Hospital Value-Based Purchasing (VBP) Program

Support Contractor

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

Questions and Answers

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

Questions 1–32 for Dr. Calderwood

Question 1: **What CHD bath was used, impregnated wipes or a Hibiclens® solution foam?**

We have evolved from being part of a trial using the impregnated wipes to now using the Hibiclens® solution, mostly for the cost benefit.

Question 2: **Do you know anything about the new nasal sanitizer called Nozin®?**

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

Question 3: **Is a single culture or PCR considered clearance? If so, how do you reconcile the sensitivity and specificity of a single test of clearance?**

We have a standard protocol across all of the partner health care hospitals to have no positive Methicillin-Resistant Staphylococcus aureus *(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 have done that by 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 polymerase chain reaction (PCR) assays versus three negative plate cultures. And so, we are shifting now to allow a single negative PCR to take the place of the three negative plate cultures. 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.*

Question 4: **You say that you use ethanol line lock, do you actually mean alcohol impregnated caps or do you lock you line switch with ethanol?**

That was a good point for clarification. I was talking about alcohol caps on the access ports, not alcohol infused into the catheters themselves.

Question 5: **What criteria is used for clearing a patient with a positive nasal MRSA?**

To be clear, if a patient has an open wound, we don't allow a single negative PCR to clear them. We do obtain culture from the wound, which is done by plate culture at this time because the PCR is not cleared by the Food and Drug Administration (FDA) for wound cultures.

Question 6: **Do you retest up to the five days of treatment? And how long do you give them the vancomycin?**

Although I am not sure what the question is referring to regarding the vancomycin, when we do a clearance in the preoperative setting, we use mupirocin and chlorhexidine. On the inpatient side, we are using chlorhexidine bathing alone because of concerns about a potential mupirocin resistance when using mupirocin for all patients admitted to our Intensive Care Units (ICUs), Bone Marrow Transplant (BMT) units, and oncology units. We do use perioperative vancomycin in known MRSA colonized patients; however, that is in the preoperative setting with no post-operative dosing.

Question 7: **Is there any concern with organisms becoming resistant to Muco-Fluorecein upon using this to decolonize people?**

This is a hotly debated topic. We have referenced the paper by Susan Huang and colleagues regarding 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. This is due to concerns about the risk for developing mupirocin resistance. There is some literature suggesting that you may have a rise of a few percent, as far as mupirocin resistance, in the hospital. It is something we don't have a good answer to at this point.

Question 8: **Dr. Calderwood what are you methods when you have a CHD allergy?**

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.

Question 9: **Dr. Calderwood, the securement device that replaces suturing of central lines, what type of device is being used?**

The one that was being mentioned is for our Hickman® lines. And that is a SorbaView® dressing, which has the securement device built in. We still use StatLock® for our Peripherally-Inserted Central Catheter (PICC) lines.

Question 10: **Dr. Calderwood, I found inconsistencies between hospitals**

regarding isolation of MRSA carriers. And, I often must defend our policy to place all MRSA patients within contact precaution. I am interested in your clearance process. Can you share?

There is an ongoing national debate on this right now. And, there was another question that came up a little further down about hospitals that are doing universal daily chlorhexidine bathing, and whether you need to continue to do active surveillance for MRSA and if you can do away with precautions. It is not something that our hospital has done, although it comes up as a point of discussion now and again. There are other hospitals that don't universally use contact precautions for MRSA. Recent studies that have come out have suggested that, if you're doing daily Chlorhexidine bathing on all patients are confident, your hand hygiene rates are in the high 90s, and there's some question about this practice of bare below the elbows, potentially you could do away with precautions. I would say that you have to be pretty confident in all of those things before doing away with surveillance and precautions.

Question 11: **Dr. Calderwood, what is your definition of nosocomial MRSA on the graph, slide 20? Infections only based on NSHN definition versus LabID or screening results?**

Slide 20 was based on National Healthcare Safety Network (NHSN) definition. We have more recent data using the LabID Event.

