Please stand by for realtime captions.

Good morning, my name is Ileizy Victor and I will be your moderator for today's webinar. Section 2 Antimicrobial Stewardship: Strategies and implementation

Just a few housekeeping items before we get started. This call will be recorded for training purposes. We will have details of how to access the recording at the end of the webinar. Phone lines will be on new for the duration of the presentation. We will take questions at the end of the presentation. You can pose a question in the chat box. Please make sure to send questions to all attendees.

At this time, I would like to introduce Terry Barton with the Massachusetts Department of Health.

Terry, please press #6 to unmute your line.

Hello, good morning. It is my pleasure to introduce Dr. Shira Doron. Shira Doron is the physician in the section of infectious diseases. She has been the decision to division head at the antimicrobial -- and she is also the host -- hospital in Indiscernible.

In hospital doctor and surfer epidemiology of America in the microbubble stewardship committee and the infectious disease Society of America and the stewardship and IV leadership workgroup.

Here Massachusetts, Dr. Jerome has been involved in several statewide initiatives. In care of patients with infective or concern infection.

Kirthana “Kira” Beaulac, PharmD BCPS is a pharmacist who trained at Massachusetts College of pharmacy completing postdoctoral training in infectious diseases at Hartford Hospital. She is a pharmacist head of antimicrobial stewardship program and [ Indiscernible ] medical center as well as infectious disease promises for the institution. Dr. Bullock is involved in the Massachusetts Society of health pharmacist, the Council of Boston teaching hospitals for pharmacist education, and society of infectious disease pharmacist.
Are research focused is a bit of optimizing [Indiscernible]

Thank you both for speaking today.

All right thank you for that introduction. So again my name is Shira and today we are going to talk to you today about antimicrobial stewardship specifically the strategies for implementation at your specific institution.

Before we jump right in, I just want to throw out a quick pulling question about how you feel about antimicrobial stewardship.

So with respect to antimicrobial stewardship, how do you feel that there aspect you feel that your facility has a program in place, has a feasible plan to plant a program, or has little if any program plan in place.

Jennifer, could you please open the pole.

And please enter your responses in the bar on the right.

All right, the polling has now closed and in a minute we will have our responses.

All right so it seems like a dead even splits with actually -- few respondents feel like they have a program in place, but it's almost even. Kind of across the board of where everyone is at. So it seems that we have a good mix of people. So today we would talk about the strategies for lamenting in microprobe Io -- microbial search appeared

So we hope to have the long-term care as well as the stewardship surround antimicrobial stewardship we hope you'll find the elements to this Megan to have the role each member the care team carry out the goals of stewardship, and lastly to be able to have examples in a antimicrobial intervention with other long-term care facilities.

So it's kind of focus on the problem as a whole. This may be preaching to the choir but many of you know that there is a lot of patients with infections in long-term care facilities. On average there is millions of patients that are diagnosed with infections in long-term care each year, with a total of one 12 almost 8 million patients each year in nursing homes requiring or being diagnosed with infections. And the result of that is a lot of anti-biotic prescription.

It's been estimated between 50 and 75% of long-term care residents in the United States get at least one antibiotic prescription each year.
An enormous population. See equity compound in that the fact that it's estimated that 25 to 75% of those systemic antibiotic prescriptions and 60% of topical perceptions are either inappropriate or unnecessary.

So this is a huge number of prescriptions that are being desperate animatic discussions each year with a large proportion of them essentially being inappropriate or unnecessary.

And going back to the original topic -- so many patients have infections; millions of patients have infections, which are based on the assumption of a diagnosis of infection.

And we have to kind of question you know is this an accurate diagnosis.

Ended all his diagnosis capture warrant and about -- in a bad perceptions.

So we are asking why are there so many inappropriate or unnecessary and in a biotic and infection perceptions. Some researchers have looked this and clumped it into two major buckets. Some issues are workflow related. So very often the diagnosis or management of an infection needs to be done in the absence of license independent practitioner like a physician NPR or PA or even if they are physically present, they often have limited time to be able to fully evaluate multiple patients without readily available night and weekend access.

Additionally most long-term care facilities lack the institutional prescribing guidelines, essentially access to references, and having little to no prescribing oversight that would help I that in improving their practices.

And lastly, many long-term care facilities lack access to IB specialists or [Indiscernible] diagnoses that would help them in determining if the patient truly has an infection, and if they truly need antibiotics.

And then aside from that, there's some cultural issues in our prescribing practices that need to -- the overuse of independence.

