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"How a Simple Checklist can Dramatically Reduce Medical Errors"

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Peter Pronovost

OPERATOR:

Good afternoon and welcome to the IHI How a Simple Checklist Can Dramatically Reduce Errors Conference Call. All participants will be in listen only mode. There will be an opportunity for you to ask questions at the end of the today's presentation. An operator will give instructions on how to ask your questions at that time. If you should need assistance during the conference please signal an operator by pressing star then zero on your touchtone phone. Please note this conference is being recorded. Now, I would like to turn the conference over to Dr. Peter Pronovost.

PETER PRONOVOST:

Hello everybody, and thanks for being with us today. I want to share with you a bit about how we came to think about this checklist idea and how it might be applied in your world and then quickly go into what really dramatic results we saw when using this and now several states and hopefully several wards and several countries.

As you all know, we don't translate evidence into practice very well indeed about half of the time patients in this country can count and getting the evidence that they are supposed to and the reasons for doing that are complicated, but really boiling it down to brass tacks there are a couple of reasons. #1 that our way of summarizing evidence in is typically in the form of a guideline which are, you know, 100 to 300 page documents that may have scores of conditional probabilities or if then statements that nobody really knows what to do there. They're ambiguous to what's most important for whom. And so the checklist offers a way to summarize the key points of these guidelines into a very manageable and importantly behaviorally specific set of output. We develop this, gosh, must have been eight or so years ago after some piloting work with folks and I joined the VHA and our team at Hopkins but essentially what we did we took this over a 100 page guidelines from the CDC on how to prevent infections and boil that down to five behaviors.

Wash your hands; clean your skin with chlorhexidine. Avoid the femoral side; useful pair of precautions and take out lines if you don't need them. Now I wish I can say we were more systematic. We are working on it now on how we picked those five elements but at the time it was...it was really and ICU physician and safety researchers, so we went through and said okay, which items in this guideline have the biggest treatment effect that is the lowest number needed to treat if those of you who are into epidemiology can have the lowest barrier to use and we rated those and this is what we came up with. But we recognize that getting checklist in...it just produces but not likely lead to behavior change, we have a...they probably no different then, just making the guidelines. So we coupled using this with some tools for teamwork and the behavior change. The program that we used to improve culture and teamwork is called CUSP, the Comprehensive Unit-Based Safety Program, but basically introduces things like the daily goals, that tries to get nurses and doctors to work together and we like the value of them working together on a team.

And then importantly we gave feedback with valid measures of what infection rates are. Now in this case we use the CDC definition and most hospitals have infrastructure to measure that. In our large Michigan work we...the hospitals collected that we didn't monitor rates of adherence to the checklist because doing so was just beyond the means of the resources that we have. So, we went with a good outcome measure, teams got feedback every month on that and we put it into a holistic and the principles that we used are really simple principles of safe design that we borrowed from a lot of industries but are simplified for healthcare and they are standardized what you do to create checklists for things that are important and learn when things go wrong.

So, we, like many of you may have created a line card, said okay, what equipment do you need to comply with these bare precautions and we took eight steps that is doctor had to go to one place to get a cap, one place to get a mask and another place to get it gown...gown, half the time they weren't stores so they skipped the step, took it down to one and said here's all the equipment you need to do a line. Hospitals now let's find a place where you can have this store it in one place.

Second principle of this checklist we created now, ironically everybody agreed on the evidence. There was these things are kind of indisputable, they've been known for years for quite robust evidence but was...was the barrier in this use was the culture barriers between doctors and nurses and so we...we first tried at the John Hopkins. I asked nurses to use the checklists to ensure that doctors comply with these steps and if they don't the nurses were empowered to stop take offs that if they can make someone go back and fix the defect and you would have thought I was causing World War III. When I said it the nurses rolled their eyes and said, "you know, Peter my job is not to please the doctor and if I do I'm going to get my head bit off"; and the doc said, "Hey Peter there's no way a nurse can sack and catch me in public makes me look like I don't know something." to which I say, "welcome to the human race we all don't".

But ironically, there was no debate about the evidence. It was just this political issue. So I pulled everyone together and said is it tenable that we harm people here. And of course everyone says no and I see well then with that commitment come some responsibility so nurses how could you see someone not wash their hands and just sit there. We can't afford to do that anymore. You have to speak up, but at the same time I don't want to get hung out to dry so docs let me be really clear, the nurses are going to use the checklist and if they, unless it's an emergency and you are going to go back and fix any defects if they see them, but this isn't about hierarchy or...or second guessing it's about us having an obligation to make sure every patient all the time receives these evidence based interventions and remarkably when it was framed with the patient as you know it start conflict melted away and we nearly eliminated these infections.

Now, we also had them as our third triangle of that safe design. They had every infection, they had a view as if it was preventable as they had to investigate it, find out what went wrong if anything, because well, most of these are preventable, man everyone was but it changed the mental models of saying, these infections are the cost of doing business to these infections are something that we could to a large extent prevent.

