QUALITY HEALTH STRATEGIES

Moderator: Caroline Jackson
November 20, 2013
12:00 pm CT

Operator: Ladies and gentlemen. Thank you for standing by and welcome to this CDI Conference call. During presentation all participants will be in 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.

Should you require operator assistance, please press Star 0. As a reminder, this conference is being recording Wednesday November 20th, 2013. I would now like to turn the conference over to Caroline Jackson, Project Manager at (Delmoba) Foundation. Please go ahead.

Caroline Jackson: Good afternoon and thank you for joining this - our continuing series of monthly conference call and our (unintelligible) CDI super management and stewardship.

I'm so glad that you could join us today. As you know, this is the national Get Smart About Antibiotics week and we'll be having a discussion form about microbial stewardship and it's relationship to CDI reduction.

Hopefully some of you were able to join the CDC's Grand Round Presentation yesterday, Combating Resistance, Getting Smart About Antibiotics. For those of you who are unable to join that Grand Round Presentation, the session was recorded.

For today's call we have structured a unique approach to our Webinar. We will have opening remarks, focusing on C. diff. and microbial stewardship by Dr. Sara Cosgrove followed by a question and answer session for all participants.

We have an expert panel - we have expert panelists to guide our discussion on various question and topics which we will display to you on the screen. And we have an opportunity for everyone to participate in today's discussion starting out with a question from - that we would all - like for you all to respond to.

I will review Dr. Cosgrove's bio now and provide additional information on our expert panelists later in the program. So Dr. Sara Cosgrove is an Associate Professor of Medicine in the Division of Infectious Disease at Johns Hopkins University School of Medicine and have a joint appointment in the department of Epidemiology on the Johns Hopkins Bloomberg School of Public Health.

She served as Director of Antimicrobial Stewardship Program and as the Associate Consult to Epidemiology at the Johns Hopkins Hospital. She's co-authored over 60 peer reviewed publications in these areas. Dr. Cosgrove currently serves as secretary on the Society for Epidemiology of America Board of Directors. And she's a chair of an antimicrobial stewardship taskforce.

In addition, she's a member for the Center for Disease Control and Prevention Antimicrobial Resistance Workgroup and the Maryland Healthcare Commission's Hospital Acquired Infections Advisory Committee.

Dr. Cosgrove received her undergraduate degree from Columbia College, New York, her medical degree from Baylor College of Medicine in Houston, Texas, and her Master's of Science in Epidemiology from Harvard School of Public Health.

I have always found her presentations enlightening and informative. So please join me in welcoming Sara Cosgrove.

Dr. Sara Cosgrove: Thank you so much for that very kind introduction. I do have a disclosure. We're actively working on a study comparing prior approval for antimicrobial use versus post prescription review -- which is to some degree related to what we're going to talk about today.

I wanted to start with a - just a mention of the threat report that the CDC came out with a month and a half ago because I think it's relevant to note that clostridium difficile basically made it into the top three at the urgent threat level along with CRE and resistant neisseria disease.

And so this is a real critical issue and it's just interesting that it was in the top three because, truthfully, the issue with clostridium difficile is not resistant -- as we all know. The issue with clostridium difficile is that it is a side effect of antibiotic use.

So it has that in common with resistance -- which is also a side effect of antibiotic use. But it is not a resistant organism as the organisms in the threat report are.

If you haven't taken a look at this, it's worth looking at because it is very nicely put together with a lot of, kind of, sound bite points. So if anyone needs it to make critical points to administrators are to clinicians, I think it can be very helpful from that standpoint.

So we can move on. So I think that reduction in CDI rates is really a multidisciplinary activity. And today I'm going to speak specifically about antimicrobial stewardship. And I'm sure that, you know, others have spoken in the past about infection control and how critical that is for reduction of CDI.

I think that the microbiology lab can also be a critical group to engage in terms of what kinds of tests are done for C. difficile, what kind of stools accepted in the microbiology lab for C. difficile testing.

And I don't know if you have covered that in previous talks, but I think it's really critical also. But today we're going to talk about antimicrobial stewardship. And you can go onto the next slide.

Okay. So I just want to separate this - my comments into two areas. The first is to provide some recent evidence that improving antimicrobial use through antimicrobial stewardship decreases rates of clostridium difficile in section.

And then after I show you that evidence -- which, you know, hopefully it will convince not just you -- who probably doesn't need a lot of convincing, but other people that you talk to, that stewardship is really important for C. diff. production.

After we do that, then we'll move into just a few thoughts about how antimicrobial stewardship can direct intervention specifically related to C. diff.'s reduction.

So I'm going to talk about two different papers. They're very recent papers and I would encourage you to take a look at them. The first was published in the journal of antimicrobial chemotherapy. It is a paper from Ireland. And it is a very nice paper looking at the impact of antimicrobial stewardship on reduction of C. difficile infection. You can go onto the next slide.

