**QUALITY HEALTH STRATEGIES**

**Moderator: Carolyn Jackson**
**June 19, 2013**
**12:00 pm CT**

Operator: Ladies and gentlemen thank you for standing by. Welcome to the Tackling CDI conference call. During the presentation all participants will be in 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 star zero.

As a reminder this conference is being recorded Wednesday, June 19, 2013. I would now like to turn the call over to Ms. Carolyn Jackson, project manager for Delmarva Foundation please go ahead ma'am.

Carolyn Jackson: Good afternoon, thank you all for joining us today for our monthly Webinar series and our tackling CDI. We're actually tackling CDI through prevention and stewardship.

We have two great topics this month and because we want to allow as much time as possible to begin the discussion I'm going to turn the mike - excuse me turn the microphone over just very shortly.

The - our presenter today will be (Jennifer Thomas) and Dr. (Danske). The team members who are here today are myself Carolyn Jackson, (Christina), Mr. (Ward) and (Jennifer Thomas).

And I will ask (Christina) to go ahead and introduce Dr. (Danske) who will be doing our first presentation and his presentation will be followed by a hot topic antimicrobial stewardship, which will be presented by (Jennifer Thomas) and I will provide a further introduction at that time.

(Christina): Good afternoon, Dr. (Curtis Danske) is an associate professor of medicine at Case Western Reserve University and chair of infection control committee at Cleveland VA Medical Center.

His research focus is on infection control of healthcare associate pathogens including clostridium difficile and MRSA. He has published more than 100 peer review articles.

He has received research funding from the Department of Veteran Affairs, the Centers of Disease Control and Prevention and the Agency of Healthcare Research and Quality.

In addition to his research Dr. (Danske) has received several awards for teaching of medical students, residents and fellows. Please join us in welcoming Dr. (Curtis Danske). Dr. (Danske) thank you and please welcome and continue with your presentation.

(Curtis Danske): Okay thank you so I was - I'm going to focus a little bit of my time on an article that was published in American Journal of Infection Control titled The Acquisition of Spores on Gloved Hands after contact with the skin of patient's with clostridium difficile infection and with environmental surfaces in their rooms.

And then I will also talk a bit more about this as a general topic in terms of hand hygiene and bathing to remove spores from hands and from skin. So this first slide gives us an overview of how clostridium difficile is transmitted in the hospital.

Patients who are infected with clostridium difficile shed the spores through fecal contamination and that results in contamination of their skin and of all kinds of high touch surfaces in their environment, in their room.

And in infection control circles we kind of refer to this as the fecal veneer that we think of as covering everything in these isolation rooms. And susceptible patients may acquire clostridium difficile or other pathogens through the - from the hands of healthcare workers after they contact either the environment of the patients skin or susceptible patients can pick up the organism directly from the environment.

We believe that hands of healthcare workers really are the primary vector for transmission of clostridium difficile and other pathogens. And we can illustrate that nicely as is shown on the next slide.

This is an illustration of contamination of hands with clostridium difficile spores and this is an illustration that we put together in our lab. So one of our fellows did an examination.

She was wearing sterile gloves, did an examination of the chest and abdomen of a patient who was infected with clostridium difficile. And placed her hand onto this outer plate, which is selected for clostridium difficile.

So all of those yellow colonies there that you see spreading on the plate are clostridium difficile spores that were picked up on her hands and transferred onto this plate.

And so you can easily imagine that if one were to touch the patient and then move on and touch another patients who is susceptible that we could transfer C difficile spores easily from one patient to another.

And of course you can demonstrate the same things with methicillin resistant staph aureus and other pathogens. So hands clearly play a central role in transmission of clostridium difficile.

And our study was really looking at how hands become contaminated. So we looked at acquisition of C difficile on hands after contact with infected patients skin or with the environment in their rooms.

So this was a kind of follow up study to what I just presented and we again putting on sterile gloves went into C difficile infected patients rooms and basically simulated an examination.

So did a chest, abdomen examination and then took the hand after the examination and put it down on a plate to assess whether we were acquiring C difficile.

And as you can see on the left side of the slide there after skin contact 50% of the time we could demonstrate acquisition of C difficile spores on hands and the illustration there shows an example from an abdominal exam of a patient.

And we did the same thing with environmental surfaces in the patient rooms. So putting on a separate pair of glove touched the bedrail, bedside table, telephone in the room and the call - patient call button.

And then after contacting those surfaces again placed our hands down on the same plate, which was selected for C difficile and found that 50% of hand cultures again were positive.

So we were just as likely to acquire C difficile on our hands after touching environmental surfaces as we were after examining the skin of patients. Again suggesting that the environment may be just as important a risk factor for hand acquisition as patients skin.

And when we look at the mean number of colonies of C difficile acquired on hands, which was described in the article we can appreciate that the number of colonies was a little bit higher after contact with patients skin.

So for any skin site we acquired an average of 14 colonies of clostridium difficile whereas for any environmental site the number was 7 so we acquired twice as many colonies.

And as you can see the abdomen was the skin site where we acquired most frequently acquired hand contamination. But overall again the percentage of contamination was equal for both sites and for either skin or environmental sites just a bit higher in terms of the number from the skin.