Some patients seem really old and frail, you may think well there is no room for error here, we have no opportunity to get wrong. We definitely have to treat this person with animatics in the rare instance that it could be an infection.
The next item that was identified was demanding families and this is something many of you even desperate with a bias issue in previous webinars. That families often view institutions as negligent or [Indiscernible] treating the family members if they assume that there family member has an infection.

And that really goes back to educating the family about what is destined when infection really is.

And lastly there is always in our society concern that if for whatever reason, that clinicians think that there is not a bacterial infection that impacts are not needed, but then something could happen during the feared there is a fear of litigation. Subscribers tend to over prescribe rather than under prescribed just to protect themselves from a [Indiscernible] perspective.

So there's a lot of reasons that have a good amount of over prescribing of antibiotics, and although it seems like these are kind of relatively reasonable reasons, there are a significant consequent is to the overuse of antibiotics in the population.

We know that antibiotic exposure or recent antibiotic exposure is the single greatest predictor of developing a multidrug resistant infection going forward and it's been proven in various relations and various settings that use of antibiotic’s cause about resistance later.

And that could be in the population as a whole or it can be even in the same patient. So we really need to choose a paradigm and thinking about how we use antibiotics and really what are the risks associated with maybe being a little bit judicious in your antibiotic prescriptions.

Now I will turn it over to Sharon who will talk about core elements.

So how are you working in a long care facility supposed to implement a stewardship program. We have been spending a lot of time on the concept and why it is important, but that's get into the nitty-gritty of implementation.

And the first thing you should do if you haven't done this already, is to go to the CDC website on the core elements of antibiotic stewardship for nursing homes. And there are a lot of resources on that site that you can use for specific tools for stewardship invitation. But we need to start with these court actions that every stewardship program should be taking before they even begin. In the first test and the first thing you need is a leadership commitment. You cannot have the search ability demo the
supporting commitment for safe and appropriate antibiotic use in your facility by the leaders who will need to be the ones that are out getting resources initiative.

And accountability. Who is physician, nurse, pharmacist, who will be the leads responsible for promoting and overseeing antibiotic stewardship activities in your facility, and again, with a duty be given some medicated time to dedicate time incentive to do this.

Drug expertise. It is important to establish access to consultant pharmacist and/or other individuals with experience, training in antibiotic stewardship for your facility, and then action. Once you have done those things, it is time to implement at least one policy or background to prevent [Indiscernible] use and that could be really small because one success will lead to another Willy to another.

But start with one.

Is important though that when you roll out that one action, that you then track it. You need to monitor at least one process measure of antibiotic use at least [Indiscernible] in your facility. I did something, did it work, do I need to tweak it, and what can I do next that would further my success.

And recording. Recording and it -- really use in the district for the nursing staff another relative staff, because if the quality improvement project happens in a vacuum, you're not engaging your providers to further that goal.

And finally education. Education is a huge part of what we do here at test medical center providing resources to clinicians and nurses rather -- and families -- about antibiotic resistance and opportunities for improving antibiotic use.

So what are the ingredients for a successful program? We're going to go through five key elements I think that we think are most important to create a successful stewardship program.

And those are culture change, provider education, use of appropriate benchmarking, the use of microbiology use and use of technology and informatics.

Society with culture change. Here at tough Medical Center when we rolled out the program, well over a decade ago, we did not just do that without getting buy-in from the key stakeholders. People who were invited for coffee, lunches were brought in to various conference, conferences and throughout the institution, people from the leadership down to the attending physicians, down to the residence were all wearied
further thoughts of opinion about the idea of stewardship, and educated about the importance. And only once we started to see that by an, to begin to implement our actions.

It is important to be cognizant of especially physician’s reluctance to give up a Ptolemy. By nature, physicians are not going to want to be told what to prescribe if they can understand that there are experts who have more knowledge about informatics and can provide them with assistance, then that is a lot better received.

If your team that you create is multidisciplinary, that will be much more effective across the various roles that are going to be affected by the programs. If you are seeing more as providing helpful or teaching service than is being the antibiotic police, that is currently helpful. There are a lot of concepts of behavior change that can be used to more effectively roll out initiatives throughout the world of quality improvement.

And finally, to listen to feedback often, every time you make the change, you want to make sure that the end-users can appreciate that change and if there's any feedback that you can get that can help to improve your program.

So this is an example of culture change, feedback and education. We conducted a study where we evaluated our program with house officer feedback. So the first thing we did was we surveyed our residents. In 2008. About the program had been around for four or five years of the time. Based on the feedback we got, from those residents about the existing program, we made some changes to the program.