This is a six year study -- which really is quite a robust time period to evaluate outcomes. And in the study -- in a medium sized hospital in Ireland -- the antibiotics that were deemed high risk for C. difficile infection, cephalosporin, fluoroquinolones, and clindamycin were highly restricted in the institution.

And the stewardship approaches included both prior approval in which you had to call for permission to use the antibiotics in the first place as well as post description review to reduce unnecessary antimicrobial use both in patients who didn't need therapy or to recommend shorter courses of therapy.

And they used a very robust analytic approach that consisted as segmented regression analysis of interrupted time series data. This is really the Cadillac of how we should be analyzing data when it comes to looking at trends over time. And I really think that lends credence to these results.

And so let's take a look at the results on the next slide. This is an intervention that started - or the data collection started back in January of 2004 with the intervention occurring around mid 2007 where the red arrow is.

And the gray line - the light gray line is antimicrobial use. And the dark gray line is rate of clostridium difficile infection. And there was a fairly rapid reduction in use of the antibiotics that were of interest to reduce the use of.

And that was followed, not immediately, but followed thereafter with a probably about a six month lag period with reduction in clostridium difficile infections -- which towards the end of the study period in 2010 really started to level out.

So what's critical in this study is that they were able to reduce these antibiotics and keep them down and they reaped the benefits of having a reduction in CDI rates at the same time. So you can go onto the next slide.

So I think mentioned some of this, but this study is important and I think it's a really good study to use as an example if you need a study to use as an example because they had prolonged periods of observation before and after the intervention and did use this sophisticated time series method that is, as I mentioned, a robust approach to the statistical analysis.

And I just want to point out that, as I said, the C. diff. infection rate did not drop immediately. And so we can't expect to roll out a new stewardship program and see the results the following month.

And I think it's always important to manage expectations when you are reporting back your successes because it really is not particularly realistic to think that, you know, if we stop that using cephalosporins this week, that next week we'll all of a sudden going to solve the whole C. difficile problem.

So in this study, at least, it was about a six month lag time. And that's probably a reasonable expectation. You can go onto the next slide.

So this is another study. This is a study that I chose to mention because it is from the United States and it's from a community hospital. And, of course, most of the care rendered in the United States is in community hospitals. And unfortunately most of the antimicrobial stewardship publications in the United States come out of academic hospitals.

And those are two different worlds. And so I think it is just a very positive thing that this paper was from a community hospital that started an antimicrobial stewardship program published this year in the American Journal of Infection Control. You can go onto the next slide.

In this study they started a stewardship program. And the stewardship program actually looked at a variety of antimicrobial agents, not all of which are highly associated with C. difficile infection. Specifically, they looked at troleandomycin or (unintelligible) and tigecycline.

And what I think is fantastic is they had a 99% compliance with their recommendations. And I must say that I never have a 99% compliance with my recommendations. And so I think it just shows that this team that put together this stewardship interventions really had fantastic relationships with the people they were working with.

So this was a before after study. And it was over a two year period - looking at antibiotic use and C. difficile infections. So not quite as robust as the first study I showed, but you can move onto the next slide and we can look at the results.

So they had a 25.4% decrease in the targeted antibiotics - so a pretty significant decrease in antimicrobial use. And the stewardship program was associated with a 50% reduced odds of developing C. difficile infection.

So, again, pretty impressive and to show the relationship between antimicrobial stewardship and reduction in C. difficile infection rates. You can go onto the next slide.

The thing that's curious about this is that this didn't even include some of the highest risk antibiotics like the flouroquinolones and the cephalosporins. And yet, they still saw a decline. However, there was really nothing else going on in the institution that the reduction could be attributed to as there weren't any major changes in infection control during the time period or changes in how C. difficile testing was performed.

And as I mentioned, this was a study from a US community hospital. And that is important because the first study I mentioned -- which is from Ireland -- you know, obviously there's a very different health system in Ireland and the rest of the UK, where they can actually have the government make statements like we're not going to use as much cephalosporin or fluorquinolones -- and so hospitals can, you know, follow recommendations that are coming straight down from the national health system.

Where as in the United States, as you well know, we don't a lot of, you know, high level regulation about what antibiotics can be used or can't be used. And a lot of the time that's really left up to individual providers at individual institutions across the country. And so I do think it's impressive that this was - this study - the second one was in a US community hospital.

So to move onto just my second set of comments about approaches to antimicrobial stewardship - you can advance the slide. If you're going to target an antimicrobial stewardship program or intervention to reduce C. diff. rates I think it's good to do a little bit of homework because often it's easier to target a particular area rather than the whole hospital.

So it maybe is worth sitting down and looking at parts of the hospital that have high C. diff. infection rates or perhaps high antimicrobial use rates that you think could be more easily reduced.

Or certain units or certain patient populations where you're having particular problems with C. diff. because, you know, this is - if you have limited resources it's best to target a certain group where you can get good stakeholder buy-in at a small level - have an early success and then perhaps move it out to other areas in the hospital.

