Hospital Value-Based Purchasing (VBP) Program

Support Contractor

Hospital Value-Based Purchasing (VBP) Program Patient Safety Series: MRSA/CDI

Presentation Transcript

Moderator:

Bethany Wheeler, MHS
Project Lead, VBP Program
Hospital Inpatient Value, Incentives, and Quality Reporting (VIQR)
Outreach and Education Support Contractor (SC)

Speakers:

Michael S. Calderwood, MD, MPH
Assistant Professor of Medicine, Harvard Medical School
Assistant Hospital Epidemiologist/Associate Director of Antimicrobial Stewardship,
Brigham and Women's Hospital

Neil A. Zaboy, RN, BSN, CIC
Director Infection Prevention, Western Arizona Regional Medical Center

April 26, 2016
2 p.m. ET

Matt McDonough: Hello and thank you for joining us for today's webinar. My name is Matt McDonough, and I'm going to be your virtual host for today's event. Before we get started and turn things over to our speakers, I'd like to cover some event housekeeping items with you, so that you understand how today's event is going to work, and also how you could interact with our speakers on today's call. As you can see on this slide, we are streaming our audio for today's call over ReadyTalk®'s Internet Streaming Service. If you're hearing my voice coming out of your speakers or headphones right now, then you're connected. This service means that no telephone line is needed to listen to today's event, but you do need to have those speakers or headphones plugged in and turned up to hear the streaming audio feed. If, for some reason, you're not able to stream audio today or you encounter issues with the streaming audio feed, we do have a limited number of dial in lines available. Please just send us a chat message, if

you need to dial in, and we'll get that number out to you as soon as possible. Also, as always, we are recording today's event, so that it can be archived and played back at a later date.

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If you're streaming today and hear a bad echo on the call, does it sound like you can hear my voice multiple times? then, you may be connected in our event today in more than one browser window or tab. More than one connection in your browser equals more than one audio stream from your computer. Fortunately, this is something that you can easily fix. Simply close all but one of the browsers or tabs connected to our event today. The graphic here shows what that might look like on your screen. Once you are down to only one connection, you should only be hearing one audio stream and the echoing issue should clear up. Again, we do have dial in lines available, if you prefer to hear the audio feed over your telephone.

All of our attendees are in a listen-only mode today. But, that doesn’t mean that you can’t interact with our speakers today. We encourage you to submit any questions or comments you may have to our speakers at any time today, using the chat with the presenter feature located in the bottom

left corner of your screen. Simply type your questions or comment into the chat with the presenter box, and click the Send button. Your feedback will be visible to all of our presenters on today's call. As time, resources, and the availability of answers allows, we will address as many questions as possible, either verbally or in the chat window. Please do note however that, if we don't get to your question today, all questions submitted during today's event are being archived to be addressed in a future Q&A document. That's going to do it for my introduction. So at this point, I'd like to hand things over to our first speaker. Thanks for your time and enjoy today's event.

Bethany Wheeler: Hello and welcome to our Hospital Value-Based Purchasing, the last session of the Patient's Safety Series covering the Methicillin-Resistant *Staphylococcus aureus* and *Clostridium difficile* Measures. My name is Bethany Wheeler, and I will be your host for today's event. Before we begin, I'd like to make a few announcements. This program is being recorded. A transcript of the presentation, along with the questions and answers, will be posted to our inpatient website, www.qualityreportingcenter.com within 10 business days and will be posted at *QualityNet* at a later date. If you are registered for this event, a reminder email as well as these slides were sent out to your email about two hours ago. If you did not receive the email, you can download the slides at our inpatient website, again, that's www.qualityreportingcenter.com. Today, we will be hearing from two hospitals that were able to improve their MRSA and *C. diff* SIRs. I'd like to welcome our guest hospitals: Brigham and Women's Hospital and Western Arizona Regional Medical Center. Thank you for joining us today and agreeing to present your story on how your hospital improved your SIRs in these measures. If you have a question for either Brigham and Women's Hospital or Western Arizona Regional Medical Center, please type who the question is to at the beginning of your questions, so we can direct the question to the appropriate party. Any questions that are not answered during our question and answer session, at the end of the webinar, will be posted to the qualityreportingcenter.com website within

ten business dates. Although, we do hope to get to as many questions as we can in the last few minutes of the call.