The groin is shown there for a comparison so the groin is - tends to be the most heavily contaminated area and we typically acquired much higher numbers of organisms after examining the groin.

And we considered that separately because we didn't consider that a commonly examined skin site. So you have common examined skin sites, common examined - commonly touched environmental surfaces.

So I think that study really clearly illustrated that again that hands are just as likely to become contaminated after touching high touch surfaces as after touching patients.

The other route that we mentioned for transmission or acquisition of C difficile is directly with - from contact with environmental surface by the patients.

So and that has been nicely illustrated here when a number of studies have looked at the risk of acquiring pathogens from prior room occupants. So a patient is admitted to a room and who has C diff or a variety of say like in other pathogens MRSA or VRE.

After that patient is discharged if you look at what happens to patients who are subsequently admitted the risk of acquiring all of these pathogens is higher if you were admitted to a room where the patient had C difficile or MRSA or VRE than if you were admitted to a room where the patient was not colonized or affected with those organisms.

And that provides a pretty strong suggested evidence that these - that environmental cleaning was probably sub-optimal, which has been demonstrated in numerous studies and patients were probably picking up at

least some of these organisms directly from environmental surfaces in those rooms.

And again for C difficile you are about twice as likely I think it was like 11% versus 5% risk of acquiring C difficile infection if you were admitted to the room where the prior patient had C difficile infection.

So based on this data, which really is kind of our basic understanding of how C difficile is transmitted we have two really basic core practices that we follow for prevention of CDI.

Transmission number one, contact precautions wearing gloves and gowns, which decreases the risk that a healthcare worker will acquire these organisms on their hands after touching either environmental sites or after touching the patient.

And then number two, environmental cleaning so cleaning of the environment will decrease the risk that a patient will acquire the organism from a contaminated room.

And then in addition it will decrease the risk that healthcare workers will pick up spores when they touch surfaces in the rooms and carry them to the next room as well.

So those are our basic measures for preventing transmission of C difficile and now kind of to complete the talk talking a little bit more about other things that we potentially can do in addition, which are not really part of the current guidelines per se but that at least not spelled out in the current guidelines but that make sense in terms of control of C difficile.

So one of those measures that will fall under the category of source, of the term source control and this term has become most widely used in terms of chlorhexidine bathing.

So we currently do a lot of routine bathing with chlorhexidine in intensive care units. And part of the goal there is to reduce the burden of organisms on skin so when healthcare workers come in and interact with those patients they're less likely to transmit through their hands.

So instead of getting health workers to wash their hands we also decrease the burden of organisms on the source that they're touching the patients. So with C difficile this is an illustration that we've collected, we looked at about 50 patients.

And what you should appreciate here we're looking at stool, skin and environmental contamination prior to treatment then during treatment and after treatment.

And what you should appreciate there is if you look prior to treatment these are the percentages of positive cultures for all those sites. One hundred percent of the patients had stool contamination at the start of treatment and 90% of them had skin and environmental contamination.

When you treat patients with C difficile contamination and shedding of spores goes down dramatically so that by the end of treatment patients typically are unlikely to have C difficile in stool, their diarrhea has resolved so they're less likely to be causing fecal contamination in the room.

So the highest risk for transmission is prior to starting treatment or shortly after starting treatment. While these patients are in there rooms, which may be

10 days or more or potentially less they are risk to transmit C difficile because they will still have skin contamination and still have potentially be shedding spores into the environment.

So one of our potential options for preventing transmission of C difficile would be to improve bathing of patients to reduce the burden of spores on skin and again this would be directly analogous to what we do in the ICU when we do chlorhexidine bathing for MRSA and VRE.

And the other thing that we could do is daily disinfection of high touch surfaces during treatment as you can see the environment is heavily contaminated there.

During treatment we can reduce the number of organisms on surfaces and healthcare workers come and do not follow appropriate precautions we can potentially prevent transmission and I will demonstrate this for you in the next slide.

So I would sometimes I get the question, you know, why is daily cleaning really important so I just want to give you an illustration that's outside of the hospital setting.

So if you imagine an elderly person in your household develops diarrhea due to an infectious viral illness like norovirus, which is highly contagious. There are young children in your household who interact regularly with the ill person, which would you do would you wait 10 days until the illness is resolved before cleaning the bathroom and other objects the person contacts or disinfect surfaces daily or after each use of the bathroom to prevent transmission to children and other susceptible people in the household.

And in this case I think healthcare workers are very much like young children in that they often touch things and they don't always wash their hands. And so in this case if you - if this was your household I think it would make sense that you would do disinfection after use of the bathroom to try to reduce the risk to other people who are sharing the bathroom.

It makes no sense that we would leave a clostridium difficile infected patient and not clean well until the person is discharged. So let me illustrate to you why that might be effective.

So let me illustrate to you why that might be effective. This is a study we did looking at daily disinfection of high touch surfaces, which again I'm labeling source control.

So we had patients in C difficile infection rooms and at baseline again we're looking at the proportion of positive hand cultures. This is of our investigators so we were touching high touch surfaces in the patient rooms and then putting our hands on a plate.