We enhanced the training that the residents received at orientation about stewardship. We changed the antimicrobial order that we were using at the time and that specific data elements that have to go in before you get it antimicrobial. And we implanted something called ASP question of the week -- in the or stewardship teams question of the week -- every week we have a teaching point that goes out by email to all clinicians. In those emails might be about how you utilize the stewardship program, things about paging and hours they might be about how you do things for your patient.

After doing that we repeated the survey with almost the same questions in 2010, until you can -- we can see is if you look at the top box there, this is pull data from 2008 a 10 together, have you ever had an interaction with those torture program -- program the next day -- with ASP. So third of the respondents said that an ASP reminded them of the patient allergy when I was otherwise going to forget. The ASP reminded you to just for renal function. Three quarters of the time, when they were otherwise going to
forget to do that. And the ASP has prevented them from making a medication error over a third of the time.

Or a sorry -- over a third of the respondents felt that the ASP had prevented them from making a medication error.

If you look at the differences between the responses and the 2008 versus 2010 poll, you can see that some of the responses were similar from the early to the late time period.

How important is the ASP infighting and microbial resistance? In many thought that was containment as Mike ASP is important containment of healthcare costs in preventing medical error. Interestingly there is a little bit of increase but not a ton in the preventative respondents who felt that stewardship procedures were presented during orientation.

And the fact is that 100% of those respondents did receive stewardship orientation. So this is one of the things that taught us that orientation is not a good time to teach people about stewardship, and we do it differently now.

But have you ever been confused about ASP procedures? That number went down significantly. And how has your education experience been with ASP aspect that number went up significantly we attribute that to [Indiscernible] in response to the feedback.

Education as I said is something that makes up -- [Indiscernible - low volume] a very large person of the work aspect [Indiscernible - low volume] and really every interaction that we have with clinicians, all day long, as an education opportunity.

Keeping in mind that medical education is really mapping the concepts of stewardship. To really assume that the people that are talking with new interest have no knowledge [Indiscernible - low volume] so start with [Indiscernible]

We focus on the concept of colonization versus inspection. Everything that they have conversations about that and that is huge and we were actually devote an entire webinar, the next one, to this concept. The quality perspective UTI but the constant [Indiscernible] [Indiscernible - low volume] in areas.

Community acquired versus hospital acquired infections. It's up and we talk about everyday as well. Do they truly have risk for organisms or can we use it [Indiscernible] in antibiotic before we get the culture data. Select de-escalation a so-so
importance or chip, and that is the idea that we need to start -- and we may start broad. We you may start with some uncertainty about whether the patient even has an infection. And so once you get your culture data or once you have more clinical information, you need to de-escalate to the infection [Indiscernible] that covers what you have grown and in the next bullet smack early discontinuation because you decided the patient doesn't have enough [Indiscernible] anywhere [Indiscernible - background noise]

They can have an infection but now it is completely resolved and that is actually the time [Indiscernible]

Many people would say but an issue is getting better in it -- I don't want to mess with success and that's not a good way to be prudent within a box.

And then a lot of -- that's what he or she [Indiscernible] and this is really relevant to long-term care obviously. With the patient coming into that -- are large proportion of our patients come to us whether facility assessment and the transfer is an opportunity to reevaluate the patient care and get them in what's best for the patient.

So we encourage you to consider surveying your clinicians to gauge their knowledge. In the survey that we read out, -- that we carry out that this was published in 2014. This is a multicenter survey of healthcare practitioners about their knowledge with [Indiscernible] resistance -- Carbapenem resistant Enterobacteriaceae. Actually what we found was that the earlier in the training, the physician was, the more they knew about highly resistant negative infections. So that was in practice for more than 10 years at the lowest knowledge.

That is something to keep in mind.

So another important key to success is using metrics. No measuring how you are doing and being able to track if you are doing well. What you need to improve on, and there's a lot of different metrics you can use to evaluate this.

Here I have listed some of the common ones, you can look at the overall cost and what you're spending. This can be normalized in a couple different ways. You can assign daily dose like how much total antibiotic are you using, normalize it by patient date, by inner days of therapy, link the therapy. You can look at a snapshot of at any given point what proportion of your facility is receiving antibiotics treats you like you can look at trends in resistance, and CDI. I want to focus too much on this because we have webinar number six largely focused on tracking and trending metrics.
The other, another big tool is leveraging your microbiology lab. Because they have a lot of useful tools that can help you decide whether or not you should be using your antibiotics.

At our institution we do a couple of rapid diagnostics, and our use of the rapid flu swab was able to decrease the number of in appendix or the amount of any bags that we use because once we know that somebody is presenting with flu, you know that you can kind of rule out a couple of bacterial infections.

And we were able to use that as an opportunity to improve the airbag prescribing for respite or infection.

