QUALITY HEALTH CONFERENCING

Moderator: Keaonia Shaw
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1:11 pm CT

Operator: Ladies and gentlemen thank you for standing by and welcome to the Delmarva Foundation CDI webinar.

During the presentation all participants will be a listen only mode, afterwards we will conduct a question and answer session. At that time if you have a question please press the 1 followed by the 4 on your telephone. If at any time during the conference you need to reach an operator please press the star 0.

As a reminder, this conference if being recorded Wednesday, June 18, 2014. I would now like to turn the conference over to Carolyn Jackson, Project Manager. Please go ahead Ma'am.

Carolyn Jackson: Good afternoon and thank you for joining our monthly CDI Webinar Series. We have two excellent speakers planned for today. So most of you are very familiar with the issue of - the recent issue of the vital sign, which was published in May of this year, Making Healthcare Safer. And this issue addressed the over use of antimicrobial agents.

We are delighted to have Dr. Arjun Srinivasan from the Centers for Disease Control join us today. Dr. Arjun is an infectious disease physician who is currently serving as Associate Director for Healthcare Associated Infection Prevention Programs in the Division of Healthcare Quality Promotion at CDC.

He's also a captain in the U.S. Public Health Service, and has spent this area at Johns Hopkins University where he did his Infectious Disease Fellowship. He has an extensive resume' and is passionate about improving antibiotic use and slowing antibiotic resistance.

Our second speaker is (Mary Lithicum), who has one of three infection prevention managers at Mercy Hospital. She's been at Mercy Hospital for 36 years. (Mary) spent the first 27 of her nursing career in critical care and started working in infection prevention in 2005. She finds that working in infection prevention is both challenging and fascinating.

(Mary) is the Project Lead for the CDI Team at Mercy, and we'll hear from her following Dr. Srinivasan's presentation. Dr. Arjun.

Dr. Arjun Srinivasan: Great, thank you so much Caroline. Well I want to thank all of you for joining us today for this webinar session, and really appreciate your including antibiotic stewardship in your work on Clostridium difficile.

I certainly think it's important work in any effort to combat Clostridium difficile, and hopefully over the next 30 to 45 minutes we can talk a little bit about why it can be so important in combating - why stewardship is so important in combating Clostridium difficile, and some ideas on how we might get that done. I have no financial disclosures.

I'll begin with a couple illustrations from the literature on why antibiotic stewardship is so helpful in our efforts to combat Clostridium difficile. I'll begin with a study that was published about a year, and I like to open with this study because it is one that was done at a community hospital.

So this not from a large academic medical center with a very heavily resourced stewardship program, this was a community hospital that decided to start a stewardship effort based on the fact that they were having a very high incidence of Clostridium difficile.

And they focused on reviewing the course of therapy of a number of key broad spectrum agents, and those are highlighted here. But interestingly they did not decide to review quinolones, because they didn't think they had the staffing to be able to do that.

They performed a pre and post analysis looking at both antibiotic use, and its impact on Clostridium difficile infections. And what they found is that they were able to review 450 course of therapy over the course of the year. And they had a pretty dramatic drop, a 25% decrease in these targeted antibiotics. And that resulted in a more than threefold reduction in Clostridium difficile infections, down from 3.7% to .9%. So a very dramatic drop in both antibiotic use and Clostridium difficile.

Now they did do a multivariate analysis to look at potential other factors that might be involved in this reduction, and found that the Stewardship Program remained statistically associated with a drop in Clostridium difficile, even in a multivariate analysis. So I think a very nice example of the power of antibiotic stewardship can impact Clostridium difficile.

And this has been demonstrated in many studies from individual hospitals all over the United States and all over the world, but it's been, I think, most powerfully demonstrated on the largest scale in England.

Since around 2004 or 2005, England has had a national effort to combat Clostridium difficile throughout the country in their national health system. And their approach has been to really focus on two classes of antibiotic agents, cephalosporins, third and fourth generation cephalosporins, and fluoroquinolones. Because these are the agents which are most strongly associated with Clostridium difficile.

And they've been particularly focused in trying to reduce the use of the agents in older patients, who as we all know, are at the highest risk for C. diff, and also at the highest risk for adverse events from their C. diff affection, colectomy and depth.

And you can see from this graph that - the dramatic results that England has been able to attain. They've had a nearly 50% drop in the prescribing of the cephalosporins and fluoroquinolones, and they've had a nearly 70% drop in cases of Clostridium difficile in patients older than 65 years old.

And this a really, I think, unbelievably impressive data when you consider this is not just from one hospital or even a group of hospitals, this is for the entire country of England.