And as you can see 70 to 80% of the time at baseline we were acquiring C difficile spores on our hands. The black bar shows what happens if you don't do a good daily disinfection.

And this is something we struggle to get our environmental surfaces people to do well, we had been struggling for quite some time. And what you can see is after five days in the patients room, at this point the patient is shedding a lot less C difficile than before but the environment is still heavily contaminated.

So it's still 70 or 80% of the time hands are becoming contaminated when they touch bedrails, bedside tables and things like that in the patient rooms. And

again just as easily any healthcare worker walks in and out of that room and touches the bedrail would be highly likely to contaminate their hands.

And in contrast the open bars show what happens when you do good effective daily disinfection in this case something like bleach wipes. In that case you have heavy, high likelihood of contamination at baseline.

But again as the diarrhea resolves and the patient sheds less organisms by day three, four, five you're much less likely to contaminate your hands if you're doing effective daily disinfection.

And next this just shows how we integrated this into our infection control program at the Cleveland VA Medical Center so this is a fact of several interventions on C difficile cultures in clostridium difficile infected patients rooms.

So we have a baseline here, this is a three part environmental cleaning intervention and so at baseline as you can see the green bars represent the percentage of fluorescent marker being removed.

So we were doing that as an intervention to improve thoroughness of cleaning. So as in most hospitals our cleaning of high touch surfaces is about 50% in C diff rooms prior to the intervention at baseline.

And we increased that to about greater than 80% by doing an intervention to improve the thoroughness of cleaning. What you should appreciate though however is the red line, which represents recovery of C difficile from surfaces after completion of environmental cleaning.

I would emphasize that that this is looking after our housekeepers have cleaned. So 50, 60, 70 percent of the time we're acquiring C difficile from high touch surfaces after cleaning, which is obviously not a good situation.

Despite the fact that the fluorescent marker intervention worked well to improve the thoroughness of cleaning we were still 50% or greater of the time recovering C difficile from environmental surfaces.

Our hospital has spent a lot of money purchasing a UV devices, which a couple of UV devices actually and as you'll notice we still were recovering C difficile about 1/3 of the time from C difficile infection rooms.

And one of the issues that we discovered there when we implemented the UV device is that our environmental services people were actually cleaning less well because they were under the impression that the UV device was going to take care of all of the question of C difficile.

And then we come to the final stage here, which is the final part of intervention enhance daily and terminal cleaning. And what you can appreciate there is that we basically dropped our environmental cultures after cleaning of C difficile rooms to zero, that's the red line again.

And this was due I believe primarily to the black bars, which is daily cleaning of C diff rooms. We implemented a C diff team that went in and accomplished very effective bleach wipe cleaning of all high touch surface C diff rooms on a daily basis.

And that went to 90 to 100% removal of fluorescent marker from our baseline, which was terrible about 15%, which again was something we had been struggling to get accomplished.

And I would just say that, you know, I think many people would say that obviously people do daily disinfection in our hospital, this - you must be an anomaly.

That's actually not true based on a survey of 16 hospitals in the Cleveland area I can tell you that everybody thinks they're doing good daily disinfection and that's the policy but it often is much maybe not this bad but it's often not being done very well.

So with a good daily disinfection with a process for improving terminal cleaning as well where we went - where we would assess C diff rooms and clear them with environmental surfaces, supervisors or infection control.

We accomplished zero cultures and positive cultures in C diff rooms. And again daily disinfection is important because we reduce the likelihood that healthcare workers will acquire C diff on their hands.

Next the second part of source control really is in addition to disinfecting surfaces that healthcare workers touch would be that we should also focus some attention on the hands of healthcare workers.

So this is the effectiveness of hand washing for removal of C difficile spores from patient's hands. And what you see on there before hand washing, we took a swab, swabbed the C difficile infected patients hands and you can see dozens of colonies of C difficile there before hand washing.

And only three or four afterwards so we get a significant reduction in hand contamination by doing good standard hand washing of patients. And so anytime a patient leaves their room we recommend hand washing with soap and water.

And this is just again the data I'm showing the same thing, 30% - I'm sorry 30 colonies of C difficile recovered on average from hands before hand washing versus for those who are still positive, which was reduced only six colonies remain.

So we can reduce but not eliminate C difficile spores from hands of patients with this measure. And again washing patients clothing and so on and changing clothing is also important.

Here is just another illustration of the effectiveness of routine patient bathing to decrease the burden of spores on skin. So in addition to decreasing the burden of spores on hands we're also interested in reducing it on the skin of patients.

And in this case this is - we were a little bit disappointed by this data but what we found was somewhat not expected if you look at the A side here for bed baths, before is the black bar and the gray bar is after bed baths.

If you look at the overall percentage there we're seeing cultures positive from patients skin about half the time before bathing, bed baths did nothing except move the spores around it had no effect on the number of spores on skin.

As you can see with showering we did see a significant reduction in the percentage of cultures that were positive for C difficile after showering but again the number was, you know, 50% of the patients were still culture positive after showering.

So we need better methods to reduce the burden of C difficile on skin and that's actually something we're actually working on some new strategies that

seem to be effective in reducing C difficile on patients skin, we're getting ready to publish some of that data now.