Additionally, your microbiology lab's work with you in developing an antibiotic diagram and ideally you can use disease specific, combination, dose-dependent doesn't [ Indiscernible ] again I will kind of not touch on it too much because we have to circle back to this in future webinars.

So there is a lot of opportunities to improve your prescribing based on data that you pull from your microbiology lab read

Here I have an example of an antibiotic grandma for those of you who remember seeing one before. Okay -- so here we have all of the organisms that are hospital had grown over the course of the year and here we have all of the antibiotics that we have on formulary that we were testing system stability four.

So if you think your patient has an E. coli infection or you want to cover for E. coli, you can look across the rope, and identify that which antibiotic is most likely to be affected -- effective friend in the E. coli infection. And whenever infection you think your patient might have.

Aside from using the microbiology lab, there is a lot of technology in informatics I can also supplement your stewardship program. If your institution has electronic health records, very often those have embedded where he functions that you can use to run reports or potentially even built [ Indiscernible ] alert you when a certain thing happens. So you want to know how many of your patients are in a biotics or high cost in a barracks or there is a lot of tools that you can build into your electronic health records if you have one.

Additionally, there is a lot of clinical data support systems or clinical physician support systems that are also known as data mining tools. What they do is they look at all of your -- as a third-party program, that can look at your data and your electronic
health records, and come up with information that is actionable for you and build in some clinical decision support to say hey this person has negative cultures and has been on antibiotics for five days. Maybe you should look at them and perhaps think about an opportunity for intervention there.

There is a few apps out there that can help with clinical decision-making determining whether or not a patient doesn't gauge or actually have an infection or if they do have infection, what is the most appropriate antibiotic for that situation.

Is also a couple of electronic resources that provide a lot of drug information like [Indiscernible] or clinical pharmacology of today, these electronic [Indiscernible] provide fantastic accurate up-to-date information that sometimes other resources can be logging in.

And lastly listserv are a great opportunity to bounce ideas off each other, get feedback from your counterparts and other institutions. There is a ton of great information on listserv's that are out there, and we really encourage you to be active and participate in various listserv.

Here's a screenshot of what some of the clinical decisions for systems look like. And hear what you see is there are rules that are firing for patients to say hey, look at this, they have ARA or -- BRA or all the various cultures that are lacking positivity gives us an opportunity to have targeted surveillance.

And then conversely can also use similar electronic tools I can query electronic health records to keep track of your various things like your [Indiscernible] which are important for reporting.

So what can you do, we've given you a lot of examples of things that can be you wills to strategize and I realize that many of you don't have electronic health records, so there is nothing scary. But here something that everybody in the call should be able to do. We will break down for you by role.

So long-term care facility and misleders, what can you do? Well you can establish those multidisciplinary teams to address informatics stewardship. You can make sure that they are coming up to protocol. Uploading the appropriate circumstances for use of antibiotics. Again we'll talk with a lot more in this webinar.

You can review antibiotic culture data with your champions to look for trends that make suggesting you have a worsening resistance program, but if the student, that something you need to be aware of and say something about.
You can make sure that their protocols in place which are -- ensure that cultures are checked when they come back, and the antibiotics are adjusted according to culture results every time. And you can make sure their programs in place for periodic review of antibiotics utilization.

If you are long-term facility provider, you should be obtaining culture points whenever possible. Starting antibiotics. Checking the results. And adjusting antibiotics appropriately to the narrowest spectrum agency possible. Avoiding the use of antibiotics for conversation, contamination and viral infections. -- For colonization. To keep the duration a short as possible. Those days of finishing the entire course, even if you don't like you have an infection anymore, that is the old days. We are in a new era of time where the durations actually need to be kept as short as possible.

He should be taking care to effectively communicate with a transfer facility. Pending any lab results and planning for Vioxx and what you're follow-up us.

Those details need to be very clearly communicated and I encourage you to develop standardized intake tools to take all that information comes over with the residents or residents that have gone to the hospital.

Nurses. And a long-term care facility can be familiar with current protocols for testing and treatment of presumed bacterial infections. Educate families and Reds get desperate and residents about their -- that many respiratory factions are caused by viruses and do not require antibiotics. Many times what is expected to be a UTI district suspected to be a UTI is not in their proper protocols for testing and treating suspected UTIs.

They should follow advanced directives for limited -- limited treatment in addition to things like Ian are doing the hospitalized, do not give antibiotics without appropriate directive for patients at the end of life.

And to follow up with facilities regarding pending lab results.

