



Preventing CLABS Infections: Safe Patients, Smart Hospitals (Safe Practice 21) March 18, 2010

Webinar Transcript - Full Transcript

Charles Denham: I am your host today for the TMIT National Research Test Bed High Performer Webinar Workshop that we're having today. The title is "Preventing Central Line-Associated Bloodstream Infections," and we've got an all-star cast for you today to brief you on these issues.

I just want to remind you to go to SafetyLeaders.org, in order to access the slides, which you may download. For those that are not reviewing the slides remotely, I'm on Slide 4, and introducing Dr. Peter Pronovost, and we have a copy of his book on the slide and on the website, *Safe Patients, Smart Hospitals*. Standing in for him will be Chris Goeschel who was the leader of the Keystone project and will be very adept at taking us through the focus areas that we'd like to cover.

Our panelists include Kathy Warye, who is the president of APIC, and she'll be addressing the resources for Targeting Zero. I have to compliment APIC for their wonderful partnership with everyone in infection prevention. They have been a wonderful colleague and collaborating organization with all of the organizations, and have been instrumental in providing great input on the National Quality Forum Safe Practices for Better Healthcare.

Dr. Peter Pronovost needs no introduction, a wonderful researcher, clinician, author, and leader of national collaboratives in this subject matter area. We have Deborah Hobson and Melinda Sawyer. They will be providing Clinical Pearls for Nursing to Eliminate Central-line Infections as well. And we have Patti O'Regan, who is a nurse practitioner, who will also be representing Patient Advocates. On every one of our webinars, we ask that we have someone representing patients and families who have had harmful events or are national patient safety advocates, and we will have her open [for] us.

You will see on slide 8 a disclosure statement regarding myself, Peter Pronovost, Kathy Warye, Debra Hobson, Melinda, and Patti. And of notice, TMIT is actually hosting a Global Patient Safety Summit and also a Discovery Channel documentary premiere in Nice, France, this year, and you'll note that CareFusion is one of the educational sponsors in addition to AORN, and that this has been a co-production partnership with Discovery Channel.

I'd like to turn the mike over to Patti O'Regan who is a nurse practitioner, one of the co-authors of the chapter for Patients and Families in Advocacy in the National Quality Forum Safe Practices report, which will soon be released. And we understand April 12 will be the date when the 2010 Practices will be released. Patti, would you like to open [for] us?

Patti O'Regan: Yes. Thank you, Chuck. This is going to be an exciting webinar. Safe Practice 21 highlights evidence-based policy, practices, and implementation strategies, some of which are a common thread throughout many of the other NQF Safe Practices. So that's the good news.

As your knowledge about Safe Practice 21 that we're talking about here today increases, you're also increasing your knowledge about the other safe practices. So for example, foundational through Safe Practice 21 and many of the other safe practices are the following: teaching staff about infection prevention, hand washing to hygiene, implementing checklists, measuring risks and outcomes, and feedback of that information to the senior leadership and clinical staff. And my particular passion is involving patients and families to serve on your patient safety and performance improvement committee, particularly those patients or the family member who have experienced the hospital-acquired condition or never event, or in this case, it would be the central-line infection, which is both a hospital-acquired condition and classified as a never event.

It's really a pleasure to be here with you all today. I'm really excited and looking forward to the information from the experts on the panel lineup, and the input that you in the audience are able to provide us to make this much more interactive. So, Chuck, back to you.

Charles Denham: Thank you. And what I'll be taking you through is an overview of the safe practices for better healthcare, just a very short introduction to take us back to 2006. And I'm on Slide 11. Our original Harmonization partners included AHRQ where many of the evidence-based practices originated in the 2003 practice set. The National Quality Forum produced the report after a year-long initiative producing 30 Safe Practices. And then in 2006, we were very blessed by the association with The Joint Commission and The Leapfrog Group, the Institute for Healthcare Improvement, and the Centers for Medicare and Medicaid. And in 2006, a huge upgrade of the practices was undertaken getting them standardized, thoroughly evidence-based, and updated. And then in 2009, this group and a larger group, including CDC, IDSA, the SHEA, and a number of organizations were involved in the infection-related practices in addition to APIC and other organizations. This Harmonization process is described in a number of articles, which are available on SafetyLeaders.org, and we are blessed to have the *Journal of Patient Safety* copyright authority to make them available for copying and distribution, etc.

The 2010 Safe Practices, and I'm on Slide 13, remain the 34 Safe Practices. You'll see on the slide criteria for inclusion, specificity, benefit, evidence of effectiveness, generalization and readiness were the criteria for these practices. A thorough review of the evidence was undertaken reviewing these 34 practices, and a number of contributing organizations participated in the narrative underpinnings and support information. And there were a couple of safe practice updates that occurred for the 2010 final report, which will be made available, likely April 12.

We'll hear from NQF in [the] next two or three weeks regarding those Safe Practices and the updates that will be imbedded in them. For the most part, the practices remain the same with some very subtle updates. And there will be further information coming from NQF regarding what those updates are and how they'll be distributed and managed and go forward.

I'm on Slide 15. You'll see the 2003 report was a pretty thin book, the 2006 report became a thicker book, and the 2009 updated version became even greater in terms of volume. The good news is that it did not increase in terms of specifications. The second good news is that much of the evidence-based reviews and narrative information that are not formally part of the specifications are added to help as an adoption guide and help organizations be able to kind of review the literature.

They're organized in seven chapters, and the healthcare-associated infections are embodied in one full chapter, and they address the six major healthcare-associated infections. Slide 17 is really provided for you to be able to print out, and we'll go through it in detail, but the safe practices for infection prevention will be covered on a number of these webinars. Of note on Slide 18, Safe Practice 1 really is very heavily weighted on Leadership Structures and Systems, Culture Measurement, Teamwork, and Identification of Risks and Hazards and Mitigation of those hazards. And this basically hardwires information that might come from infection prevention specialists, as well as the patient safety officers in risk management to report them above.

Now, the healthcare-associated infection specifications and undergirding information had a major update in 2009, and relied heavily on the graded research that was developed through the Healthcare-Associated Infection Compendium, of which there were a number of Harmonization partners that you see before you on Slide 19.

So I'm going to keep my comments very brief, and now introduce Kathy Warye. We'd like Kathy to perhaps just give us a couple of sentences regarding her background, but she is a wonderful contributor, as [are] her organization and the leaders that she brings to the table in a constant way as this research continues to evolve very dramatically. And we find ourselves really "chasing the puck" on the evidence to keep up to date. Kathy?

Kathy Warye: Thanks so much, Chuck. It's a great pleasure to be here with you today and an honor to join our TMIT colleagues, and our colleagues from Johns Hopkins as well, on such an important topic.

I would just like to share with you today some resources that APIC has in our Targeting Zero program as they specifically relate to central line-associated bloodstream infections. And for some of you who may not be as familiar with APIC as some of our members who are on today's call, I just wanted to start with a bit of background. We are a global leader in infection prevention now with over 13,000 members worldwide. Our members are individuals who are the primary directors and managers of infection prevention and hospital epidemiology programs in a variety of settings, but increasingly we're also seeing people with oversight responsibilities for infection prevention control – people in quality and patient safety joining APIC primarily because of the types of resources we offer.

At the bottom of the slide there (slide 22), you'll see our core services. We are the largest provider of education for infection prevention and control – really regardless of where you are in the hierarchy or the continuum in terms of managing that practice.

I wanted to just share with you a little bit of information about our research program and its specific initiatives. This spring, just in several weeks, we are going to undertake a follow up to our 2006 National Problem Study for MRSA, and I wanted to encourage you to participate in that. Not only does it help us better understand where's the prevalence and the prevailing strategies for its reduction, but it also enables us to focus clinical and administrative leadership on infection prevention overall and the need for adequate resources in those departments.

Moving to the next slide (slide 23), as you may know, APIC is a leader in developing and validating clinical best practices. We work with over 28 healthcare organizations to facilitate practice recommendations and to ensure that there is consistency with CDC and other infection prevention control escort organizations, from the Association of Operating Room Nurses to the American Institute of Architects, wherever infection presents a risk in the healthcare continuum. And we ensure that all the standards and guidelines where we participate are evidence-based.