Question 12: **Dr. Calderwood, do you decolonized MRSA carriers in the ICU, BMT, and oncology units only or other unit patients as well?**

The other populations would be our pre-operative populations. We have targeted patients that are undergoing procedures with prosthetic materials. Predominantly, this has been Coronary Artery Bypass Graft (CABG), hip-knee and spine procedures. We also have been doing decolonization of patients going for a C-section, although that's not as universal as the other procedures. Patient wise, we have targeted just ICUs, BMT, and oncology at this point.

Question 13: **Dr. Calderwood, can you share a creative, successful method your hospital has used to engage to do more hand hygiene observation?**

For copyright reasons, we had to remove a slide showing some of the

things that our hospital has done. However, I would be happy to share examples, if people want to email me. I am on the Brigham and Women's website. I can say, though, that I was very impressed by the My Health is in Your Hands *campaign. We had one of our hand transplant patients speaking about why hand hygiene was important to him. And, you know, this really puts a human face on it. It's hard for people to look at that and say, I'm really not finding this an important thing to do.*

Question 14: **Dr. Calderwood, have you considered increasing these of mid lines instead if PICC line?**

We often discharge patients on intravenous antibiotics, when they would be inappropriate for oral antibiotics. 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. There was a recent paper looking at the risk of Staph aureus *bacteremia from simple peripheral IVs and not central lines. I'd be interested in any data on the risk being lower with midlines and would be happy to receive it by email.*

Question 15: **Dr. Calderwood, are bath basins used with your chlorhexidine solution, if so are they reusable?**

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'd have to go to our nursing policy.

Question 16: **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?**

I appreciate the question because it is something with which we all struggle. Unfortunately, I'm not sure that I have the magic bullet for that one.

Question 17: **Why have you chosen to use black light methods rather than an ATP measuring device?**

This was a decision that was made in the past. I know of other hospitals that use an adenosine triphosphate (ATP) measuring device. Black light methods, however, only evaluate whether the fluorescent gel has been removed from a surface. An ATP measuring device looks for potential microbiological matter.

Question 18: **We are no longer isolating MRSA and VRE cases, assuming we are hand hygiene compliant, would that affect the spread of MRSA in the hospital?**

I recommend reading Infection Control and Hospital Epidemiology *2015; 36(8):978-80. This paper found no impact of discontinuing contact precautions for MRSA and vancomycin-resistant enterococcus (VRE) colonization and infections on device-associated Healthcare-Associated Infections (HAIs). It should be noted, however, that this was in the setting of high hand hygiene compliance, daily chlorhexidine bathing of patients, and a recommendation for a bare-below-the-elbows protocol.*

Question 19: **Are there any studies as to how many of the decolonized patients maintain being colonized free?**

Dr. Erica Shenoy from the Massachusetts General Hospital has written on this topic (https://www.ncbi.nlm.nih.gov/pubmed/?term=shenoy+e).

Question 20: **Dr. Calderwood, have you investigated the use of nasal antiseptic as part of a horizontal strategy?**

We have investigated intranasal mupirocin, but we remain concerned about the potential for developing resistance with broad use of this medication in hospitals. There are alternative nasal antiseptics being marketed, but we have not yet looked at these medications and other technologies.

Question 21: **Dr. Calderwood – Did your hospital have a physician champion? Were physicians included in the hand hygiene surveillance? Do you have suggestions to obtain physician champions?**

Yes, we have had physician champions for many years, and we perform hand hygiene observations on all healthcare workers, including physicians, nurses, and other staff. For our physician champions, we have targeted department

chairs and division chiefs. Once we explain the campaign goals, we have no significant problems with getting physician champions.

