Using Evidence to Improve Outcomes for the Surgical Patient: Post-Operative Interventions

Hello. Good morning, everybody, and welcome to the New York State Partnership For Patients SSI and OR safety educational webinar today. Today we’re going to be looking at how to use evidence to improve outcomes for the surgical patient and particularly focusing on the post-operative interventions.

So as you can see today we have a really wonderful packed agenda, but before we move on to the main presentation of the session, I’d just like to give a very high-level overview of where we are with the SSI activities so far.

So as many of you know who have tuned in to the program previously, this is the third part of a three-part series, really, on looking at interventions in the preoperative arena, inter-operative arena, and now the post-operative arena. Previously we’ve had webinars that looked at preoperative interventions and some of the recommendations are listed on training including preoperative admission assessment, preoperative bathing, diabetes medication assessment, and we’ve had a few hospitals from across the state talking about how they have implemented these processes or these interventions into the work flow at their hospitals. And we really encourage you to take advantage of the recording, so if you didn’t have a chance to tune in previously, these are the preoperative interventions and some of the inter-operative interventions that we’ve discussed including glucose monitoring and maintaining, adequate oxygen tension and normothermia.

Many of you probably know that there are reference materials available on the New York State Partnership For Patients website. We had Dr. (inaudible) Dillinger do a series of videos for us to look through some of the important and key pieces of the New York State Partnership For Patients surgical safety bundle. And we really encourage you to access those resources which are available on the Partnership For Patients website, and you can see a couple of screenshots on the screen in front of you right now.

The SSI calendar with upcoming webinar dates is now available for download from the New York State Partnership For Patients website, and you can see that the next program after today will be on Thursday, March twentieth, which will really tie together all of the interventions that we’ve gone through across the OR continuum, and we’ll have a hospital presenting on how they’ve implemented it and the challenges that they faced and how they overcame them. So we really hope that you tune in for the next session before we introduce the colon bundle that the NYSPFP is in the midst of finalizing.

A lot of you are asking why are we focusing on colon after we were looking at general OR safety for the first portion of – the first one to two years of New York State Partnership For Patients. And the reason is really this. If you look at the SSI rate for all four operations that we’re looking at, that’s colon surgery, cavage (sp), hip replacements, and hysterectomy, you can see that we actually have a 2.54% increase in
the SIR rates. And this is mainly attributable to an increase in colon surgery SSI rates, which is – and as
you can see, has actually increased by 25.66 since the very beginning in 2010.

Many hospitals have reached out after the last webinar presentation where Dr. David Caffrey (sp) very kindly went through the changes in the NHSN CDC definitions of colon surgery and ask, well, we have had a lot of changes, so what does that really mean across the country? And how does that effect – and how do we look as New York State compared to the rest of the country? And CMS has provided a chart for us so that we can see across the country since the NHSN changes in definitions which kicked in at the beginning of 2013, the SIR rate for colon surgery has actually increased, and it’s an increase of 15%. So there has been an increase across the country. However, even with the increases, unfortunately New York State colon surgery, the increase for New York State has been much higher than across the country. And you can see here that we’re sort of in the – unfortunately in the quadrant of this performance improvement chart where the increase in the SIR rate is one of the highest and other hospital engagement networks have also been focused on this and have actually managed to improve their SIR rates. So it can be done, and I think that with the instruction of colon bundles and some focused work over this next year, that we can move ourselves into the lower right quadrant where the arrow is and we can work to reduce the colon SIR, and I have great faith in our hospitals if we really engage in this work.

So just so that we know how rest of the other operations SIRs are doing, you can see that we’ve had wonderful decreases in the cavage SIR rate. And you can see it will say that we’ve had a great decrease in the hip replacements and hysterectomy SIR.

So, without further ado I think I’d like to turn over the presentation to get to what everyone’s been waiting for, really. As you saw from the agenda at the beginning, we will be having a keynote speaker, Dr. Rhee and her team from Mt. Sinai, who will go through the post-operative interventions. And we will meet (inaudible) a wonderful panel of speakers who will react to Dr. Rhee’s presentation. Dr. Feldman will be the moderator for the rest of the webinar and will help to move us through the panel discussion and the Q&A.

So I would like to just quickly introduce our panelists before I turn over the floor to Dr. Feldman, who will introduce Dr. Rhee. So Dr. Feldman is the Senior Vice President and Chief Medical Officer of Hospitals Insurance Company, which provides professional liability to hospitals, physicians and healthcare professionals throughout New York State. He is responsible for risk management activities and working in assisted programs aimed at improving patient safety and quality. Prior to this, Dr. Feldman was Vice President for Patient Safety and Vice President of Perioperative Services and Vice Chairman of the Department of Surgery at (inaudible) Medical Center in Brooklyn and has implemented numerous patient safety initiatives including the use of the WHA’s surgical checklist in addition to many others. He serves on the American College of Surgeons Committee for the Perioperative Care and as Vice Chairman of the ACS Collaborative Task Force for the Development of High Performance Teams In Surgery. He received a B.A. and an M.D. from Duke University and completed Plastic Surgery training at Duke University Medical Center and earned an M.B.A. from the NYU Stern School of Business, and is a Certified Physician Executive.
He will be joined today on the panel by Dr. Michael Timoney, who is a General and (inaudible) Surgeon at Lutheran Medical Center in Brooklyn, and he’s also the Vice Chair of Surgery for Quality Improvement. He has particular interest in hernia surgery and graduated from Columbia College before receiving his medical degree from Mt. Sinai. He underwent his General Surgical Residency at (inaudible) State, and his Minimally Invasive Surgical (inaudible) at Lutheran Medical Center. And he is also a participant of the Clinical Quality Fellowship Program, a quality improvement training program co-led by the Greater New York Hospital Association and the United Hospital Fund.