Prescribers. Prescribes can encourage the use of screening tools and protocols in order to decrease the use of unnecessary antibiotics. Educate the fellow clinicians, staff and family members in an appropriate use of any buttocks. And implement measures to reduce the need of treating with antibiotics. Neck of the things at avoiding the use of indwelling urinary catheters. Once a patient has a urinary catheter for 21 days, they have about a 100% chance of having eight positive urine culture.
When somebody or prescriber has a positive urine culture there is compulsion to treat that positive urine culture, but that doesn't actually represent infections.

Maximize immunization levels and things like ulcer prevention are obviously going to help infections unless the use of antibiotics.

Long-term care pharmacist. Can review antibiotics utilization and where possible appropriateness, can identify opportunities for improved prescribing, and discuss using at QA meetings and educate physicians and nursing staff about targeted and biotic use, using it narrow spectrum antibiotic based on culture results. Can prepare updated and easily accessible for calls. Apply for my kinetic principles to prevent comic and dosing and monitoring. And make sure that we avoid the ministration of divalent cations like iron, calcium magnesium and zinc which a lot of our elderly patients are in. Not giving six hours before two hours before fluoroquinolones. Can ensure prescriptions are compatible with allergy history and encourage use of the oral route of for highly or really bioavailable drugs which is a big cost-saving [Indiscernible] that can be very effective to kick off your stewardship program.

What facilities do together? They can develop vacation tools, to share critical information between acute and long-term care facilities with patient to transfer back and forth. Like we said intake forms, can be very helpful with that desperate form should have in a culture results, pending results, what treatment was initiated, when, why and the plan to update, what isolation precautions the patient was on, what immunizations they have Artie had an history of C diff is I'll for other organs.

Sure that the contact information is provided so that providers can communicate back and forth with each other on patient history and test results. And establish cross facility teams to address infection prevention and antibiotic stewardship. We can work together and collaborate on these things, everybody wins.

So we'll ask another question and we want everybody to please respond. Of the strategies just discussed, when it seems most feasible at my institution is -- A, change the scrubbing culture. B. Roll out provider education. C. Maltreatment algorithms and protocols. D. Implement patient/family education programs. E. Use of technology and informatics. F. If a meta-plan to look back at cultures antibiotic prescribing. Or G. Create or improve communication if a structure between facilities. So pick once one seems most feasible. And you know I think this will be useful to us both in terms of figuring out what the low-paying fruit is and also know what things just -- if there is a consensus of something not feasible.

That that's not where you want to put your resources.
And your efforts.

So go ahead and respond. Letter a. Change the scrubbing culture. Be. Roll out provider education. C. Develop treatment of rhythms and protocols. D. Implement patient and family education programs. E. Use of technology and informatics. F. Ample meta-plan to look back at cultures and prescribing. Or G. Create or improve the mitigation of the structure between facilities. To see what people thought was most feasible.

So it looks like the largest -- we have a tie between treatment algorithms and protocols and implement of land to look back at cultures and antibiotic prescribing. So that's good, those are both actually pretty all things to do. So if people feel like they can do that, that is terrific a Mac change in culture, yes I see that that's a really tough one for people. And as expected, developing treatment algorithms and protocols people thought it would be really difficult because I feel like that is so key to making sure that patients get the course of therapy that is intended. To make sure that patients who come from the hospital to long-term care don't end up in antibiotics that perhaps prescribe a pending results, so there's a lot of -- we have a lot of work to do to help us -- with some of these concepts.

And that's what we're here to do.

So we are going to ask another polling question, and basically the same questions -- which one you think is most challenging, Alice is make sure -- leakages open that right up because it's the same question let's just make sure that we understand that I think that we're going to distract to the first one was the most feasible the second one is which is the most realistic for you.

I think we will see a reversal here but let's make sure so that we can help you if you could open that up again. And we just want to make sure that we can in the next -- in the webinars or resources that we provide to you that we are helping you target your biggest challenges.

And so I anticipate that we will see again technology and being the biggest challenge, perhaps -- oh here we have sorry -- we have the G should be create or -- [ Indiscernible - multiple speakers ] or improved education infrastructure between facilities aspect there's a problem in the slide it -- we may see we have G as a challenge. It was a little bit unexpected for us. I think we expect technology be a challenge. But see what people say here.
So yes, culture is the big winner despite changing prescribing culture as a challenge and that -- is not long-term care. That is a problem across every area where stewardship is being implemented is the changing prescribing culture is a real challenge. I can tell you that I have been to many acute care facilities that don't have stewardship, and they say the same thing. I don't feel that I can change the culture, and my physicians want autonomy. They do not want to be told protocol, and what you prescribe. But I can tell you that at the acute care centers that do have successful stewardship, we all started that way. We all started with the same personality type conditions where there was an issue of autonomy. And if you chip away at the culture, you will see improvement.