Question 22: **Brigham: Is mupirocin resistance a concern for your facility and more broadly throughout the healthcare system, given that vancomycin resistant *Staph. aureus* is emerging?**

The risk of mupirocin resistance is an ongoing debate as healthcare facilities decide between decolonization with chlorhexidine plus mupirocin versus chlorhexidine alone. One paper that recently showed a rising rate of mupirocin resistance was American Journal of Infection Control *2016;44(5):533-8. Other papers, however, have showed variable baseline and post-intervention rates of mupirocin resistance.*

Question 23: **Dr. Calderwood: Are patients with a history of MRSA removed from precautions after a single negative nasal screen, or are multiple negative screens required? Are there any additional criteria (ex.: duration since active infection) used?**

Our local policy is this:

1. *In order to be eligible for screening, a patient must have no known MRSA positive cultures for at least 90 days and have not received any antibiotics effective against MRSA for 48 hours.* These antibiotics include vancomycin, linezolid, daptomycin, ceftaroline, telavancin, tigecycline, quinupristin/dalfopristin, telavancin, trimethoprim/sulfamethoxazole, rifampin, clindamycin, doxycyline, and minocycline.*
2. *If using a PCR assay, a single swab of the nares is sufficient. If using plate cultures, swabs of the nares must be taken on three separate days (need not be consecutive, but only count if >90 days after last positive MRSA culture). If the original site was an open wound or tracheostomy site that is still present, cultures of the original site may be taken as well. It is not necessary to repeat urine cultures, sputum cultures, or blood cultures in asymptomatic patients (e.g., no fever, no productive cough, no dysuria/flank pain, no cloudy or foul smelling urine).*
3. *If all are negative, patient may be taken off precautions.*

** Patients who have been decolonized (using mupirocin/chlorhexidine) may be screened >48hrs after decolonization.*

Question 24: **Dr. Calderwood.**
1) It seems that you progressively added interventions (products) to prevent CLABSI at your facility. Ending with CHG baths. What is your rational for doing so? What is your advice to other hospitals? Should other hospitals introduce all these interventions at once?
2) You introduced CHG bathing in your ICU, are you still screening and decolonizing patients for MRSA?

1. *We progressively added interventions over the years as new technologies became available and were tried in our hospital. It is important to institute a best practice bundle, but one also must be careful not to introduce too many things at once. This runs the risk of being counterproductive due to overwhelming frontline staff.*
2. *We have continued to screen patients for MRSA and to place these patients on contact precautions, despite the institution of daily chlorhexidine bathing. As for decolonization with chlorhexidine and mupirocin, we mostly do this in our pre-operative population and in our ambulatory clinics.*

Question 25: **Dr. Calderwood: So, one IP only focused on hand hygiene? Was this the only role for this IP? Please elaborate on what tasks IP focused only on hand hygiene.**

This Infection Preventionist (IP) does regular observations of hand hygiene compliance across the institutions (inpatient, operating room, ambulatory, emergency department, etc.). This IP also manages different groups of "secret shoppers" who are also doing hand hygiene observations. The data are collected on handheld devices (iScrub) and shared with unit and hospital leadership. There are many campaigns and awareness events led by this IP. This is not the only role for this IP. The current person in this role is also involved in HAI surveillance activities.

Question 26: **Dr. Calderwood: Now that you are using baths instead of cloths have you notice any difference in rates?**

We have not noticed any difference in HAI rates after switching from cloths to baths.

Question 27: **Woman's Brigham-do you know the CHG solution proportions? Do**

you rinse?

We use a 4% chlorhexidine gluconate solution in our bath basins. This gets diluted, because we put the CHG on a Comfort Bath cloth. We recommend to rinse thoroughly with warm water and gently pat dry. Failure to rinse thoroughly can cause skin dryness.

Question 28: **Is it possible to get links to the research papers just mentioned by Dr. Calderwood? I wasn't able to get the name of the author. Thank you.**

Please see my response to question 19.

Question 29: **Dr. Calderwood: please clarify, if you do not use CHG bath because of allergy, how do you use the betadine/etoh?**

If the patient has an allergy to CHG, then we do not do daily CHG bathing. I was speaking about alternatives for surgical skin preparation.