He will also be joined by (inaudible), who is the Director of Surgical Services at Hudson Valley Hospital Center. Her role includes oversight of ambulatory surgery, operating rooms and post-anesthesia care units. In her role, she has established training and practice implementation for staff in the central sterile processing department and she won the Press Ganey Guardian of Excellence Award for 2013.

Finally we have Ms. Denise (inaudible), who is the Director of Patient Safety at the Catholic Health System in Buffalo. And she is a Registered Respiratory Therapist and served as Director for Respiratory Care at Our Lady of Victory Hospital and Mercy Hospital. She has been a consultant Respiratory Therapist for basic services for 25 years, and she received her Associate Degree in Respiratory Care from Erie Community College and her Bachelor’s Degree in Business Administration from Buffalo State College.

So as you can see we do have a great panel of speakers from a variety of disciplines today. And so without further ado, I think I’ll turn over the floor to Dr. Feldman to introduce our keynote speaker for today, Dr. Amanda Rhee.

Dr. Feldman?

Thank you, Ling, and I hope you can all hear me. I’m really delighted to introduce Amanda, who I’ve worked with over the last year or two on some important safety initiatives at Sinai, and I’m really excited to hear her and her colleague Suzanne speak today. Amanda is the Assistant Professor of Anesthesiology at Mt. Sinai, has been very involved in multiple safety initiatives at that institution, and I think we’re all anxious to hear from her. And Suzanne Moritz (sp), a Clinical Nurse Manager in charge of Adult Cardiothoracic ICU. So without further ado, Amanda?

Great. Thank you very much, David. It is truly a pleasure to be here today. Thank you for this opportunity to share what we’ve learned at Mt. Sinai with all of you.

I’ll start by saying that I have no disclosures, no financial disclosures, but maybe, fortunately, sometime in the future that will change. In the meantime, I do not. So my report is not biased. It’s exactly what we’ve learned, and I will be talking about a couple of different products, but I have no financial relationship with those vendors.

I’d also like to say that the report you’re about to see is the culmination of the concerted efforts of many people on my team who have worked very hard on these initiatives. And it is truly an honor to share these results today on behalf of the entire Mt. Sinai medical team.
All right. So just a quick introductory slide. Surgery site infection and hospital-acquired infections are not a new topic of discussion. We’ve been talking about this for a long time. They continue to be a challenge for all organizations. It leads to morbidity, loss of life, wasted resources, wasted dollars on the order of billions every year. And although it is recognized as an important feat to tackle, and so New York State tracks, as Ling said, a few different operations sort of as a litmus test of all of the operations that we perform. And those surgeries are found here on this slide. So by the way, these numbers, 28 to 45 billion dollars was in 2007, so accounting for inflation, we’re probably looking at something like maybe 30,35 to 60 billion dollars at this point. So certainly something that we need to pay attention to.

So today I’d like to tell the story of how we tackled our coronary artery bypass graft surgical site infections at Mt. Sinai. Having said that, it is important to point out that even though this is a very – it’s more effective and interesting to tell a story in its specific context, many of these concepts and methodologies that we have learned are applicable to all cases throughout the entire operative arena, and our goal really is to apply what we have learned from this cavage initiative throughout the entire operative arena.

So it sort of begins in 2009 when the first attempts at cavage SSI reduction was first formed, and mostly (inaudible). However, not long after the infection (inaudible), so this launched a second attempt at cavage SSI reduction at another institution which involved the participants shown here. Important to note is the senior level support and sponsorship, which included the Chief Medical Officer, President and COO of the hospital, and other senior leadership. This product was a tremendous effort. It was comprehensive. It was multidisciplinary, which included team members from anesthesiology, intensive care, nursing, and surgery.

So we addressed the patient’s needs throughout the entire perioperative arena, from the preoperative evaluation, through the operating room, to recovery in the ICU, and floor, and finally even after the patient was discharged home. So I like this slide because it sort of shows the flow of the patient’s experience and how we addressed each one. We’re going to sort of skip pre-op today and go right to the operating room. I would like to talk a little bit about that because it sort of sets the stage for how we went ahead and tackled these initiatives initially.

So it would be impossible to discuss all of our interventions, but I am an anesthesiologist, and I will touch upon some of our anesthesiology-driven interventions just to exemplify the level of depth that we explored throughout the procedure. I’m not going to read this slide. It is quite busy, but suffice to say that we identified what we thought were the most high-yield interventions and went after them very aggressively. We tightened up our antibiotic administration, created an interoperative glycemic control protocol, addressed environmental control issues, and tried to improve the environment. And we also created and implemented a cardiac surgery red blood cell transfusion protocol.

So how are we doing? Well, this bar chart depicts our SCIP antibiotic compliance for cavage surgeries. The date ranges are listed on the right over here, and the ends are in these boxes. And you can see that after our implementation, which was about here, in this time period, we have been able to sustain 100% compliance for both vancomycin and (inaudible). We added vancomycin several years back because we thought that we had a higher than average, or rather just say a larger proportion of patients with community-acquired MRSA, and so that’s why we use vancomycin for our cavage surgery.
So let’s move on to how we did this. Of note at the bottom, by the way, we’ve changed our vancomycin antibiotic administration from starting preoperatively on the floor or in the preoperative area before they hit the holding area in the operating room to starting the infusion in the OR holding area, and that allowed us to remain more vancomycin compliant in the event of unexpected case start delays.