As far as our Targeting Zero program (slide 24) is concerned, many organizations talk about zero. APIC wanted to set it out and define some of the attributes of attaining significant reductions or, in fact, potentially reaching zero. And so our Targeting Zero Position Statement, which was created in 2008, really defines the cultural prerequisite for reaching zero or being able to achieve significant reduction. Certainly APIC has been in favor of setting the theoretical goal of elimination of HAIs for quite some time. Our program insists that there is an expectation that infection prevention and control measures will be applied consistently, 100 percent of the time, by all healthcare workers; that infection prevention is everybody's job. A safe environment is critical in terms of the ability to discuss errors and facilitate learning. The clinical and administrative support is critical in terms of providing the culture and the foundation necessary for the reduction of HAIs, and in the rest of this slide you will see some of the specific safe aspects of getting to zero.

As far as zero tolerance is concerned, we only need to use that terminology now in terms of unsafe behaviors and practices, which could potentially put patients and healthcare workers at risk. And you'll see that statement on our website if you come to access it.

We have recently launched APIC ANYWHERE (slide 25), which is a comprehensive online learning platform. We launched this last year with the understanding that many of you were seeing reduced budgets and reduced education, and travel budgets in particular. And we wanted to ensure that we were able to continue to offer not only quality educational offerings, but in a way that was more convenient and less expensive for you as well. So we've launched APIC ANYWHERE, and we will be building that out for many years to come. But some of our initial offerings are those around CLAB. We have a specific offering that's available via Healthstream, and it relates to our elimination guide on the prevention of central line-associated bloodstream infections. It's also available through [the] Healthstream consumer portal if you're not a Healthstream subscriber. We also have the *Eliminating Catheter-Related Complications* Toolkit, and this really focuses on a system-based approach to the reduction of central line-associated bloodstream

infections. It was created in collaboration with Allegheny General Hospital, and it features demonstrations of possible catheter insertions, checklists for insertion, and maintenance. And once again, it goes to discussion of the cultural attributes that are necessary in reaching zero catheter-related bloodstream infections.

The next bullet on the slide is our *Guide to the Elimination of Catheter-Related Bloodstream Infections*, and I wanted to address this in a bit of detail, because I know there's a lot of confusion out there about all the various guidelines and standards with regard to elimination of infections.

Our elimination guides are developed in collaboration with the CDC and with members of the Society of Healthcare and Epidemiology of America as well. When CDC produces a guideline, they address the science in great detail. They are usually hundreds of pages in length and heavily scientifically referenced. The SHEA/APIC idea for the Compendium was a wonderful contribution to the field. It has brought together all of the science around the reduction of healthcare safety with infections, but the CDC guidelines and the SHEA Compendium really talk about what it is we need to do to reduce infection. They don't concentrate on how to do that. That's where the Elimination Guides from APIC come into play. Our focus is in the implementation strategy about how you translate that science into specific tasks to bring the science to the bedside.

So that is the goal of our Elimination Guides and where they fit into the continuum of resources that are available to you. And as I said, we have one specifically related to catheter-related bloodstream infections. It's available free to all APIC members. We've distributed over 13,000 copies of it. We also have two webinars archived on our website related to bloodstream infections, and one specific to Site and Hub Disinfection, which is a critical issue in the reduction of HAIs.

Once again, it's been a pleasure, and at this point, I will turn it back over to Dr. Denham.

Charles Denham: Thank you, Kathy. We are really pleased to have Chris Goeschel now take Peter Pronovost's place (slide 27) to go ahead and brief us on the central-line work that has been led by their team. And Peter Pronovost really has, there's no need for introduction, terrific body of work from Hopkins, and a very substantial impact that was generated through the Keystone Project with recent findings showing that they've been able to sustain the gains. So Chris, would you please introduce yourself since you're standing in for Peter and take it away?

Chris Goeschel: Absolutely. Thank you, Dr. Denham. It is my pleasure to be with you, and I need to let you know that it's Peter's disappointment that he was having difficulties. He happens to be in Puerto Rico on a family vacation and has had intermittent access to the Internet.

What's important for me in sharing this information with you is that the national program to eliminate CLABSIs has its roots in work that we did in Michigan. And at the time, I was the Executive Director of the Michigan Keystone Center. In fact, the Keystone Center is something that I developed while I was in Michigan, and so I am well versed in that project. When that project came to conclusion, and I'm going to talk to you a bit about it this morning, I made the move from Michigan to Baltimore. And I fondly tell Peter Pronovost, who is the head of our research group, that I really didn't come because of him or the work; I came because my only child happens to live in Washington, D.C. Now, he knows because of how passionate I am about this work that there's a little bit of jest in there, but the reality is my life changed dramatically with that Michigan program. And I hear that same message from doctors and nurses now all over the world when they realize that something that has been so much a part of our lives as intensive care clinicians, it is often a preventable harm.

By way of background, I came to the Michigan Health and Hospital Association and created the Keystone Center after a long professional career in an acute care hospital, first as a critical care nurse and then as an administrator and a healthcare executive. When I created the Keystone Center, I had no idea this is what it would lead to. But the reality is, like doctors and nurses, I am a voracious reader, and Peter, as most people know, publishes a lot. And I was intrigued by what had happened at Johns Hopkins with efforts to reduce bloodstream infections in the ICUs. And in a few moments, I think we're going to have

some of my nursing colleagues from Hopkins talk about what it felt like on the front line as that work was taking shape. And yet for me as an institutional leader, the question was, how can we make that work and fit our local environment?

When I talked to Michigan hospitals, university hospitals, community hospitals, small rural facilities, what I found is what I understood in my own life as a clinician. And that is, if there was a way to truly improve care and measure and know that we had made a difference, of course we would want to do that work. The Keystone ICU project was the result of a wonderful AHRQ-funded grant that Peter and I got that we implemented in well over 100 intensive care units in Michigan. That work has since expanded, and I'm coming to you today from Manchester, England, where I spent the whole day with about 200 clinicians who are getting ready to embark on the same national program that's now available to every hospital in the U.S. And it's based on work that the Pronovost-Hopkins team, the Quality and Safety Research Group, did what the MHA Keystone Center back in 2003 and 2004.

When I talk to you about the national program (slide 28), I hope you'll listen carefully because the most important thing I have to offer you is that this program is available to you.

So, how is it that the 1,000-plus people that are on call today could join forces with thousands of colleagues and hundreds of hospitals that we're currently working with in the U.S., can join forces with 93 or 97 percent, excuse me, of the acute-care trusts in England who have committed to do this work; in hospitals, over 200 intensive care units in Spain that we're working with, and 18 ICUs that have just begun work in Lima, Peru; all driven by the same notion, and that is, we want to improve care for the patients that we work with. We want to measure infections, and we want to know that we're making a difference.

When one of the first U.S. shuttles was launched into space (slide 28), a question was asked of one of the astronauts in terms of what the world looked like from thousands of miles above the atmosphere, and his comment was profound in terms of its meaning for this work that we are all interested in doing. And his comment, as he looked at the sphere that you're looking at now, was the thing he realized when he looked at the earth was that there are no lines. Think about that – there are no lines. Every division that we have, that we believe keeps us from achieving great things, is a figment of our imagination. The beauty of that is, if there are no lines, then there are no walls. There is no reason we can't truly become the global learning community that TMIT and others have been fostering for so long.

Many of you probably recognize Josie King (slide 30), whose image is before you now. When Peter came to Michigan, he stood in front of about 500 clinicians who [were] at our very first Keystone ICU meeting with this very picture of Josie King in front of us. And at that point, most of the teams in Michigan had not heard the powerful story of Sorrel telling of Josie's death at Hopkins, that Dr. Denham and others actually captured on film. Instead, Peter showed this picture and he said, "This young girl died when she was 18 months old at my hospital. We killed her. We killed her from a totally preventable event, and I don't want anyone to have to face that sort of trauma. And so I'm here to share what we learned and hope that you will take the lessons and make them your own."

Our work at Michigan began with people being mesmerized by the story that Sorrel King told of losing Josie at Johns Hopkins. And many of our nurses carry Josie's picture around on clipboards. And it was truly such a powerful, powerful message that we can't allow these things to happen. And yet as a project leader, I understood that people would really be integrating what we were saying when they quit telling Josie's story and started telling their own; and indeed, that is what happened.