In today's presentation, we plan to provide hospitals with an understanding of how to improve the MRSA and *C. diff* rates within the hospital VBP Program, from hospitals who have improved their rates by implementing HAI prevention processes.

Without further ado, I would like to introduce our first guest speaker, Dr. Calderwood is an Assistant Professor of Medicine Harvard Medical School and a faculty member in the Division of Infectious Diseases at Brigham and Women's Hospital in Boston, Massachusetts. He has a clinical and research expertise in hospitals epidemiology, infection prevention, and antimicrobial stewardship. He currently serves as the Assistant Hospital Epidemiologist and Associate Director of Antimicrobial Stewardship Program for Brigham and Women's Hospital. Remember for the questions that you submit to the chat bar, please speak to who the question is intended for. Dr. Calderwood, we welcome you, and the floor is now yours.

M. Calderwood: Thank you, Bethany. I've been asked to speak today about some of the efforts in our hospital to reduce infections with Methicillin-Resistant *Staphylococcus aureus*. In so doing, I'll be sharing some of the work that has been done at Brigham and Women's Hospital.

During my presentation, I will focus on three areas. The first is the work we have done to stop transmission. We will talk a little bit about the data around hand hygiene, the improvements to environmental cleaning and some of the data behind the isolation of carriers for those that are colonized with MRSA, including active surveillance in high risk populations. The second topic is what we have done to reduce patient infections. In our hospital, we have been decolonizing MRSA carriers in certain populations, and I will share some of the data behind these efforts. In addition, I will touch briefly on our work around prevention practices for Central Line-Associated Blood Stream Infections, or CLABSIs.

Finally, for the third topic, I will mention our work around antimicrobial stewardship. The intent here will be the focus on selected pressure. And, while this goes beyond MRSA, I will keep my comments today focused on MRSA.

As we talked about hand hygiene, it is important to highlight the study from 2000, which showed that a 38 percent improvement in hand hygiene compliance led to a 68 percent reduction in MRSA bacteremia. And, subsequent literature through 2009 continue to confirm a positive correlation between hand hygiene compliance and reduction in MRSA cases.

If we look at our own hospital, we track our hand hygiene rates monthly with unit level data shared with front line providers to drive practice change. We have one infection preventionist who is focused on hand hygiene compliance, but multiple secret shoppers so there is not one individual – so there's not one individual who could be readily identified as the person who is doing the observations. In looking at our local data from 2014 to 2015, we have found that our average hand hygiene compliance rates are 88 to 91 percent in non-ICU settings and 91 to 93 percent in ICU settings.

Over the years, we have had multiple different campaigns with efforts to really get creative. We have used a variety of buttons, posters, and awareness days. In addition, we have identified hand hygiene champions. These are department chairs, division chiefs, nursing directors, people that are readily identified as clinical leaders who are looked to for best practice. We have also involved patients and their families. One of our more recent campaigns was the *My Health Is in Your Hands* campaign, where we asked patients to speak about their experiences in the hospital and why they think that hand hygiene is important for their overall care. The other thing is that we've really made an effort to celebrate improvement. While it's important to focus on areas where we falter to figure out where to improve, it is equally important to learn from those who have had success in improving their rates of hand hygiene

compliance. The goal here is to identify strategies, which might be adopted by other units.

The second thing that I want to focus on is environmental cleaning. We know that contaminated surfaces increase cross transmission of pathogens.

In fact, a study that was done in our hospital and published back in 2006 looked at 11.5 thousand ICU admissions and the risk of MRSA acquisition by the MRSA status of the prior room occupant. As you can see from the data, our patient was significantly more likely to acquire MRSA, if they are placed in the room where the prior room occupant was MRSA positive.

Though it's nice that there was a follow up publication in 2011, which showed the improvements in environmental cleaning, dropped the MRSA acquisition in half, to the point where there was no difference in MRSA acquisition by the status of the prior room occupant. The takeaway from these two studies was that enhanced ICU cleaning is associated with reduced MRSA transmission.

In order to ensure adequate cleaning of the environment, it is important to provide housekeeping with written room cleaning guidelines, offered in different languages, as dictated by your local workforce. In addition, you ought to considered checklists and periodic observations to ensure consistent good practice. I'll speak about one methods for compliance checks on the next slide. And finally, it's important to institute ongoing education, in order to engage the housekeeping staff and to make them understand their important role as part of the clinical team.