Okay. Let’s move on.

So how did we do this? Well, we have an automatic recordkeeping system in the operating rooms, and this software includes what we like to call hot keys, which are a series of sequential events, up here, that when selected appear in the record with a time stamp. And we move the hot key reminder forward, so the next event that anesthesiologists see after intubation was an antibiotic reminder instead of anesthesia ready and then the antibiotic reminder, and we think this helped us as well.

We placed laminated signs with antibiotic and insulin protocols in high visibility areas that people could easily refer to. And we also generated automated individual reports. Now initially these were hand done, and yours truly was the one who would send these reports out to people – which made me very popular for a while – and then they became automated so that people could receive real time feedback on their antibiotic compliance. And you can see that we – I reported an antibiotic compliance by time and dose for vancomycin, (inaudible), and I added temperature and glucose in there because they’re also important measures. These reports were also globally shared on a division level. Not people’s individual performances, but how the division in general was doing at our weekly departmental (inaudible).

So I’m not going to touch upon all of the things we did, but we tried to improve on environment. We installed hooks on the walls. We put hand hygiene sanitizer dispensers next to anesthesia cart on the inside and outside of every room from the operating room to the inner core. We limited our traffic control. We limited the amount of visitors who are allowed in the room. We purchased automated transesophageal echocardiography probe cleaning machines. We put Mayo stand covers on the Mayo stands in order to completely drape the tray for our central lines. So we really tried to think of each and every thing that we could improve in terms of environment.

Now, although some of our other interventions are more high tech than others, infection control always comes back to hand hygiene, which remains the single most effective way to prevent the spread of infection, as recognized by the CDC and World Health Organization. So we tried to do some cool and innovative things such as putting reminder signs outside of hand hygiene dispensers. Also foam in and foam out reminders on the inside and outside of the OR cluster, the foam referring to the foaming hand sanitizing agent that we use.

We walked around and we cultured people’s hands on Petri dishes. Now you’ll have to take my word for it. If you look very close, you can see little fingernail markings here. This isn’t just a clear Petri dish, but this is a before and after hand hygiene example of how hand hygiene actually works, and we thought that visual aid was very telling.

So we educated people based on these five moments for hand hygiene as described by the World Health Organization. I know many of you have seen this already, you can download it from the website, and it
essentially mandates that hand hygiene be performed before and after patient contact or contact with the environment, fluids, or before performing an aseptic task.

But what was interesting is that we came across some special circumstances in anesthesiology, and these situations also arise in any place throughout the hospital where the level of medical urgency may dictate whether or not hand hygiene can be performed. So this diagram, published by the American Society of Anesthesiologists, takes this into account. It adds this clever little area here which asks, is there immediate need for another patient care activity, like is there urgency of care, are you allowed to do hand hygiene at that time, and that allows us to sort of allow for the situations where we just couldn’t, we know we want to but we couldn’t. And that remains a challenge for anesthesiologists and other people with this sort of situation.

So how did we do? Well we saw some nice improvements. On the upper left is a control unit where hand hygiene operations were performed without any intervention. These bar charts are all separate units on the floor – this is actually in ICU – where the people in those units received hand hygiene training. Now we had our end perform hand hygiene – actually it wasn’t just our end, it was (inaudible) hand hygiene observations on the right side and a SWAT team which was comprised of specific members of the SWAT team as well as infection control personnel do validations on the left. So you can see that perhaps the validations are just a little bit lower, but overall we’ve had tremendous improvements compared to our control.

Now in the operating room, the compliance is lower than the floors. But it also displays the greatest improvement at any of the locations. And we found that one major barrier for hand hygiene was carrying supplies and that people couldn’t perform hand hygiene when coming in and out of the room, so we are continuing to improve our hand hygiene compliance in all rotations including the operating rooms.

So let’s move on now. Let’s transition into post-operative care.

In the operating room, let’s talk a little bit about wound care and dressings. In the operating room, an (inaudible) film dressing is placed sterily upon the wound on top an alginate silver-impregnated dressing. Now this manages bacterial burden by providing a continuous antimicrobial protection and it also offers for extended wear time. It can be left on for about seven days. And this is the Arglaes dressing here on the right – on the left side of these two pictures. And although it can be left on for seven days, we change it after 48 hours to a (inaudible) dressing over here on the right, which is silver-impregnated also. The silver is thought to inactivate pathogens within 30 minutes for up to seven days. And also this company markets that they’re able to inactivate MRSA activity as well. So we try to shower people as soon as possible after surgery, at which point the dressing is removed and a new dressing is placed.

Now in terms of our chest tubes, we try to take our chest tubes out within 24 hours if the patient’s clinical status allows. And the showering is performed after the chest tubes are removed, so if chest tubes remain in place, the patients are not showered yet. The surgeons have tried to transition from placing chest tubes in all situations to also including Blake drains in lieu of the larger chest tubes also. And we also keep at least a Blake or some sort of chest tube device in place until echocardial pacing wires are removed.
which means that people who are at risk for arrhythmia that may render them pacer dependent are not
showered. And so it's a safety precaution to leave the chest tubes in place for that reason.

All right. So let's move on to what we did in the ICU. And this is a lot of Suzanne Martz's work. So we, of
course, focused very carefully on hand hygiene as in all areas. We developed something called infection
control precautions, which meant gown and gloves for people who are at high risk for a surgical site
infection. These people were identified on the nursing SBAR sheets, and that the communication from the
operating room to the ICU would identify that so people can prepare for that situation.