We went on such an exiting project that was published in the New England Journal where we put this in the whole state of Michigan we nearly eliminated these infections over a two year period and we just finished analyzing our four year file updates. It's not published yet but the results stated exactly the same the meaning and the state was zero. It was just breath taking. The Adventist Health System just replicated this and several other states are, so the principles for you I think are to say what strategies that are going to be used to translate evidence into practice. The conceptual models that underlies this, we just recently published and I think it was the two weeks ago BMJ, it's free full text online, so you should be able to get it. But, we basically want to say lets find out what are the behaviors that we want that we evidence based. So, make the checklist, find out what those barriers are to using those behaviors by walking the process and observing someone trying to do it.

Develop some measures for feedback of whether if it's going to work and those can either be process or using the checklist or outcome as obviously much preferred if it's indeed feasible and valid and then make sure every patient gets this evidence based interventions and this case we use this model that...a very simple model that we call the Four Es' it says engage people with stories and their baseline performance. Educate them explicitly on what needs to be done. Execute where they all own this locally they say okay, what do I need to do to make this happen in my culture with our resources and then evaluate and we've seen this coupling of technical work that is the Science of measurement and the evidence that is often best centralized because its too inefficient of every hospital to do it themselves.

With the local adaptive leadership of how do I take this and fit it to my culture, seems to be a great progressive piece for some really dramatic transformations. So, that's the story that I want to share with you and I know we'll have plenty of time for some discussion get your questions out there.

DANA SCHEER:

Thank you Dr. Pronovost my name is Dana Scheer (Ph) and I'm the moderator for today's call. I'm a third year M.Sc. entry level nursing student at the Massachusetts General Hospital Institute Of Health Professions in Boston, Massachusetts. I'm also a newly licensed registered nurse and this spring I hope to graduate as a an Acute Caring Nurse Practitioner and I'm thrilled to be moderating this call today and Dr. Pronovost you have really touched on a lot of highlights for people who are already working within the healthcare industry, but as student I'm curious as to how it is that we can feel also empowered to make change and to implement some of these best practices to actually to ensure that we do no harm and to also improve patient care.

PETER PRONOVOST:

Yeah, that's a great point and quite frankly we're not going to make much progress without empowering our students and mainly of the younger generations coming along because what we see is that you being technically good, which is the most of the skill as you get in your nursing school or medical school or pharmacy skills frankly isn't enough that you need to develop lenses of saying how do I create a healthcare system that delivers what it's supposed to at the right time and hopefully within reasonable cost and you have an obligation to try to save not just giving the patient the right drug or doing the right thing for them but working to create a system that works and one really practical way I would say is think about creating one checklist for something you do or standardizing one piece of work that you do, it could say okay, we're going to make an insulin protocol and standardize it or we're going to make a checklist for the way we monitor anti-coagulants, but what you will see is that and I virtually guarantee you this that the healthcare community will welcome your enthusiasm and passion because there's a growing recognition that we have to create systems that provide standardized care for all of our patients, but it takes efforts and resources to go from, you know, an existing guidelines that maybe thirty pages to something that's practical and useable at the bedside and you are often trying to find what I call that sweet spot between being scientifically sound and feasible and it's not easy to hit all the time. But as students you often have much more time than some of your more senior people who are over committed and are doing a bunch of things, to really begin and say, hey I just made this guidelines or I just did this checklist. I want to think what you thought about, let's just trying it out on some of our patients.

DANA SCHEER:

Well, I actually have a story that actually kind of illustrates that what is it that you are talking about and with some of the challenges as students we face and then we really about a breakdown in communication and I guess if you could actually apply your thoughts, about the checklist, to the situation I think it would be really helpful for students and perhaps the other people are on the call too as well in terms of

the taking that some information just put into the front lines tomorrow. Right, isn't that the IHI model of put it into play tomorrow. So anyway, the patients that I was caring for I just felt powerless as a student to intervene on the half of my patient. So I would like to hear your thoughts and I was actually in my second medical surgical clinical rotation and for the very first time I was going to be administering medication and as nursing students you likely know that this is a prior to our clinical were assigned to patient and then a homework for understand the pathophysiology of their guidance as a second disease were to develop plan of care and then research all of the information on the meds that we're going to give.

My particular patient this day was a bit complicated. She had this very rare tumor, English was her second language and she was also heavily medicated for post surgical pain and in a few days earlier to my caring for her she had spiked attempt and you know, had become sort of bed bound at that point and she had heparin an zolsane added to her IV medication list. So on the day of my clinical during my initial bedside assessment I noticed was kind of seemed to be a rash on her upper body and in getting her vitals, I noticed that her temperature was again elevated despite being on antibiotics for the past few days and I was worried that she was developing HIT or Heparin Induced Thrombocytopenia for our non-medical people on the call or maybe she even had an allergy to be antibiotic and you know so well from studies I know it was weird that this could happen I was still concerned and because of the complicated case she was also covered by a number of different specialties within the hospital. There was oncology, there was Medsurge, there was endocrine, there was dermatology, there was infectious disease and pedia care, all of them surrounded on her during the morning that I was with her.