Question 30: **What are your thoughts on the isolation protocols for MRSA/VRE colonized patient?**

This issue is open to debate. Our hospital has had success over the years with a protocol of placing MRSA/VRE colonized or infected patients in a private room on contact precautions. There are times when we allow cohorting due to issues of bed availability. Some hospitals are stopping isolation protocols for MRSA/VRE (see my answer to question 18). Other hospitals use symptom based precautions (i.e. for patients with diarrhea, open wounds, uncontained respiratory secretions). Whatever policy that you choose, it is important to measure the intended and unintended consequences.

Question 31: **Dr. Calderwood: what is the definition of hand hygiene compliance? before entering room**

We use the World Health Organization's Five Moments for Hand Hygiene (http://www.who.int/gpsc/tools/Five_moments/en/). Having said this, it is much easier to measure compliance on entry to and exit from the room. It is more difficult to observe events in the room. We rely on our nurse educators to help with in-room observations.

Question 32: **What kind of antimicrobial stewardship outcome metrics do you assess if any when looking at your stewardship program?**

1. *Acceptance rate of recommendations*
2. *Number of dose and/or route optimizations*
3. *Total antibiotic expenditures*
4. *Total days of therapy (by agent, by unit)*
5. *Rates of C. difficile*
6. *Local antibiotic resistance rates*

Questions 33–48 for Mr. Zaboy

Question 33: **What is the pharmacist's role in consulting for all *C. diff* and sepsis patient?**

The pharmacist has a proactive and retroactive role. Once we identify a patient with C. diff, the pharmacist acts proactively to establish what the course of antibiotics or antimicrobials will be. 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 to bear. Retroactively, the pharmacist looks back to see what antibiotics the patient is already on and which ones need to be adjusted.

Question 34: **What information was provided for the restroom education?**

We generally create 8.5 by 11 inch flow charts, information sheets, and educational material. We laminate them, and we put them on bulletin boards inside the employee restrooms.

Question 35: **Why did you have facilities switch from toxin assay to the NAT PCR method?**

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

Question 36: **What is the infections preventionist/bed ratio at your hospital?**

The infection preventionist to bed ratio is 1:139. I'm the only infection preventionist there.

Question 37: **Do you use UV light disinfection for *C. diff*. room?**

No, we do no use ultra violet light to disinfect rooms with C. diff.

Question 38: **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.**

When C. diff is producing toxin it points to there being active C. difficile. So yes, it would be more accurate in that regard. We probably would be interested in that accuracy improvement, bearing in mind the usual cost to benefit ratio and so on. Also, if the results would come back within a reasonable amount of time, say within a few hours, then yes, we would probably go with that choice.

Question 39: **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?**

We use a bleach product for all C. difficile *rooms, all rooms where we suspect norovirus, all rooms with a patient that had diarrhea (even if the cause was unattributable), and also when we have what appears to be an outbreak or an influx of multi-drug resistant patients coming into a particular unit at the same time. We've also talked about using bleach for all Acinetobacter patients.*

Question 40: **All of the items discussed are great for tackling true infection. However, are you concerned about the LabID definition versus a true surveillance infection of definition? We are concerned that this LabID may be misleading.**

I agree with what the CDC is trying to do through NHSN with the LabID. That is appropriate for what they are intending to do. However, when CMS and reporting agencies take that LabID and use it for another purpose and describe it as a hospital acquired infection in

all cases, I don't agree with that.

Question 41: **Did you do any work with the institution transfer form to LTCF to control CDI?**

No. When I was hired there was antagonism between the hospital and the external facilities and the community. I did not limit myself to just hospitals and SNFs. I included doctor offices, wound care facilities, dialysis centers, homeless shelters, home care, hospice, hotels, rehab (physical and behavioral), spas, casinos, etc.; all without asking permission first as to where the boundaries may be. The data started showing it is a community problem that is not limited to preconceived opinions. There are no Infection Prevention people in the SNFs or other locations. Any communication would be directly with the administrators and Medical Directors all with preconceived ideas of the extent of the problem. Just the hospitals and the County Health Department have Infection Preventionist.