We have the benefit of having an endocrinologist who sees all of our open heart patients. He's fantastic.
Jeff Mechanic (sp). And he derived a very specific, very tight type of glycemic control protocol in the ICU
which the nurses are very familiar with and it’s been very successful. We have actually seen some
downward trends in our CLABSI initiative as well, in addition to the work that sort of in parallel with the
work that we’ve done with cavage SSI, so we continued to push that forward as well.

And finally, we have sort of this overall epic flagging initiative that we’re using. Epic is a computerized
chart that we use throughout the institution. And when people are high risk now – we’ve haven’t
implemented it yet but it’s imminent – in the next couple of weeks we’ll be able to flag them so that
everybody can see that the patient is high risk for a surgical site infection and use these initiatives.

On the floor, again, hand hygiene is paramount. Infection control precautions are also used on the floor.
We try to place cavage patients, especially if they’re high risk, in a single patient’s room. And we had to
develop, because we didn’t have one, really, Jeff Mechanic also developed an anti-hyperglycemic control
protocol for the floor and also for patients when the go home as well.

Patients are also educated through our Speak Up program, which is a pamphlet which describes five
things that they can do to prevent infection so that people can take care of themselves better at home to
prevent infections. And the epic flagging would also apply to the floor as well.

So we developed a very specific way to identify and record wound infections. We created a watch list
team, which is comprised of the types of people that you see here. And when a patient is identified, then it
gets circulated, these people examine the patients and they’re placed on a watch list, which is discussed
during our cavage surgical site infection working group meeting, which initially were weekly, and we’ve
been able to back off in the past several months to biweekly and still sustain our results. And finally we
just started meeting monthly.

So during these multidisciplinary meetings, we’re able to provide the entire team now, provides a
multidisciplinary, unbiased analysis, and we decide whether that wound infection is an wound infection or
not a wound infection. If the wound infection is confirmed, then we’ll place the patient on the confirmed
cavage SSI infection list.

All right. So let’s move on to the final part of the talk, which would be the post-discharge section. This is a
very interesting and very innovative sort of plan here. There was some fantastic work done by Janet
Rosado (sp) and some other people here in the room sitting with me. This is the VNS Partnership Plan.
We developed this very special collaboration with VNSNY, Visiting Nurse Services of New York, to try to help patients at home, and to try to report surgical site infections at home so that people can receive more timely and aggressive therapy that they need it before the wound infections became more expensive. So the plan was to get all open heart surgery patient to get home care at home. And if the criteria was met for a sub acute rehab facility, the patient was then either sent to sub acute rehab or qualified for the VNSNY initiative rehab program at home. They didn’t have to get VNSNY. We did develop a special relationship with them, so we promoted that relationship but they didn’t have to get VNSNY.

In any case, through this program, 244 patients were enrolled in this time period that you see, but really, the number at this point is closer to about 535 patients.

So with this collaboration, what we did was we educated nursing leadership, who then went on to educate the rest of their staff. And what we wanted to do was develop better collaboration, better communication in the event that there was a wound infection so that we could more rapidly treat the wound infection.

We tried to get VNSNY nurses to evaluate wounds in the hospital, and most of the time we can do that so they have a baseline sort of sense of what the wound looks like before they go home even. And if a wound infection is suspected, then they’ll take a picture and send it to the surgeon’s office.

And we also tried to incorporate diabetic management through Dr. Mechanic’s protocol by educating patients, also by using a (inaudible) and that sort of thing to try to control blood sugars better, which we know are associated with wound infection.

So at this point we’re in our sustainability phase. We have regular working group meetings, so like I said, we backed down to about once a month instead of vigorous every week. We still engage physicians, and by physicians I mean the surgeons and the anesthesiologists in performance improvement meetings.

We still perform our environmental walk throughs, and we – I didn’t touch upon this specifically, but we (inaudible) tests. We use an ATT testing machine to continuously evaluate how well the rooms are being cleaned, and the equipment is being cleaned. And that sort of leads into the competency assessment of our cleaning personnel. Hand hygiene is always going to be on the board, it’s always going to be very important. The anesthesiologists will continue to receive their automated report cards. And the epic progress flagging is on the launching pad and it’s imminently going to be started.

So our spread, the overall goal here is learning what we have discovered with decreasing our cavage SSIs to further reduce infections and other specialties. So now we’re expanding all of these initiatives to other surgical specialties as well, including antibiotic compliance, compliance with anesthesiologist, the hand hygiene initiatives, for sure, environmental care initiatives. We’ve implemented team (inaudible) for about a year now, and they’re starting to show that a better system, based team effort decreases surgical blood infections. And also we’re looking into some pretty cool hand hygiene technology that will sort of encourage people to perform hand hygiene so that we can monitor compliance.

So let me show you some of our results. The project initiation is this first red arrow over here in February. And the second one is when we started to implement our initiative. This was a control chart which
describes a little bit of how variation with a central line here. We did not recalculate our central line. We’re in the process of doing that because we don’t expect our variability to change so much now that our interventions are in place. But you can see that there’s a marked decrease in the amount of surgical site infections that we’ve had once our implementations were put in place.

Now if you want to look at the statistical analysis, then we’re not going to be able to tease apart exactly which interventions were most effective, so what we did was we looked at before and after globally when the interventions were put into place. And unfortunately we’re probably not going to find the smoking gun either because we sort of, you know, we sort of blanketed our interventions over everyone. But we were able to statistically find a reduction from before and after interventions with a P value of .012 (inaudible) here. We also found a correlation between (inaudible) and surgical site infection and diabetes and surgical site infection. And our previous analysis also showed that obesity and inpatient status was associated with infection as well, although here you can see that obesity was not after a final analysis in this setting.

