Diana: Hello everyone, welcome. We're so happy to have all of you joining us today for our talk. I represent the Colorado Quality Improvement Organization (QIO). Also on the call and sponsoring this talk are the QIOs from Alaska, Colorado, Hawaii, Kansas, Minnesota, Montana, Nebraska, New Mexico, Nevada, South Dakota, Utah and Wyoming.

There's a lot of interest in this and we're happy you have all joined us. If you have any questions during the presentation, please write them down and we'll get them answered at the end of the presentation.

Our presenter today is Dr. Heidi Wells, who is a Geriatrician in a hospital as well as a health service researcher with a longstanding interest in patient safety. She's currently the Association Professor of Medicine at the University of Colorado School of Medicine and Vice Chair for Quality in the Department of Medicine. She is the recipient of a Paul Demans Career Development Award from NIH and was a 2009 Atlantic Philanthropic Health and Aging Policy Fellow.

Dr. Wells' fellowship has been focus on the area of CAUTI prevention and urinary catheter management on the Medicare population. She's published in several major periodical publications and her work as far as a theoretical basis for the CAUTI process measure. She's the PI of the AHRQ funded multi-center study on the use of electronic health records for the automation and detection of recording CAUTI and catheter duration.

Welcome Dr. Wells.

Dr. Heidi Wells:

Great, thank you Diana. I can't tell you how excited I am to speak to this group and so pleased that there's so much interest in this area. I hope I can help simplify what is a complicated problem, ultimately. The point of my title, what's inside your CAUTI prevention toolkit is that when you have a complex problem you mainly have multiple approaches to solving it.

I started doing research in this area about eight years ago now during my geriatrics fellowship and I don't think I could have anticipated how interesting and challenging its been. I enjoy talking to folks about this issue. I want to thank the folks that have supported me during my career, the agency for healthcare research and quality, Atlantic philanthropy, the John Hartford Foundation and the NIH Institute on Aging.

We have a lot to cover and I'm so enthusiastic about this topic I find it hard to condense it into small talks. I have a bunch of objectives and we'll do our best base it on many of them. We'll review the role that usually you're going to catheter and CAUTI pathogenesis. I'm not going to spend a ton of ton on epidemiology, but jump ahead. We'll provide a structured approach to CAUTI prevention based on the CDC guidelines, trying to make sense of these big guideline documents.

We're going to identify gaps in the use of CAUTI prevention strategies, some of it from work that I've been doing with a network of hospitals that's a national group.
I’m going to prevent a comprehensive approach and specific tools for CAUTI prevention which might give you some ideas for how to approach this work with organizations you’re working with and then we’ll highlight the role of performance measurement, a particular interest of mine in CAUTI prevention.

Let’s start with a case, because this is really all about the patient and the care we provide to them. I’m a geriatrician, so of course it’s a geriatric case. This is a 78 year old male with Alzheimer’s, dementia and incontinence at his baseline. He presents to the emergency department with a fall vs. pre-inaudible and in ED he has the labs drawn, some cultures to make sure he’s not infected and he has his foley catheter placed.

During the observation he has a negative evaluation, he’s hydrated and needs some gait and balance training. They recommend skilled nursing facility, but in the hospital on day three he develops a fever and alteration evental status. It turns out he has a positive urine culture and has a CAUTI.

The real point of this case, and often I query audiences, do you think this was a preventable infection? Did this need to happen? It gets to the question of how preventable is CAUTI, really? It underlies a lot of people’s questions about the do not pay policy. How preventable is it? According to the CDC, with a detailed look at the evidence, between 17 and 59% of CAUTI’s are preventable with the implementation of recommended infection control measures. If the high end of that number is true that could translate into the avoidance of the 380,000 infections, 9000 deaths and many antibiotic doses in one year.

This is a high impact issue we’re dealing with. So what are the recommended infection control measures? That’s a key question. It turns out, if you’ve been following this area the standard of care regarding CAUTI prevention has evolved in the last few years. The CDC first issued an evidence-based guideline back in the early 80s and literally, nothing happened in the U.S. until SHEA, The Society of Healthcare Epidemiologists issued it’s guideline in 2008. The JBI inaudibles in Australia, the NHS (National Health System) in the UK.

It wasn’t until 2008, that the American Professional Society started coming out with their new updated evidence-based guidelines. NHSN redefined CAUTI for surveillance purposes and then finally in late 2009/2010, the CDC came out with its evidence-based guidelines that had been updated. It’s fairly recently that a lot of this stuff has changed.

You may have this information already, but I include in here that linked to the websites where the major America Societies and the CDC have their guidelines, some of which are also published in developing journals, they have a lot of similarities. Some have a different focus. I tend to rely heavily on the CDC guidelines, which is created by a body called ‘Six Pack’ which is meant to be a mutual body that reviews evidence and creates guidelines for the CDC.