And this experience of using antibiotic stewardship to combat C. diff was most recently also analyzed in a meta-analysis. There are so many studies now where people have looked at stewardship interventions to combat C. diff that these investigators at the University of Iowa were able to conduct a meta-analysis.

They found 16 different studies that met the criteria for the meta-analysis, and found that stewardship programs were significantly protective against Clostridium difficile. A nearly 50% protective factor, or more than 50% protection against C. diff afforded by antibiotic stewardship interventions. They found that the restrictive interventions were the most effective, and the protection was especially strong in geriatric settings.

So I think quite a body of evidence that demonstrates to us that antibiotic stewardship is very effective in combating C. diff, and really must be part of our armamentarium of interventions that we apply to reducing of Clostridium difficile.

So I'll pivot now and begin to talk a little bit about antibiotic stewardship itself. And begin with the definition. In my opinion antibiotic stewardship actually can be summarized very simply, it's ensuring that every patients gets an antibiotic only when they need one, and that they get the right agent at the right dose for the right duration. That is what we mean when we talk about antibiotic stewardship.

The goal of antibiotic stewardship is singular, there's one main goal, it's improving patient safety and outcomes. Now I emphasize that because there's a lot of discussion about reducing antibiotic use and saving hospitals money. And those are wonderful things, but I think it's important to emphasize that those are not the primary goals of antibiotic stewardship.

Now if we do antibiotic stewardship well, we know from study after study after study, that we will effectively reduce antibiotic use and we'll save money. But in my opinion, those are very desirable and happy side effects of our stewardship programs, they are not the main goal. We do stewardship to

improve the use of antibiotics in order to make patients safer and improve their outcomes.

And I think we've reached a time where we have to engage in a fundamental shifting in the way we think about antibiotic stewardship. And in my opinion, this is a lesson that we have learn from our experience in infection control and infection prevention.

We know now that infection prevention works best when it's viewed as everyone's responsibility, not the responsibility solely of the infection preventionist, but the responsibility of every healthcare provider. With healthcare epidemiologists and infection preventionists available as resources to help these front line providers lead efforts to combat healthcare associated infections. And I think stewardship needs to follow that same model.

Stewardship should not be something that is the job of the Antibiotic Stewardship Program to do for you, or even worse, to you, but it really should be something that all providers are a part of.

The goal of stewardship programs is not to dictate what individuals do with antibiotics, it's to ensure that there are systems in place to support good antibiotic use and help every provider use antibiotic optimally.

Just like I tell people, "It's not the job of your Infection Control Program to tell you to wash your hands, it's their job to educate you, to put the systems in place and make hand hygiene the easy and right thing to do in your hospital."

So for this to work for stewardship we have to get every provider to play a role in stewardship, not just the Antibiotic Stewardship Program. We need

other groups not just to become grudging participants in stewardship efforts, we need them to take on leadership roles in improving antibiotic use.

We need hospitalists to become leaders in improving the way we treat pneumonia, urinary tract infections and skin and soft tissue infection. These conditions are primarily treated by hospitalists, and we need their insights and their expertise to improve the way we use antibiotics in these infections. We need intensivists to help us in critical care settings and surgeons to help us improve surgical prophylaxis and the management of surgical site infections.

Stewardship programs are going to be most effective if they become a partnership between a Stewardship Team and front line clinicians.

But we also know from our experience in infection control in hospitals that the - if you get these front line providers engaged, you'll make dramatic progress if the front line providers are supported with specific expertise.

And for infection control that is of course, the infection prevention and control and epidemiology departments, and for antibiotic stewardship this of course, is an antibiotic stewardship program that provides that expert support to help providers do the right thing.

The proven benefits of antibiotic stewardship programs have led now to formal recommendations for the implementation of antibiotic stewardship programs in all acute care hospitals, both from the Centers for Disease Control and the American Hospital Association.

The question of course becomes, "How do we make this happen? How do we get a stewardship program up and running in every hospital in America?" And I think the answer is, "We seek flexibility."

Hospitals don't all look the same, and neither should antibiotic stewardship programs. And that's I think, a trap that we've maybe fallen into, is to think that there's just one model for how a stewardship program needs to look. There are lots of ways that we can accomplish these stewardship programs and we need to be flexible in how they're implemented.

What we do know is that there are some certain key elements that have been very strongly associated with successful stewardship programs, and when we go implement a stewardship program we need to make sure that it encompasses those key elements.

And those elements are summarized in a document that CDC put forward last March called, "Core Elements for Hospital Antibiotic Stewardship Programs." And I'd like to very briefly run through these with you.