So I have no reservations showing you this data because you (inaudible) it. It is reported online. And you can see that up here, this is chest surgical site infections, we were able to be out of the red, meaning no statistical difference between the state average in 2013 for the first time since 2007. And we’re working hard to sustain this result. That is a relative reduction of 49% from 2011 to 2013. And we were able to completely eliminate, and I’d like to impress upon you that this is a half result, which means that we’re really at zero. We haven’t had a leg infection in over a year and a half.

Let’s move on to some CLABSI data and some SCIP data that I was asked to report in the final minutes here. This is our coronary ICU. You can see that we have eliminated our number of CLABSI – our CLABSI rated zero here in the CCU. And also in the cardiothoracic ICU, we’re about the same, but I will say that our line number days have decreased so we’d like to think that perhaps this is actually functionally better.

Okay. So let’s move on to SCIP nine, urinary catheter removal, which was challenging at one point, but with Bernice Gordon’s work and the work of the SCIP committee and the team, we show some marked improvements. These are compliances on the left with the quarters, starting at 2012, and here’s just a visual to show you exactly what our percentages have been. Now we did a lot of clinician education, and we put reminders on the screensavers and computers throughout the hospital. We created an electronic order set in our Epic program. It was sort of a nice feature such that there was a standing order to remove urinary catheter on morning of post op day one unless there was a valid medical reason to do so. But also it sort of like structured the orders such that people could only order the catheter in the way that we thought was most functional to satisfy patients’ needs and the SCIP requirements.

Let’s move on to our venous thromboembolism initiative. And this is – I know you’re familiar with this – people who received appropriate VTE prophylaxis. We’ve always been pretty good at this. This is the work of Victoria – Victoria (inaudible) – and the SCIP committee. And it mainly revolved around clinician education and we were able to also cater Epic to fulfill our needs with an electronic order set.
So what did we learn overall? Well, we learned that support from administration and leadership is absolutely key to success. That real time continuous reporting is effecting. Showing people what we’ve done, how they’re doing and whether or not their interventions have made a difference really encourages people to continue or get better.

We’ve used the technology that we have, the electronic records, the automatic emails for compliance reports and so forth, to really try to stay on top of and provide real time feedback to people.

And we started small first. We think that that was a good idea because we were able to really get our hands around the entire cavages and side problems, and now we’ll spread to all of the others, which we’ve already started to do.

Now sustainability plans, as we learned at the beginning of the cavages project, are key to maintain success because we sort of faltered, but now we’re really focusing on establishing very reliable sustainability plans. And, of course, if at first you don’t succeed, try and try again, which is what we did.

Thank you very much. I’d like to acknowledge this list of people, all wonderful people who have put a lot of effort into all of these initiatives, and I thank you all very much for your attention today.

Well, that was great. Thanks so much for sharing that with all of us. I know you spent a lot of time with your team working on this, and clearly the results are before us.

I have a couple of comments before we hear from some of our other guest speakers today. First I want to say that clearly this is an evident teamwork project. You said that from the beginning and knowing you and knowing how you work, I know that’s the case. These kinds of projects just aren’t possible without a multidisciplinary team of people committed to making this work.

And of course the other part of trying to improve safety is the systems approach, the human factors ergonomics, if you will. I love the way you put your dispensers in the right location. That’s something I learned about some years ago called propinquity. People are more likely to use things if the location is in the right place, sort of like kind of hard to be on a diet if you work in a Baskins & Robbins, that kind of thing. And it’s kind of hard to work out if your treadmill is not anywhere near where you’re going to use it. So having those dispensers nearby, the screen alerts, all of those things are creating a system that just makes it easier to make these projects work.

Then, of course, you incorporated some accountability. I love the way you sent letters to anesthesiologists. I’m wondering if you sent reports to surgeons as well. I think that’s another way of getting everybody to realize they have a role to play and in a sense holding them accountable and making sure that that happens.

And all this is really a part of influencing behavior. When we’re dealing with humans, both patients and the providers, we’ve got to figure out ways that entices people or gets them to change. And it’s different for everybody. So the idea of putting the pictures of Petri dishes, that may get to some people. The letters
may get to others. Maybe it’s just peer pressure. If people are knowing their colleagues are doing this, they want to be on the band wagon as well, so I think you really addressed that very nicely.

You obviously involved clinicians, and I think that’s critical here. These kinds of projects just aren’t possible when they’re only undertaken by administrators. And you involved not only yourself in anesthesia, but a number of key surgeons I noted, some other physicians, nursing staff, the infection control people, and I think that’s another key to your success.

And finally I really love the way you collected data in an honest way. Having being a plastic surgeon myself and dealing with really horrific sternal infections, it’s difficult many times for surgeons to recognize that this is something that needs to be taken care of in a timely way and recognized in the fact that there is an infection. Sometimes it’s even hard to tell. And having a multidisciplinary team around to really look at this, recognize when these happen, recognize it quickly, even when patients are home, as another testament as to why this likely worked so well.

My one question to you, Amanda, I think you probably addressed it. Many say, certainly for a caviage, which is a clean case, that the primary cause of an infection is probably something happening in the operating room. And I know you really had a sort of a multi-prong project that went all through this. Did anybody, any of your surgeon colleagues, wonder why you were spending so much time in the post-op period when really many would say for a clean case it’s what happens in the OR that seems to be the most critical?