And, thinking about how to track compliance with room cleaning protocols, our hospitals have been using a fluorescent gel, which is not visible under normal conditions but can be visualized with a UV flashlight. This gel is used to mark up to 10 high touch surfaces in certain rooms, prior to environmental cleaning. These surfaces include spots such as bed rails and toilet handles. And, after the room has been cleaned, supervisors and collaborators from infection prevention and control can

use these marks to assess the adequacy of cleaning and to identify opportunities for improvement. This is not meant to be punitive, instead, this is meant to be educational.

That's the last topic focused on the prevention of MRSA transmission. I mentioned that we would also talk about the isolation of MRSA carriers. In covering this topic, there are two studies, which I will highlight.

First, in the study published by John Jernigan and colleagues 20 years ago, it was shown that the implementation of contact precautions in an outbreak setting was associated with the 16 fold reduction in MRSA transmission. In a more recent study, VA hospitals found similarly impressive results in terms of a reduction in MRSA transmission after implementing universal nasal surveillance for MRSA with contact precautions for a colonized or infected patients.

This is essentially what we do at Brigham and Women's Hospital. Although limited to specific high risk patient populations. We currently perform admission and weekly nasal surveillance for MRSA on patients submitted to intensive care units and to bone marrow transplant and oncology floors. Patients who are found to be colonized, or infected with MRSA, are placed in private rooms on contact precautions, meaning the providers wear gowns and gloves to enter the room. These precautions are continued for all future hospitalizations until documentation of MRSA clearance either by plate culture or PCR from nasal specimens.

The line on this slide shows the local impact on nosocomial MRSA in our hospital. You can see arrows indicating when we started our clean hands initiative, when we started active screening in our ICUs and when we initiated enhanced screening on our BMT and oncology units. As you see, there's a nice trend sort of drop in nosocomial MRSA.

One question is, why does this matter? What we know is that for patients to become colonized with MRSA in the hospital, approximately one third will develop an invasive MRSA disease within one year of colonization, with nine percent to these patients dying due to their MRSA infection. In

addition, the risk of invasive disease continues beyond the year in those who remain colonized.

For this reason, there's been an increasing focused on decolonization. In one study published in 2013 by Susan Huang and colleagues, the used of daily chlorhexidine bathing along with intranasal mupirocin in ICU populations, was found to significantly reduced MRSA clinical cultures with similar declines in MRSA bacteremia.

There was also a separate study, the STOPP-SSI study published in 2015 in JAMA, which showed a 42 percent risk reduction in complex surgical site infections following arthroplasty and cardiac patients …

… when patients were given, chlorhexidine bathing for five days preoperatively; along with intranasal mupirocin, if found to be colonized in the nares with either MSSA or MRSA. In addition, those that are MRSA colonized had vancomycin added to their preoperative prophylaxis.

So, at our hospital, patients submitted to an ICU or BMT and oncology floor are obligated daily chlorhexidine bathing. In addition, patients undergoing procedures with an implant are asked to perform preoperative chlorhexidine showers. With the addition of intranasal mupirocin, if they're found to be positive for *Staphylococcus aureus* in their nares.

And finally, in terms of preventing MRSA infections, and specifically, MRSA bacteremia, a lot of work has gone into prevention of Central Line-Associated Blood Stream Infections. We initially instituted a checklist back in 2000, and this has been revised multiple times, most recently in 2012. We have formal instruction on insertion technique. We used ultrasound guidance for all non-emergent central line placements. And, there is a lot of work around documentation of line care, including an emphasis on scrub the hub and standardized dressing and change practices. Over the past five years or so, we have begun using chlorhexidine dressings. We've also begun using alcohol containing caps on tubing. We have improved the securement devices to help prevent the

movement of central lines in and out of the skin, and we've instituted daily chlorhexidine bathing, as discussed previously.