There are seven of these core elements that are summarized on this slide here, and I'll say a few words about each of these.

The first is leadership commitment, and just as the cases all of you know for any effort to improve quality in healthcare, be that reducing infections or improving antibiotic use, there has to be a commitment from the facility leadership.

So for stewardship the facility leadership needs to make a formal statement of support let folks know that at the highest levels, that the facility is supportive of the antibiotic stewardship program.

Leadership has to ensure that there are resources available to get this done, the time of staff members and other resources. We know financial support is very,

very helpful to getting these efforts off the ground and making stewardship programs happen.

There needs to be leadership for the program, there needs to be a designated leader, a single person, who takes ownership and responsibility for the program. Because antibiotic prescribing is a medical staff function, it makes sense that a physician, a prescriber of antibiotics, would be an effective leader of this program. That has in fact been the case in many institutions.

But pharmacy leadership is also critical for this program because the pharmacy, of course, plays a very, very important role in the prescribing and dispensing of antibiotics.

What we do know is that leadership by committee is not as effective. So deferring leadership of the Stewardship Program to the Pharmacy and Therapeutic Committee, for example, does not tend to work. There needs to be individuals who have designated responsibility for leading these stewardship programs.

In addition to that leadership, I'll of course mentioned that there are a number of groups that play very important supportive roles in that stewardship program, and as all of you know, the Infection Control Program is critical to that as well.

It's important for facilities to monitor and track antibiotic use. This is very important both to find opportunities for where you might be able to improve use and intervene. And it's also critical in assessing the effectiveness of any interventions that you implement.

It's important to - there are a number of different ways, I think, that you can measure and monitor antibiotic use, and also process measures. Pharmacies are often times able to help you monitor overall antibiotic use. But in addition to that, I think it's important to have other process measures to determine how well you're using antibiotics in your facility.

One of the things that CDC has worked on with some external experts are some audit tools that can actually help you assess not the amount of antibiotics that are being used, but how well those antibiotics are being used. Is your use in your facility consistent with best practice guidelines and recommendations?

And we have these audit tools for community acquired pneumonia, urinary tract infection and for the treatment of resistant gram-positive infections. We also have one for general antibiotic use.

These forms are available on our Get Smart for Healthcare Web site, and they're available as Word documents. So you can take these forms and modify them in whatever way that proves useful to you.

And the goal of these audit tools really is to help point to areas for potential improvement. For example, "Does it look like you're overtreating a symptomatic bacteria area, and is that an area where you might want to intervene?"

In addition to measuring process of course, it is helpful to measure outcomes. Of course one of the big outcomes that you can measure for your stewardship program is Clostridium difficile infection. And one of the advantages of that outcome is that most of you are already measuring that and reporting that information into the National Healthcare Safety Network.

It's also though, I think helpful and important, as we discussed, to measure actual antibiotic use. Pharmacies can be very helpful in doing that, and as many of you might know, NHSN now also has an antibiotic use auction as part of the Antibiotic Use and Resistance Module. That can allow you to electronically collect data on antibiotic use.

And any of you that are interested in potentially reporting your data into the Antibiotic Use Module, I would love to talk with any of you about potentially getting you enrolled in the Antibiotic Use Module. It's an electronic module, all electronic data collection, to monitor antibiotic use. And it's a module that we're very excited about. It was launched in 2012.

Reporting and education are also very important. Stewardship programs need to be giving data back to the hospital to let them know about the process and outcome measures on the antibiotic use, helping them know what their C. difficile rates are doing, and also helping educate them about key issues with antibiotic resistance.

But ultimately, you know, the place where the rubber meets the road for stewardship programs is with the implementation of specific interventions to improve use. And I think we know a lot about how we can structure interventions to improve antibiotic use so that they're most effective.

And I like to talk about this in the framework of key moments for antibiotic stewardship, and this is, I think again, a lesson learned from infection control where Dda, (PATA) and the World Health Organization have really spearheaded this effort of the Five Moments for Hand Hygiene. It's not about telling people to wash their hands; it's about telling people exactly when they need to do it.

And just like stewardship, it's not about telling people to improve antibiotic use, it's giving them specific suggestions on moments in time, specific points in patient care where there are opportunities to improve that use.

I think there are a number of key moments for antibiotic stewardship, and I'd like to talk about a few of these today. And I'll begin with the issue that brings us together today, which is of course, Clostridium difficile.

Patients who have Clostridium difficile are a key group where we need to do antibiotic stewardship interventions and there are several reasons for that. We know that receiving antibiotics that are not to treat a Clostridium difficile infection prolongs the duration of symptoms, it lowers cure rates for Clostridium difficile. And we know that there's a lot of antibiotic use that happens in patients who are getting C. diff.