I introduced myself to each of the different providers as a student nurse and then share my concern about the rash and temperature and as soon as I shared my status as a student, I really was really summarily dismissed by each of the physicians and made to feel pretty inconsequential about what I was doing, until finally my Prefect rallied to my defense, pressured the medical team to work her up for HIT three hours later. She did indeed have HIT and heparin hysterectomy appropriate care delivered but, I guess, how could I have better advocated for the patient and what advice would you give to students who may face these type of challenges or who are looking to improve patient care and outcomes and what could you give them at the bedside to be that?

PETER PRONOVOST:

Boy, that is a great, great story and it shows what an important role each of you have or each of us have in making care safe. I want to answer that in two parts. I want to first outline; when I teach the science of safety. When I think about the science of safety or I actually teach it to our medical students, or residents, or nursing students; there are four key points that I want to make, some of which I have covered in my talk, but let me just run through them briefly.

The first is, every system is designed to achieve the result it gets and all of the IHI students know that is idea works as part of the system. Two, as I have them understand some, what I call the basic principles of safe design and that is standardize when you could, create independent checks or checklist and learn when things go wrong. The third thing is to recognize that those principles of safe design don't just apply to our technical work but they apply to our team work.

So, structured ways of communication like the daily goals, like ESPAR, like AM briefings are very helpful and last thing which used to elegantly get recognize is to realize that teams make wise decisions when there's diverse and independent input, right. Unfortunately, my tribe, the physician tribe, has often failed to realize that. And the evidence is overwhelming and so often it is viewed as a threat to my autonomy when really it's just a way to enhance my efficiency and my effectiveness. So, recognizing that getting inputs from a nursing student just adds another lens for me and hopefully, I will end up making wiser decisions for patients with that lens. So, what do you? Well one, may be practical strategy that I use when I have issues like this with other physicians in particular I work in a cardiac surgical ICU and nothing against cardiac surgeons, but they often have pretty big egos.

So, one of the strategies that I always use when I communicate with them is, I say "could you help me understand how you are seeing the risks and benefits for this patient?" Because the way I say it, I may be wrong they have HIT, but it is the blood test that's going to take, you know, cost a couple of bucks and a few things; but, you know, if I am right and if we keep giving them Heparin, we could really hurt this patient. So, I may be not seeing something that you are also, so you also help me understand that, and that kind of approach where you are seeking to understand what their mental models are, what worlds they are using are really kind of trying to bring from the unconscious, which it often is conscious of how they are weighing the risks and benefits, because if you do that I can't imagine you would say, well, I guess you are right, so, if you are wrong, we spend some money for a HIT test, big deal, but, if I am wrong and I keep giving this lady Heparin. Boy! we can kill her, right she could have DBT, she can thromboses, her balance, A lot of bad things that could happen to her and so, did you at all any strategy, or have you ever tried the strategies of saying "please help me understand the world as you are seeing it because, the way I see it, this is how I am viewing the risks and benefits.

DANA SCHEER:

You know, I think that's a great strategy and I am actually wishing that I could send myself back a year ago to actually place myself there with actually place myself there with each one of those care providers to listen to what it is they would have said had I asked the question that way. Unfortunately, I was a new nursing student and was a little unsure on my feet in front of the people, who I felt had greater knowledge and greater insight into what was the appropriate thing going on there but that being said, is that one of the things that they also teach us in medical school, I mean, in our nursing school, and I am sure, you learn the same thing in medical school is that look at the evidence, but then, what does your gut tell you? And my gut was telling me that something was wrong with my patient and I should

have been more forceful in asking the question: “Could you help me understand that?”

PETER PRONOVOST:

Yeah, and you know, I mean, I think this strategies are too prominent, we have an unfortunate culture in health care that we are moving from a very autonomous physician decision making to a shared decision making model. Shared decisions with both patients, but also with other members of the care team and as an institution, we are at varying degrees of acceptance of that, so, part of it is that we have to make sure that we train our clinicians about the need to have broad team based input into decision making. At the same point, you have to realize that your part of the solution and it’s going to be uncomfortable saying these things but, you know, the reality is, you are an advocate for the patient you have an obligation and we need you to, have those uncomfortable conversations because, the reality is, it’s likely to happen only once.