Last point I'm going to make is that even if you do, even if you implement an effective environmental disinfection strategy and you get everybody to comply with contact precautions you still could miss important sources of C difficile transmission.

So this is an illustration of that. If you look at - this is a study from patients in our facility, on the right side of the slide is at the time of diagnosis. So when you diagnosis patients with C diff again we have frequent skin and environmental contamination.

So we looked at patients at the time the doctors actually placed the order for C diff testing. In our facility that time averaged about two hours from the time - I'm sorry two days from the time you placed the order for C diff testing to diagnosis took two days.

And as you can see at the time the doctors were placing the orders for testing the patients already had high levels of skin and environmental contamination with C difficile.

You know, suggesting that we need to strongly consider isolating patients with clostridium difficile, with suspected clostridium difficile at the time the order is placed or do something to try to expedite testing for C difficile.

In the - I would just say in the VA nationally the policy is that patients who have an order for C diff testing are placed in contact precautions and this is not part of their current guidelines for infection control of C difficile it is

mentioned however as a special approach that you might consider if your failing to control C diff with standard measures.

Okay so with that I'm going to conclude, CDI patients and contaminated surfaces are important sources for transmission of C diff. Environmental disinfection counter precautions are primary measures for prevention.

And other strategies that I've discussed here source control, patient bathing, hand washing, daily disinfection and early identification and isolation of patients and with that I'll have happy to take any questions, thank you.

(Christina): Dr. (Danske) thank you very much that was very informative and we really appreciate your excellent presentation. Unfortunately we ran a little over our time, we don't have enough time for questions.

If anyone does have a question they can put a question into the chat box with Dr. (Danske) and I can forward those questions to you. Dr. (Danske) we appreciate your time and your excellent presentation.

(Curtis Danske): Okay, thank you.

(Christina): Thank you very much.

Carolyn Jackson: We're going to move on now, this is Carolyn Jackson speaking again.

(Christina): Dr. (Danske) can you please - thank you.

(Curtis Danske): I did.

Carolyn Jackson: So the next part of our discussion this afternoon is focusing on antimicrobial stewardship efforts. And for that presentation we will be having our own Dr. (Jennifer Thomas) who is the manager of pharmacy services for the quality improvement organization, Delmarva Foundation for medical care in Maryland as well as Delmarva Foundation for the District of Columbia.

Her current role is project lead and coordinator of the QIO's current drug safety project, reducing adverse drug events in high risk populations. (Jennifer) also collaborates with the care transition, healthcare acquired infections and nursing homes teams in the QIO.

(Jennifer) has practiced in hospitals as a critical care infection disease clinical pharmacy specialist and also has pharmacy infusion care experience. In addition (Jennifer) is a medical technologist with over 10 years of clinical and laboratory microbiology experience.

She received her Doctorate of pharmacy degree from Albright University and completed a general practice pharmacy residency and post op fellowship in infectious disease pharmacy - pharma code dynamics, pharma code kinetics at the clinical pharma code laboratory in Buffalo, New York. Please join me in welcoming (Jennifer).

(Jennifer Thomas): Thank you Carolyn and now we will be moving quickly into the next phase of the program. We want to follow with Dr. (Danske's) program, which is the change from infection control now to this very timely topic of antimicrobial stewardship and the issue of reducing inappropriate antibiotic use.

The objectives for today we'll review several measures that are - and identify several measures that are appropriate for your use for or could be possibly used in your facilities to measure the effectiveness of your program.

Other measures and objectives will include review of some resources that are available to you and your team. And then when I turn it over to some pharmacy, list some pharmacy resources for you that are very active in the community.

And I guess I'm going to stop here and ask those folks on the phone I think we're in mute but if we have a chat function we're having some technical difficulties here and I need to know whether you are actually able to see the slide content at this point.

For anybody that's available on the particular call at this time.

(Laura): (Jennifer) it's (Laura) I'm not seeing - I see that you're trying to load them.

(Jennifer Thomas): Okay, so we we're having some technical difficulties here. I can continue to move forward because we are on a time schedule here but and we can send you these slides after the fact.

But basically we're going to review a little bit of history here for in the slide deck there was a paper that was published back in 1987 by Dr. (McGowan) from Emery University.

And he basically the title of the paper is asking the question whether antibiotic use in the hospitals is driving resistance of the microorganism population. That's not the specific title but that is paraphrasing.

And the issue I guess really is that today we would phrase that as, you know, quite a ridiculous maybe question at this point in time because we actually know the response to that.

But in 1987 obviously we were considering the issue of our overuse of antibiotics and its contributions to what we were seeing in resistance in the microorganisms.

And from a personal perspective I worked in a clinical microbiology laboratory and in the 80's and saw that mid-80's that we've - the first population of organism was in haemophilous influenzae where we saw actual resistance in Ampicillin in more of the islets over the years, the passing of the years.

And then in the next grouping with the urinary tract infection E. Coli's and again seeing that same change in resistance to Ampicillin in the latter 1980's. And then our first cases of MRSA and then in the following year in 1989 and 1990 we had a 30-fold increase in MRSA so we really already lost that battle with some of the resistance.