But the message of patient safety is not a message just of bloodstream infections, which we're talking about today; it's a message of communicating that there are ample opportunities to improve. When you look at this particular slide (slide 31) about wrong-site surgeries that are reviewed year by year, the question becomes, what does this graph really mean? This happens to be a Joint Commission slide, and what we look at is the conundrum that comes with measurement. Since we've been working on reducing wrong-site surgeries, has the number of wrong-site surgeries increased? Is that what this slide says to you, or, in fact, are we perhaps reporting them more accurately? The challenges of correcting meaningful

data and interpreting it in a way that is consistent, so that we can honestly state whether or not we've improved, is a challenge that all of healthcare continues to face. We're just learning how to measure and report harmful events. And yet thanks to the efforts of CDC and SHEA and IDSA and APIC, certainly we're learning how to measure and improve our care, particularly around infections. And yet it's not a clear path.

For those of you that are fans of art (slide 32), you'll know that what we're looking at now is a famous Picasso painting called "The Matador." And one of the fascinating things about the story behind "The Matador" is that, according to art historians and to the stories that we're told, Picasso painted this particular portrait about 200 times. And so if you chipped away at the paint, there would be many layers, because his idea of what the perfect image of "The Matador" was changed over time. For those of us that are engaged in patient safety improvement work and in reducing infections, this picture is also continuing to emerge.

In the work that we began in Michigan and that we continue to do now across the United States, one of the things that we struggle with is where current activities live, and you see this red X in the slide (slide 33) between regulatory and feasibility issues. And our goal in the Quality and Safety Research Group is to help teams move toward what we call that "sweet spot" in the middle. We understand in talking to infectious disease specialists, and epidemiologists, and intensive care unit physicians, and nurses, and families, that the tensions between scientifically sound evidence and what's feasible are a constant, constant pull. By the same token, fitting into our day and into our month and into our plans the things we have to do because of regulatory requirements often get in the way of the work we would like to do because of our local wisdom, because we know where there are vulnerabilities in our units. And so it's important that patient safety and science evolve, that we move toward that sweet spot, that we move closer to having activities reflect the scientific evidence and local wisdom.

In the QSRG, we continue to develop slides and models and constructs that we think are helpful, and we try to make them simple but profound. Now hold on to that thought for a minute because I didn't say easy, I said simple. Everything we do hinges on measurement (slide 34). We firmly believe that unless we can measure accurately, we will not know whether or not we're improving, and more importantly perhaps we'll be squandering scarce resources.

So when we measure, we measure the attitudes and the cultures and the capacity for patient safety through a program that we call CUSP, the Comprehensive Unit Safety Program. And CUSP is guided by those two questions that you see in the first box. Have we created a safe culture, and how do we know if we're learning from our mistakes? CUSP has five steps: educate on the science of safety; identify defects; make sure you have an executive that is absolutely a part of your team; guarantee that you're going to learn from at least one defect a quarter; and that you're going to try to implement teamwork tools. And we provide those for the groups that we work with.

On the opposite side of the slide, you'll see our Translating Evidence into Practice program. And the questions that guide TRiP are, how often do we harm, and how are patient outcomes improving? And there are four steps to TRiP: summarizing the evidence in a checklist; identifying multiple barriers to implementation; measuring performance; and then ensuring that all patients get what evidence says they should. It sounds simple. It's clear. It is not easy.

This somewhat more complicated graphic of our TRiP model (slide 35) was published in the *BMJ* back in 2008. And what's useful here, hopefully for those of you that will make these slides your own, is that summarizing the evidence has several components to it, and we think that that summary of evidence is most efficiently conducted at a centralized level. It would be silly and a waste of resources if every hospital tried to summarize the evidence for how to reduce infections. So instead, through centralized groups like the CDC, like SHEA, like IDSA, it's useful to have the evidence collected in a simplified fashion and summarized. But once the evidence is available, we have to understand what the local barriers are to implementation. And this is where some of the early work at Hopkins that Peter published, and now some of the wonderful toolkits that are available, not only by our own research group but by APIC and other groups, help local teams make this work real and make it live in the care that they deliver.

And so identifying barriers to implementation includes some opportunities to do things like "walk the process," and my nursing colleagues may talk about that in a few moments.

If we've attempted to implement the interventions and we've identified local barriers to implementation and we work on those, it's critical that we measure our performance. We always start with small pilot tests and with a baseline so that over time we understand the impact and the extent of our improvements.

Perhaps the most difficult part of what we do goes back to the CUSP model and is embodied in this method that we call the four Es. And the four Es are steps that we developed to help ensure that every patient receives the intervention. And the Es stand for engage, educate, execute, and evaluate; and today in England, I learned that our English colleagues added another E called embed, because they understand that this work is sustainable and they want to make sure that they have the infrastructure to embed what's being learned across the board.

So what does the checklist look like to prevent CLABSI (slide 36)? Many of you probably know this by heart. Remove unnecessary lines, wash your hands prior to the procedure, and use maximal barrier precautions, clean the skin with chlorhexidine, and avoid the femoral site whenever possible.

What might some barriers be to making those things common practice (slide 37)? We encountered, in the Michigan study, a number of barriers, everything from individuals not understanding the evidence to the challenges of having all the equipment to actually adhere to the evidence, to being overly busy and not having enough support staff. But some ways for you to identify barriers in your own institution, if you still have problems with infections, including asking staff about their knowledge, and we have a team checkup tool that assists teams with that. Sometimes it's as easy as having a conversation and asking staff what's difficult about doing the behaviors. I don't think we can overestimate the power of "walking the process" and watching staff insert a central line to see where the barriers live. When we see where the barriers are, we begin to assess where and how we apply those four Es, because sometimes the barriers live in not having the right equipment, and that might require getting senior leaders more involved than what they are. Sometimes the barriers may be education, not of the senior staff or the physicians or clinicians that are inserting the lines, but from the front-line caregivers.

Sometimes the barriers exist at all three levels (slide 38), and so we have this four Es model and make sure that we have intervention to address how each level in the organization is brought on board. So what engages senior leaders is typically different than what engages team leaders or front-line staff, and yet each of the Es are guided by what we believe are important questions. The question for engagement is "How does this make the world a better place?" And in a moment, I'm going to give you some tips on tools that you can use to achieve each of these steps; but we've not yet run into a senior leader or a front-line caregiver that wasn't motivated by making the world a better place. None of us are in healthcare because we want to make a lot of money or because we want easy hours or because we think it just happens to fit our lifestyle. Most of us are in healthcare as a profession because we feel a pull to make the world a better place.

For education, the simple question is, "What do we need to do?" If we're going to reduce these infections, what has to happen? Execution – we have to ask ourselves, so if we know what to do, what keeps us from doing it? What type of resources do we need? What sort of shifts in culture would help us achieve what might be a distant goal? Importantly, how do we know that we actually improved patient safety? Some ideas (slide 39) for ensuring that patients receive the interventions that go along with those four Es include both stories and baseline data. I sat in England today. I was in London on Tuesday where a number, about 150 clinicians, were in the room, nearly 200 today in Manchester, and there are a series of rollouts over the next many months. And data was very powerful for them. Many of the hospitals, the Trust in England, believed that they didn't have an infection problem because they had implemented "the bundle." But they didn't have standardized definitions and they didn't have standardized data collection, and when that mandate was brought to them and they measured, they said, "Oh my, we have an opportunity." So data spoke, but patients' stories, stories of harm, your own Josie King can make a difference. Educating staff on the evidence involves a number of tools, again, and we have versions

available, but we're fortunate that the field has advanced and that there are a number of training tools available, so depending upon your particular audience you will have a lot to choose from.

When you get ready to actually implement this work and execute the interventions, our suggestion is that you find a place, a mechanism, a cart, a way to bring all of the materials together that clinicians need to do the procedure correctly into one spot. I heard a story today from a physician, a junior doctor here in England, who said everybody talks about having a trolley or a line cart, but in my Trust we don't have it in infection control. So they all thought the trolleys were a problem in terms of infection, and it took me 45 minutes yesterday to find all the supplies that I need. We have to change that. Then we have to change it everywhere. And just because most of us understand about the bundles and believe we have pieces in place doesn't mean that in fact we do.