Let me give you one quick anecdote and I, you know, am very pro teamwork and pro nursing and every day, not every day, but typically once a week, when I am rounds, I have a random person chosen as the observer to give a feedback on how effective communication is with that team. I typically on one or two patients and it is really a powerful, powerful thing. It’s a one day the observer happens to be a nursing student, she was in third year and we were presenting rounding the ICU. The resident walked up in the rounds and stood in front of the bedside, nurse which I was frankly oblivious to. The resident presented his patient and the nurse didn’t say a word. And, we were kind of saying “Oh, you know, okay we did our daily goals, isn’t that great.” And it was this student nurse who spoke up and said, “Well, let me tell you what I observed. I observed this nurse, who was speaking before the resident kind of walked in and stood in front of her and with no mal intent, walked her off and she shut up and did not say another word and what if she knew something?” And so, of course I said “well, you know, did you have concerns or you wanted to raise and of course they are really vital things.” But I didn’t even have a lens, I mean, this egregious social interaction, you know, where someone stood in front of someone, it’s probably so common, I am just...I am numb to it on my radar screen, or at least I was then. Now, I am not. Now I am, you know, really cautious about the way we stand. So, I think, that nursing student, she is my perspective. As a perspective that of the whole team forever. So, these little advocations that you are speaking up could have profound impact not just that patient but the way other clinicians view medicine and really help to drive this culture change that is so needed.

DANA SCHEER:

Fantastic! Dr. Pronovost, you have totally inspired me. So, at this particular point, I am sure you have inspired other people, so let’s open the phone lines. We’d like to hear from the students first. So, if you are not a student, please wait two or three minutes before you call in and Ryan, if you are there, would you please remind everyone how ask a question?

OPERATOR: Yes, at this time if you would like to ask a question, please press star then one on a touchtone phone. You'll hear a tone to confirm that you have entered the list. If you decide you want to withdraw your question, please star then two to remove yourself from the list. We'll now pause till participants enter the question queue.

DANA SCHEER: And also you can email your questions to [oncall@ihi.org](mailto:oncall@ihi.org) and be sure to give us your first name, your school and the city and state. And while we are waiting for everyone to enter the queue, I am going to turn it over to Deepa Ranganathan, who has a few brief announcements.

DEEPA RANGANATHAN: Great, my name is Deepa and I am, I work with IHI Open School. This call today is sponsored by IHI Open School for Health Professions, which is a new initiative from the Institute for Health Care Improvement that features a global chapter network and online courses on patient safety and quality improvement. The IHI Open School is funded by the generous part of the RX Foundation and Kaiser Permanente Community Benefit. If you want to know more, you can visit [IHI.org/openschool](http://IHI.org/openschool) for more information.

Other quick point, the call is being recorded and will be posted both on the IHI Open School website and on iTunes afterwards and a couple of things are coming up. These are really great events for students. So, the first is, please register for IHI's 20<sup>th</sup> Annual National Forum Nashville, Tennessee from December 8 to 11. There are full scholarships for students. So, it's free; and it's an opportunity to meet roughly 7000 people who care about improving healthcare including 200 students. So, you go to [IHI.org/openschool](http://IHI.org/openschool) and click on a link for 20<sup>th</sup> Annual Forum. I also urge you to take any course online in patient safety or quality improvement. It's a really easy way to get involved in the world of healthcare improvement that Dr. Pronovost is describing. So, you go there by clicking on the courses tab on Open School site and finally Dr. Pronovost referenced a few articles in his talk. If you want to actually go and see those and some of the full text is available, go to [IHI.org/openschool](http://IHI.org/openschool) and click on the calendars tab and there you can find links to the articles. Thanks a lot. That's it from me.

DANA SCHEER: Thank you Deepa. Okay, Ryan let's hear from our first caller.

OPERATOR: Okay. Our first question comes from Andrea Pitkus.

ANDREA PITKUS: Hi, I'm a student from the University of Minnesota in Health Informatics and also working College of American Pathologists my question is regarding paper or electronic checklist and would you implemented as part of your projects and what are the different main considerations for each?

PETER PRONOVOST: Ah, great, great questions. So, we started with a paper checklist and like most improvement projects, it's probably better to start with paper, because they change so rapidly and often the issue is less technology and more understanding your work processes, but I will share with you what I am working now or maybe you'll have a project to work on. When I think about the need to make these checklists or standardized care, you know, in the ICT9 book there are those 15,000

different types of diagnoses and about 5000 procedures and if we're going to go one at a time summarizing evidence and keeping up with the evidence, we are going to be at this an awful long time. So, the vision or one of those things that I am working on now and not an informatics, I mean I am health service researcher and physician. But, is to make a checklist maker, so to do the plumbing to say how do I tap into wisdom of the community both empiric and placid knowledge to say, hey, if you had a pick five things to treat diabetes with what would they be and make that publicly available to the community and that, I think, is where information technology is going to help us dramatically, because they are scalable. And secondly, as we develop these checklists they have one on paper it's great. You have two people who are whining about a lot of sheets of paper. You have three and you are dead, because they can't manage it. Right, so now we are building these into our EMRs and Electronic Medical Records and so, I think piloting as paper and then somehow there's going to have to be a repository and, I think, a more robust way of tapping into this knowledge in the community to make checklist and to keep up with evidence because if you wait for systematic reviews to come out, you know, they come every three to five years. It's going to be too slow, this translation of evidence into practice.

ANDREA PITKUS:

Thank you

OPERATOR:

Our next question comes from Alejandro Montoya.

ALEJANDRO MONTOYA:

Hello, this is Alejandro from Tec De Monterrey. My question is, if are inpatients safety and healthcare improvement to the outer curriculum could improve one of the previous explanations of the New Yorker about why the checklist is not so common inside the hospitals?