And as my final slide before concluding, it's important to highlight the need to reduce unnecessary antibiotics as a means of reducing selective pressure for resistant bacteria. At Brigham and Women's Hospital, we have a multidisciplinary team focused on antimicrobial stewardship, looking both at empiric antibiotic selection and appropriate tailoring as clinical data becomes available. Comparing our data from 2009 through 2010, with our more recent data from 2014 through 2015. Our hospitals noted a 14 percent relative decline in the proportion of *Staphylococcus aureus* infections, which are caused by MRSA. In fact, the majority of our *Staph aureus* are not MSSA rather than MRSA. Ongoing stewardship efforts are needed to maintain the success.

I hope that my slides have highlighted the many efforts that have been carried out at Brigham and Women's Hospital in our effort to lower our rates of MRSA infections, including MRSA bacteremia. I appreciate the opportunity to speak with you today and look forward to your questions.

Bethany Wheeler: Thank you for that excellent presentation, Dr. Calderwood. As a reminder, if you have a question for Dr. Calderwood at Brigham and Women's Hospital, please type either Dr. Calderwood or Brigham and Women's Hospital at the start of your question. I would now like to introduce our second guest speaker. Neil A. Zaboy has been a Registered Nurse since 1987, graduating from the Allentown Hospital School of Nursing in Allentown Pennsylvania. Starting in 1976, he has served in both the U.S. Army and the Pennsylvania National Guard, as a Medical and Clinical Specialist, performing multiple duty functions and positions in different countries, posts, and assignments. He served as a civilian employee and contractor during Desert Shield, Desert Storm and after. He's obtained his BSN from the University of Phoenix. His first certification in infection control was in 2005. And, he has served as an APIC Chapter Treasurer and Board Member. He has work experience with for-profit and nonprofit corporations, as well as federal, state, and county government levels, often at the same time. His experience as a

registered nurse includes, EMS, Med surgical, Nephrology Intensive Care, cardiac step-down, rehabilitation, home health, skilled nursing facilities, assisted living facilities, hospice, behavioral health, infectious disease, neurological, orthopedic, neurosurgical, general and pediatric surgery. He has volunteered as a community health nurse among the military and veteran populations. He has held health care positions of an EMT, CNA, staff nurse, charge nurse, rehabilitation nurse, coordinator, assistant director of nursing, director of infection prevention, control and employee health, and director of Central Compliance Sterile Processing. He is currently a director of infection prevention and control for 139 bed community hospital. Mr. Zaboy, we welcome you, and the floor is now yours.

Neil Zaboy: Thank you Bethany. Greetings, I'm Mr. Neil Zaboy, registered nurse, CIC from Western Arizona Regional Medical Center in Bullhead City, Arizona. We are a 139-bed community hospital, serving the Tri-State Area, including Mojave County Arizona, South Clark County Nevada, and East San Bernardino California. So, in 2013, our *C. difficile* rate were above the expected infection rate for facility of our size and scope of practice.

In 2013, we got to manage a total 21 LabID *C. difficile* for an average of 1.75 cases per month.

At the time, we had several directors and officers trained on NHSN, the approved definitions, and our newly commissioned Sentry 7 Surveillance program. Beginning in 2013, and extending through 2014, Community Health System conducted a sepsis collaborative for which we were able to locally collect a majority of the stake holders together on a regular basis for discussion of, and planning for, our approach to sepsis as a whole, as well as particular issues like *C. difficile*. Community Health System, by the way, is WARMC's Parent Corporation. At WARMC, we have a dynamic culture of responsibility, which gives directors the responsibility, but also the tools and resources necessary to take action to improve patient outcomes, care and safety. At CHS, we have a corporate standard that uses the Bristol scale and definition of stool consistencies. Unfortunately, we

could not get a copyrighted copy, but it is available by emailing me. During 2014, the adopted collaborative definition and specifications, not only for *C. difficile* but sepsis as a whole, so everybody would know what to document, how to document, to clarify cases of sepsis or *C. diff*. We essentially got people talking the same language. Physicians were proactive in using diagnostic resources to identify impending or confirmed colitis. We were able to develop EHR processes for expeditious investigations of infections, *C. difficile*, and sepsis. Incidentally, our post discharge phone calls also provided additional data in some cases.

Collaboratively, we agreed on specific definitions and specifications for infections, sepsis and especially *C. difficile*. Most contentious was the definition of diarrhea itself. This required the proper use of the evidence, based on manufacturers and CDC recommendations. We also used, SBAR, which assisted in improving the medical decision to test or not test, as well as to treat or not treat.

