clerical staff and clinics to choose our workable goal of providing be at bites to children prior to medication administration. These included registration and triage, appropriate room placement medical history review getting central access and lab studies is sent off and order thing and having correct drugs available. Next slide, please. Again, the class indications of this measure in the rank of improvement measure, timely antibiotic treatment for children with documented neutropenia ranked number 23. It had a high importance score. It covers the meadow mains of both effective and safe care and its strict lay process measure. Next slide, please. So we knew from our previous work that we could capture our patient population easier than we had before. We changed our sample of patients -- to our sample toll patients admitted to the oncology or bone marrow transplant service who received antibiotics in the emergency department. Based on our previous data we knew that this proxy was a much more efficient way to capture data we wanted with a

much less complicated query. Because the ED Karen finished at time when the patient was admitted electronically it also enabled us to get the more quick quickly out of our record. We did some chart review to make sure the patients were identified correctly, using our proxy. With the exception of one new patient with leukemia, they west found that this query captured you are population well. So the measure to him -- is a time measure now, the time from the registration to the first antibiotic. Both of these are time stamped in the location electronic medical report and could be reported to the improvement team in minutes and segmented further to success or failure of the90 -minute timed goal. Next slide, please. Any good improvement project starts with a driver diagram. To develop this our team sat down together with the oncology specialty physicians and nurses and the ED physicians and nurses and the clerical staff to determine the steps required to meet the goal. Those were reported above as drivers of good care. And what were reasonably anticipated problems that would prevent each step from occurring. When doing improvement it's always good to know which part of the process you're trying to fix. We knew from our data what the longest variation in care for these patients was the time of arrival to order placement for medications in the computer. Order place plenty is critical to the administration of the medicine. Although time, from time to time other factors intervened, we knew that our intervention should first focus on decreasing time order entry. Next slide, please. So the groups decided on a standard approach to all these patients and agreed to support clinicians who use the standard process. An oncology fellow checklist was device to help the oncology fellow on cool direct the ED work welcome back standard manner. Most of the patients were referred in by the specialty service and a phone call between

the oncology fellow and the ED staff is standard practice in our setting. A pre-defaulted order set was designed to support of the standard care N was made available to all clinicians to that order entry would be easier. It was decided that it would be best for the order set to be placed at the time of the phone call and not wait for the patient to actually enter the emergency department. This is because there's a slight delay from the referral call to the patient arriving in the emergency department and the person who took the call might forget, might not be the physician in charge when they arrived and we priced the onus us on that referral attending to start the care. This represents a couple of challenges. Although the patients have a vast medical history already noted in the computer it wasn't available to the ED staff without navigating off the page they were on, the referral page. And also in order to safely order medication an organized physician has to know the weight and allergies. Next slide. So a referral note was created by the improvement team for use in these patients and it worked within the referral screen that the physician was already in when taking the call and could be pulled you up by types.EDO. Next slide. By pulling information already known in the computer such as last recorded weight and allergies and following the oncology referral check list it was designed to improve the accepting physician's ability to order medications prior to the patient arriving. You can see in the version of the note only the slide information in blue is pulled automatically from the patient's previous record, includes allergy and weight and the information in yellow are questions to be discussed with the oncology fellow during the call. Next slide. So despite our group evident, the data is frustratingly slow to improve. As you can see from the numbers at bottom of the run chart it takes a while, about one to 28 week

dose accumulate enough patient -- the team can decide whether the most recent data represent answer improvement. Although there is some variability we have seen trend down in the median time. When we examine that one data paint of point that was very high after our process improvements started in September we discovered through the chart review that this was our NEULEUKEMIC. He waited four hours to get antibiotics as a result after combined decision of the ED and emergency staff but still reflects poorly in the overall average numbers. Our team is still well below where we need to be. We report our data in groups of ten initially before we started our improvements and since starting efforts we have reports groups of five. That is because of these low frequency is events. Certain weeks only have one to two data points and might look deceiving if reported just week by week. We started in may of 2010 and you can see that even the focus on an impact --. goal can lead to a slight improvement. In June 2010 the physicians and team started organized the medicines at the time and troubleshoot the in the process. We found several and worked with the patient services group to fix them. And in September the referral phrase and order set was introduced to the whole group. Next slide. At times at the beginning of an improvement project it can some like you're pedaling against the wind. Team members always asking, are we fixing anything? It's important to look at data several different ways to see which enter version working. Our categories all of our data at all of our performances base line, even talking to the ED staff about the project at staff meetings. As soon as we announced the group our suspension to improve, we categorized that as starting process in the slide and we had some small tests of change with the physician members of the group doing small tests in one or oh two

patients such as organized the medicines prior to arrival. The first interventions category above represents the smart phrase, the order the sets and the dissemination of the process to the group as a whole. Our next steps are going to be an analysis of the failures, working with our electronic health records to better identify patients and possibly linking to an algorithm season of as used by chop to improve the standard of care. Next slide. In conclusion, when using data electronically use of a proxy can make data cap -- and decrease the need to review all the carts -- charts in the end. But expecting individuals to remember a -- colon a low frequency owe haven't doesn't work. So intervention will probably from here forward have to be based on pre-second patients. Annotating a chart can provide useful feedback on specific interventions if the numbers support it. And questioning data points that don't make sense, data isn't always perfect. Even the best -- won't tell you what happened with each and every case so make sure to look into the charts if the data doesn't make sense. I will now turn the talk back to Dr. Evaline Alessandrini who will conclude the presentation.