So just from a personal experience I can relate that story. So this is part of telling this and experiencing this change in our MEU of the organisms and obviously the difficulty in treating them.

The following paper I thought was very interesting this is about a decade later 1996 and we clearly now understand that resistance is being driven by our use of antibiotics.

And this is a paper published in the Journal of American Medical Association as you can see. And it is a challenge to our hospital leadership and in this

particular study there were two populations that were experts that were gathered across all mutli-disciplinary groups.

Nursing positions, infectious disease, pathology, epidemiology and pharmacy and they formed two QA teams to provide strategies for hospital leaderships to address this issue.

And those strategies basically resulting in some of what we'll cover here shortly in the antimicrobial stewardship change package. This next slide and the drug resistance index, which I thought was rather interesting and they quote some of the science magazines, which calls this the Dow Jones for resistance data.

This is a scale that has been developed by a non-profit group that's studying - the group is called the Center for Disease Dynamics and Economic and Policy.

And if you have a chance it's very nice to go to this Web site to check out the graphics and again the DRI index for resistance. And this particular slide shows our most common uses for antibiotics is UTI and skin and soft tissue infection.

And you see this change over time increasing of the urinary tract infection. The index basically is a composite index that basically makes a case for it combines the ability of the antibiotics to treat the infections and with the extent of their use in the environment.

And so what this graph shows is as you - the increase in particularly in the UTI realm, which is primarily gram negative rod we have less or less armamentarium agents in the armamentarium and you're seeing that increase.

And so that index shows the number of infections that are facing treatment difficulties is basically the interpretation. You see the same thing in the skin in soft tissue but then a decline in these latter years.

And the hypothesis there is that we actually have more drugs now in the armamentarium for (unintelligible), which are the cause of most skin and skin tissue infections.

So there's good news for us now though we've discussed this issue of antimicrobial stewardship for at least 25, 30 years. The terms have changed it used to be called antimicrobial management.

But basically this is the I think some good news that we have in this change package that was developed by the institute of healthcare improvement and the CDC.

The full document is 12 pages, the link is there listed for you. I would encourage you all to look at the full document. There was a testing phase for this within eight hospitals and various sized facilities, different types of environments and acuities of patients to test whether the interventions and the ideas in this change package are feasible.

The change package is built on what's called a driver diagram it's basically primary and secondary drivers with key change concepts and a tabular table format.

So just as an overview there are basically four primary drivers and the first primary driver is called the over arching driver, which is leadership and cultures, which we all understand is an issue for most of our projects if we

have strong leadership support and volume then we have a much greater potential for success.

And then the second, the other three primary drivers are listed there for you. Very timely, appropriate antibiotic use, appropriate administration, de-escalation and duration.

And then the third one is looking at the data, monitoring that transparency and the structure of the stewardship program. Again the change package and again I encourage you to look at this.

With the next slide we'll have a very short what I call the cliff notes version of the change package but what I'm encouraging you to do is to take a look at this.

There's multiple under each of those four drivers there's secondary drivers as I indicated, change, key change concepts and then there's at least two to seven interventions or ideas there that you could take a look at from within your facility, which are applicable to your facility and consider adopting some of those for - to move change in your facility.

There is also the recommendations that when you do this, you know, don't select all of them select those that are applicable to your facility and then also you want to measure obviously when you've made change to show or to determine whether that change is indeed improvement.

Start small, small numbers or sections of charts may be from a trigger tool standpoint might be a way to determine that depending on what measure you select, what interventions you select.

So here is a screen shot this came out, this was forwarded to all of you through the list serve and this is what I would call the cliff notes version. It's very streamlined but you get - you have a flavor for what's here now and the primary drivers are listed.

The leadership, which is considered again the over arching driver there's not any categories here or secondary drivers change packet but just to give you an example of that from a standpoint of leadership.

One of the secondary drivers may be a consideration of again adopting antimicrobial stewardship as a initiative or goal, over arching goal for your facility.

And then a key driver for that would be to identify a champion that will take this on and then again you could move through, there's many additional change concepts and then moving that into the idea who might that person, individual be, who is in charge of committee membership and who those individuals are identifying those and how they'd meet and who would be responsible for that, so it's just an example of that.

The - one of the tools that I've had available here to me and I thought this was actually a really nice example and this is happening in Ontario, Canada. So this issue of antimicrobial stewardship is actually worldwide.

We just had a group here in the (Delmar) offices yesterday from Korea and they're also focusing on the same, some of these same issues. So here in this tool is a gap analysis, I think this is a nice way to perhaps start reviewing the process within your institution.

If your just starting or even if you're in, if you have a program in place it would be - this is a nice tool again to identify what you're doing, what you're not doing and perhaps movement toward specific goals that you have in mind.

And there's the next slide indicates some metrics here and we'll identify some metrics again in the change package that are available as well for following that but these metrics from a standpoint of measuring drug therapy usage we have different ways of doing that.

DDD to find daily dose, which World Health Organization has promoted days of therapy, which is something that the CDC is actually moving forward with in the NHSN and the AUR model, the antibiotic use and resistance module.