Question 42: **Neil Zaboy Do you swab the nares of all patients?**

Currently, due to a poorly written policy, yes. Is it generally getting done? No. Given that it is a nursing policy and not an IP policy, I am negotiating for an active culture surveillance program for all ICU admissions and total joint replacement patients. We will very easily be able to identify denominators, as well as patients for follow up.

Question 43: **For Neil Zaboy *C. diff* testing, what testing methodology is recommended and in what order if you do a 2-3 step process. How are these reported to NHSN when for example the toxin test is negative but the PCR is positive, do they recognize this as a lab ID event or colonization?**

The methodology will depend on the ultimate use of the data.

1. *If you want a quick indicator of possible CDIF, the PCR will do, but it does not diagnose pathogenic CDIF. Clinical symptoms will be the main driver in diagnosis, hence Lactate and Procalcitonin for SIRS and Sepsis respectively.*
2. *Use the PCR and toxin for an indicator and diagnosis of actively*

pathogenic, toxin producing infections. This would be a first alert within an hour of the potential of CDIF and then help confirm after 48 to 72 hours of the presence of CDIF toxin.

3. *The test manufacturer of our one hour PCR has added two additional steps, an enzyme screen for GDH within six hours and a culture after 24 hours.*
4. *Additional testing is for strain and susceptibility, which generally is beyond the capability of most community hospitals and the patient would be sent to a higher level of care.*

As for reporting to NHSN, the first (and only the first) qualifying third day positive specimen would be reported as a LAB ID. NHSN is not looking for cases of HAI CDIF, they are looking at the usage of testing during an admission.

Question 44: **Have you evaluated the use of the product Nosin instead of the mupericin?**

No I have not. Currently we do not have a service line where that would be considered.

Question 45: **How did you education staff on correct *C. diff* specimen collection?**

We discussed C. diff *specimen collection during orientation and then as a Just in Time session with particular nurses as needed. I discussed specimen collection with each supervisor and director. We made a laminated pictograph and also used the test manufacturer's provided literature for restroom training.*

Question 46: **Did you have a diarrhea protocol in your organization and please share what that may have been.**

We kept the protocol simple by using only the CDC and the test manufacturer directions. This way, no individual could change the process locally until the CDC or the manufacturer did.

Question 47: **Our EVS is looking for guidance beyond cleaning with bleach product for *C. diff*. Do you have other helpful processes in which our EVS could benefit in their process of cleaning?**

Emphasize daily cleanings where there is anything physical, bioload, to remove. Our clinical staff now has routine cleaning and disinfection scripted into their rounds. All equipment shells are cleaned and disinfected as they leaves the patient rooms. Any CDIF rated sporicidal will be effective, but each product has employee health, patient health, and visitor health and material science considerations. It must be emphasized, during purchasing, remodeling, and construction projects, that materials must be compatible with hospital grade cleaners and disinfectants. Directions, concentrations, and expiration dates must be meticulously followed. I have not used some of the products out there, so I will not recommend any product over another. It is a local decision based on the populations served and the specific environment.

Question 48: **Do you perform a *C. diff* Toxin if the PCR is positive?**

No. We are a community hospital that has to be very conscious of costs; not just hospital expenditures but also value for our clients outside the hospital. Additional testing would need to be specifically ordered.

Undirected Question:

Question 49: **When will non-ICU CAUTI and CLABSI rates impact VBP?**

There is a current proposal in the FY 2017 IPPS Proposed Rule to expand the locations for which CLABSI and CAUTI measures will be applicable within the Hospital VBP Program for the FY 2019 Program Year. The current proposed performance period is January 1, 2017, through December 31, 2017. The baseline period is January 1, 2015, through December 31, 2015. If you would like more information on this proposed policy, we recommend referencing the FY 2017 IPPS Proposed Rule and submitting a comment, if you have any questions or concerns. In addition, we plan to hold an FY 2017 IPPS Proposed Rule webinar in May that will address this proposal and many other proposals that were made for the Hospital Quality Reporting Programs.