In the first quarter of 2014, an assessment was made of the process then in place. Directors were individually reviewing their own department reports with irregular constipation with other trained persons. The perception was prevailing that being trained meant sole responsibility. No one person had stood up to be the wall so to speak, to facilitate discussion and comparison of determinations. During 2013, meetings tended to be ad hoc to discuss determinations. Not all directors had been trained on Sentry 7, the infection prevention pharmacy laboratory surveillance program. Due to changes, during the setup of the EHR and that continued today, you know, updates, some IP~~T~~ locations were identified as OP. Inpatient locations were identified as OP and vice versa. This was a problem with our observation patients. A very deep review of the chart may have been required at times to correctly attribute the location of infections.

In 2014, and continuing today, we continued working on our antibiotic stewardship program. Our pharmacy had assumed consulting on all *C. diff* and sepsis cases. We develop scripts with minimum data that sets forth in infection determination and laboratory interface documentation of reference laboratory reports. These have continued to require revision.

Incidentally, quite literally, we have to send our labs to a reference lab out of state, which is an added impediment. We began to identify those serology and miscellaneous tests that should be available in the Sentry 7 Database. These fixes are still being developed to facilitate reporting through the unit level. The scripts have assisted in identifying nontraditional *C. difficile* patients that previously had been attributed to being hospital acquired LabID *C. diff* as a catch-all. An example would be a less than 50 year old family based, home resident, with no prior or recent (meaning greater than six months) healthcare encounter, not even so much as a doctor's office. In the first half of 2014, we used a toxin assay test and then we switched to a NAAT-PCR test. This has identified and encouraged educational opportunities. In the fourth quarter, we introduced procalcitonin, as an available test, which has been affording additional education opportunities for *C. difficile*, infection, SIRS, and sepsis about the use biomarkers to improve the accuracy of the medical decision making.

The technology used can impact the accuracy and specificity of your determinations. Toxin assay identifies the presence of active toxin producing organisms; whereas the NAAT-PCR identifies the presence of material associated with *Clostridium* species, not necessarily alive that's by our – the manufacturer of our test. Also, any discordance in definitions, the process, or interpretation can affect your outcomes. Correcting the discordance generally requires special high intensity training involving orientation, safety huddles, just in time training or JIT, employee restroom training, and other opportunities as identified. Failure to keep up and adjust to current evidence, resources, and standards can leave you behind with inaccurate results.

At WARMC, the following department tented to be involved in the diagnosis and treatment of *C. diff*, sepsis and SIRS. This is more or less the sequence of involvement at WARMC for these departments.

Showing you the NHSN chart for 2015. In 2014 – 2015 our numbers went down through the initiation of greater emphasis on accurate determinations of active *C. diff* disease. The current and chronic disease

stage, the accurate attribution of locations was also improved. At that point, during the first quarter of 2015, an issue was identified in the ability to report to NHSN that took in an extended period of time to correct. The solution was not found until after data was locked; essentially, the interface between my computer's browser. This is one of the EHR and IT updates, and NHSN required the switching between three different versions of my browser and select NHSN pages. This involved emails with NHSN, multiple IT desktop support visits, and a disjointed data entry session to solve. Thank you for your time.

Deb Price: Well thank you very much. Today's webinar has been approved for one continuing education credit by the boards listed on this slide. We are now a nationally accredited nursing provider. And as such, all nurses report their own credit to their board using the national provider number 16578. It is your responsibility to submit this number to your own accrediting body for your credits.

We now have an online CE certificate process. You can receive your CE certificate two ways. First way is, if you register for the webinar to ReadyTalk®, a survey will automatically pop up when the webinar closes. This survey will allow you to get your certificate. We will also be sending out the survey link in an email to all participants, within the next 48 hours. If there are others listening to the event that are not registered in ReadyTalk®, please pass the survey to them. After completion of the survey, you'll notice at the bottom right hand corner a little gray box that says “Done,” you will click the Done box, and then another page opens up. That separate page will allow you to register on our Learning Management Center. This is completely separate registration from the one that you did in ReadyTalk®. Please use your personal email for this separate registration, so you can receive you certificate. Health care facilities have firewalls that seem to be blocking our certificates from entering your computer.