EVALINE ALESSANDRINI: Thanks. Thanks everyone for participating in the webinar. In summary I think what our group is doing is trying to decrease the uneven innocence pediatric emergency care. We look at it as a three-step process. This is included in that IOM report on performance measure plant -- that I mentioned at the beginning of the webinar. So the first step if in achieving quality is convening an expert panel, expert members across the healthcare industry includes the patients which we were able to do in this process to define quality with uniform standards and measure that

apply to the many facets of care patients receive. Second, which we're doing right now is gleaning information from performing performance to report and analyze and pinpoint where patient care falls short; and then third care gives examine information about the care they're providing and use it to improve. So that three-step process, measure, report, improve, we really invite you to participate in this important work. We want to thank you again for participating. I'm going to turn the webinar back to Daniel Kavanaugh now for our question section.

DANIEL KAVANAUGH: Thank you very much, thank you all, to the presenters for an excellent presentation. And we do have a few minutes here we have time to answer some questions. And actually, the first question is for you, Dr. Evaline Alessandrini. The question is why did some measures with the higher shareholder importance ratings not make it in the top 15 measures?

EVALINE ALESSANDRINI: Yeah, again, that's a really good and important question. So again, the first thing is that we noted that using just those importance ratings there was not a lot of, you know, not a lot of balance across the different dimensions of quality that we were interested in measuring. Second, you know, the expert panel really thought about the feasibility of some of these measures and even though we had created operational definitions for the measures, we felt that at the current time, we were going to really have a hard time identifying patient populations. So the one that comes to mind is the administration of fluid force patients with SEPSIS. And because we will such a hard time defining that patient population, we felt like this was

something that we weren't going start work on immediately, but prior to the improvement work and prior to any reporting of these measures we needed to have some background work done to help us to be better at operationalizing the definition and identifying patients. And we certainly know that there are many people work on this effort, particularly our colleagues at children's who are will really help us to inform, how do we operationalize the measure. And we will certainly work with them to help us move on. I guess the biggest thing to really emphasize is just because it's not in the top 15 doesn't mean it's off the plate T just means that's where we left it, not to start our work in the beginning.

DANIEL KAVANAUGH: Okay, thank you. And the next question is for Dr. Shaw. Regarding the respiratory cohorts was having data feedback helpful in motivating both individuals and the department utilizing the new respiratory cohort?

KATHY SHAW: Yes, I think overall it was then. When you -- when you propose a new operation or intervention to improve care it's critical that people realize that, the amount of work involved worth it or not, so that you don't continue to do sting that makes no difference. So providers, nurses, physicians, respiratory therapists, that remembering to push patients to the cohort did improve care for these children and reduced wait times for in general in the emergency department, it was useful in getting it to become part of the routine.

DANIEL KAVANAUGH: Okay. And this is actually another question for you, Dr. Shaw. Could you comment on how much the selecting children with asthma and level two triage caught all of the patients of interest, the number who received more than one Beta Agonist?

KATHY SHAW: It would not capture all children who should have corticosteroids in a timely manner by that definition. But it is an example of how one has to narrow the definition in order to get high-quality data to make sure that it's working for the majority of patients. So you sacrifice the number of patients that you're measuring in order to make sure that the integrity of data or the accuracy of the patients who should get the treatment is
maintained.

DANIEL KAVANAUGH: Okay. And this is another question for Dr. Evaline Alessandrini. Why did you choose to create 11 content areas?

EVALINE ALESSANDRINI: yeah, okay. That's great question. The reason that we did that was we found that we needed a little bit more specificity with regard the general measures. The expert panel found that, having a good number of general measures that are relevant to every emergency department's visit was a good way to assess overall quality of care. And -- so the reason that we did that was to be age to provide further specificity and that's why we came up with those content areas T was nice to be able to say we have a group of measure that reflects what's considered high quality

initial care for every patient. We wanted people to understand that we had measures that were relevant to infrastructure and staffing. We had 12078 general quality and safety measures such as hand-washing and exceptional never events. And so we wanted to put them into bins to help us with that improves specificity. The other thing was that we also you know again had those large -- we had lots of measures that were relevant to trauma, you know, lots of measures that were relevant to infection the and so by grouping them it just made it easier to list them and that people could then find them in an easier fashion.

DANIEL KAVANAUGH: Okay. And then we have one final question and that is also for you, Dr. Evaline Alessandrini. We've been considering submitting these measures to the national quality
forum?

EVALINE ALESSANDRINI: Yes, that's a good point. So one of the measure, the weights measure, weighing in kilograms at the time of the ED visit, is already a time-limited endorsed measure by the national quality forum. And that measure was submitted and the measure steward is the American academy of pediatrics. Our goal was to submit these measures over time after we had tested them so that we could provide the NQF with robust operational definitions that had been put into use that we could sort of get the KINK. Out before submitting them to the NQF. But that certainly is in our pile of work to do as follow-up to this point -- project.

DANIEL KAVANAUGH: Again, I would like to thank all of our presenter, Dr. Evaline Alessandrini, Dr. Marc Gorelicks Dr. Shaw and Dr. Stephanie Kennebeck for putting together a great presentation. And please share this with those who are listening now, please share this information, you know your colleagues. There will be arrest K50EU6D next week at the same site where you registered, http://www.MCHCOM.com. And also please, as a reminder, to fill out an on line value indication. It just takes a couple of minutes and your response will again help to us plan for future broadcasts and series and also improve the technical support. So thanks again, everybody, and this concludes our webcast. Have a great day.