The next decision is, of course, what antimicrobial agents to target. And these - I would recommend that you would go after the most commonly implicated agents -- which are fluoroquinolones and cephalosporins. And in most hospitals these are very, very commonly used.

And it doesn't help in terms of thinking about how to reduce their use that a lot of guidelines - most notably the community acquired pneumonia guidelines are very heavy in their recommendations to use fluoroquinolones and cephalosporins and, of course, those recommendations are made their way into, you know, national requirements to use those specific antibiotics when treating patients with community acquired pneumonia.

So it can be hard in the US to reduce the use of these agents when in some disease states, that option does not exist because it's required that we use these

agents. However, I would still think about ways to reduce those agents and on the next slide I'll show you some examples, but don't switch slides just yet.

It's always important to remember to take a look at all antibiotic use. So if you do decide to target fluoroquinolones and cephalosporins, just be careful that you're, you know, piperacillen, and (unintelligible), and (unintelligible) doesn't skyrocket in the background -- which could thwart your attempts to actually reduce C. difficile infection if they're just substituting some antibiotics for other antibiotics.

And then finally I think you have to decide on what the intervention is going to be. And I'm sure there will be plenty of time later in the call to talk about this. But in general there are three broad approaches. There's development of education and guidelines.

Guidelines can be helpful to get everyone on the same page, but education and guidelines alone are not going to completely solve the problem of overuse of antibiotics.

And then making a decision about whether you're going to restrict the antibiotics where approval is required to start them or whether you're going to let people start whatever they want and then around day two or three, provide a review and feedback.

And most programs use a combination of these approaches and it really depends on what resources are available at any particular time and a little bit on what antibiotics or disease states you're targeting.

So now you can go onto the next slide. And these are just some interventions to consider. And I specifically included things that would target the most

common antibiotics implicated in C. diff. Again, the fluoroquinolones and the cephalosporins. And I have divided these into three basic categories.

The first is, you know, getting antibiotics stopped when they are simply not needed at all. And that would be for asymptomatic bacteriuria where we can see a lot of overuse of fluoroquinolones for patients who have asymptomatic bacteriuria and don't need any treatment at all. So that would be a nice way to reduce fluoroquinolones use.

Another area is our surgeon colleagues - continuing surgical prophylaxis beyond 24 hours. A lot of institutions have gotten rid of this through (SKIP). But there are an awful lot of surgeries that aren't covered under (SKIP), so it's good to take a look and just see what your surgeons are doing.

And then there's the whole category as we enter into respiratory virus season - viral infections and there have been a few publications that have documented overuse of antibiotics in patients who clearly have a diagnosed influenza or RSV.

And again, if these people are being treated as if they have community acquired bacterial pneumonia, interventions to try to get people to not treat with antibiotic would reduce fluoroquinolones and cephalosporins preferentially.

And then, of course, just the general notion of if a patient has an alternative diagnoses that is not an infectious disease after they've been an antibiotics for 48 to 72 hours. That's the whole logic behind post prescription review and why that's a good time to ask people to review their antibiotic use.

The other area that stewardship can target is providing recommendations about narrowing antibiotic therapy. And just some examples would be for urinary tract infections - if you can get people off broad cephalosporins and fluoroquinolones and narrow them to bactrim or macrodantin, that's a way to reduce the pressure of the cephalosporins and fluoroquinolones.

For pneumonia, if sputum is sent and the patients actually have a bug, like strep pneumo - that could - their antibiotics can usually be narrowed to amoxicillin or azithromycin.

And then, of course, some more broad ones would be getting rid of coverage with vancomycin if a patient doesn't grow MRSA or getting rid of antipseudomonal highly broad coverage if the patient does not grow pseudomonas.

And then finally, an area that I have a particular interest in and have had some success with kind of reeducation of clinicians, is thinking about what really is the duration of therapy for a lot of the infections that we treat. Unfortunately a lot of clinicians and - over time have developed kind of the 7 day, 10 day, 14 day model of determining antimicrobial duration.

But there are a fair number of studies that would support a shorter duration of therapy. And, of course, if you cut duration of therapy in half -- theoretically at least -- you should reduce the rates of C. difficile infection.

And so just on the slide I've included some suggested durations of therapy for uncomplicated UTI, community acquired pneumonia, healthcare associated pneumonia, skin and soft tissue infections and intra-abdominal infections.

And I think we can move onto to the next slide. All right. So just to summarize, there are several published studies. And I showed you two examples. There are other examples in the literature that have used sound methods, show an association between reduced antibiotic use and reduce clostridium difficile infection.

I think targeting key antibiotics is important. And hopefully I've given you some example of how to go about that. And do remember to make sure to use a long enough observation period to evaluate your outcome so you don't through in the towel and say something wasn't a success too early.

And with that I will end and thank you very much for your attention.

Caroline Jackson: And thank you very much Dr. Cosgrove. We certainly appreciate your time and attention to this topic. It's very clear that we can all learn something from you. And unfortunately, Dr. Cosgrove has to sign off. But we do have additional panelists onboard and we're going to proceed to the next part of our program. Thanks again Dr. Cosgrove.