If you do not immediately receive a response to the email that you signed with the Learning Management Center, that means you have a firewall up that's blocking the link into your computer. Please go back to the new

user link and register a personal email account. Personal emails do not have firewalls up. If you can't get back to your new user link, just wait 48 hours because remember you're going to be getting another link and another survey sent to you within 48 hours.

OK, this is what the – what the survey will look like. It will pop up at the end of the event and will be sent to all attendees within 48 hours. Click Done at the bottom of the page when you are finished.

This is what pops up after you click Done on the survey. If you have already attended our webinars and receive CEs, click existing user; however, if this is your first webinar for credits, click new user.

This is what the new user screen looks like. Please register a personal email like Yahoo or G-mail or ATT, since these accounts are typically not blocked by hospital firewalls. Remember your password however, since you will be using it for all our events.

You'll notice you have a first name, a last name, and the personal email. And, we're asking for a phone number, in case we have some kind of back side issues that we need to get in contact with you.

This is what the existing users link looks like. Use your complete email address, as your user ID and, of course, the password you registered with. Again, the user ID is the complete email address, including what is after the @ sign. OK, now I'm going to pass the ball back to your team lead to end the webinar and to go over any questions that came in.

Thank you for taking the time spent with me.

Maria: Our first question is for Dr. Calderwood. What CHD bath was used, impregnated wipes or a Hibiclens® solution foam?

M. Calderwood: So we have evolved. We started off as part of a trial where we were using the impregnated wipes, we have now shifted to Hibiclens® solution mostly for a cost issue.

Maria: Thank you. The next question is for you as well, Dr. Calderwood. Do you know anything about the new nasal sanitizer called Nozin®?

M. Calderwood: I believe this is the inter-nasal UV device. I know that it has been presented to our hospital. It's not something that we have any experience with.

Maria: Thank you, Dr. Calderwood. Another question for you Dr. Calderwood. Is a single culture or PCR considered clearance? If so, how do you reconcile the sensitivity and specificity of a single test as clearance?

M. Calderwood: So, we have a standard protocol across all of the partners health care hospitals; and so, we wait – you would have to have had no positive MRSA cultures, either clinical or surveillance cultures, within 90 days. There is a sure amount of literature showing that about 65 to 70 percent of individuals will have cleared their MRSA by that time. If a patient presents outside that 90 day window, is not on an anti-MRSA antibiotic, they then are eligible for screening. Historically we've done that by a three negative plate cultures, those were done on different days. Erica Shenoy from Mass. General has written a lot of literature on the comparison between a single negative PCR assays versus three negative plate cultures. And so, we are shifting now, so that we allow a single negative PCR to take the place of the thee negative plate cultures. And, I would refer you to Dr. Shenoy's papers on this to look at the comparison of sensitivities, as well as the fact that very few of these patients are subsequently admitted with MRSA after being cleared.

Maria: Thank you. The nest question is for Mr. Zaboy. What is the pharmacist's role in consulting for all *C. diff* and sepsis patients?

Neil Zaboy: The pharmacist has a proactive and retroactive role. The proactive is, once we identify a patient with *C. diff*, to establish what the course of antibiotics or antimicrobials will be, and if we find that the person is actually a recurrent or chronic *C. diff* patient, then the panoply of antibiotics used may need to be adjusted or different agents brought into

bare. And retroactively, the pharmacist looks back to see what antibiotics the patient is already on and what ones need to be adjusted.

Maria: Thank you. Mr. Zaboy, the next question is for you. What information was provided for the restroom education?

Neil Zaboy: We generally make up one page, 8.5 by 11 flow charts, information sheets, educational material. We laminate them, and we put on bulletin boards that are posted inside the employee restrooms.

Maria: Thank you, Mr. Zaboy. Dr. Calderwood, this next question is for you. You say that you use ethanol line locks, do you actually mean alcohol impregnated caps, or do you lock you line switch with ethanol?

M. Calderwood: Thank you that was a good point for clarification. I'm talking about alcohol caps on the access ports, not alcohol infused into the catheters themselves.

Maria: Thank you. Dr. Calderwood, another question: what criteria is used for cleaning – clearing a patient with a positive nasal MRSA?