For those of you that have automated data mining systems like some of those vendors, this may be something that you're able to do if you have again administered data from the computerized order entry system and/or CPOE and EMR data documentation.

So that would be something that may be of interest to you. This next slide or the next couple of slides, this has to do with alignment of the change package and what you could select perhaps as measurement.

So this is the stewardship measurements framework, it's also from the CDC as the change package. This - it aligns very well with the partnership for patients and the national quality strategies.

We're looking at outcomes that are decreasing, costs improving and increasing and improving safety and better health. So you can note here that we're measuring C difficile and how that might be measured, the issues of antibiotic

cost and I think the pharmacists are well aware of this that costs may be one measures of use of antibiotics.

But because we've had these issues of shortages the cost of the medications may be fluctuating vastly from any one period of time and that may not be something that would be an accurate measure actually of improvement within your group but it's certainly one area that you could consider.

This issue of antibiotic related adverse related drug events I think is something that we certainly should consider and here it's noted that it's not feasible. There is an issue here because we really don't have measures, numerator, denominator, defined measures for antibiotic or adverse drug events in general.

And so that could be something that your - you might be interested in pursuing because this framework, the CDC basically states that this is just a starting point.

It is put forward for us to use within your teams to stimulate investigation and to stimulate ideas. And they are looking for actually groups that are going to use some of these measures to help define what those numerators and denominators would be.

And so I think this is something that, you know, take this forward to your committees and your groups and consider this and how you might use it in your environment, next slide please.

And so here are some of those measures that are aligned with again those drivers. The primary drivers and the change package and for the first two or the second and third driver I should say the timely antibiotic management and

the appropriate de-escalation and duration of antibiotic use there's some recommended measures there, these are recommended and they've been pilot tested again.

So in the IHI and the CDC's promoting it and movement forward with the change package they did test this in several hospitals. So those are recommended measures and those might be worth considering in your institution.

The other areas and the fourth driver for data monitoring and transparency there is some suggested measures for consideration and again these I think are something that reasonably and you may have something that you're already using within your institutions that may be applicable and could be put forward.

But again being very specific in what your numerator and your denominators are and how you'll be able to apply that across maybe units or floors or targeted drugs or whatever your selected criteria are.

And now I'd like to turn the program over to two of my colleagues from the two hospitals here in Maryland and that is for the Maryland Society of Health Systems Pharmacists antimicrobial stewardship committee.

I'll turn this over to the co-chairs of that committee currently are (Laura Lehman), Doctor of Pharmacy at Carroll Hospital Center and responsible for their stewardship efforts.

And Dr. (Emily Hale) from the University of Maryland Medical Center and she is also their infectious disease and responsible for antimicrobial stewardship, (Laura) and (Emily) thank you.

(Laura Lehman): Good afternoon thanks for having us, this is (Laura) can - I hope you can hear me I'm right up against the poly cone. And I'm happy to announce I was somewhat worried about what would happen today with this time slot because Joint Commission showed up yesterday and I'm fortunate that all of the medication sessions and the infection control sessions are tomorrow.

So it was very nervous looking in my picture there and that's the reason. But anyway we are here today to just tell you a little bit about our group. We are the members of the Maryland Society of Health System Pharmacists.

We're the antimicrobial stewardship committee, we're approximately 30 pharmacists who have interest or practices in managing antibiotics in our hospitals.

We represent 22 teaching and non-teaching hospitals. We have a wide variety of practices with antimicrobial stewardship. And we typically have monthly meetings, they're usually by conference calls similar to this occurring at the moment.

We have in the past had some live in person meetings and we welcome it to any Maryland Society of Health System pharmacist members to join our group.

The next slide is our goals listed there, basically to optimize antimicrobial use in our hospitals. We want to minimize development of resistance across our state and we share successful initiative amongst our hospitals and we try to inspire each other to start or improve our programs.

We do a lot of picking each others brains for ideas and feedback on what works, what doesn't work. And then we - one of our goals is to organize an educational session, to have educational sessions on stewardship initiatives.

And as a matter of fact just last week (Emily) coordinated a wonderful program for MSHP that was four CE credits, all types of timely topics including like a we had a microbiology 101 session where (Emily) reviewed this is for pharmacists in general so not just experts in antimicrobial stewardship but those who are members of our organization who have an interest.

She reviewed how the microbiology handles specimens and determines susceptibilities. Some basic information for pharmacists that practice in hospitals.

She discussed the COFI break point standards for interpreting susceptibility. So it was a wonderful program, we had a topic on metrics how to best look at your antibiotic use, what the latest, greatest is in terms of that.

She just was not to be missed we had a wonderful talk and update on C diff, that's pervasive in all our hospitals. So the next thing I just quickly wanted to tell you is kind of some of what the typical agenda items are.

And first of all (Emily) sends our a survey monkey with various states and then the participants who for our group will select, you know, their availability based on those dates.

And then (Emily) will choose which had the highest availability and then we'll organize a conference call. We don't have a specific day or time of the month it's just kind of ad hoc whatever works best for the majority.