Dr. Sara Cosgrove Thank you.

Caroline Jackson: So we have three expert panelists who are joining us today as well. We have Dr. (Emily Hill). Dr. (Abdul Obisian), and Dr. Lan Duong. And I'm going to introduce them individually and give you an opportunity.

Before I do that I'm going to put - what we're going to do is have some polling questions. And these expert panelists will be responding to the results of the polling questions that you're going to see come up into the chat box in just a few moments.

So our first polling question -- and I would like for your team to answer this question -- unfortunately we didn't get any response to our first question, but hopefully all of you will be able to answer this question.

Does your facility have a process to measure and monitor antimicrobial use? And you'll have an opportunity to provide your answer to that momentarily. Okay so while we're waiting for your responses I'm going to introduce our first panelists who's Lan Duong. Dr. Duong is clinical pharmacist at Georgetown University Hospital. His area of practice is anti-infectious diseases and also neurosurgical and critical care.

His interests include anti-infective stewardship, antimicrobial resistance, and antimicrobial pharmacokinetics and pharmocodynamics. He is co-chair of the hospital antibiotic utilization committee. He also hold adjunct faculty appointments at Georgetown University School of Medicine and the Schools of Pharmacy at Howard University, Virginia Commonwealth University, and Shenandoah University.

So as you are responding to this question, is there an approved policy and procedure in place for pharmacists authorized antibiotic - that's the question that I - okay. We'll go with that question. Is there an approved policy and procedure in place for pharmacists authorized automatic conversion of IV medications to PO's given appropriate indications - not the question that's on the screen.

Woman: I'm sorry. The answers did not populate. Would you like me to open that question again?

Caroline Jackson: Yes.

Woman: Okay.

Caroline Jackson: Okay. As you can see, our responses are 23% of you say yes and 23% of said no. And then most of you had no answer. So if I could get our panelist to comment on this. We have Dr. Duong. I will read the bio on our other two panelists in just a few moments.

So unfortunately the question that they had is not the same question that's on the screen. I will get the question that they had in front of them just momentarily. So if you would like to comment on that response - to this panelist.

Dr. Lan Duong: Hi Caroline. Yes. This is Lan Duong from Georgetown University Hospital. Yes. I'm having a problem with my - with the program. I'm unable to launch the Webinar. I think it's because I don't have administrative privileges on my computer.

But I'm listening to the results as they come in through what you're telling us. Yes. So I think this is one of those - these IV to PO switch programs is something that really should be - I mean if you have enough manpower within your pharmacy - it's one of those types of programs - it's almost a no-brainer these days.

In addition to cost savings and increased patient satisfaction there's also the potential advantage of perhaps reducing IV line related complications like line infections and infiltration and so forth - just by having these very easy to do IV to PO switch programs.

For those hospitals are looking to put some of these programs in place, really it just takes - just a detailed write-up and then submission to the pharmacy and

therapeutics committee. Looking at agents with very high bioavailability, so for example, at Georgetown, agents that are ideal for IV to PO automatic pharmacy switches would (many of your anti) (unintelligible) including your fluoroquinolones, like we use moxifloxacin in here, cephroflaxacin, azithromycin, metronidazole, linezolid, and probably a handful or other agents. But also things like proton pump inhibitors as well too, you know.

And that's something that, you know, of course, that might come up later as one of the issues we might talk about in terms of its impact on C. diff. infections. But, you know, if anyone is interested, just send me an email. I can give you a copy of the protocol we use.

But I really think, you know, in 2013 most hospitals should really have an IV to PO program that's pharmacy driven and something can be automatically done by pharmacists.

Caroline Jackson: Okay. As you can see, that he has given us some valuable insight. And I'd like to ask the - Dr. (Abdul Obisian) to comment on it as well. And I'll give you a short overview of her bio. She's the Director of Pharmacy at Laurel Regional Hospital.

In this capacity Dr. (Obisian) is responsible for planning, implementing, and managing pharmacy services. She teaches clinical research to pharmacy students, also precepts student clerkship in institutional pharmacy and acute care.

She holds adjunct professor positions in the School of Pharmacy at the University of Maryland and Howard University. And is recently recognized as a Preceptor of the Year by one of the pharmacy schools. Dr. (Obisian) has

published several peer reviewed articles and abstracts in leading journals and presented continuing education lectures.

She received her bachelor of pharmacy from the College of Medicine University of Lagos, Nigeria her PharmD from Howard University School of Pharmacy. Dr. (Obisian) and her team have piloted antimicrobial stewardship program in their hospital and are gaining valuable insight from this implementation.

So if you'd also like to comment on the results of this, Dr. (Obisian), in which we see half of the responders say that they don't have policy in place for pharmacies authorized dosing adjustments.

Dr. (Odu Obisesan): Thank you very much Caroline. And I just want to add to what the previous speaker spoke about. We also have in our facility an approved policy and procedure. And we actually have the PNC guidelines set of protocols that assists our pharmacies in being able to switch medications from IV to PO.