This is study just demonstrating that point that I mentioned, that receipt of antibiotics in patients with Clostridium difficile increases the risk of recurrent disease. And also increases - lowers cure rates, prolongs diarrhea and again, another study showing that it increases recurrence of Clostridium difficile.

We know that there is a lot of unnecessarily antibiotic use, even in patients who have Clostridium difficile. And that's something that I find especially troubling and an especially important opportunity.

We know that every treatment guideline for Clostridium difficile, the Number 1 recommendation is stop all the unnecessary antibiotics. Yet as we see from this study that often doesn't happen, 141patients who were receiving antibiotics, following a new diagnosis of Clostridium difficile.

So these are patients who are suffering what we would consider to be one of the most serious adverse events from antibiotics, yet among those patients 45% of all of the antibiotic days included at least one antibiotic that was unnecessary, and 36% of all of those antibiotic days, 2000 antibiotic days, included only unnecessary antibiotics. So 1/3 of all of those antibiotics could have been stopped in these patients with Clostridium difficile.

So these, you know, 141 patients were all patients, 1/3 of whom were placed at greater risk unnecessarily for lower cure rates and recurrent infection.

We also know that combating an overuse of prophylactic antibiotics can make a big impact on Clostridium difficile. There's a nice study in a neurosurgical unit where they had a practice, they had observed a C. difficile rate that was double the overall hospital rate.

And when they went and began looking into that they found that what was happening in this neurosurgical unit was that the patients with external ventricular days were getting standing orders for Cefazolin for as long as those drains were in place.

There's - the authors of the study point out that there's no data to justify that practice, and so they made a policy change and said that, "Cefazolin could only be used for up to 24 hours in a patient who had an external ventricular drain placed."

What they found is that these Clostridium difficile rates dropped from 1.97 to .51 per 1000 patient days in that unit, so a huge reduction of C. difficile for a very, very simple intervention. And there was no change in the incidence of positive ventricular cultures.

Well another opportunity to do antibiotic stewardship, to intervene on the antibiotic is of course patients who have positive blood cultures. I think these make an excellent target for antibiotic stewardship interventions because they're easy to find, you can review and most of - many of you doing infection control already review all of positive blood cultures for your facility. And generally there aren't too many of these.

And this, in my opinion, has a dual benefit for antibiotic stewardship, because it can help ensure that patients who have serious infections are getting proper therapy, and it can also help reduce the treatment of blood culture contaminants. So these patients who present, I think, an ideal opportunity for stewardship interventions.

Patients who are being discharged on IV antibiotics I think are another key constituency group for antibiotic stewardship interventions. And this of course, obviously has implications, not just for your hospital onset C. diff cases, but also for your healthcare associated community onset Clostridium difficile cases.

This is a really nice study that was done by the Cleveland Clinic where they implemented what I would consider to be a fairly simple intervention, it was a mandatory IV consult for any patient who was ready to - going to be discharged on Intravenous antibiotics.

And what they found is that in nearly 1/3 of instances the infectious disease consult recommended that the patient did not need any antibiotics post-discharge. That the infection had either been already treated completely, or that there wasn't an infection that required the use of IV antibiotics.

What they found is that there were - this was a very, very safe intervention, none of the patients were readmitted or even had an emergency department visit for patients who had their antibiotics stopped before discharge.

Patients who were on unnecessary duplicative therapy, I think presents another fantastic opportunity to improve antibiotic therapy. We have done a study with Premier Healthcare, and there are many others, that show that patients often times in our hospital get unnecessary combinations of antibiotics. They're getting two or even three antibiotics with overlapping spectra for no good reason.

There is very, very few indications for patients to be on multiple antibiotics with overlapping spectra. And it's been studied and demonstrated that simply flagging that these combinations are being given can improve use. Because often times providers don't know that the antibiotics that they're giving have overlapping activities.

And in fact, one of the big areas where this has been shown to be a problem and an opportunity for intervention is with patients who were getting multiple anaerobic agents.

For example, some providers don't know that piperacillin and tazobactam have excellent anaerobic activity, and there's no need to add metronidazole to piperacillin and tazobactam to cover anaerobic therapy. So simply flagging some of these combinations can be a very simple way to improve antibiotic use.

Community acquired pneumonia, urinary tract infections and skin and soft tissue infections, I think are also three critical diagnoses where there are a number of opportunities to improve antibiotic use. And I'll say a few words

about each of these, and reiterate that these are three diagnoses where collaboration and partnership with your hospitalists can be really, really important in trying to improve antibiotic use.