Execution also means empowering nurses to "stop takeoff." What do I mean by that? It's not enough just to say, "Nurses, you need to speak up if there's a breach in practice." It means that physicians need to speak up if there's a breach in practice because it isn't only the clinician inserting the line that has the capacity to break the sterile field, it is also critical that we acknowledge that stopping takeoff has little to do with doctors and nurses and has more to do with our shared accountability and concern for patients. So understanding that and setting a rule that says that if there's a breach in practice, whoever sees it is going to speak up, is not anything that has to do with medical or nursing hierarchy, and it has everything to do with keeping the patient safe.

Interestingly, one of the real challenges that we faced in the Michigan work and that we continue to struggle with is, how is it that we teach others based on our own mistakes? So developing tools to help teams learn from mistakes and looking at every infection as a defect is an important part of what we try to achieve with teams. And then importantly, evaluation and feedback to local providers is critically important, and increasingly we find that units and hospitals and states want to compare to each other, not to be competitive, because we all understand that every patient deserves the best care possible; more because we want to learn from those who have just achieved more than we have.

How do you create an environment to do this? Well, it's all about partnerships (slide 39). When we began the work in Michigan, shame on me because I led that work. We didn't get our I.D. community involved right out of the gate, and we should have. That was my mistake. And what we learned when we got our I.D. community involved is that what we were trying to teach the front-line caregivers were things that they had been preaching for years, and yet the capacity to form a true partnership to say we all bring expertise to this, and the responsibilities for these lines needs to belong with the individuals that insert the lines, that are there to observe, that maintain the line. But we need our I.D. expertise and our clinicians and our colleagues in the room with us supporting us so that we can learn the best ways.

The evidence continues to evolve, so the partnership needs to include not just the front-line caregivers and the ICU, and not just the ICU control staff, but truly sufficient leaders, and hospital quality and safety leaders, and hospital executives.

The CUSP program I talked about earlier (slide 41) in terms of the steps, and we provide a website where you can go and avail yourself with a number of tools. Everything is open access. There are audio conferences and toolkits that you can download. The important part is to understand that, at least in our experience, the really significant part of the work that we're doing is changing culture. And once CUSP is implemented, the number of activities that you can work on to improve care are endless. CUSP is the foundation. The science of safety, that first step of CUSP, has in it some key components (slide 42), and again, you can go listen to a whole hour of science and safety, but basically, the science of safety asks CUSP to make sure that all caregivers understand that systems determine performance, that there's value in standardizing and creating independent checks for key processes and from learning from mistakes. But it's really important to apply those strategies to both technical work, like what we need to do to prevent a line infection in teamwork, how it is that we respect each other and interact with each other and communicate with each other as doctors and nurses in infection prevention.

Perhaps one of the most humbling lessons for me, as an early Michigan leader in the work, was to just be done by this last fact, that teams make wise decisions with diverse and independent input. The work in Michigan would not have achieved the results that it did if it hadn't been for the fact that the University of Michigan sat in a room in an equal playing field with a small critical-access hospital from the UP. But together they talked about what it would take to reduce infections. All voices count.

Learning from Mistakes (slide 43), again some easy-looking questions, difficult to accomplish but important to pursue. What happened, why did it happen, what could you do to reduce the risks, and how do you know that your risks were reduced? And there [are] some strategies there, like creating a policy and making sure staff know the policies, evaluating that the policy is used correctly, all of which could help you learn from mistakes.

We have a number of Teamwork Tools (slide 44), and again, this is just a brief list in the TeamSTEPPS tools that many of you have, thanks to the Department of Defense and AHRQ and others. But there are wonderful tools out there. We need to employ all of them.

What happened in Michigan was nothing less than shocking to us (slide 45). Our initial goal was to reduce infections by 50 percent, and we quickly saw that the median rates could get down hovering at zero, is what I like to say. And as we mentioned earlier, I did when we opened up, we've now seen that those Michigan teams have sustained those results for three years past the time when we quit working with them. That's further evidence in our own estimation that what happened in Michigan was a culture change. The culture change happened to be attached to some specific interventions to reduce bloodstream infections, and those interventions are sustained and the reductions are sustained because the culture is real. And those clinicians now have a virtual learning community and they're tackling a number of other safety risks in intensive care units and achieving similarly impressive results. This is what happened in Michigan to CRBSI ratio over time (slide 46). Same thing happened to ventilator-associated pneumonia rates (slide 47). Those are being peer-reviewed right now. We hope to have them published soon.

This is what happened to safety culture (slide 48). Culture's an important part. Pre-CUSP, 87 percent of the units were in the need improvement range. After the project began and worked through its first year, that was 47 percent of units where needing improvement is where they resided.

So how do you move through this process very quickly (slide 49), and then I'm gonna end. Every state in the country now has the opportunity thanks to funding from Health and Human Services and AHRQ to work through their state hospital association. The Healthcare Research and Education Trust of the American Hospital Association has a contract to make these tools and this work available to everyone. The first step is to enroll in the program. So contact your state hospital association if you're interested in doing this and are not yet enrolled.

Level 2 in terms of making the move toward improvement is to really implement the checklist and bundle. And a lot of people are doing that but they're not collecting data and rates remain high.

Moving to true and proof that we think has to take us to Level 3 and that is culture changing, when the most junior nurse can stop a most senior physician who doesn't comply with the checklist when inserting a catheter, and the interaction goes well.

Where we see profound change is at Step 4 when this becomes sustained, and Step 5 really takes us to the next level which is what other issues do we need to tackle?

So as I end our discussion this afternoon (slide 50) I want to leave you with an action plan. The action plan is to make sure that you know what's going on in your own state and that you know your rates of infection. If you need help with ferreting out who to contact, there's an e-mail address that you can send us a message.

If you're doing this work, meet with your ICU team and your I.D. staff and your quality and safety leaders and accept the challenge of getting to zero. If you have challenges and still see infections walking the process is enough to understand barriers. Again, it's a powerful tool. And think about that 4E grid to develop your own strategy to engage, educate, execute, and evaluate.

This particular picture (slide 51) happens to be one of Peter's favorites, and I don't usually tell the story. This happens to be a urinal, and I'm not sure if you can see it clearly, but this happens to be in the Netherlands. And there was a housekeeping sort of issue in that men's aims were not particularly good. And there was a lot of money being spent on cleaning the latrines in public buildings. And someone came up with the brilliant idea of painting a fly in the men's urinal because with something to aim at, dramatic things happened. In this particular example less money got spent on needing to clean, but it brings home an important message. Quite often we say we're reducing to, or we're working to reduce infections. Excuse me, but the plan isn't clear, the focus isn't widely shared, and execution is less than what it ought to be. Revisit your plan, then commit to the goal, and know that you are part of not only a national but an international community that believes that eradicating CLABSIs could be the polio campaign of the 21st century. You have the capacity to do this. You clearly have the will to do it, and we understand how to do it. Now we just need the courage to continue the journey. With that, I'm going to stop and turn the call back over.

Charles Denham: Thank you so much. Great presentation. We have, the reporting on the Josie King story (slide 52) has actually been evaluated in terms of impact of prevented harm and the impact of the story, and Julie Thao, one of our patient safety fellows, has been undertaking the interviews. We've interviewed 675 hospitals using video. Were it not for Peter bringing Sorrel to a meeting at IHI, we wouldn't have created the videotape, and over 84 percent of the hospitals state that the video itself has saved lives and reduced harm in hospitals. So it really attests to the power of stories.

It's a real honor now (slide 56) to also introduce Deborah Baugher Hobson, Quality Improvement Chairperson and Staff Nurse at Johns Hopkins Hospital Surgical Intensive Care Unit, Patient Safety Clinical Specialist at the Center for Innovation in Quality Patient Care. Deborah will discuss the topic of Clinical Pearls for Nursing to Eliminate Central-Line Infections, and we kick off with Deb. When putting evidence into everyday practice, how do you walk the process?