We get about 12 to 15 participants on each call on any given call. So some of the things we talk about we have some standing agenda items and those include things like the national guideline updates like from idea say or (shay) or CDC.

We have regulatory updates like Joint Commission and CMS and then we always have a Delmarva at Maryland Hospital Association updates on the agenda where (Jen) is valuable in bringing back these initiatives to our group.

And then we have - we always have industry updates, we have drug shortages, which is taking up a great deal of pharmacists time these days if you hadn't heard.

And then we talk about recently published papers of interest, any upcoming educational opportunities out there and we always solicit agenda items from our group ahead of time.

So our members of our group who are tackling an issue relating to antibiotic use or infectious disease they can submit that question to (Emily) or myself and we put it on the agenda.

And we get the group talking and these can be very lively conversations as you can imagine especially talking about C diff or highly resistant organisms and Cholistin an old antibiotic and dilemma's with dosing that drug or managing a variety of complicated infections.

So that's us in a nutshell, (Emily) is there anything I missed here?

(Emily Hale): I don't think so (Laura) that was a great summary. (Jen) is there any questions?

(Jennifer Thomas): Yes I appreciate very much (Laura) and (Emily's) presence here I think this is something that if you out there in Maryland and the District of Columbia I'll open it up to both of you as a member of MHMP.

I think this group is a very valuable forum for sharing, there's obviously much discussion of timely topics including C difficile obviously consistent with this collaborative.

And I would suggest that any on the call that are not members of this group and they're interested please join it's again a wonderful sharing and forum for sharing and identifying key issues of the day that you may be working on including antimicrobial stewardship activities and what works and what doesn't.

And just most recently some of the sharing that's happened was the antimicrobial the anti-biograms within the institution. So there is a fair amount of sharing and some good topic discussions including the CE that was discussed by (Laura).

From a standpoint of I guess a question and I'm going to start with a question is for (Laura) and (Emily) I guess it's and this is mostly logistics issues but as you said there's ways of joining this group.

What would be the best way for folks to reach out to you? Would that be to send something to the collaborative or contact your email addresses there on the slide set or otherwise?

(Laura Lehman): (Emily) do you have as far as your - the group that is in the audience today outside of our group (Jen) I'm sure if there was an issue that we could work on

jointly I mean either (Emily) or myself would be happy to receive an email with that information or that request.

And we could perhaps coordinate a joint session together if that's something of interest. That's what I would think best (Emily) any other thoughts on that?

(Emily Hale): Yes if there's any interest in joining our group if you're not already a member feel free to just shoot (Laura) or myself an email and we can get you hooked up on our list serve once we confirm you're an MSHP member.

And if you're not already an MSHP member they have a Web site mshp.org where you can go and get registered to become a member of Maryland Society of health systems pharmacists and then from there we can certainly add you to our very active list serve and would love to have any participation.

(Jennifer Thomas): All right thanks so much.

(Laura Lehman): Thank you.

Operator: Ladies and gentlemen - I do apologize.

(Jennifer Thomas): Go ahead, opening up for questions.

Operator: Ladies and gentlemen if you would like to register a question please press 1, 4 on your telephone keypad. Once again to register a question over the phone please press 1, 4 on your telephone keypad.

And there are no questions over the phone line at this time.

Carolyn Jackson: We would like to hear from anyone who has antimicrobial stewardship committee's forms or that are working diligently how you're working out your issues with your antimicrobial stewardship committee.

If anyone wants to talk a little bit about that we certainly want to hear from you because it would provide some helpful and useful information to others on the line.

When we've looked at who has and who does not have their antimicrobial stewardship program started we've noticed that members of the collaborative are at various stages of development of their antimicrobial stewardship program.

So this is your opportunity to ask for help and find out what other people are doing. So if there is specific questions about this topic this is a good time to put them on the table.

Keep in mind that this is all teach, all learn environment and so we're here to help you learn from one another and we see as our role as facilitating that process and so that given opportunities this is an opportunity for you to be able to reach out for help and get some suggestions.

Also the chat room is open if you want to pose your question in that manner but just keep in mind that that's what we're here for.

Operator: Once again as a reminder to register a question over the phone lines please press 1, 4 on your keypad. We do have one question queued up from the line of (Kirk Jones) please proceed with your question.

(Kirk Jones): Yes hi, Dr. (Thomas) how are you?

(Jennifer Thomas): Good, good afternoon (Kirk) thanks for joining us.

(Kirk Jones): You're welcome I didn't know if I was supposed to cut in when my thing came up on the screen or not do you want me to give a little blurp about what happened with the Joint Commission?

(Jennifer Thomas): Yes can you - we'll have you up here on our slide set now and this is Dr. (Kirk Jones) from Western Maryland health system and he will provide us a little bit of information about his Joint Commission experience and the issues of antimicrobial stewardship.

(Kirk Jones): Yes I'm sorry I didn't know if I was supposed to jump in there or not so I took to long. First off I want to thank you very much for not having my picture up there, we didn't want to scare anybody off the line.

But I did want to jump in because (Laura) was going through this right now and I think maybe we can give her some kind of a comfort zone for the Joint Commission.