We know that for community acquired pneumonia this is one of the most common reasons why patients get antibiotics in hospitals and we know that patients are often misdiagnosed as having community acquired pneumonia. In several studies somewhere between 20 and 30 patients who are initially diagnosed with community acquired pneumonia end up not having that as their discharged diagnosis.

We also know that even when patients do have community acquired pneumonia, oftentimes the antibiotics are not tailored to culture results when cultures are obtained. And we also know that patients are treated for way too long when they do have community acquired pneumonia.

This was a very nice study looking at duration of treatment for community acquired pneumonia. And these investigators were very clever in their approach in that they looked at both inpatient and outpatient antibiotics because we know that the inpatient length of stay is only about 5 days for most of these patients.

And what we find is that treatment guidelines for immunocompetent normal host patients recommend roughly 5 to 7 days of therapy for community acquired pneumonia.

But in this study 88% of the patients were being treated for more than 7 days; about half the patients were getting treated for more than 10 days; and a small number of patients, but not small enough in my opinion, 15% of patients were getting therapy for more than 14 days of antibiotics for community acquired

pneumonia. So you know, almost 90% of the patients were getting therapy that was longer than what was recommended in the treatment guidelines.

And the investigators did look at immune status to see if the immune suppression was explaining this longer duration of therapy. And what they found was that immunocompetent patients were getting exactly the same duration of therapy as the immunocompromised hosts -- 10-1/2 days versus 11 days.

So this really seems to represent a lack of awareness of how long these patients needed to be treated for. So what these investigators did is took the next step and implemented an intervention to bring treatment duration in accordance, in line with treatment guidelines.

And what they found is that in their preliminary study that they were able to reduce treatment duration from 10 days to 7 days, which led to 148 fewer days of antibiotics. And they also found that they were more frequently able to get people to narrow therapy based on culture results, and they were able to reduce duplicate antibiotic therapy.

Urinary tract infections, or more specifically the overtreatment of asymptomatic bacteria, is another very important opportunity to improve antibiotic prescribing and antibiotic stewardship.

And this is three studies simply demonstrating the point that somewhere between 1/3 and 1/2 of patients who are getting antibiotics for the treatment of a urinary tract infection actually have asymptomatic bacteriuria where there are very few indications for antibiotics to treat asymptomatic bacteriuria.

And so simply making sure that when providers are treating a urinary tract infection, they don't just react to a positive culture result from a urine culture, but that they really evaluate the patient to make sure that they seem to have signs and symptoms of a urinary tract infection can be a very important opportunity to improve antibiotic use.

And the final syndrome that I'll discuss is skin and soft tissue infection. These have become a very common reason for admission to the hospital for IV antibiotic therapy, particularly in the area of - era of community associated MRSA infections. We know that skin and soft tissue infections are overwhelmingly caused by gram-positive pathogens, either by Staph aureus pathogens, including Methicillin-resistant Staphylococcus aureus, or MRSA, or by streptococcal pathogens.

But despite this study after study shows that patients who get admitted to a hospital for treatment of a skin and soft tissue infection oftentimes get agents that have activity against gram-negative pathogens and anaerobic pathogens, even those - even though these are almost never the cause of skin and soft tissue infections.

Some investigators in Colorado did a very nice study where they implemented a treatment guideline for - a treatment and diagnosis - a diagnosis and treatment guideline for the management of skin and soft tissue infections in their facility in order to get people to try and make the diagnoses correctly and then prescribe the right antibiotics.

And this simply intervention of treatment guideline at that facility resulted in a 3-day reduction in the total duration of average duration of antibiotic treatment from 13 days to 10 days, and resulted in less use of agents with

gram-negative and anaerobic activity, and also led to a better use of diagnostic studies and consults.

So this is, I think one of those great examples of how an intervention to improve patient safety and patient care has all of these other benefits in reducing diagnostic studies, more appropriate consults, and also reducing antibiotic therapy.

A final area that I think is important for us to consider for interventions is patients who have been on antibiotics for more than 3 days. This is a study that demonstrates the power of this approach in an intensive care unit. And I like this study because it is in an intensive care unit, which is a setting that is very difficult sometimes to do antibiotic stewardship; these are very, very sick patients and there's always a reluctance to stop antibiotics in these patients.

What this intervention did is they had an antibiotic stewardship program that gave providers feedback on their antibiotic choices after the patient had been on therapy for 3 days, and then they went back at 10 days and gave them feedback again for any people who were still on antibiotics.

And what they found is simply giving people feedback on antibiotic use after they've been on antibiotics for a few days led to a significant drop in antimicrobial use from 644 days of therapy to 503.