Deborah Hobson: Hi, everyone, and thanks for joining the call. So as far as walking the process (slide 57), when we started years ago at Hopkins to reduce our central-line infections in the SICU, we realized we had all the same evidence that you just received today. That's what we started with, and we were like, now, how do we get this to work in our unit? We initially made sure that we had all the supplies we needed. We had the central-line catheters. We had the sterile drape, the sterile gowns, the masks, the chlorhexidine sponges that we needed to prep the site. So we thought we were good to go. We started with that, and then we realized that, for some reason, we still weren't complying with all of those five basic evidences that they outlined for us. So we decided, how do we get this to work? And we tried to look at what we were doing.

We found out that, when we were doing a new central line in in the unit, the nurses had to run to the front of the unit to get the mask and the sterile gown. Then they had to run to the back of the unit to get the sterile drapes and the central-line kit. And then they might have had to run somewhere else for the chlorhexidine sponges. So we asked everyone, how will this work in our unit, and how can we make sure that everybody is 100 percent compliant with the evidence? So what we did, we developed a line cart which contained all the things that are needed for the central line. And we roll that cart right up to the room so that then we know all the measures can be complied with. But one thing is for sure. We know that this doesn't work everywhere.

So we tell everyone, you have to figure out and walk the process in your particular area to make sure that you can receive 100 percent compliance with all the evidence. So that's how we did it, and along with that we found out that you truly have to empower the nurses, and that's when we developed the care team checklist so that the nurses were empowered to stop the process at any step of the way. And I think that's where Melinda's going to take over.

Melinda Sawyer: Right. So hi, everyone. My name is Melinda Sawyer. I'm the Patient Safety Officer for the Department of Medicine at Johns Hopkins, and a Senior Clinical Research Coordinator at the Quality and Safety Research Group.

And one of the things that I wanted to talk about, that we had to learn in nursing, is how are we gonna empower the nurses to check the process, to stop the procedure if any step in the checklist wasn't followed. And really, it boiled down to leadership. And leadership had to step up and say, "This won't be tolerated. And if a nurse speaks up and says you need to stop the process, then the doctor needs to stop the process." And they empowered the nurses to call their unit leadership or the medical leadership to report the doctor if a doctor tried to bite their head off. And the leadership also turned to the doctors of the area and said, "[I'd] better not get a call from a nurse." And, you know, once that was said, then, and that expectation was set, then it was clear to everyone that we were there to make sure every patient got every step of the checklist and make sure all the procedures were followed. And there was a system in place to make, to support the nurses in case it wasn't. Because what we never want is a nurse not to feel empowered to stop the process if she knows something, a step wasn't followed. And it takes reinforcement and continuously checking in with those nurses, too, to make sure they still feel empowered and make sure that they still feel comfortable speaking up.

The other kind of pearl we wanted to talk about was that, once the line is inserted, really, there's a lot that has to happen to keep that line infection-free, and that is how the nurses and the healthcare workers maintain that line. And one of the pearls we took from implementing this at our institution is that we really needed to embed all of the guidelines about central-line maintenance into the policies and procedures of the institution. And I love what Chris was talking about earlier, in that this "E" was embedded, and how do you embed this work into the processes of your healthcare system? And nurses are, by and large, huge followers of policies and procedures, and that's how we operate. So it's very natural for nurses to follow the policies and procedures that are laid out, and it takes work to make sure our policies and procedures are kept up-to-date not only with the guidelines but [with] new literature that's coming out. But we have committees that are responsible for that, and they make sure that, as long as the nurses are following the policies and procedures, they are following the evidence. So with that, I'd like to hand it over.

Charles Denham: Great. Thank you very much. It's terrific that you all have the experience that you do. We will want to open things up, we're right on time (slide 58). Could any of the three of you answer the question? One of the questions that we constantly hear are regarding smaller hospitals [that] don't have the quality infrastructure. Any tips or pearls that you could hand to us regarding those? Melinda, you want to take that one?

Deborah Hobson: Hi, this is Debbie, I can take it. I have worked with some smaller hospitals since I was one of the ones who started this with Peter years ago. And we found out sometimes, even if you don't have the leadership on board from the start because of your quality structure, like a good example is one of the hospitals I worked with in New York.

Their ED was so insistent because that's where they started most of their central lines. And the ED doc that would be on call during the night, even if anywhere they needed a central line in the hospital, he would be called. And he wanted so bad to have a way to make sure that all this, all the checklist steps were complied with that he actually started packaging everything that he needed. At that time it was in trash bags. And then when he got called he would be able to grab that package in the ED and run to either a floor to start a central line or one within his own ED. But then he knew everything he needed and to have for an assistant by his side was in that package. So therefore they could comply with the checklist. And once even leadership at this time saw that he was making such an improvement and their rates had decreased, they then started purchasing a central-line cart like we have for him in the ED, and then also putting it in basically like a tackle box that he could run to the other areas in. So I hope that helped with that question, but it's, again, that's almost like walking the process. You sort of have to see how it works in your environment and not only your local unit, but also how can you make this work in your entire institution even if you are only a small community hospital.

Charles Denham: Great. Bernadette, I hope I'm pronouncing that, the name appropriately, has two questions. Is the staff's presence during the entire PICC central line process imperative to determine if sterile technique was maintained as opposed to staff present in the first five minutes? The second question was, define maximal barrier precautions for patient drapes. Is there a specific size requirement?

Melinda Sawyer: Hi, yes, I can take this. This is Melinda Sawyer. So for the first question, is the staff present during the entire PICC central-line process imperative? I would say yes, because the doctor can breach sterile technique at any, or the person putting in the central line, at any point in the central-line insertion process. With that being said, we know that nurses are very busy and cannot always be in there. So we try to team up with other nurses in our clinical area and either have a charge nurse or someone fill in for you if possible. And so, yeah, and we also have techs who have been trained to complete the central-line checklist also be present if, if necessary. To get at the other –

Charles Denham: Great.

Melinda Sawyer: – to get at the other question around defining maximal barrier precautions, there is not necessarily a specific size, although when you order them you can, they have full-barrier drapes. But the key is having the drape cover you from head to toe. So you need to make – that's what we tell our nurses is that when the doctor's laying out the drape they need to verify that it covers the patient head to toe. So, depending on the size of the patient they may be able to use a smaller one, but you really need to make sure that that full barrier, that barrier is covering the patient.

Charles Denham: Great. Michelle Chione asks, what about immunosuppressed patient populations? Any tips there?

Deborah Hobson: This is Debbie again. I can tell you one thing. My unit, because SICU now, I mean, Hopkins now has so many ICUs, my unit is mostly a transplant and trauma unit. So, unbelievably, we treat the patients the same. We don't use any silver-coated catheters or anything. We just follow the evidence, and believe it or not, I mean, we were so excited. We have gone 86 weeks without a central-line infection in my unit, and believe me, 50 percent of my patients are kidney-, liver-, and pancreas-transplant patients. So we treat 'em the same.

Charles Denham: Great. Thank you. You know, go ahead.

Chris Goeschel: I was just going to say, if I could quickly -- this is Chris Goeschel -- I think the other important thing about that, because that question comes up all the time, is that we don't yet have the evidence. But I would say in our national project, where we're beginning to get a hint that there may be some resistance that goes beyond what we're currently doing, is with burn patients. So big burn units seem to have more of an issue and their rates don't drop as dramatically. The other thing I would want to put a plug in, when Deb mentioned the antibiotic-coated catheters and impregnated catheters, is beware. Now I love salespeople, but beware of someone who tells you that "[t]his was what was used in Michigan and you need to buy it." Because I heard that today in England and they said, "Is that true?" and I said, "Absolutely not." We always start off, and did back in Michigan even before the recommendations were clear, with, I'm gonna say, was the least expensive and the least risky in terms of antibiotic resistance, etc. So we always started with plain catheters.

Charles Denham: Great. I'll answer just a couple of logistical questions regarding the video. The Josie King video may be ordered on Sorrel King's website, so just a Google search for Josie King video and you'll see it pop up, and you can order it directly from Sorrel at the Josie King Foundation (www.josieking.org).

We had a question a little bit earlier on our Q&A function. Kathy Warye, do you want to just address resources that those folks were asking about and how to be able to get them, get the resources from you?