They were in here about two weeks ago, it was a very thorough survey, much more than we expected. More surveyors showed up they stayed and did more tracers than normal but I can tell you if I got cut to the chase because of our - a key thing I'd say is antibiotic stewardship was not necessarily as a whole on their radar.

Interestingly enough we had a survey just three years ago and there were more questions on antibiotic stewardship that was actually brought up as a key topic in our infection control part of the survey three years ago but was not this time.

So I'm going to make a couple comments, you know, you expected them to at least find out if there was a team, whether it was on our radar whether there was a team already developed, maybe what it was doing.

And of course what they always look for is what kind of measures of success were you possibly collecting. I'll start with the infection control meeting because we at least expected it to happen there and it did not.

We expected some kind of a discussion just by chance me and Dr. (Delowe) infectious disease doctor and I think just because we were the last ones in our chairs were forced up near the front of the room with the presenter.

She came in a little late so I don't know if she was a little off of her agenda or not but 2/3 of the way through the presentation she had not discussed it at all. Foolish me I had brought a point presentation to address this, we had printed versions and they were sitting in front of me and Dr. (Delowe).

She looked over, noticed them and that's the first time she asked any questions on antibiotic stewardship. And I think she just didn't want to disrespect us because we had a presentation quite frankly the way she mentioned it.

At that point we kind of brought up some subjects, what she seemed to be interested in is our approach to handling MDRO's and how we did that because we had kind of a unique change recently we did here.

And our infection control group had did a wonderful job of working with us to eliminate some of the people we were isolating and with our infectious disease doctor we felt targeting a better target of the patients we wanted to select and more dangerous islets if they did get to another patient.

And we also reduced the amount of isolation that we were doing at the same time so they were very interested in that. They were interested in the fact that we had a team approach and how we communicated our findings from any kind of a stewardship program.

And we in particularly had done a lot with our laboratory and with our technology on how to send out alerts and to let people know what was going on and they seemed to be interested in that very much also.

And our infection control nurses are here with me so if they think of anything I don't as to things that came up I would love input from them. The one thing I would say that kind of came from them on their own that did kind of pertain was and for those folks that also do all of Joint Commission and medication management like some of us do as well as just antibiotic stewardship, not just but as well as having the antibiotic stewardship hat that we wear.

Where it came up was basically first review of surgical patients. They were concerned about whether we were doing first review. W almost got an RFI on this and their main thing they were talking to us was antibiotics and there concern was obviously allergies and whether or not we were interpreting what was going on and whether the patients were getting antibiotics they were listed as allergic to.

They knew we had the (SKIP) program so that what antibiotics were used and the timing of them were addressed already. So that might have been on their radar but it wasn't brought to our attention because we have the (SKIP) data and we could show them very clearly that we were addressing those issues very well.

As well as the 24 hour window afterwards or 48 hours if you're talking about cardiovascular surgery. So I wanted to make sure you knew that one of the reasons we were - we did a fine job here I think of averting that write up and that was because we had already through our antibiotic stewardship that's just kind of revving up again here, we've had it in the past and it's revving up again.

One of our first targeted items was to do looking at the surgical antibiotics particularly after the IDSA article came out, ASHP article came out in February I believe it was suggesting much higher doses for the (unintelligible) a weight base kind of concept that we were getting down there and targeting actually June 1.

To get down into these surgery suite and looking at the antibiotics, looking at the allergies, making sure folks weren't moving away from (unintelligible) when they could still use them since we think they're more rapidly sidle than most of the agents you would go to as alternatives.

And because we wanted to start this weight based concept, because we had that pilot already - that initiative ready to roll and because they heard that from some of our surgeons they actually gave - let us pass on having the spirit of that measure in compliance.

So we actually averted a very dicey situation where they were actually honing in on that and because we had a pilot program to look at those kind of things they were very, very pleased with what we had set up ready to go.

The other thing I would say for the rest of us obviously is I think anticoagulation, antiplatelets is obviously one of the things they would be

looking at also although they did not mention it I think it's what we would be looking at when you're talking about first review for surgical patients.

So I'd say that was the one thing that was targeted, I think they might have not even brought it up at all in infection control from the way I saw it without the presentation we had there.

This didn't surprise me because for all of those who have gone through this national patient safety goal anticoagulation because it's such a huge intense endeavor I think that, you know, there's going to be some time before they really scrutinize it intensely.

I think probably they may just be asking are you prepared for this kind of process and what stage you're at but are there any questions somebody has on that?

(Jennifer Thomas): (Kirk) thank you for the presentation we really appreciate your sharing your Joint Commission experience and maybe (Laura) will have some news for us later in the, you know, in the month after their review is complete. So we do appreciate your sharing that, thanks for joining us today.

(Kirk Jones): Thank you (Jennifer).

Carolyn Jones: And that will end our session for today thank you all for joining and staying on the line. Just as a reminder our next call is scheduled for July 17, that's the third Wednesday of July at 1:00 pm.

You will be able to find these slides posted to the Web site and we will send out a notice on the CDI list serve when those slides are available. Once again thank you for your time and have a good day.

Operator: Ladies and gentlemen that concludes the conference call for today, we thank you for your participation and ask that you please disconnect your line.

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