And it also led to a drop in Clostridium difficile, and interestingly led to an increase in susceptibility for - to Meropenem in that intensive care unit. So they not only were able to reduce Clostridium difficile, they were actually able to reduce antibiotic resistance through the simple act of giving providers feedback on antibiotic choices after Day 3 of therapy.

This fits with this idea that we've been promoting at the CDC on taking what we call an antibiotic timeout. We know that antibiotics are almost always started when there's very limited clinical information. And the most important information that we can get, our culture results, they aren't back at the time when we start antibiotics. But after 2 or 3 days we're in a much better position to assess the need for antibiotics.

And so we encourage people to take a deliberate timeout, to stop, just like we do a timeout before we make an incision. We want people to do a timeout after 2 or 3 days of antibiotics to ask themselves some key questions; does this patient need an antibiotic, do we still think that they have a bacterial infection; if they do, are they on the right antibiotic based on the culture results; and if they are, how long does that antibiotic need to be continued for?

So I hope I've convinced you, and I would argue passionately, that antibiotic stewardship has to be a core strategy in addressing C. difficile in hospitalized patients. If you talk to experts in Clostridium difficile, I believe that there's a growing consensus that all of our efforts to do environmental infection control are going to be helpful, but will only take us so far in combating Clostridium difficile.

Think there's a growing consensus that if we don't address antibiotic stewardship, we're not going to be able to reduce Clostridium difficile as much as we want. I think all hospitals need to have an antibiotic stewardship program to help guide their efforts to improve antibiotic use. But I also think that those stewardship programs have to be supported by active engagement by all health care providers in antibiotic stewardship efforts.

We at CDC are really eager to partner with any of you who are interested in working on improving antibiotic use. We want to be a resource to any and all

of you in your efforts to combat Clostridium difficile and your efforts to improve antibiotic use. And I hope that you will take me up on that offer and let me know if there are things that we can do to support you in your efforts.

And those are the remarks that I had, and I'm going to now pass the baton back to (Carolyn) for our next presentation. (Carolyn), would you like to do questions now or do all the questions at the end?

Carolyn Jackson: We have a few moments - few minutes for questions. Operator, can you inform our participants how they can ask the question?

Operator: Yes, thank you. Ladies and Gentlemen, if you would like to register for a question please press the 1 followed by the 4 on your telephone. You will hear a three tone prompt to acknowledge your request.

If your question has been answered and you would like to withdraw your registration, please press the 1 followed by the 3. And if you're using a speakerphone today please lift your handset before entering your request. One moment please for the first question.

Carolyn Jackson: While we're waiting for that to come online Dr. Arjun, thank you so much for that excellent presentation. And I just wanted to know if you could comment on the antibiotic pipeline. I think I have heard you speak to that recently, and it might be helpful for some of the other of our participants to hear about, you know, how we're lagging behind in getting new and additional antibiotics available to the public.

Dr. Arjun Srinivasan: Yes, absolutely (Carolyn). That's a great point that you're making and a kind of sobering statistic. We know that they're - most of - most drug companies got out of the business of making new antibiotics quite a while

ago, many years ago, because of course there's not much money to be made in antibiotics compared to some other conditions.

And we - antibody discovery is hard work. A lot of the easier targets for new antibiotics have been discovered. And as a result we really don't have any drugs in the pipeline that are active against these new resistant gram-negative infections.

We've seen some encouraging developments in treatment for gram-positives for MRSA, but where we really lack is new agents to treat these gram-negative infections like Carbapenem-resistant Enterobacteriaceae. And most experts predict that it's going to be many years before we see any new agents to treat these gram-negative infections. So you know, improving antibiotic use is, I think in the short-term, our best bet to combating the development of antibiotic resistance.

Carolyn Jackson: Thank you so much for those comments. Operator, do we have any additional questions?

Operator: We currently do not have any questions. But Ladies and Gentlemen, as a reminder if you would like to ask a question today please press the 1 followed by the 4 on your telephone. And there are no questions at this time.

Carolyn Jackson: Okay, while we're waiting for people to come on board with that, we'll slip now to Mercy Medical Center CDI Reduction Team. (Mary Lithicum), could you begin your discussion please?

(Mary Lithicum): Good afternoon everyone. As (Carolyn) mentioned earlier, I am the Project Lead on our CDI Reduction Team. And if you can go to the next slide, that's a picture of our team.

We're a multidisciplinary group which includes micro - members from micro, nursing, pharmacy, EVS, quality, infection prevention and we as well as infection prevention from Stella Maris Nursing Home in our region, and we're - we meet monthly. And during those meetings we decided that one of the things that we wanted to investigate to try to reduce CDI was environmental monitoring.