PETER PRONOVOST:

Just make sure I have got your question, so, I'll paraphrase it, you could correct me. It sounds like what you said is that, could...if we had made some safety curriculum part of medical school and nursing school curriculums that might help explain the success we have with the New York Article, is that correct?

ALEJANDRO MONTOYA:

No, actually I was saying that if other school add their patient safety and healthcare improvement to their extra curriculum, it will reduce the egos of the physician because, there will be a trans generation of change between the physicians.

PETER PRONOVOST:

Yeah, I think, you are absolutely right, I mean, a big part, you know, if we spend a lot of effort here working on making sure our medical students and our nursing students get the science of quality and safety we can spend a lot of time about this evidence for their own liability, the evidence that teams make wise decisions, so you better listen to that nursing student. But perhaps one of the most powerful things we do is part of this curriculum is we match all of our medical students up to this particular course, as a second year course with nurses where they have to shadow a nurse for two to four hours and then write a report on what hazards they saw during the shadowing and how effective was communication between nurses and other members of the care team. And it transforms them, I mean,

they...because they haven't been on clinical yet so they come back from their saying, you know, I can't believe people who work together would actually treat each other like that or talk to each other like that. This is amazing why you know, how come there's not more collaboration, why there isn't more sharing and shared decision making and we follow this is probably our fifth year of teaching this now. We interview these students yearly to see if they still stay pure, do they get jaded and it turns out that they...that you know they still have this lens of teamwork and collaboration so I'm optimistic that folks like you are going to be working in a dramatically different place than I trained in and then I'm struggling a way trying to change now.

ALEJANDRO MONTOYA: Thank you.

OPERATOR: Again if you would like to ask a question please press star then one on your touchtone phone. Our next question comes from Lisa Lewis.

LISA LEWIS: Hello, I'm Lisa Lewis from Golden Colorado. I'm an Ob/Gyn getting my Masters in Public Health at Columbia and I just had a question about the evidence based therapies because especially for Ob/Gyn there isn't much evidence to base our therapy. What is the minimum amount of evidence that you would require?

PETER PRONOVOST: Great, great question Lisa and thanks for asking that. Let me say when I think of quality and safety, you know, we tend to think of it as all one big thing and have you know, often just one model to improve it and what I think the science is lending it say that there's different types of problems. So, there's one type of problem that I call translating evidence into practice that's what I shared with you about this checklist is with the model on the BMJ is about. And typically those are...what do I put in that bucket? Well, those are things for which there's empiric published evidence and intervention is typically at the level of the patient, you know, do this drug or slow your pick down to this or whatever the intervention may be. And those...there's pretty standardized ways of grading that type of evidence. Now the problem is that evidence is almost always incomplete, you know, one of the reasons why our guidelines stay at the 30,000 foot view is because there are no details in much of the evidence because you don't really know what to do. So they make guidelines typically stay a broad statements and I think that and unfortunate there, you know, people are uncomfortable making a statement when the evidence is incomplete, but the realty then is every practicing doc has to make that decision anyways. So if you have evidence great, if you don't have evidence then tapping into expert opinion and consensus is powerful, but we ought to be transparent about the strength of that evidence, the confidence with which that we are using it especially for translating evidence into practice,. I typically for those types of interventions stick to more robust evidence.

Now, the other type of problem what I would call investigating and mitigating hazards right and that's most of what we do this, in quality and safety. Those are things for which there's little or no empiric evidence, for which we'd right now likely to ever measure as a rate, there's just you know doing wrong side surgery,

well or you know giving an overdose of insulin. We typically there's not going to be a lot out there and we certainly are kind of measure rates of those things, so how much evidence do you need?

Well, the strategies to rate evidence for those types of interventions aren't developed yet. Luckily ARC just had a submission process which hopefully will get to create standards, but how do I think about it. Well, when I think about it is all of these things have risks and benefits and we want to be mindful of them. So that I...in these other things, say okay, what are the potential risks of both acting and not acting? What are the potential benefits of these and have I introduced new harms? What's the cost of doing this because we can't do everything and that's I think, then one of the issues in our global patients safety work, and isn't that benefit got to out weigh these risks. Now how do I think about this?