Denise Graham: This is Denise Graham. Kathy had to get on a flight. Can you hear me okay?

Charles Denham: Yes. Go ahead.

Denise Graham: Okay, great.

Charles Denham: Just speak up.

Denise Graham: We've have a number of things for folks who use a catheter-related bloodstream infection toolkit with checklists very similar to that being used in Johns Hopkins. That can be found right on our website. I would be glad to send that link along right into the website here today. And we also have the elimination guide on CRBSIs, which Kathy said takes the science that was pulled together by CDC and puts it into more practical steps. So there's step-by-step approach and integrate a lot of what was discussed here this afternoon. And then there are multiple other items that we could pass along to all of you. These could be great resources for you. So why don't I put that into the box here and then all go to the APIC site and take the time to look at that.

Charles Denham: Great. And one of the other questions was whether one could re-listen to the webinar. And it will be recorded and a transcript of the webinar will be provided and left up on the SafetyLeaders.org website for future viewing. And to download the transcript because there are a lot of really good portions of information here.

Sandy Carson asks, "Do you use the central-line insertion checklist in the OR when anesthesia inserts the central line?"

Melinda Sawyer: Hi, this is Melinda. So I can see that previous to 2010, we did not have the anesthesiologist using the checklist for central lines inserted in the OR. However, due to The Joint Commission requirement as of 2010, regarding the use of the checklist, we do now have that in place and we also are using a checklist during insertions in interventional radiology as well.

Charles Denham: Great. Next question: "Do you use maximum barriers for dressing changes?"

Melinda Sawyer: No, we do not use maximum barriers for dressing changes. The recommendations don't include that. We do use sterile technique and sterile gloves when doing the dressing change, but we don't use a full drape, a full sterile gown, gloves. I'm sorry, we do use the gloves and not the hood. Now for a patient who has dialysis catheters, and oncology patients in our institution, we do use a mask.

Charles Denham: Great. Risa Parker asks, "How did you succeed in doing daily review of central-line necessity?"

Melinda Sawyer: That's a great question. We implemented a daily goal, the daily goals worksheet where every ICU in our institution has their own, but what is similar across all areas is that they ask daily, "Can the lines be removed?" And that daily goals worksheet is completed by the multi-disciplinary care team who's rounding on the patient that day. And that is a discussion that occurs every day.

Charles Denham: Sara Tune asks, "What are you doing in your facility to ensure practitioner competency and compliance other than bedside staff stepping in during an insertion?"

Chris Goeschel: Let me ask that my Hopkins' colleagues chime in in a minute about Hopkins. Let me tell you, we have seen some pretty sophisticated methods for maintaining competency across the country: everything from part of nurse orientation and annual competency checks for nurses, to the same thing for physicians in part of their annual two-year re-credentialing process that they have to be observed. Interestingly enough, inserting at least two central lines without problems during the previous period. So, there is an extreme from, you know, see one, do one, teach one and assume everything is good, to more dramatically, I would say, more consistently now seeing formal programs, training videos, online certifications, and annual or biannual competency checks that involve observation.

Quick story today in England, a video clip from someone that's been doing this work for a long time and their rates are down near zero, and the physician leader said they decided to make a video and to observe. And while being observed one of the drapes slipped off the patient, but the physician inserting the line didn't quite know how to proceed, because he knew what he would typically do and so he continued. And after the fact they had a great discussion about, you know, what happens at 2:00 a.m.? So they had the 2:00 a.m. question. What does the procedure look like at 2:00 a.m.? And he said, "In my institution, we thought we were really good and we couldn't get it right at 2:00 in the afternoon, when we thought we were doing it well." So the challenge is to really walk the process to see what actual practice is, and if it's important to you, making sure that every clinician that has privileges is continuously competent to do so.

Charles Denham: Great. Vanessa McCarlitz asks, "In regards to max barrier precautions, should the monitoring RN wear a sterile gown as well? Should everybody in the room, for example, family members wear a mask and a hat?"

Deborah Hobson: So as far as that question is concerned, we do if you are around the sterile field in the room, then you are required to wear all this, all this sterile gown and the mask and the hat and sterile gloves, but only if you're in the room. A lot of time my rooms in the SICU are very small, so a lot of times the nurse will hang outside the door and do all the monitoring, but if you're in the room, yes, we require the sterile gear, garb.

Charles Denham: Vanessa also asks, "Has anyone instituted a maintenance bundle? If so, how is it documented, via checklist, and how is the compliance maintained?"

Melinda Sawyer: So, in terms of the maintenance bundle, I can say at Johns Hopkins we haven't instituted this yet, but as a matter of fact, since I was talking to a group of about 100 nurses just this morning about this, we talked about how we're gonna take it to the products committee to actually develop a maintenance, particularly a dressing change kit. However, we don't have a particular checklist associated with that, because it's not all done at once. So for central-line maintenance it includes changing the IV solutions, changing the IV tubing, changing the hubs, doing dressing changes, and that's not all done at the same time the way a central line is inserted all at once. So it makes it a little bit more difficult to have a particular checklist. But what we have done to kind of monitor compliance is built into our computerized system a way to pull reports out to be able to follow that and document that. But I have heard doing this work nationally, of institutions that have separate documentation that's done in addition to their normal charting. So it can be sent to the quality improvement team, so they can review that everything was done for each patient that has a central line. And I have heard of other institutions as well having central-line dressing change kits in terms of the kit and bundle. And sorry –

Charles Denham: One additional question and then we'll just come back to someone else to answer the rest of that. In terms of the "scrub the hub" concept of the 15-second scrub of the hub, do you all want to react to that some? Organizations have reported statistically-improved impact just by adding the "scrub the hub," 15-second scrub.

Melinda Sawyer: Yes, we have the same campaign at our institution and it was really – the campaign was championed by our vascular access team and that is our practice and our policy. A lot of nurses think it can be difficult, especially when we have just a lot going on with our patients. But when you really get down in talking to the nurses about why it's important, they understand, and I think they're much more willing to kind of take the time to do something so important.

Charles Denham: Great. And was there another comment that I cut off?

Deborah Hobson: Yeah, I'm sorry, this is Debbie. Just for the maintenance, we make sure that even that is also on the daily goal checklist, is the dressing occlusive? You know, sometimes you just don't realize it takes one of those checks. And it is required of the nurses every shift to document on their flow sheet, is the dressing occlusive? What does the site look like? It's all of those things, too, that help with compliance.

And dressings was a really big thing for us. I mean I'm sure a lot of nurses can relate with me when we say, especially like surgical patients, you know, very diaphoretic. How are you going to keep this dressing on the patient? So that became a big issue and we even standardized the type of dressings that we use in the institution, and we even helped the company at that time make some of the dressings so that they were very easy to use, for, like, patients with Swans and things. And so, I think that's important, looking at the type of dressing and don't just let it – when we first started, we let the nurses use whatever they wanted; adhesive tape, plastic tape. You know, whatever type of dressing they wanted, they could, and we standardized that to make it more occlusive for the patient.

Charles Denham: The next question and it may be for – because Kathy left for her flight, who is backing her up can answer this. The next question is “Infection preventionists are significantly overworked and unable to complete all the elements required for IP responsibilities. Is there a staffing guide for infection preventionists, or is there any sort of guide in the literature that one might be able to refer to?”

Denise Graham: That's an excellent question. This is Denise Graham speaking for Kathy. We have just released a brand new CD that will be going out to all of our members and we'll be glad to share with all of those individuals on today's call, that allows infection preventionists to assess their program and really look at the depth. Since no two facilities are alike, there's no cookie cutter approach. You just want to move forward with staffing ratio. So what we've done is, we've developed this great assessment tool and then have allowed members to take it step-by-step to demonstrate to their superiors how best to garner those resources. Those resources may include electronic surveillance technology. So this guide will help you incorporate what are those necessary resources, and it's also including a business case, a way in which to demonstrate the investment into infection prevention and how you can be a partner in profitability. So if you're not an APIC member, please do me a favor: just shoot me an e-mail and I'll be certain to get you this CD. I'm Denise Graham, so it's dgraham@APIC.org and I'll be sure you can get that. Great question, thank you.