So we wanted to investigate fluorescent marker audits. And as we all know, CDC encourage us, in view of the evidence that transmission of many of the health care acquired pathogens is related to contamination of patient surfaces and equipment, and that they encourage all of us to develop programs to optimize that thoroughness of high touch surface cleaning as part of the terminal through cleaning in time of discharge or transfer of the patient.

So we decided to implement a fluorescent marker audit utilizing a fluorescent lotion, which actually it's a gel that is a lotion base, the product that we're using, to evaluate terminal cleaning of the patient rooms. And at the start of that process was trying just to decide how we would make that protocol.

So we had a lot of - it took us actually a couple months of meetings to go over all of these questions. And some of them, "What are the high touch areas that we wanted to use?" And we actually utilized the CDC Environmental Checklist for monitoring terminal cleaning as a template and deciding which high touch areas that we wanted to utilize.

And then once we had that it's, "Who would mark these patient rooms? Who would be the best people to do that?" And that actually took quite a bit of discussion.

And what we ended up deciding was that we wanted the - we felt that the charge nurse was the best person to mark the room after the patient was discharged and transferred, because they would actually be the ones that would know right away, as real-time as possible, when that patient was transferred or discharged.

So they could kind of slip in covertly before EVS was even aware that that room was empty. Because of the high patient turnover we didn't want to prolong that by calling somebody or notifying. And they were actually on the unit. So that was what we decided at that point.

And then, "How would these rooms be evaluated?" We wanted the charge nurse who actually marked the room be involved so that they could see - so we wouldn't have specific areas on each of the high-touch, for example the chair, the patient chair, the bed-rails, we didn't want to have specific places because we didn't want that to be standardized.

So therefore we wanted the charges - charge nurses to mark different areas on that particular item so that they needed to be there to show where that was marked. We wanted the EVS staff who clean the room. And then we wanted the EVS supervisor there as well so they could provide immediate feedback at that time.

"How many audits should we do? What was reasonable for both the charge nurse and for the EVS supervisor to be there?"

So we decided at that point that two audits per week would be reasonable for that. And that - we currently have - we've rolled this out to all of our med/surg areas and to the critical care and IMC units, so that that would give us about

12 audits per week. And at the present time we have found that that's been pretty doable for everyone.

"What time of day?" You know we'd love to have it 24 hours, but we unfortunately our charge nurses on day - on night shift, excuse me, do have their own patient loads, so we were concerned about how well they would be able to do that. And so currently we are just doing on day shift, which is our 7:00 am to 7:00 pm.

But what we're finding from feedback with the EVS director is that most of our discharge beds are - that kind of captures all of them. There's very few that are being done on night shift. So we're actually able to capture a lot of that on the beginning of the EVS evening shift.

And, "How would we roll this out?" So we decided that we would trial this on two units, and then roll that out for - into the rest of the hospital. And that's worked out really well because through those two units we were able to kind of, you know, evaluate some of the processes that - and actually it gapped our form a little bit more specific to what our needs were.

So then the next slide - actually what the fluorescent marker audit was, each unit completes 2 audits per week. We currently are doing them Monday through Friday, randomly, any time of that day 7:00 am to 7:00 pm - actually to 5:00 pm is when everyone can be marked. The charge nurse marks the room. They use a swab motion when marking the high touch areas.

Of course that reinserts the Q-tip into the Glo Germ bottle once it's been used to swab the surface. And we've asked not to mark the discharge rooms any later than 5:00 pm because that gives the EVS staff at least 2 hours before that - or 3 hours before that charge nurse leaves so that she can be involved with

the audit. Once the room's been cleaned, as I mentioned before, it's checked with all three of those individuals.

So this next form is our latest form. The next slide has our latest audit on there. And what we found was - and that was changed. We kind of adapted some of the - what we put on there. We also adapted the columns. And actually we're going to be redoing the form once again next month, for next month's meeting.

But the Top 3 high touch areas that we found that were missed in cleaning were the patient chair, the bed rails and controls, and then the IV pole. Runners up were, the room sink/faucet -- we have an actual sink in the patient room -- and then also the bed, the bathroom sink/faucet.

Some of the lessons that we've learned with this is "A little dab will do you." We were finding that sometimes the charge nurses were putting too much of the Glo Germ on some of the high touch areas.

For example, we actually had to take off our light switches off of the audit because three - at least three cases where the amount of wetness of the (caddy wipe) that was needed to clean the Glo Germ off the light switch caused smoking at the switch. So we definitely removed that.