Well, if the risks are minimal, I think the evidence could be much weaker. What do I mean by that? So, taking out concentrated potassium from care units, right. You could reflect that but likely that that's going to cause some harm. Might it delay someone getting some potassium for, you know, for little bit time, I am sure. But overall it seems like that's a no brainier. So, having evidence above what I would the call the pathophysiologic level right much like we think it's just common sense that's probably enough. However, if the intervention has risks or is costly then I...my own belief is that you need a much more explicit framework for deciding on evidence, you know, when I look at, you know, most of the national organizations that are making safety goals or recommending safe practices, it's the been a synonym, it's done in the vacuum of the decision framework and that's a bit concerning to me. I think the debate about you know, do I need an RCT or not I think it misses the point for most organizational interventions you never going to have an RCT, and evidence doesn't mean an RCT in your opinion in hunch is evidence is just...it's a greater risk for bias, in my own view is we ought to use whatever available evidence we have and make those biases transparent, I mean, if the best evidence you have is hey, I think the concentrated potassium's likely do me more harm than good but it's really just a consensus of experts that's okay, we can still just say that's what it is and because I think the more transparent we are about how strong is evidences are not either pretend that its more or less than it is and having the medical care community or perhaps broader than medical communities, realizing that a definition of evidence needs to be broader than thinking you know RCT or not, but really there's all types of evidence experiences evidence, or tacit knowledge evidence, but some of it, you know, is potentially biased unless just use the best sets available and make clear how we're making these decisions.

LISA LEWIS: Okay, that's very helpful. Thank you.

OPERATOR: Our next question, yes.

LISA LEWIS: Oh, sorry I was just going to ask you if you had any more questions.

OPERATOR: Yes, we have one more question from Enrico Johnson.

ENRICO JOHNSON:

Hi, Dr. Pronovost I have a question. I'm senior nursing student at the University of Minnesota and I'm doing a Capstone Project on central line care and so I have read a lot about your research and other research and I was wondering what kind of advice you could give me for trying to implement this on my unit as a student nurse because it also involves physician practice, how could I implement some sort of checklist or guidelines, to improve practice?

PETER PRONOVOST:

Yes, so, I think, well boy what a great Capstone Project and the potential to impact you know in that model that I talked about translating evidence into practice, you know, just highlight for people. You know the first step is find the evidence that convert to behaviors. Second is find the barriers, third is measure performance and then fourth is put the evidence into practice using these four Es or engage educate, execute and evaluate. Those first three are already done for you. So, how will I approach this? Well, I would say, okay, you got to make sure that people are engaged in this, so you have to touch their hearts and their minds. So, well, I typically advice is get from your infection control which I know they have it, your current rate and infections. From your current rate of infections estimate how many preventable death that you have because of that and essentially we would roughly use about a 20% attributable mortality. So you can just say one in five of those people who have it likely died. Maybe find the story of the patient who had an infection so you can even make it more real and sit down what your leadership say in saying is this the best we can do and there maybe some push back and can say, well, you know, we're not certain how many of these are inevitable or preventable, but boy right next door was there was a whole state that nearly eliminated this.

So unless we are drinking some infected water here at Minnesota, I think where we like we can do this the same thing. And once you get them on board then use some of the tools kits that are available on our IHI website or other places. It's okay, well here what we got to do, lets develop a project plan, let's put this into place, work with the infection control staff and your ICU leadership too, make sure that you keep measuring and giving feedback about the rates of infections to all your staff because it far too many hospitals these data are, you know, really can strive to stay with infection controls staff and they are not probably share with the people who needed to improve. And use some of the strategies of saying let's make a line card lets put a checklist lets create a policy that nurses are empowered to checklist, to speak up so that they don't have to worry about the head bit off. And see you can do, I think the best strategy we've seen in doing these works and it is because, you know, many of us have jobs you busy clinically is to make a weekly task list and timeline. In other words when I approach these projects much like I do a research grant or any other project I'm managing, right, we form a team so you would have your ICU team and you in your infection control and hopefully doctors and nurses and just scope out okay, what does it take for us to get from where we are to eliminate these, right, what we need to educate staff. We have to make that we have seen videos on board, we have to get chlorhexidine and each week knock off the task or if you have more people a couple of task, but really

manage this in a methodical way so that at the end of your three months or six months or you have a year Capstone you really say, look our infection rates went from this to this and because one of the powerful things I mean it's funny is once you turn people on to the power of improvement, there is no going back I mean like, you know, for so many years the docs rejected quality and safety, you know, to some part, I mean, they were engaged, but to another part we served a sloppy stuff and called the quality and safety rate, we had pathetic measures, the evidence was not often good and what we've seen in Michigan is when you do it right. So, we, you know, hey here's what the checklist said it's pretty grounded in evidence. Here's the measure, we are using standardized CDC definitions we have really minimum missing data, you know, its...they believe the feedback that we gave them...that we had created masters there now they are both the docs and the nurses who may have been resisting things now say, hey what's the next program we can develop we really like this way but we're going to demand that it is done right. We're going to have at the end of the day a way to look patients in the eye and say we know you are safer if you're treated in this hospital or this clinic and here's how we know it.

ENRICO JOHNSON: Thank you very much. That's very helpful.

OPERATOR: Our next question comes from Bao To.

BAO TO: Hello doctor Pronovost my name Bao, I'm a Masters Student at the Health Systems at Georgia Institute of Technology. I have a question that is a little bit general because I do have plans to pursue medicine in the future and with all this discussion about the concept of teamwork to increase patient safety and quality. There's also a lot of discussion about the benefits about EMR and CPOE implementing into healthcare. So, I think the physician work, nowadays is being monitored more closely, which is probably not the case in the past where the doctor probably had more autonomy. So, with...in this face of all of this technology and all this discussion about evidence base practices, how do you foresee this practicing or the medical field being changed and what are the roles of the physicians in the 21<sup>st</sup> Century.