All right so next we will move on to kind of movie from some different ideas -- and have generalities of things you can do, and turn the blueprint into, build a building. Make it happen. And I will give you a couple of examples of some long-term care facilities, what they have done and the successes they have had.

The first I would talk about some low hanging fruit, easy things that can be done. For you to improve antibiotic use in your facility.

So as Shira mentioned there are higher -- about etc. readily available so that means the managers in the body is pretty much a same whether the given by mouth or whether they give it by IB. So if you can avoid giving an IV, why not -- that increases this discomfort for the people, it improves their ability to be more mobile. And decreases the risk of [ Indiscernible ] affection. So those are all reasons that we tried to get people in oral animatics as soon as possible. Assuming that they can observe things.

Said things like fluoro Queen else or metronidazole or Flagyl. [ Indiscernible ]. Are all highly oral bioavailable which are the people in orals as soon as possible with those.

There is other things you can do with antibiotic district turns of dosing them in a way that can optimize the exposure that a patient has and to another extent memorizing the amount of drugs they need to use. And maybe they're using the right dose for patients age, the kidney function and the weight and sometimes admit error prevent overdosing or introducing a patient.

Just making sure that you're using the right dose for the organisms without causing infection. Do the right dose for the right site. You the antibiotics get a urine really well [ Indiscernible ] there. So sometimes you can get away with using less in appendix to get into the urine test [ Indiscernible - low volume ] and compared with if you have a really hard to treat infection like a central nervous system infection. Getting antibiotics, getting the [ Indiscernible ] is really challenging sometimes used
extra [ Indiscernible ] to make its way in there. Two neck and then lastly the use of extended [ Indiscernible ] you can use yes for the same day but it a day out of the drug. [ Indiscernible - low volume ] so with infusions would talk about another webinar so that's the opportunity to weapon -- optimize the way you are using -- [ Indiscernible - low volume ]

Next I want to talk a little bit about a program that was implemented in England, but it is still very relevant. It wasn't the spec microbial stewardship tool that was implemented in many nursing homes. So there were 30 nursing homes that participated in the study. And very small local independence as well as some large corporate nursing homes with a total of 1800, 1800, 1832 [ Indiscernible ] so this is a really big intervention. And they implement it this tool which was a preprinted form, that nurses would use and different centers were minimized to use the tool or not use a tool to see if it was able to improve antibiotic prescribing.

And there were lot of residents that were evaluated. Over 1600 were evaluated pre-post intervention. And so the two late itself was the most usable to you -- so it was a nursing driven checklist. To just evaluate patients at different times -- so that nurse would evaluate at the time that in about X were being initiated for these things. So you they would look to see yes or no. Are the signs present for infection. Has a resident been examined by a clinician. Yes or no. Is there a diagnosis or site of infection that you think you're treating. Have any appropriate clinical specimens -- things been sent for culture if that is appropriate for the suspected site of infection -- making sure that the antibiotic is appropriate for indication, allergies and comorbidities. And that the antibiotic is initiated promptly upon the diagnosis.

Is no mandatory requirement that everything has to be yes, but the big intervention here was the process of matching the checklist and having somebody do that evaluation of whether these things were present.

The second part of the tool was in the back. So if this was about 40 or 72 hours after this is initiated, the nurse began to a [ Indiscernible ] this checklist was to this work yes or no -- was a check be done the second time. It looked for whether or not there is a stop date or plan review date, was documented or are the in about just going to go on indefinitely.

Look for whether or not [ Indiscernible ] was re-examined by definition or whether our cultures were reviewed. And lastly, lasting was looking at was whether or not there was -- [ Indiscernible - low volume ] do the treatment actually work, was a patient actually better was a been in a barracks for a few days or is there no comment.
And being able to at least comment that [ Indiscernible ] it's better, it's patient better, to import part of being justified for treatment. And again just like the first part of the tool, there was no requirement that every single item had to be a yes. But conversely just the process of having somebody going in and evaluating these things kind of was just a small prompt to really think about whether or not in a biotics were appropriate in the time points.

Now about half of the centers uses tool in about half of the centers were used as a control. To see if the in back use is improving anything of what we found is that the centers where there was no tool and permitted, in about use actually did show significant increase even though the baseline was lower than [ Indiscernible ] they actually showed three DVDs without patient data, they showed an increase in the antibiotic use.

Conversely, in the area where this tool is being used, they were able to see a decrease from almost 70 DDD patients down to 66.

So what do you do that although the magnitude didn't seem like it was a large, you would think that the program was not in place, the rate would be even increasing.