M. Calderwood: I saw it listed – those criteria in answer to the prior question – I will clarify one point, which is that, if a patient has an open wound, we don't allow a single negative PCR to clear them. We do obtain cultures from the wound, which is done by plate culture, at this time, because the PCR is not FDA cleared for a wound culture; but, that is the one clarification on how I described it briefly.

Maria: Thank you. One more question, Dr. Calderwood: do you retest up to the five days of treatment? And, how long do you give them the vancomycin?

M. Calderwood: I had read this question, and I am unclear as to what we are speaking about for the vancomycin. When we are doing a clearance in the preoperative setting, we're using the mupirocin and chlorhexidine. On the inpatient side, we are using chlorhexidine bathing alone because of concerns about a potential mupirocin resistance, if using mupirocin for all patients admitted to our ICUs, BMT and oncology units. We use perioperative

vancomycin in known MRSA colonized patients, but that is on in the preoperative setting with no post-operative dosing.

Maria: Thank you, Dr. Calderwood. Mr. Zaboy, the next question is for you. Why did you have facilities switch from toxin assay to the NAT PCR method?

Neil Zaboy: At the time that they switched, they were looking for a quicker turnaround time from collecting the specimen to when they would know whether or not to continue treatment.

Maria: Thank you. Mr. Zaboy, what is the infections preventionist/bed ratio at your hospital?

Neil Zaboy: One to 139. I'm the only infection preventionist there.

Maria: Thank you. Dr. Calderwood, is there any concern with organisms becoming resistant to Muco-Fluorescein ~~ourescein~~ upon using this to decolonize people?

M. Calderwood: So, this is a hotly debated topic. We have, I have referenced the paper by Susan Huang and colleagues, the reduced MRSA trial in ICU populations, where they used chlorhexidine and mupirocin. We have adopted those findings, with some literature from others, using chlorhexidine alone. That is because of my own concerns about the risk for developing mupirocin resistance. I will say that there is a small literature suggesting that you may have a rise of a few percent, as far as mupirocin resistance, in the hospital. But, it's something that I don't think we have a good answer to at this point.

Maria: Thank you. Mr. Zaboy, do you use UV light disinfection for *C. diff.* room?

Neil Zaboy: No, we do not.

Maria: Thank you. The next question is for – well, we have a follow up question Mr. Zaboy. If there was toxin assay test that had a quicker turnaround time, would your facility rather use that than the NAT PCR method? The concern is more positives with a more sensitive test.

Neil Zaboy: The tox – when the *C. diff* is producing toxin, that definitely points to it being active *C. difficile*. So yes, it would be more accurate in that regard. And, we probably would go for it, bearing in mind the usual cost benefit ratios and so on. If it would come back within a reasonable amount of time of an hour or three hours, within there, yes, we would probably go with it.

Maria: Thank you. Dr. Calderwood, what are you methods when you have a CHD allergy?

M. Calderwood: Excuse me, I was on mute. So, in a patients with a known CHD allergy, we do not do Chlorhexidine bathing for a placement of central lines. We switch the prep from Chlorhexidine over to either alcohol or Povidone-iodine.

Maria: Thank you. Dr. Calderwood, the securement device that replace suturing of central lines, what type of device is being used?

M. Calderwood: So, the one that was being mentioned is for our Hickman® lines. And that's a SorbaView® dressing, which has the securement device built in. We still use StatLock® for our PICC lines.

Maria: Thank you. Dr. Calderwood, I found inconsistencies between hospitals regarding isolation of MRSA carriers. I often must defend our policy to place all MRSA patients within contact precaution. I am interested in your clearance process. Can you share?

M. Calderwood: So, we talked about the clearance process. You know there is an ongoing national debate on this right now. And so, there was another question that came up a little further down about for hospitals that are doing universal daily Chlorhexidine bathing, do you need to continue to do active surveillance for MRSA? Can you do away with precautions? It is not something that our hospital has done, although it comes up as point of discussion now and again. And, I know other hospitals that don't universally use contact precautions for MRSA. So, I'd say right now, the

recent studies that have come out have suggested that potentially, if you're doing daily Chlorhexidine bathing on all patients, are confident that your hand hygiene rates are in the high 90s, and there's some question about this practice of bare-below-the-elbows, that potentially you could do away with precautions. You know, I would say that you'd have to be pretty confident in all of those things before going to this.