Yeah, that’s a great question, and we completely agree with that actually. The discussion today was focused on the post-operative arena for the sake of the webinar, and I discussed the anesthesiology interventions, but really it was – the surgeons took great ownership of the process and they did things such as consulting with a plastic surgeon, who is on our surgical site infection working group committee, who sees these infections as well, who was able to teach people who generally close the incision, which are our fellows and our PAs, on how to close with using a non-ischemic technique. We did a lot with environmental care and protecting the sterile field. You know we talked a little bit about the dressings, and in terms of reporting to the surgeons, well, yes, at their M&M conference they discuss all of the wound infections and they’re able to sort of – were able to report out what we’ve learned from the surgical site infection working group to the surgeon so that they can get feedback about what’s happening with their arena.

So you’re absolutely right. Most of our interventions were focused on the inter-operative area because we agree with you. We think that that’s where the bugs are likely getting in, at least predominantly, because that’s, you know, when the incision is made and the wound is open. And we are continuing to try to improve these, like, for example, the probe, the aortic probe, that’s placed directly on the aorta. We’d like to be able to ensure that that’s cleaned appropriately, even though we think it is, since it’s put directly on the aorta, we’re working on getting an automated machine to try to clean those probes better as well. So we do think we agree with you that it’s likely in the operating room.

Right.
Although I think it’s all very important.

I agree with you. I just – I imagined you would get some feedback on that.

Thanks, Amanda. Let’s hear from some of our other experts now. Dr. Timoney, what are your thoughts about Dr. Rhee’s presentation?

Dr. Timoney?

Hello? Michael Timoney.

Yep.

Are you able to hear me?

Yes.

Yep, we can hear you.

Thanks. Yeah, I’d just like to echo what Dr. Feldman has said about Dr. Rhee’s presentation. Really super impressive work. I’d like to echo a little bit about what both the doctors have said about the importance of an interdisciplinary approach, and it’s important to have people from all walks of life involved in this on a regular basis. And in our institution we’ve been having a regular monthly SSI intervention and group meeting to try to prevent our rate of SSIs, and we have physician leaders to boots on the ground residents, etc., so I think having people from all levels of care is extremely important.

We’ve instituted in our institution a couple of bundles which I think have been really helpful, particularly a colon bundle in the operating room, which I’d like to think has helped us to bring our rate down significantly. In fact in the last 11 months we’ve had a zero percent colon infection rate, so that’s been exciting, and we are also trying to do something similarly for joint.

A couple of interesting points that Dr. Rhee brings up, and really innovative stuff, is the post-operative wound care once the patient leaves the hospital. And your intervention to have a communication between the visiting nurses and the primary surgeons is great because once the patient leaves your control, you really don’t know what is happening. It’s a big black hole and sometimes the patient comes back to you with very unpleasant surprises. So I think that that is an area – an idea that we’re going to probably try and steal from you in some smaller level here at Lutheran. You know I think even cell phone technology will do a lot to help if we can get some sort of constant communication between VNS and our surgeons.

A sort of a Holy Grail for us has been glucose control, and we’ve had a lot of challenges, standardizing a protocol, getting physicians to agree to the protocol, and applying it to a very, very broad array of patients. New diabetics, patients who are hyperglycemics on prednisone, for example. And I wonder what you’re doing once the patient leaves the operating room or the SICU where you don’t have an endocrinologist
working directly with you. They’re off drips. They’re off the intensive fingerstick monitoring. Do you have any insight about how to attain normal glycemia on the wards?

Amanda?

Oh, yes. I agree with all of that. Yeah.

Well the question is really standardizing glucose control on the wards and do you have particular protocols that apply to different types of patients? Or do you have a one size fits all Lantis – Apidra sliding scale protocol?

Well, that’s a great question, and it’s a protocol that applies to all open heart surgery patients, specifically for that we actually have going up for orthopedics as well. So the answer is sort of yes and no in that we do have a protocol that is specific to certain specialties, but they are specific to that entire specialty on sort of a sliding scale basis.

Okay.

Okay, Dr. Timoney, any other thoughts? If not we will move on to one of our other panelists.

Go ahead. Thank you.

Great. Thanks so much. Very insightful.

Thank you.

And our next panelist, Dr. – I’m sorry, Ms. Pamela Luckfer (sp) from Hudson Valley Medical Center. Pam, any comments?

Well coming from a community hospital setting, cavages are not something that we do here, but in looking at postoperative infection in general, I have to agree with Dr. Rhee and all of you that you can’t do this alone. Here at Hudson Valley we basically center a lot of the building of our post-op power plans around our medical informatics committee, which has a nursing as well as RMIS people as well as our physicians on board. So we can address those protocols that we want our physicians to follow by building power plans to address standardized glucose controls, DTE bundles, central line things, post-op CAUTI protocols we want followed. And that has helped up tremendously. Of course, being a smaller institution and dealing with primaries as opposed to residents and interns that come and go, it gives us a little bit more control as to what we want to influence here, and us, of course, a smaller number of physicians to work with.

We also don’t have the – well, we have visiting nurse services available. What we find for an awful lot of our patients that works really where we cannot really justify home care and visiting nursing, is that all of our surgical patients get a follow-up phone call within the first day post-op when they go home for our
patients who are ambulatory, and at that time we've got a set set of questions, of course, to ask the patient regarding their care, where they stand with their wound, where they stand with their follow-up appointment. And all of our patients also go home with a business card that says if they have any issues, there are nursing staff in the ambulatory surgery arena or the OR arena that they can call, and of course the caveat being anything of real importance just go to the emergency department.

So where we don’t have that visiting nurse outreach for a lot of our other patients, we try to do the outreach and catch the problems at least through follow-up phone calls. And we’ve got about 95 to 98% contact rate for every one of our surgical patients who do go home. So I think that’s helped tremendously for us.