So we were able to see a significant increase in an era of increasing biotic use. With just a simple nurse driven checklist of making sure that all of these elements are in place.

Another successful antimicrobial stewardship program was carried out in a long-term care facility, a nursing home in -- that was done at the VA in Cleveland.

So this service called the lid service or long-term care ID service, was carried out as a -- at a long-term care facility that was attached to an acute care VA Hospital. So there was an ID position and you nurse practitioner that would come from the hospital to the long-term care facility, one day a week. Two do stewardship Council. And then we are also available the rest of the week via telephone and they had a unified [ Indiscernible ] that was fantastic but maybe not realistic for everybody. And they were able to provide telemedicine assistance for the rest of the week.

The service of the ID physician and the beast thought about 10 patients each day they came by and took about five calls each week. And a third of the consuls were a single visit to evaluate the patient and many of these phone calls did not even result in having to revisit the patient. The rest of the consuls required a little bit more than three visits. But often do not need to be seen by the LAD service that many times.
Now with the available input of resources, we are able to see that although antibiotic use in the attached VA Hospital were nothing had changed, was kind of essentially flat. There was a dramatic incline in the use of both IV and oral and overall in antibiotics. With the implementation of this, basically the result the spec in the resource of having somebody swing by one day a week or two back and then conversely, so the hospital had seen a dramatic increase in the rate of [Indiscernible] but the long-term care was able to turn that around and actually decrease the rate -- [Indiscernible - low volume]

So here is -- what is described as an example of acute care providers working with long-term care facilities to provide services read

And briefly we would just give you an example of a collaboration like that that Shira and I were involved in and this is that New England Sinai Hospital which is a long-term acute care facility. So Shira and I were observed is private contractors to Sinai Hospital and we worked with leadership, the ID consultant was on board. With the concept of the infection prevention was and was part of the team and the pharmacy director.

Now what they were already doing what state -- they were requiring an end date education for every antimicrobial order in the pharmacy would never leave the drug without those things. But what we did is we added a list of the great eight antimicrobial -- the ones we thought me the greatest impact on the system across -- and Karen and I -- and we had a couple of other physicians about the various points in the project. We intervened from offsite Monday through Friday. And again here we had the benefit of an electronic medical record like to be nursing homes, and we were able to logon and generate a report daily of all patients within the major microbial prepping. And we review this patient's electronic medical records.

We made recommendations to the providers by email, and we also provided pathways to follow for specific diagnosis.

We analyze the data for intervention from April 10 or 11th and 2 March 2014. We made 885 recommendations 734 patients. Sending approximately 1 to 2 -- spending approximately 1 to 2 hours a week review cases and providing recommendations remotely. So again not a huge investment of time. And since we were paid by the hour, not a huge investment of money.

Residence were a mean age of 68 years. In the meeting late this day for these residents was 56 days read
So these the types of infections and what was interesting is the largest number of infections recommendations was colitis. In other words C diff colitis. Because that institution had a huge problem in many patients were on C diff medication.

And not surprisingly, UTI was the second most common. It was a lot of Osseo [Indiscernible] and that's a lot of reasons why the people were there.

And so here is the breakdown of patients in which we agree with management. And the 45% did agree to the recommendation and when we agree with management also did other suggestions like labs that needed to be checked to ensure that there is no toxicity.

And so of the ones we did agree and made a recommendation, overall during the period that we are showing you here, the recommendations were followed out just under 50% of the time.

In the types of recommendations, the most common reclamation was to stop it by the use altogether because you do not have an infection -- love times what we wanted is more information that gets back to that intricate [Indiscernible] medication intake form. Because a lot of times we did have the information from the facility in which to make a decision whether their backs work appropriate in this is a big number.

Sometimes recommended ID consult and we may recommendations to change and de-escalate in a biotics short prolonged sometimes increase the dose.

And so is interesting hitting that culture change, is that the percent recommendations accepted increased over the course of the time that we were convening as providers and be more constant with recommendations. And appreciate what we had to provide.

With the intervention here over time can see that there was a sharp decline in C. diff rate right after the recommendation of a slow decline thereafter.

And then this is antibiotic usage -- this is overall in about usage which was rising and that is a national phenomenon because of increasing antimicrobial resistance, and hospital acquired infections and at the time of intervention, you see a sudden decline in total antimicrobial use of a break that down by antimicrobial [Indiscernible] and antimicrobials for Russia and [Indiscernible] low volume] for you can see some of the tread downward for all of this as well. Where some of them have been going upward until the [Indiscernible].
So overall, we're trying to wrap up because we're coming to and here, some general themes about how to implement a stewardship program. So all the examples and everything we had told you so far, unfortunately, antimicrobial stewardship is nothing that occurs naturally and on its own. It does require resources. And that may include contracting for outside help if needed especially to get some of that expertise.