And just like the previous speaker said, he said it's extremely important that that's -- if nothing else -- that's a protocol or a process that needs to be in place. In almost - some of the other hospital it's a very low hanging fruit in terms of processes that can be done to be able to optimize use of antimicrobial as well as other medications in our different hospitals.

With IV to PO convention, what we would find is that not only does it reduce the length of hospital stay - and there have been studies that actually point to sometimes over a $100,000 by year in terms of savings just in looking at hospital stay.

As well as your drug costs can be reduced if you're able to switch patient from IV to PO. But even though we're talking about cost, we also need to look at the quality of life part of it because when you - one is able to actually convert the medication from the IV - from the PO to this one, to the IV - the patient is able to go home faster.

And then we reduce complications that can be - like they usually are so sick they - with IV accidents there can be line infection if the patient is on IV intravenous therapy for too long.

So it is extremely important - and one thing, do it very quickly. We at Laurel Regional Hospital and across Dimensions as a system, we actually have an approved protocol where are able to extend this particular PNC initiative to other drug as identify them.

And then all we do is go back to PNC for information only because pharmacy is known to be the (druggist pattern). We can be able to come up with guidelines for drugs that lend themselves to IV to PO. Thank you.

Caroline Jackson: Okay Dr.(Obisian). I'm going to ask Emily to comment first on our next question - and which we see on the screen. Are there approved duration of antimicrobial treatment guidelines in place for the most common infections? IE upper and lower respiratory, GI, GU, SSI, bone, joint, and CNS infections.

So this question will appear on your screen momentarily and I would like for you all to take on opportunity to respond to that and then we will have the results of the polls and we'll have our panelists to comment on that.

Our other panelist who we have in the chat room with us is Dr. Emily Heil. She - and I may not be saying her last name correctly. She, I'm sure, will

correct that. She's an infectious disease clinical pharmacist specialist and Assistant Director of Antimicrobial Stewardship at the University of Maryland Medical Center in Baltimore. She's also a Clinical Assistant Professor at the University of Maryland School of Pharmacy.

She completed her PharmD along with the pharmacy practice and infectious disease specialty residency at the University of North Carolina in Chapel Hill. Emily sits on a Maryland Healthcare Commission Healthcare Acquired Infections Advisory Committee and co-chairs the Maryland Society of Health System Pharmacists Antimicrobial Stewardship Committee.

And soon as - oh, actually we have the results of that now. I'll ask her to comment on the results and then I will ask Dr. Lan to also comment on it. And it looks like our poll indicates that 8% of you have an approved duration of antimicrobial treatment guidelines. 15% of you say no, you don't have those approved guidelines.

A number of you don't know, and a number of you have not answered. So we would ask that you take an opportunity to participate with our next question that will have yes no answers. But Emily, can you comment on the results of this? Are there approved duration of antimicrobial treatment guidelines in place? It looks we have more no's than yes's.

Emily Heil: Yes. I think this is sort of a loaded question because, you know, a lot of treatment of anti-infective conditions isn't always black and white. And for a lot of things, like most community acquired pneumonias, they respond rapidly to treatment - urinary tract infections - things are like that.

There are fairly defined courses of treatment, but some things might not be so black and white. So I know at least at University of Maryland Medical Center

we've had some trouble with having, you know, hard and fast stops in place for certain antibiotics and conditions for that reason.

But in general, having at least guidelines in place for the recommended durations of treatment for a lot of more common conditions can be very helpful. And this can be done, you know, via treatment guidelines for community acquired pneumonia even if it's not an electronic order set.

Perhaps some sort of guideline you can have available on your hospital's Web page to guide people. And a lot of us, as we start to move towards more computerized systems and having more things like order sets built in place, you can even consider having hard stops or soft stop reminder built in with certain order sets or certain medications matched with their indication to help remind people that, hey, you don't need to treat that urinary tract infection for two weeks anymore, you know.

Depending the patient on the drug you chose, three days may be adequate. Five to seven days may be adequate. And provide that assistance. And this is something that could also be looked at in the retrospective review of antimicrobial orders potentially by (unintelligible) pharmacists or clinical specialists that have the opportunity to round with some of the team.

But I think having automatic stops for certain indications could potentially be controversial at your institution for some indications. But at least soft stops and reminders of what common durations of treatments are for some of the more common infections is a really great idea.

Caroline Jackson: Thank you Dr. Heil. Lan, can you comment on this one as well?

Dr. Lan Duong: Yes. Sure. That's actually one of the points of emphasis that we've tried to look at within our hospitals. Specifically duration of therapy - realizing that in addition to just choosing the right agents, but the duration of therapy is extraordinarily important.

And similar to what Dr. Heil said, I think that a lot of these infections sometimes are much more complex than meets the eye. Especially - like I looked on some of the examples here, bone and joint infections can be extraordinarily complex when you consider things like, you know, hardware placement, prosthesis, and things of that nature that could - they really can complicate, you know, antibiotic therapy where really the gold standard of treatment is really surgery for a lot of these folks - and explantation of the device.