PETER PRONOVOST: Well, I was working earlier today and I commentary that I'm writing for Schema (Ph) on this exact topic. So, I think it's something I have reflected on. You know, there is a great book in the 70s by Eric Friedenson about medical professionals, and basically what the tenet was is that the medical professional view of professionalism is grounded in autonomy and all of this quality stuff and simply self policing is really confronting that. Now, I think, the field is struggling on how best to do that and hopefully if you guys will help me through this science because let me tell you what I see is what's happening. I see every corner, okay, people got the standardization and some people are more interested in cost cutting than quality, but you have pharmacy benefit managers saying what drugs you could prescribe. You have hospital managers saying you will do this or you will do that. You have a national guideline saying you do this. You have National Safety Goal saying you will do this and that and no doubt the need to standardize is good but

as a field we have been really sloppy, because, none of those have an explicit decision rule to say hey how much evidence do I need to do before I am going to trump your autonomy?

And absolutely medicine is grossly under-standardized, grossly under-standardized and we need to move to more standards, but we have to move wisely, because evidences always going to be incomplete and doc, who has known for someone for twenty years or just has that hunch to say, you know, I have seen this before, has wisdom that we don't want to lose it. So, we have to be cautious about how we move forward with dealing this and, I think, to large extent because that doc still fundamentally is the one who accepts the risk. You know, you don't typically, sue societies to make guidelines you have to sue individual physician.

So, I think, with EMR, you are spot on. Our organization like many of you screening physician for entry, because now I could actually look at docs did before I had no real way short of reviewing medical records by hand of seeing it. But those who are reflective are also seeing how much the science has to parallel this and, I think, in many senses we've, we are under-standardized in healthcare but we've way overreacted and everybody and their brother is standardizing and saying you can do this and you can do that and many of those things, I fear, aren't wise. You know, and I say that because if you look at, there is talk in our website that you can hear where I did the Safety Research [ghu.edu](http://ghu.edu).

What we have accomplished in the last ten years since a resume has been reported It's not very enviable, I mean, it looks like we improved use of process measures by about 2% or 1.5% a year and we don't really have a clue how much we improved outcomes because we don't really measure them and I think the need to invest in what I call the science of the delivery of care. I designed how do you measure this messy stuff and how do I have framework for saying when guidelines and net benefits going to be better than not having one. All have to be matured and there is no short cut, I mean this is going to demand as much scholarly work as the Human Genome did. And I have heard so many of you have said you are in masters or doctoral programs in the school of public health. I think, that is so needed and I think that, we are short facing safety without trivializing them to me we really boil down to our failure to view the delivery of healthcare as a science and science has been defined too myopically by researchers are only finding genes and finding drugs and in the community, kind of, less than clear focus on the demand for science, and I think, we or you have to bridge that gap. So that we make sure the patients get what the best evidence says and we view these things like how do you translate, I mean as a practice, how do I make a guideline for OB? How does a nursing student question as senior physician? How do we build teamwork in training programs? And we do that in a scholarly way and that's going to take a lot of continued learning and programs like this.

BAO TO:

Thank you very much.

OPERATOR: Our next question comes from David Willens.

DAVID WILLENS: Hello, thanks for taking my call. I am David Willens. I am an Internal Medicine Resident from Emory University and my question is as you just talked about we don't have a lot of data that's been collected on improved outcomes and what barriers and solutions have you in your experience come up with? With selling these kind of improvement project to the financial leadership of the organizations. Are there some studies that show cost effectiveness of some improvement projects?

PETER PRONOVOST: Yeah, that's a great, great question. There certainly are studies, but most of them are case serious, you know, I mean, one of the we have a large economic analysis going after Michigan, doing a journal paper to simply ask the question: "Are there cost savings, but more importantly, whose pocket do they stay in? Because when you interview CEOs they say, "Peter, I loved your project in Michigan, it's great, but you cost me money. All the savings went on to the insurers. And the insurers said, "Hey, you know, that's great but we passed all the savings on to the employers." And believe it or not, there's never been an economic analysis what I'd call follow the dollar. We say whose pocket does it stay in? And because we reviewed as neutral Switzerland we can order them to open their books. So, we are doing that economic evaluation now.

The trick then I see in this business case and it's something, it's kind of insidious is, there is no doubt when you do a project you can save some short-term money. But, most projects don't sustain themselves because haven't added the infrastructure to keep you with the data collection or intervention going and I wrote this, kind of, tongue-in-cheek paper a couple of months ago in a joint commission journal called "Paying the Piper the Safety Infrastructure Debt" where I simply just simply catalogued as we get our new eyes opened to all the stuff, all the new infrastructure that is needed, you know, at a patient care level, so nursing hours for patient day at a unit level for safety officers and at department level and at an institutional level to do this work in a real way.