And within the operating room, if we’ve got a surgical site infection, we also track back our instruments from CS processing right to the patient to make sure that there wasn’t something that was missed in the processing of the instrumentation or any issue down in CS that maybe we did not hear about, you know, sterilizer failures, recalls we might have missed. And to date we have not had any issue there that we thought contributed to any surgical site infection.

So those are things, at least at a smaller community hospital, that have helped us tremendously, along with, of course, our EMR and the flagging and the electronic things that you can do.

Great. Thanks, Pam. Any comments Amanda or Michael about what Pam has said?

Yeah, I think that she mentioned the use of bundles and EMR, and I think that this is an incredibly powerful set of tools that you can use to really sort of weed out the people who practice in sort of an outlier manner and standardize your care. And we’ve had excellent success with the use of our EMR to standardize our care. And the creation of bundles, I think, has really helped. I’m looking forward to our joint bundle. I think that we’ll see some significant improvement once we truly institute that.

Great.

Yeah, I –

Amanda, you’ve really have done it in both ways, right? You’ve done it with Epic, your system EMR, plus your anesthesia EMR, if you will, as well. Correct?

Absolutely. I think that the advantage of this technology has the potential for tremendous use of these tools globally. And we’ve been able to implement these in many different arenas using our different systems. We are actually probably going to transition to Epic for anesthesiology as well just to have one focused system. But we were able to take advantage of this technology, which I think is just a tremendously powerful tool.

I have a colleague here, Suzanne Martz, who is Nursing Director of the ICU who also has a comment to make.
Hi. Good morning, everybody. Can you hear me?

Yes, go ahead.

Okay, great. I just wanted to touch base on a couple of things. Regarding the transition of the glucose, there is actually the protocol is built to create a transition that requires nurses to do things, stick checks, not as often as ICU but I believe it’s Q three hours, and then they institute an insulin protocol for that. either IV insulin or subcutaneous coverage.

And both for the ICU and the floors, we get a weekly report card which shows our successes and failures, and that’s been very helpful because the approach that we took as part of our corrective action plan is we do a huddle or a review of each failure on a weekly basis. So, for example, if the ICU failure, it would be myself, my intensivist, who is the director of the unit, and also the endocrinologist, and we basically do a review to see if we followed our protocol. And most often when we had a failure, it was for lack of following the protocol. And/or if there was an unusual circumstance such as the patient had hyperkalemia and was being treated for that. Our most recent failure was related to that. They had (inaudible). So we drill down for each failure, and I think that’s really contributed to our success.

The other thing I wanted to comment on was this transition of care. It’s been paid a lot of attention to. So from the OR to the ICU to the floor, there is very detailed communication about the status of the patient. And the most recent work – unfortunately Janet Rosado is not in the room any more. She really should be speaking to this, but the ward collaboration with CNS has been extremely successful. VNS actually has come into Mt. Sinai and we have taught them our protocols and our way of caring for the patient. So it hopefully has created a seamless transition home. Same thing with the glucose monitoring. These patients who normally wouldn’t go home with more intensive glucose monitoring and treatment with insulin are now being treated a little more seamlessly.

The nurses from the outside, the VNS nurses, actually come to the hospital and visualize the wounds on the unit the day before or within 24 hours of discharge.

Great. Thanks, Suzanne, for those comments. We’d like to hear also now from Denise. Denise is a Director of Patient Safety at Capitale (sp) System in Buffalo.

Hello?

Hi, are you there, Denise?

Hi. Good morning. At Catholic Health we have four hospitals, and we work as a team to try and address all these measures. One of our hospitals does participate in cardiac surgery. As a group we have an interdisciplinary group that meets monthly to look at all the measures and see what we’re doing with regards to them. The efforts that we do when we try to standardize across all the systems is that our EMR is the same EMR for all of the sites, so it’s important that we do these things as a system. And it also helps because if one of the sites is doing really well and one isn’t, we try to learn from each other.
I do have to comment that looking at the OR and the environmental factors in the OR, we've really heightened that over probably the last six months, and we're finding that there really are some issues and that probably is really the place to start, so we're getting really aggressive in those areas and it's really bringing some things to light with housekeeping and with the OR staff, so I do really have to agree with that that it probably is one of the first places you need to look and start is what's going on in your OR environmentally with your cleaning and all of those things.

And with regards to the EMR and preprinted orders, our physicians don't really start using the EMR a lot of times preoperatively, so we make sure we have all those things standardized on preprinted orders for them. So post-operatively, with discontinuing antibiotics, we struggled for a long time. And what we did, and it took a little while but the surgeons bought in, is all the post-op antibiotics, make sure they're all discontinued in this 24-hour timeframe and nobody goes over. Instead of allowing them to write them by doses or that, every order is written as the (inaudible) one gram two eight and just times the number of doses. And they're all in the EMR that way on any post-op order sets so that they're never going over that 24-hour timeframe. And it's been very effective to get all the surgeons and everybody on board that nobody is getting antibiotics post-operatively more than 24 hours. And now we have a lot of surgeons talking about do we really need to do post-op antibiotics for our patients. So we're kind of coming around to that.

And we do the same thing with all of our Foleys. Instead of allowing them writing all the orders sets post-operatively, except for some of your urological surgeons, the order is just DC Foley post-op day one, so the nurses already have that order in there. If the surgeon wants to, they have to un-order that and then put the reason why they're going to continue their Foley. So that's also been very effective ways to use your EMR and our preprinted orders to move some of those things along and keep it going.