And so that's where, you know, there's a surgical and a medical approach to it that is not easy to tease out by just glancing at the infection, glancing at the patient, looking at vital signs, labs, micro, and then coming up with a duration of therapy.

So I thing duration of therapy - I agree that there should be some guidelines. I think (unintelligible) has a done a great job. The infection disease (unintelligible) America has done a really great job with looking at common infections such as bone and joint.

You know bacteremia, (unintelligible) infection, pneumonia, the urinary tract infection and given some suggestions on durations of therapy. I think that can somehow be a soft guideline within computer physician order entry type systems.

But again, I think this could be a little bit tricky to do. Something we've looked into, but we haven't really been successful implanting this in place.

Caroline Jackson: Okay. We're going to move to our next question now. And I'd like the participant to take an opportunity as you have it available to you to respond to the next question which is, what method do you use to address appropriate antibiotic duration? Do you use antibiotic orders must contain a diagnoses and stop date? B, is there automatic stop orders? C, is there antibiotic SWAT team which reviews most frequent infectious disease diagnoses for duration? Then D, none of the above. Or E, don't know.

Caroline Jackson: Okay. So for this question in terms of methods are you using to address appropriate antibiotic duration we have A, 15%. We have B, automatic stop orders and I'm going to ask you Emily and Dr. Duong to respond to this. We have C, antibiotic SWAT Team - only 3% of our response. Actually one person, one facility I'm assuming. D, none of the above. E, no answer or don't know - and no answers is the larger percentage of our listeners.

So I would ask both Dr. - I'm sorry. Dr. (unintelligible). I'm sorry. Emily and also Dr. Duong to respond to this.

Lan Duong: Caroline. I'm sorry. Could you repeat the poll answers again for that question. I didn't get all the results.

Caroline Jackson Okay. So 15% of the responses indicate that they use antibiotic orders must contain a diagnoses and stop date. 13% of the responses said that they have automatic stop orders. 3% said they have antibiotic SWAT teams. And then none of the above was for 18% of our responses.

Emily Heil: Caroline, I can start. I would say Kudo's to the six participants out there that have the antibiotic orders must contain a diagnoses and stop date. I think that could probably be very operationally challenging and difficult to get through at a lot of institutions. So that's very impressive that you had that.

And if anyone on the call wants to speak to how that's working for you, I'm sure others would be interested because I think that's fantastic. I think one of the things that jumps out at me - automatic stop orders. This is, again, a very touchy subject in our institution.

We are a large teaching hospital and so a lot of patients in, like, our ICU for example may have two or three teams taking care of a patient and running orders on patients. And so we run into the fact where things can fall through the cracks a lot.

So we've always been very hesitant to have automatic stop orders because then, you know, the ordering intern that was a night float coverage is not the person that might, you know, get that renewal order or whatnot.

And so we've been a little hesitant to do that, but I know a lot of institutions, including St. Joseph there on the call, has a lot of success with using automatic stops and hard stops to monitor their antibiotic use and have had some good success with that.

So it's certainly having some sort of reminder in place -- whether it be a hard stop or a soft stop or forcing the physicians when they place the order to go ahead and think about what the indication is how long they want to treat for is a really good way up front to try and address duration.

And I think if you, again, have any orders set for specific indications or if you do have a requirement for antibiotic indications on orders, you can then have those tied to specific durations of treatment.

And if you're having any problems, you know, getting antimicrobial indications added to your orders, that is a CMS quality measure. Of course it's not a core measure that's tied to reimbursement yet, but it is a quality measure that you can to your administrators as a compelling reason to want to have that added at your institution.

Caroline Jackson: Okay. Thank you very much, Emily. Lan or Dr. (Obisesan). Would either of you like to comment on it?

Dr. (Odu Obisesan): And I just wanted to - what Emily said. Our institution right, we actually have the automatic stop order. So we align with the 13% of the responders. And we have been able to do that and it actually works well for us. And it's across the system in Dimension.

And physically other than the drugs that are restricted we're able to enforce that most of the time without any problem. If the physician needs to - or the physician decides that the patient actually needs to have a longer duration, they would indicated that when they order the medication because we do have another facility.

We have a hospital within hospital. We have the (unintelligible) unit that is within our campus here. And so those patients are here. They are long time acute care patients. And sometimes they're here average length of stay is about 26 days.

So some of those patients would sometimes need longer duration of therapy. And so the physician -- while we do have the ID physician at that point -- actually is step in and assist the other - the attending physician to be able to stipulate the duration of the therapy.

And at that time we would actually have a directed treatment as opposed to (unintelligible). And I want to speak to also having diagnoses as well as the duration of therapy because in my prior life that was how we did it.

We not only had the duration of therapy and the diagnoses, but we also had, I think, the order form. And it worked very well because it was teaching hospital. And instead of the residents and the attendants being the ones that would actually use the form, it was more the ID (unintelligible) because there was also restriction as well as ID approval.