And currently we have - EVS does their own audits and so they're continuing to do that so that we can kind of have some control over how much of the Glo Germ that's put on that. As well as - just as an aside too, EVS has their own kit as well, and they're using that for competencies and for training with that.

We also had to remember only high touch areas. Everybody was very enthusiastic with this process, it was kind of like CSI, but some of the charge

nurses were actually miss - not using high touch areas but doing like for example, swabbing underneath the middle of the mattress, underneath the patient's mattress. So we did need to remind everybody that this is to be high touch areas.

And you know, it was a real culture change for EVS staff. They had to - first off, you know, we had to educate and teach that this wasn't punitive, it's an audit just like many restaurants do audits and it's just a measuring tool for how well it's done. And just because it looked clean - which is what we previously, you know, used whether the room was clean, did it look visibly clean, but now we actually had to show that it's clean.

We also found that there was a difference in cleaning hard versus soft surfaces. If it was a hard metallic surface the Glo Germ Gel lotion came off a lot easier than with the soft surfaces.

We had originally told the charge nurses they could add some of their own high touch areas, but we had to curb their enthusiasm because there was just so many spots that they were - they - like I said, "They really got into it with that." So we definitely streamlined that and told them that they could only add two additional areas.

And then one of the things, that you know with any process, we of course learned was that you don't assume that the process is being done as to what you understand as being done. We found out that sometimes the EVS supervisors didn't feel quite comfortable with having the staff in there during that time.

So we had to relook at that whole issue and reemphasize how important it was that everybody was there so that it wasn't a - and then - and do a lot of

education so that it wasn't - we didn't certainly want it a demeaning but an actual learning experience with that.

So some of our future plans with this is that we would like to implement the audits on all the shifts and that we would rotate the high touch areas on the audit. When we originally started this - so we started this in March with our trial. We went house-wide in the beginning of May. And in the beginning we had a lot of noncompliance with a lot of our high touch areas. And certainly in the last two or three weeks the audits have looked much, much better.

And we certainly hope that we will see a decrease in our C. diff, you know, health care facility onsite C. diff. As well as in everything else, because you know certainly environmental cleaning impacts, you know, device infections, impacts a lot of other areas as well. So we look forward to seeing those results.

And I'd - if anybody has any questions I'd be happy to answer them if I can.

Operator: Ladies and Gentlemen once again as a reminder, if you would like to register for a question today please press the 1 followed by the 4 on your telephone. And we are showing no questions at the time.

Carolyn Jackson: Okay, I'll ask that the evaluation be placed - made available to the attendees for today. Thank you very much (Mary). And again Dr. Arjun, if you're still on the line I want to thank you as well. We certainly appreciate you sharing your expertise and knowledge with us.

If anyone is interested in contacting either of these speakers, our - the information, as you will recall the - all calls are recorded and available on the - our Web site, which is mdqio.org, or dcqio.org, so we can certainly hook

you up with those people if you have additional information - questions, or want to learn from them.

I just have a few reminders. One is to complete the evaluation. And additionally, we have recently sent out the report card for the first quarter of 2014.

And as you will recall, those report cards do illustrate how you are doing in terms of lowering your CDI rates at your facility. So you should be looking for those report cards in the next few days. They were sent to your Chief Executive Officer, as well as the person who's responsible as the CDI - who's been designated as the CDI Team Chair.

We've also released the latest issue of the (unintelligible) Gazette. And please take an opportunity to review this latest issue. And you can let me know if you need additional copies of the issue. This does contain pertinent information to the work of our collaborative.

And in this issue we are featuring a story from (Cathy Finch). We want to thank you (Cathy Finch) from (Med Star Good Sam) Hospital, because they've been addressing their team journey of reducing CDI. And many of you may find that valuable to review and possibly implement some of those practices as well.

As you may be aware, your CDI Team should be in the spread and sustainability phase of your collaborative. So we are hoping that you're continuing to implement processes and procedures to reduce your overall CDI incidence rate.

We heard a lot of good information today about using environmental monitoring to help look at that and to look at some data and outcomes from that as well. And we also heard an excellent talk on the importance of antimicrobial stewardship in this effort. So please take an opportunity to continue to implement those practices as we look for overall reduction in CDI, and also the purpose of this call, to protect our patients.

Again, a reminder that all calls are recorded and available online. In addition to the calls, the slides from today's presentation are available for you to review.

If there are no other questions or comments, we'll take this opportunity to thank you for joining us today, and have a good rest of your day.

Operator: Ladies and Gentlemen that does conclude the conference call for today. We thank you for your participation and ask that you please disconnect your line.

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