The other thing we do is we round on mostly a daily basis on a lot of our post-op patients looking for where some of these are falling out and then working with the surgeons and the nurses on where the opportunities are and where we're kind of falling out and looking at what the process issues are, not so much the people thing, and we've been able to correct a lot of things very quickly within our EMR, within not having certain things available. So that's been very helpful for us.

Great. Thank you so much, Denise. We want to be mindful of time and make sure we have a couple of minutes for questions. I would just highlight one aspect of what Denise said and reflecting on Amanda's presentation, and Amanda you talked about trying to keep it simple. I think we used to call it the KISS principle, right, keep it simple stupid, and I'm a big believer in that and taking baby steps. I think if you haven't done any of this, you've got to start small. It's a little overwhelming to think about doing it all at once. Try little things first and get some small wins and then move on from there.

So I'm going to turn over the program now to Maria, who's going to manage our little Q&A session. Maria?

Thank you, Dr. Feldman, and all of the panelists. We do have some questions coming in. We are mindful of the time, but we're going to take some of them.
The first one was directed toward Amanda, and could you please describe what you’re looking for to identify a patient as high risk?

That’s a great question. And we did an extensive analysis at the very beginning, and we found, and we’re in the process of, as I showed, sort of re-analyzing everything with sort of all of the additional data that we’ve generated over the past year or so. And we identified people as high risk based on this analysis, which were people who were – it was actually very similar to the State’s risk factors for infection. But for us, specifically our institution, it was female, inpatient, diabetic, people who were morbidly obese – and this actually ended up being – this was over 35 – this actually ended up being more significant for males than females – and inpatient status as well, which I thought was a little bit special for us, which is another reason why it was important to sort of concentrate mostly in the operating room but move out of the operating room as well.

I also have just one more quick comment about the EMR system. It’s so powerful in that it allows sort of like Just In Time teaching or a reminder for people so that they can remain compliant and continue to practice with best practices. And we’re also able to easily generate real time reports to people to give them immediate feedback as well, which are two sort of powerful elements for which it provides a platform for.

Thank you, Dr. Rhee. Another question is – and comment – while I think the electronic technologies will help with implementation, can you or anyone on this panel speak to what interventions helped engage the team as a whole to move the culture to one of team accountability?

I’m sorry, you’re a little bit muffled there. Team accountability using EMR?

I’m sorry, can you hear me clearly now?

Yes, much better. Thank you.

I think, Amanda, the question really is focused more on beyond just technology and EMRs. What kind of interventions do you think might help engage the whole team? It’s really a question about culture and making sure people are held accountable.

Yeah. Absolutely. Well, you know, I suppose beyond the EMR, but making people accountable, and the only way you can really do that is providing them with real time feedback. It’s by showing people how they’re doing. And people may initially give you a little bit of pushback on this, but really like in the end, people want to know how they’re doing. You want to know if what you are doing is helping your patients, if you could be doing something better. If you don’t want to use the EMR, and not all of our interventions did, we discuss these things in grand rounds. And in cluster meetings with nurses. And including the people who clean the rooms with Building Services. And to transport our patients. And so we had regular meetings with everybody. We also, in order to update people on the interventions and how we’re doing, and our infection rates, we also were very proactive about rewarding people. We provided breakfast when our infection rates went down, and try to provide a lot of positive reinforcement as well.
And additionally, and I didn’t put up a slide to show that, but that foam in, foam out sign? Right next to it on the door is a report card. And that report card shows each infection that we’ve had every single month. And when I walk around and put them up, people are looking over my shoulder saying, how did we do? How are we doing? So people are interested, and they want the feedback. And it doesn’t have to involve technology, but one way or another, through discussion, conferences, or signs, it needs to get there.

That was a great question.

And I would also add, Amanda, that you really need leadership. And you clearly had it. You had David Rich, your hospital President, and others really saying from the very top that this is important. And you have to be willing to hold everybody accountable, in particular physicians. One way to do this, most hospitals have an OR committee that’s usually multidisciplinary. Present the data there. And don’t be afraid to show names of people. Surgeons in particular respond to peer pressure. And if you show a list of which doctors have been late for the last month to the OR, they don’t want to be on that list. So you need leadership and I think you need the engagement of everybody, and people have to be willing to say that nobody is immune from the systems that we want to set up to improve care.

Other thoughts from our panelists on that question?

And I also – this is Denise – and I also think when a staff or a physician is telling you about a barrier, that you need to address the barrier. If there is some reason why it can’t be addressed, whether it’s financial, or there’s a process, or with EMR is going to take lot, you need to get back to these people as to why it’s not being addressed and what you think the timeframe is or what other solutions you’re going to come up with to help them out to make this better, because I think that’s where the frustration comes in. You’re telling them we’re not doing well, or we need to do something, they’re telling you why it’s not working, and you’ve got to help them, too, and give them the feedback. And that’s what really helped us to move things along. If they’re giving us a suggestion, we’re either trying to implement it or telling them what else we’re going to do if we can’t implement it. So taking their feedback and working together.

Great comments. Maria, we have any other questions?

No, we don’t other than a request for the description of the colon bundle, which I’m happy to say the New York State Partnership For Patients will be introducing the colon bundle planned for in-person meetings in April. You’ll be getting more information about that. Our next webinar will be Thursday, March twentieth. And Dr. Feldman, did you want to give us some closing comments?

No, I would just say that it’s been a pleasure to speak with all of you and to have such distinguished panelists, and I look forward to more of these sessions where we can share ideas on how to improve patient safety and quality.

Thank you, everyone, have a wonderful day.

Thank you.
Thank you very much.