So there are different ways to do it. I'm curious though about the almost (unintelligible) I believe I said none of the above. I would like to hear really what other ways are people are approaching this issue that we all deal with that does not have to deal with antimicrobial orders or this update as well as (unintelligible). Thank you.

Caroline Jackson Okay. And we will open up the line in just a few moments Dr. (Obisian) so that we can have the audience to comment. But in the meantime we'll move to the next question which has to do with - let's see.

Our next question has to do with your formulary. And we'd like to find out if you have an annual review of your formulary antimicrobials performed within your facility.

And you have an opportunity to respond in terms of a yes, no, in development, or you don't know. And for this one we'll ask Dr. Lan Duong to respond first when we get our responses. And then I'd also like Emily to chime in on this one.

So the question is - you see it on the screen. Is there an annual review of formulary antimicrobials performed within your facility? So it looks like we have our results.

And since you can't see it, Dr. Duong, we have - let's see, 36% of the people saying that yes, they do have an annual review. One person of a facility says no - and that's 3% of our responses. Most people have no answer and 5% say they don't know.

So is there an annual review of formulary antimicrobials performed in your facility. Would you like to comment on those results Dr. Duong?

Dr. Lan Duong: Sure. Sure. So if I were to vote on here, my answer at Georgetown would actually be no. We've been a minority according to this conference of hospitals that review their formulary choices every year. What we generally do in our antibiotic subcommittee is review them, I guess, on an as needed basis.

We don't look at every single agent and every single drug class - looking at, you know, changes to formulary every year. But, you know as you all have, I'm sure, have experienced with drug shortages over the last several years, the most recent we've had to deal with, I believe, is meropenem (unintelligible). That used to be our work horse, (carbapenem), and then we had to switch to imipenem temporarily.

And now that meropenem is back and been replenished we've decided to go back to meropenem. So we don't review these on an annual basis, but pretty much on an as needed basis. I do think that this is an important endeavor.

Just sort of look at your antibiotic choices, see - particularly antibiotic susceptibilities, see if your agents have held up in the last several years in terms of susceptibilities. And then make changes to your formulary accordingly.

This is definitely going to require a multidisciplinary approach with physician input, pharmacy input, and also input, of course, from our microbiology and laboratory colleagues as well too.

Especially for smaller hospitals that have, you know, perhaps smaller formularies with anti-infective's. This might be good idea - good way to sort of, you know, just review your usage in addition to just, you know, what you have - what you're using on formulary.

Caroline Jackson: Okay. Emily, would you like to comment on that as well?

Dr. Emily Heil: Sure. I would echo most of what Lan just said. I mean I think it is - it's an important endeavor. We do this through our antimicrobial subcommittee of the pharmacy and therapeutics committee annually. And so like he said, we're not only looking at our formulary antimicrobials, but also our antibiograms to see what's changed and see if we need to make any adjustments.

And also our antimicrobial use guidelines. So we have guidelines in place for some of our restricted antimicrobials -- which are also reviewed yearly for appropriateness, if there's any updates that need to be made.

And it can be important so you can make some interesting discovery. Like, for example, we don't have (ceftazidime) on formulary. It was removed from formulary over 8 years ago due to a fairly high resistance rates compared to some of our other (unintelligible) agents.

But we've re-reviewed some of our (ceftazidime) data and, of course, since it hasn't been used in this institution for 8 years, the numbers actually look really good, so now we're considering maybe bringing it back onto formulary to keep in reserve for some of our more resistant (unintelligible) infections.

So, you know, just sitting down and taking a look at your list of what you have on formulary and cross checking it with your antibiograms and also your use numbers. You can maybe could find things that you don't need to keep on formulary anymore that could save the institution money.

Or maybe you'll find some things that you don't have that you might actually benefit from having around. So I think it is an important process. And again, like Lan said, make sure it's not just pharmacy that's sitting at the table for that, but also, you know, infection prevention, microbiology, your ID physician representation. All of those would be important parties to engage for this activity.

Caroline Jackson: Thank you very much. And we're going to go to our last polling question before we open the line for additional comments. And that's going to be does your hospital have an antibiogram developed in accordance with the clinical and laboratory standard institute, which is updated annually? And that's a yes, no, in development, and then don't know.

So if we take a moment to respond to that polling question as it becomes available on the screen. Does your hospital have an antibiogram developed in

accordance with the clinical and laboratory standards institute, which is updated annually?

And I'd like to ask Dr. (O'doon) and Lan to respond to that as soon as we get our polling results - survey our question, then we'll get our polling results. Okay. So momentarily we'll have those answers and then Dr. (O'doon) would you like to take a stab at this question first?

And it looks like about 57% of our respondents do have an antibiogram developed in accordance with the clinical and laboratory standard institute. And we have 57% of them say yes. And then one doesn't know. And then 15 have no answer. So would you like to comment on this?