So, when you look at the business case, you have to say, okay I did this project and typically most I have done with no marginal resources, that is, no new resources. What do I need to add to keep this sustained and there typically are some fixed cost that have to be put in. In the long run I have no doubt there is a business case. But healthcare has gone through the two decades of infrastructure cutting that there is...often needs new resources to do this work. Now, one of the best pools I'll give you in and these are the kind of things. One of the things I am convinced is, it's neither efficient nor effective for hospitals to do this technical work alone. What do I mean by that? Well, let me give you an example of something I worked out. Today is Joint commission Safety Goals for Anti coagulation ,right? Looking at half heparin, hospitals need to develop measures and systems to monitor that. Well, as you all know, or you are learning, developing measures takes, I mean, hundreds of hours, right? You have to get specifications right, you have to pilot test it, you have to see how good that the date is, it's crazy. But that's going on

alone. So, in my little small world I know Greg Meyer, who is the Executive V.P. of MGH and said “Hey Greg, you know, both of our hospitals are working on this. Why don’t we just get together and share what measures you are developing so we could begin to look at these together?” Another collaboration we are working with David Blumen (Ph) MGH looking at outcome measures for surgery in ICU and saying that this is ridiculous that we are going to try develop this alone. Let’s put our brains together and write specifications. We may have various systems to collect it but it is ridiculous that we don’t work together and agree on some common definitions of collecting these things because every hospital going alone is not going to work very well.

DAVID WILLENS:

Thank you.

DANA SCHEER:

Dr. Pronovost, a lot of thin lines, I we have a write-in question from Dr. Kevin Pigott and that was really, you know, you mentioned through that collaborative effort, but his question was really about the threat to the hospital because what about if they do that collaborative effort, they find out that they are not performing as well as they should or they were. So, how do you overcome people not wanting to do these type of studies and act upon the results because, because of that fear factor?

PETER PRONOVOST:

Boy, that’s a great, great question and not only will they, but they almost do, I mean, most people believe they are performing far better than they actually are, right. I mean, let me do a very quick example to you. When I talk about measurement, you know, answer these questions on a scale of one to five, where five is your very much above average and one is your below average. So below, five above and just keeping to yourself, how smart are you? How kind are you? How hard do you work? How tall are you? And how good is the quality of care that you do? And where are that you providing? When I asking audiences I then say how many of this one or two for any of the first three, smart, kind and hard working and there is nobody in the audience ever goes up. You know, I say, well you are deluding yourself, there is this thing called the Bell Curve, you know, a third of you were likely in that but, whatever percent, 25% are probably in there. But you don’t do that because it’s a socially desirable trait and tall is, just as socially desirable, right and our like even when election, you are likely to be president if you are taller. But we have a measurement system and how good is the quality is just like being smart and kind and hard working. We aren’t going to healthcare to hurt people, we intend to help people and so tireless we hurt people, boy, is this disconcerting to us and it challenges so deep in our core of what we went into healthcare for. And because we do not have good measurement, we delude ourselves.

So, part of this, you are absolutely right, has to be that courage to confront your current reality, right that great quote from Stockdale, General Stockdale explaining how he survived as a Vietnam prisoner is explained in Jim Collin’s book “From Good to Great”. Right, you have to, no doubt that you are a great organization, but you have the courage to, can say but, we are not doing so well on this. I think, if

done responsibly with that, no doubting your great but your current reality could be better. Most institution are going to buy into because they are fundamentally they are in this business to make care better. Now, does that mean you go publish these results the first day in the New York Times? You know, absolutely not, and let me give you one of the strategies that we are working on is, we are looking to put is Michigan program in many more states and we are trying to get insurers to help pay for it and consumer groups to make these rates public. But what we are brokering with the hospitals is to say “Okay, let’s we can look these infections, so you commit to work on this and join this collaboration and work for six months”. But you know, after six months the consumer are going to start to publish rates in infection and insurers are going to start paying for this as they should because we know we can eliminate most of these. So, you either have the choice to get on the bus and look good and be part of the solution or you can keep being an ostrich, but the reality is that the consumers demand for accountability is only going to go up and I think, most senior executives, nearly all senior executives get that. They just want to see the way forward and I think some of these collaborative offer that path. And they do so in a responsible and effective way.

DANA SCHEER:

Excellent! Well, that had to be the fastest hour of my life and I’m...hours too as well so listeners, for those of you who still have questions, you can continue the conversation on the Discussion Board at [IHI.org/openschool](http://IHI.org/openschool). I also have couple of other things to say. So please do tune in on January 27<sup>th</sup> for the next On-Call. It’s going to be with Dr. Patrick Lee, who is improving patient care in Rwanda. He’ll talk about the changing the way healthcare is delivered in a remote setting with very few resources. And I would like to thank everyone who called in today and give a special thank you to Dr. Peter Pronovost and my name is Dana Scheer for the IHI Open School and have a great evening everyone.

PETER PRONOVOST:

And thanks for listening to me, bye, bye.