Mott Accomack

-- [ Indiscernible - multiple speakers ] [ Indiscernible - background noise ]

It can be low-cost but just having that additional help can be really useful.

Time and time again, the cost of that additional resource is consistently offset by the cost savings that comes from using less antibiotics, plus you get to see lower rates with C. diff potentially increasing the resistance and you aren't improving patient safety and lastly just remember that overall, there can be some really small intervention second have a really big impact. With the -- with your antibiotic prescribing overall.

So we can see Mike this insurmountable bear to climb, the idea of having the antimicrobial search program, you put 1 foot in front of the other and start small you can build upon what you have done, and therefore eventually become -- having the full antimicrobial stewardship program.

So I just want to give a quick plug for our next session which will be on April 25. At that point we will discuss the approach to the patient within a suspected UTI. At this point I will -- I will open the poles just to revisit based on the strategies that we discussed today, do you feel that the strategies are in that area. Feasible in my facility. B. Not feasible in my facility. Or C. Already being used. And Jennifer if you would open up the polling line one more time.

Jennifer, I am hoping you're still the call. If you could just open it up to see whether or not the strategies from today's webinar or either A, feasible the facility, be -- B, not feasible in the facility, or C, already being used. And Jennifer if you would open up the polling line one more time.

Emily or Jennifer, are you on the line?

Unfortunately they are not on the line, would you like to move forward. While people are answering that if you just look at the chat and also asked people to go ahead and put some questions and chat during that whole. And we can kind of take a look at that. I see people saying kind of what are the resources, where can we get started, programs
for certification. There are programs for certification. The one that I would recommend most highly is the Society for healthcare etiology of America program. They have an annual meeting and it's actually next week.

[ Laughter ] and it is certification for stewardship in a long-term care. And I don't know if you have any other recommendations for certification programs. And that's the one I know best.

So we see now there's some really good numbers in the poll -- in feasibility facilities. So thank you so much for participating. And we just have a couple of minutes and we're happy to answer up the phone lines.

For verbal questions -- I see some check questions here -- while you are in meeting people's lines we can answer some of these questions.

So we're going to talk guidelines. The general in about it use guidelines, the best way to find the guidelines is infectious disease Society of America website. www.idsociey.org The second there is a guideline society. Every guideline that we use for decision aching for treatment is on that website, that is easier to navigate than the CDC website for those things.

I just a question about probiotics and we get that question every time. And probiotics despite the research is very very difficult to navigate, every probiotic study that has been done has been done with a different dose of the different formulation. So it's hard to make any recommendations about using probiotics. Certainly for stewardship, if these are ongoing about probiotics and organisms and they have been inconsistent in the results. [ Indiscernible - low volume ] so really the best use I could tell you in probiotics would be to prevent antibiotics associated, but not really -- [ Indiscernible - low volume ] and -- [ Indiscernible - low volume ] other questions?

[ Indiscernible ] when the urine is colonized.

So the main, the most import concept with respect to the treating suspected UTI, we would talk about this for a whole hour next month is -- [ Indiscernible - low volume ] the patient is a systematic, that bacteria area, that is not a UTI and that should not be treatment. We would talk specifically about what symptoms are because the status changes are not symptoms urine is not urine that smell different is not. So it's really -- urine -- sorry -- symptoms are specifically referable to the urinary tract to indicate the need for treatment. Anything else is called asymptomatic bacteria -- [ Indiscernible - low volume ] and can occur in 50 to 80% of elderly women. So actually a positive urine culture is what you expect from these patients.
Does not require treatment. We will talk about how that applies to the conversation the restaurant that doesn't [Indiscernible - low volume] to colonization of a wound, etc. And that's really important in a great way to decrease your antibiotic use.

Other questions.

[Indiscernible - low volume] [Indiscernible audience comment or question]

Shira we are over 12 o'clock. If there's any other questions are not addressed, we will make sure someone gets back to you. I have a few last announcements before we close today's call. Shira can you please pass me the ball. WebEx host can you pass the ball to Ileizy

Don't worry, that's okay.

[Indiscernible - low volume]

My name should be right up on top of yours.

No, not yet. You can pass to me.

Thank you all for joining today's webinar. As a reminder we are now on social media, visit us on Facebook, LinkedIn the YouTube. NE QIN QIO welcomes your feedback; please complete the evaluation at the end of the webinar. The link to the evaluation will also be shared via email, today's presentation is available on our website and within the next few business days, a recording and transcript will be posted. Thank you so much for attending.

[Event concluded]