Charles Denham: Wonderful. Yeah, thank you very much for that and thanks for the answer. You were a little muted at the beginning of your statement. So Denise will provide this information and access the information of a recently-released guide that can answer the question. So thank you, Teresa, for the question as well.

Christy Bokelman asks, “Do you have a standardization of blood culturing based on volume weight and getting two sites, preferably one from venipuncture?”

Deborah Hobson: Hi, this is Debbie. Yes, we do have a standard policy for blood culture draws. It is, we fill the bottle with, what, 5 to 10 cc, 10 cc, and then also two different sites, and preferably venipuncture.

Charles Denham: Great, and Dana Wright asks whether it's more challenging to change the culture for compliance in the adult ICUs versus pediatric ICUs. And just to answer that quickly from the standpoint of the Safe Practices, we found that the children's hospitals appear to be much more attuned to culture change measurement and more dramatic performance improvement. But what has your experience been?

Chris Goeschel: Actually, this is Chris Goeschel and I can speak to that for a moment. We did not have – we only had one PICU in the Michigan project, but we have all of the PICUs in England in the English project and that very question was part of our discussion today. And the consensus here was the same thing that the PICU seemed to be much more in tune to culture change, much more in tune to speaking up into measurement. And part of that, and this is speculation, not evidence, is that the clinicians in PICUs, doctors and nurses, are accustomed to working together, perhaps more closely, to try and interpret what their pediatric patients often can't tell them. They're often in tune, to speaking together, in trying to make sure that family members understand what's going on. So, the pediatricians and the PICU nurses in England today seem to think that part of their edge, and they agreed they had an edge, is because, from day one, they've got a different population to deal with and have always tried to be on the same page.

Charles Denham: Great. Carla Nelson asks, “Is Johns Hopkins using the chlorhexidine wipes on their ICU patients?”

Melinda Sawyer: So, that's a great question and very timely. Although all the work we've done to this point, including getting our bloodstream infection rate, as you heard Deb say, for the units some of them getting up to 86 weeks without a bloodstream infection, up to that – up to now we have never used any chlorhexidine patch, any wipes. However, due to some new recommendations that are hopefully, we noted when they were up for comment by the CDC for the new guidelines, we saw that – the institution saw that chlorhexidine wipes [were] on there. And we have started just this past month in February in one of our ICUs and we will be rolling out chlorhexidine wipes to all of the ICUs within the next six months.

Charles Denham: Great. We're hearing – a question that I have is that we're hearing more dialogue regarding the mixtures of chlorhexidine versus iodine mixed with alcohol with surgical-site infections, and that a lot of folks are starting to see that alcohol is maybe a more important agent than we has thought previously. Can you all react to that and are there any studies that we can watch for that could run comparisons of some of the mixtures with alcohol?

Deborah Hobson: This is Debbie. Go ahead, Chris.

Chris Goeschel: I was just going to have to be honest. I am not aware of it, but one of the wonderful things that we have on our website is a direct link to the CDC and we actually talk with our CDC colleagues about every other week. So I have just jotted that question down. They tend to be on the forefront of some of that, so I'll certainly ask and get the response back to you.

Charles Denham: Right, that'd be great. Mary Blanco asks, what is your cleaning procedure for nurses accessing a central-line port?

Melinda Sawyer: So we use – if you're just accessing the clave, so hooking up either, you know, drawing blood or hooking up a syringe or some sort of IV fluid, then the practice is to scrub the hub for 15 seconds. Now, it can either be with alcohol or chlorhexidine. I can tell you that at our hospital the majority of nurses are using alcohol wipes, only because it's easier to carry them around in your pocket. We don't have the same kind of chlorhexidine wipes in that size at our institution yet.

Charles Denham: Another participant asks, “How long do you leave a TLC in place?”

Melinda Sawyer: I'm not really sure what a TLC is.

Charles Denham: I wonder whether he meant maybe a CTL? Richard, if you can ask in more detail – that's just asking, “How long would you leave a line [in] place?” Maybe you want to answer that?

We'll move to Mary Blanco: “Is everyone using the bio patch?”

Deborah Hobson: No, at Johns Hopkins we do not use the bio patch. In doing this work nationally, we ask teams before they get started, “Are you using the bio patch?” And we have found a large majority are not. There are definitely a large amount of hospitals that are using it, but I would not say that most are using it. That is not – that is not correct.

Charles Denham: Kim Moja asks, “During surgery we instill a portacath, central venous lines. If the first attempt on the left side, and I guess it does not work, we will move to the right side. Should we use an all-new portacath kit, or just a new introducer and reuse the portacath line?”

Chris Goeschel: Boy, that's another great question. This is Chris and I am not the expert. I mean, I know what my gut would say, but you didn't ask what my gut tells me. We want to know what the recommendation is and I don't know but I'll find out.

We've got three minutes left. Another participant asks, "For surgical patients, where and by whom are the central lines placed? For example, the OR by the anesthesiology team, in a separate procedure room by someone else?"

Deborah Hobson: Hi, this is Debbie. Here at Hopkins, for surgical patients going to the OR, it is definitely anesthesiologists and sometimes in the induction room outside the OR. But as far as in all of our surgical ICUs, it could be either anesthesiologists or surgical or anesthesia residents, because we have both in our ICUs.

Charles Denham: Great. And Patricia Hennessey asks, "As a result of the Hopkins study, catheter duration and risk of central-line infections in neonates with peds, did Hopkins adopt a specified time to change catheters routinely?"

Deborah Hobson: You know, this is Debbie. I know the policy for the adults, and I'm sorry – you know, you could send that to me and I could look it up for peds, but I don't know if their policy is any different than ours for the adults.

Charles Denham: Before we wrap up, are there any questions that are frequently-asked questions that you all feel that we might not have asked, for which you'd love to get some answers out to the broader population? We've still got close to 650 phone lines, and that's about three or four people per line, so we've got a significant group that are quiet regarding questions. Are there any FAQs that you all typically feel that might be helpful for us if we put them in the transcripts?

Chris Goeschel: This is Chris, and I will expect Deb and Melinda to jump in. I think we've covered some of the things. I think that in our experience, certainly in Michigan and in work that we're now doing across the U.S. and in other countries, we can't overestimate the importance of a cultural change. And that isn't quick. And so we begin to look for the quick fixes, such as the bio patch or the chlorhexidine wipes, and all of those things play a purpose. I'm not trying to downplay them, but we constantly struggle with people saying, "Let's just get to zero. If we go two months and we don't have an infection, let's move on to the next problem."

This is a lifetime of work and I think it's important as you go down this path to understand that the whole embed piece, tapping it into competency, having it become the way you do your work is going to be important, but we are human and there will occasionally be infections. In Michigan and in Hopkins, the thing that has changed that didn't come up is that, when I was at the bedside and we had an infection, it was pretty much inevitable. We had really sick people and really complicated cases. And now when there's an infection, staff take it personally and it gets investigated from beginning to end, and we don't always come up with the causative factors, but quite often we do, and we've missed a step or something got bypassed that we thought was just embedded in the way everybody did their work. So I would encourage the teams that are listening to hold on to that persistence-of-culture piece and understand that every infection needs to be treated as though it were preventable and investigated as though someone's life depended on it, because, in fact, they do.

Charles Denham: This is a pattern that we are – and we have 3,100 hospitals in our test bed. And what you just articulated we hear constantly, and it's very, very easy to let things go just slightly, and then all of a sudden there's a big surprise. The culture is a vigilant activity and I'm so glad that you brought that up, because we see that across the board. And that is why the Safe Practice No. 1, which we're not addressing today, is one that is so heavily weighted by those that measure adoption, because it's just absolutely critical.

Do any of the other folks on the line – Denise, anything that you'd like to offer before we turn things over to Patti O'Regan to express the wishes of patients and families?

All right, well, this has been wonderful. Thank you very much for the great questions and the great answers and we will take the list of questions that may not have been covered and make sure that we have them as part of the transcript. I know Kathy has already had to take her flight. It was great that APIC

was represented on short notice. I know Peter is enjoying himself in Puerto Rico, and so I thank him for at least making an attempt. And you all have been just fabulous; panelists, thank you – Deborah and Melinda, Denise, Kathy – really, really great. Patti, would you like to close us with an expression of support from the patients and family advocates that are part of our team?