Dr. (Odu Obisesan): Yes, I am actually very pleased with this particular response and the result simply because I am from microbial - antibiogram is an extremely important tool as we use medications - antimicrobials -- anywhere. It doesn't matter whether it is a hospital or a clinic, but antimicrobial - antibiogram is extremely important.

And this is one of the things, one of the tools that - it's seen. We can actually approach it because healthcare practitioners as a whole - we don't seem to be able to work very well as a team. We like to work in silence.

But there are so many important information that can be gleaned from an antibiogram because when we get this in our facility when it's published, we actually take it back to the antimicrobial stewardship committee and there's a review to be able to look at what is our local hospital resistance pattern. What has changed?

So that we can know how to respond and be able to (unintelligible), look at antimicrobial formulary and be able to look at what is it that we need to do. I was chuckling to myself when Emily spoke about (ceftazidime) because we just responded this on the antibiogram - the most recent one. And I finally just removed the restriction -- at least partially -- of (ceftazidime) and now we have it. Before it was non formulary because of the same thing that Emily alluded to.

And now it's restricted to our more difficult (immune infection). One thing that I would like to say very quickly, also, about having antibiogram. It's (unintelligible) sufficient to have antibiogram developed and published and (unintelligible). But also one of the things that - as we move forward in our antimicrobial stewardship program - that I am thinking of and I'm going to bring it to the team when we meet -- is to not only publish it, but actually also provide education as to how to read it and to interpret the information on the tool.

Because we're assuming that every practitioner that needs to use tool know how to read it or how to interpret it to be able to guide their clinical and treatment decision. So that would be one of the things that I will be pushing as we move forward with our program. Thank you.

Caroline Jackson: Thank you very much. And that's an excellent point. And Lan, did you want to have a final comment on using antibiogram?

Dr. Lan Duong: Yes. So this is a document, you know, published by -- I think it's been alluded to before -- by the, you know, CLSI -- Clinical Laboratory and Standards Institute. And I think the editions - I have a copy of the most recent one -- I think is January 2013.

But this is a very lab intensive document. It's like over 200 pages or so. So it's not for the everyday person to read. But I think this an expert document that your laboratory microbiologist should be working with, again, the ID team and the pharmacy staff with in terms of developing the antibiogram in concordance with these guidelines.

So it includes things like, you know, just to give some background - like, sort of, rules for eliminating duplicate isolates, what to do with multiple isolates from a single patient, the number of frequency of isolates within a given month and so forth.

So it is a way to, sort of, eliminate, you know, some of the isolates that could skew some of your data in terms of microbiology susceptibility results. But that's - and also likewise, very pleased to see, like, over half of you - not just know that there's a document in place that governs antibiogram development, that you have hospitals that are in compliance with those too. So I'm very pleased to hear that. That's very good news.

And, you know, to take it step further, some hospitals -- such as our hospital -- and I'm sure at, you know, University of Maryland and other larger institutions, we even have unit specific antibiograms that are tailored specifically for the intensive care unit.

So you have isolates broken down to specific units where you can have some problematic pathogens. So for example, rates of some our resistant gram negative organisms are much worse in our surgical ICU, for example, than say in our general medicine unit - and even to the hospital antibiogram in general. That's good information to have.

Caroline Jackson: Thank you very much. As we prepare to put our evaluation questions on the screen we realize that we're right at the top of the hour. Operator, I'd like for you to open the lines in case there are any questions for our panelist members and we will consecutively have the evaluation comments placed up.

As the lines are opening, I would like to remind you that our next Webinar is scheduled for December the 18th. Same time, same location. And all the calls are recorded and available online at mdqio.org and dcqio.org.

Please send back your - we did send some evaluations for the (unintelligible) Gazette and we are not receiving - have not yet received a lot of responses. So I'm going to take this opportunity to remind you to send back those evaluations because we do listen to you feedback on that.

And as we work collectively to reduce CDI, we'd like to have your feedback on that. So if there are any questions in the - from the audience operator?

Operator: Ladies and gentlemen, to register a question, please press the 1 followed by the 4 on your telephone. You will hear a three tone prompt to acknowledge your request. Should you wish to withdraw your registration, please press the 1 followed by a 3. If you're using a speaker phone, please lift your handset before entering your request.

We do look forward to your questions and/or comments. Please press the 1 followed by the 4 if you'd like to register. And I'm showing no one in queue. Ms. Jackson, I'll turn it back to you.

Caroline Jackson: Thank you operator. So again, thank you for joining us today. Thank you to Dr. (Obisian), Dr. Heil, and Dr. Lan Duong for providing their expert comments on our subject matter today. As I said, we do look forward for your

continued participation. You will be hearing from your team liaisons as you move forward for each facility.

If you have any questions about who your team liaisons are, you can feel free to contact me. Again, I'm Caroline Jackson. I'm available a jacksonc@dsmc.org. Ladies and gentlemen, I'd like to again thank for your participation and have a good rest of the day.

Operator: Ladies and gentlemen. That concludes today's conference call. We thank you for your participation and ask that you please disconnect your line. Have a great day everyone.

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