Maria: Thank you. Dr. Calderwood, what is your definition of nosocomial MRSA on the graph, slide 20? Infections only based on NSHN definition versus LabID versus screening results?

M. Calderwood: Slide 20 was based on NSHN definition. We have more recent data using the LabID Event.

Maria: Thank you. Another question Dr. Calderwood, do you decolonized MRSA carriers in the ICU, BMT and ONC units only or other unit patient as well?

M. Calderwood: So we – the other populations would be our pre-operative populations. And so, we have targeted patients that are undergoing procedures with prosthetic materials. So, predominantly this has been CABG, hip-knee, and spine procedures. We also have been doing decolonization of patients that are going to go for C-sections, although that's not as universal as the other procedures. But, inpatient wise, we've targeted just ICUs, BMT and oncology at this point.

Maria: Thank you. Mr. Zaboy, do you use bleach or sporicidal cleaner for your patient's room? If sporicidal cleaner, do you use in all patient rooms or just in *C. diff* patient rooms?

Neil Zaboy: We use a bleach product for all of our *C. difficile* rooms, all of those rooms that we suspect norovirus, all the rooms that we had a patient in which they had diarrhea, but we were not able to attribute the cause of the diarrhea, and also we will use bleach, if we have what appears to be an outbreak or an influx of multi-drug resistant patients coming to a particular unit at the same time. We've also talked about using bleach for all Acinetobacter patients.

Maria: Thank you. Dr. Calderwood, can you share a creative last successful method your hospital has used to engage staff to do more hand hygiene observation?

M. Calderwood: So, we actually had a nice slide showing some of the things that our hospital has done, but, were asked to remove it for copyright reasons. But, I would be happy to share examples, if people want to email me, and I'm on the Brigham and Women's website. But, I would say that, you know, some – I was very impressed by the *My Health is in Your Hands* campaign. And, you know, I guess one example we had – one of our hand transplant patients, which really brings home the *My Health is in Your Hands* campaign idea – but, speaking about why hand hygiene was important to him. And, you know, this really puts a human face on it and it's hard for people to look at that and say, I'm really not finding this an important thing to do.

Maria: Thank you. Mr. Zaboy, all of the items discussed are great for tackling true infection. However, if either gentlemen – are you, Mr. Zaboy, concerned about the LabID definition, versus a true surveillance infection definition. We are concerned that this LabID may be misleading.

Neil Zaboy: For what the CDC is trying to do through NHSN with the LabID, I agree that that's appropriate for what they're intending to do. I'm of the opinion that when CMS and the reporting agencies take that LabID and use it for the other purpose, or another purpose, and ascribe it as a hospital acquired infection in all cases, that I don't agree with.

Maria: Thank you. Dr. Calderwood, have you considered increasing the use of mid lines instead if PICC line?

M. Calderwood: So, I think to answer that question, I would put on my stewardship cap, which is to say, we are often discharging patients on intravenous antibiotics, when they would be inappropriate oral antibiotic that would mean that they wouldn't need any line at all. As far as the midline versus the PICC line and the risk of infection, it is not something that we have particularly looked at. And, there was a recent paper, that was actually

fairly interesting looking at the risk of *Staph aureus* bacteremia from simple peripheral IVs and not central lines. So, I'd be interested in, if the question had some of data on the risk being lower with midlines; I'd be happy to have – get that by email.

Maria: Thank you. We are checking the queue for further questions, please hold. OK, it looks like we have no further question, we'll give it another second. Well, looks like we do have a question. Dr. Calderwood, are bath basins used with your chlorhexidine solution, if so, are they reusable?

M. Calderwood: Our bath basins are used with a protocol for mixing at the bedside and I believe they are reusable, but I actually don't know that off the top of my head. I have to go to our nursing policy.

Maria: OK, looks like we have time for one more questions. Dr. Calderwood, any strategies plus intervention recommendations for MRSA bacterium SIRS rate impacted by secondary bloodstream infection due to a primary infection at another site?

M. Calderwood: I appreciate the question because it's something that we all struggle with. I'm not sure that I have the magic bullet for that one unfortunately.

Maria: Thank you. Looks like we are out of time, I just want to thank you for joining us for this event, and have a great day.

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