Patti O'Regan: Yeah, thank you, Chuck. And I'd like to thank everybody on this call as well. The panel and the questions were just excellent. One of the – I'd like to state two things, basically. One is a response to what Chris and some of the others said on the phone earlier today relating to the challenges that are inherent in collecting meaningful data. And, what I'd like to share with you, some of you probably are aware of this and others may not be. And Chuck, I can send this to you, if you don't have it, and we can put it up on the TMIT site.

There was a report that was released by the Office of the Inspector General of our Health and Human Services within the past two weeks, and the title of the report is *Adverse Events in Hospitals: Methods for Identifying Events*. And there are some very startling statistics in there in terms of measurement, and the difficulties of measuring, and sometimes thinking we're measuring something and we're actually not. So I'd like to at least get that on the website so that anyone that wants to read it will have a little better update on some of those measurement tools, or methods I should say, that are actually the best ones right now in hospitals in terms of the outcomes.

So beyond that, what I'd like to say from the patients and families out there, we want to be part of the community, the healthcare community. And I am part of the healthcare community as a nurse practitioner, someone who lost their loved one during the first year of nurse practitioner's school. And my life was changed dramatically, not only as a professional in the field but personally. And those changes I don't consider good changes necessarily, but you always take the opportunity to try to make the best out of whatever events occur. So I'd like to, as a patient advocate and representing those on the patient advocate team of TMIT and the other advocates out there, to just say that bring us – bring us on your team. We have – the patients and families are one of the greatest resources out there for healthcare providers, for hospitals. There's information that can be collected from us that only we can give, and if you bring us in as a genuine part of the team to do some of the work that you folks have all been talking about today, then you know, we just have a more rich database of information and can develop better methods for trying to get at those outcomes that we all want, the successful outcomes.

So, Chuck, thank you so much for being the host for this, and everybody on the phone call, thank you all.

Charles Denham: And so we'd just like to thank Hayley Burgess for helping coordinate all the development of the program and Kyle Kemp and the team at TMIT for their support. Again, thanks to the panelists and thank you all for participating. Watch the website in the next three or four days and you'll see the transcripts and further assets. Thank you very much and this brings us to the close of today's webinar.

Below are questions that went unanswered during webinar due to time constraints and have been added to transcript after the fact.

QUESTIONS (Answered by Deborah Hobson):

Q: As a result of the Hopkins Study "Catheter Duration and Risk of CLA-BSI in Neonates with PICCS"- did Hopkins adopt a specified time to change catheters routinely?

A: No we do not have a routine time frame, we change and culture with any signs of infection.

Q: Advice for reduction of line utilization and reduction of femoral lines appreciated. thank you. Best advice: use Daily Goals and ask every day-Does the patient need the central line ? And if so can we move it to another site-is pt hemodynamically stable to do the procedure?

A: Be the patient's advocate for a better site that is will decrease their chance of getting an infection!

Q: What's your protocol for site dressings and are you following guidelines when cleansing port prior to access?

A: We standardized the type of dressing we use- transparent. Our protocol for dressing change is 7 days or earlier if it becomes non occlusive. We clean ports with alcohol prior to accessing—and YES I feel we are following these guidelines.

Q: Do we need to use chlorhexidine patch to reduce BSI?

A: We do not use the chlorhexidine patch at this time only chloraprep for insertion.

Q: Do you use chlorhexidene for line access?

A: No, alcohol wipes.

Q: Where can we get the training video?

A: Training video for providers or nurses??

Q: Are the number of CLAB represented in the 1.3 sustaining rate helpful to use for goal to further reduce rate?

A: I don't know exactly what you mean by the 1.3 sustaining but our goal is to ELIMINATE CLAB and many of our units have gone over 1 year in doing this. We compete with each other in our weekly report of harm by seeing which ICU has gone the longest without a CLABSI

Q: What do you investigate with a line infection?

A: We pull the completed checklist at time of insertion and see if there was a breach in sterility that was corrected, we look at daily site documentation, we look at overall patient course and see if maybe we could have dced line sooner , and of course we look at all co-morbidities.

Q: Does anyone limit blood draws from central lines?

A: We do not limit blood draws but do **suggest** that if possible group blood draws together and do peripheral sticks if needed to draw from more than 2x daily.

Q: Are you currently or do you plan on using CHG wipes to wipe off ports instead of alcohol before injections?

A: We are not using chlorhexidine wipes to access ports – still using alcohol wipes. However, we are considering doing chlorhexidine baths on all our ICU patients.

QUESTIONS (Answered by Melinda Sawyer):

Q: Are you currently or do you plan on using CHG wipes to wipe off ports instead of alcohol before injections?

A: We do not currently use CHG to clean central line ports, we use alcohol. The current guidelines state that either can be used.

Q: We had one CLABSI secondary to a PermaCath and none from other types of lines. Is there anything else we can do to prevent CLABSI from dialysis catheters?

A: That is difficult to answer because I don't know what you currently do to prevent these infections. I would recommend collaborating with your Infection Preventionists to identify areas of improvement and/or try to identify if anything did not occur that should have with regard to your one dialysis catheter infection.

Q: Can we get a copy of the daily checklist used in the ICU's to get lines out?

A: We have provided a copy of our Daily Goals worksheet on our website, www.safercare.net. From the homepage select the "resources" tab. It is Appendix K of our CLABSI toolkit. If you would like to be a part of our national project, please contact your state hospital association or email onthecuspstophai@aha.org.

Q: I know arterial lines are not considered central lines but nurses send me patients with art lines to be counted toward device day data. Please verify for me that I should not count arterial lines in my data please. Thank you.

A: Please contact your infection control practitioners for specific guidelines on what devices to count and not to count. These are specified in the NSNS Definitions and the NHSN manual if you are a hospital that reports to NHSN. A copy of the manual can be found on our website, www.safercare.net. From the home page select the "resources" tab. It is Appendix C & D of the CLABSI toolkit. If you would like to be a part of our national project, please contact your state hospital association or email onthecuspstophai@aha.org.

Q: What do you do to limit femoral access lines and do you have a policy that limits length a femoral line can remain in place?

A: Providers who are trained to insert central lines are given education and training on the evidence which supports avoiding the femoral line. We do not have a policy that limits the length a femoral line can remain in place. If any central line is placed in an "emergency" then we attempt to remove the line within 24-48 hours once new access is secured.

Q: Does anyone have daily checklist part of the permanent record?

A: We do not currently include the daily goals checklist as part of the medical record but I am unsure of how other institutions handle this.

Q: If we are members, where can we find this disk?

A: I am unable to answer this question as I don't know what "the disk" is that is being referred to in this question.

Q: For CIBSI classification - Is it acceptable to use only central line drawn blood cultures or should only peripherally drawn BC be used or a combination?

A: The recommendation is that peripherally drawn cultures be used. If there is a situation when the providers are not able to draw peripheral then other policies should be made to guide providers with acceptable practice recommendations.

Q: NHSH guidelines do not recommend drawing blood from Central lines? Does your hospital draw cultures from Central lines?

A: We do not routinely draw blood culture from central lines. The recommendation is that peripherally drawn cultures be used. In cases when the provider is not able to draw peripheral cultures then we have a policy in place that guides providers with acceptable recommendations.

Q: Are central line access ports changed after blood draws?

A: We do not routinely change access ports after routine blood draws. At Johns Hopkins, we change the ports every 96 hours and prn before blood cultures are drawn.

Q: Do you consider a PICC a central line?

A: Yes, a PICC line is a central line.

Q: What type of connectors do you recommend?

A: We do not recommend any specific type of connector. Your institution should assess the risks, benefits, and education requirements regarding proper use of the connectors that you are considering.

Q: Please email or post protocols for dressing changes and maintenance of central lines.

A: Dressing change protocols are available on our national project website at www.safercare.net. From the homepage, select "resources." It is Appendix I of our CLABSI toolkit.

Maintenance of our central line policy is also available on our national project website at www.safercare.net. Under resources, please see Appendix H of our CLABSI toolkit.