The point of that timeline slide is really, have you looked in your CAUTI toolbox lately? If you haven’t updated your CAUTI prevention measures, policies and procedures or products since the 2010 guidelines were released then you’re probably out of date. That’s an important message for any hospital that’s trying to tackle this particular problem.

Of course, here’s the culprit the in-dwelling urinary catheter. In the slide it’s abbreviated as IUC, which is associated with the overwhelming majority of inaudible urinary tract infection. The duration of catheterization is the biggest modifiable risk factor for UTIs in the hospital. Knowing this and understanding how to tap into it is key to understanding prevention, so I repeat this even if I know people know it because it’s always worth reviewing since it drives what you do.

This diagram helps me think about how do you get a UTI from a catheter? There are two routes.

1. Extraliminal
2. Intraliminal
You can have infection early or late. When you have an extraliminal route, that means the bacteria travel on the outside of the catheter of a bladder, you can either cause that early because it hasn’t been properly cleaned and you’re just pushing bacteria in with the catheter insertion. That’s actually thought to be the real minority of catheter associated urinary tract infections, but it is possible. Then you can have the UTI develop late because over a period of time its dirty and not cared for appropriately, so you can get bacteria moving by capillary action of the outside of the catheter over a period of a few days. Early or late the cutoff is generally around 48 hours.

Intraliminal infection occurs because of a break in the inaudible system that gets contamination of the collection bag of urine. In either case, once you get bacteria on that catheter in that moist environment you end up with a biofilm, which a collection of bacterial slime. The technical word for it is glycocalyx, a type of sugar-like product that the bacteria produces and then it sets up a nice little environment for them to reproduce. If you get bacteria on a catheter it takes about 48 hours to set up a biofilm.

The problem is that, even though we know that catheters are so strongly associated with urinary tract infections, we tend to use them inappropriately in hospitals. The catheter use is incredibly widespread and is one of the most commonly used medical devices, probably the second most common behind a plain old peripheral IV. It’s inappropriate many times. A couple reviews have looked at the appropriateness back in the early 2000s and suggested that 50% of catheter days on medical services were in inappropriate, 50% of insertion for emergency departments were inappropriate.

It’s forgotten, only 25% of attending physicians on medical services know whether or not their patients have catheters, so certainly from the doctor’s point of view they aren’t interested and don’t pay attention to it. They’re invisible, in that they’re notoriously poorly documented in hospitals and their care isn’t well standardized.

So, the CDC guideline is 40 pages with a bunch of evidence tacked on in the appendix in the back and you’ve got 35 different recommendations and I think it’s really hard to organize it and make sense of it. If you think about the catheter analogy and the relationship to the catheter and how long the catheter is in place, it becomes easier to organize your approach to CAUTI prevention.

I think about three specific phases in catheter use.

1. The decision to insert
2. The insertion and care
3. The timing of the removal

Next you’ll see the approaches or strategies you can use regarding the decision to purge, you can pick a strategy where you’ll avoid catheters and use alternatives. If you’re worried about the catheter that’s selected and care that’s provided once the catheter is in you’re going to evidence-based care practices and evidence-based product selection. If you’re interested in catheter removal you are going to minimize duration.

I know the mandate from CMS for the QA is strictly to focus particularly on this removal piece, but we’re going to hit on all of it today as much as can. Then, of course, cross cutting strategies include training, documentation and surveillance.

We’ll briefly go over each of the boxes.

- The first strategy is avoidance and alternatives.

The key components are that there are very few true medical indications for catheters. There are a lot of different alternatives available, including the use of a bladder scanner and adjunct to assist with making decisions about defective retention and when and when not to place a catheter in somebody with suspected retention.
I want to give a little bit of my approach to when a catheter is indicated. The CDC with the other guidelines will give you a list of about five to eight possible indications, but inaudible. When I think about when a catheter is indicated it falls into four categories for me.

1. Drainage

Is there a problem with getting urine out? That’s the example I put here is to relieve acute urinary tract obstruction.

2. Monitoring

Is the patient critically ill? Do they need accurate I’s and O’s because they’re septic or having hypotension, inaudible status where you really do need accurate urine volume measurements and in certain kinds of renal failure that may be the case.

3. Perfect procedure

Incredibly important and useful devices in surgical patients, you really have to be judicious about how they’re used. The other is inpatient stay requiring immobilization that toilet another way.

4. Therapeutic uses

For instance, to assist in the hearing of open inaudible for incontinent patients, particularly three/four pressure ulcers that are not healing because of moisture. For patient comfort at the end of life is another reasonable indication for a catheter.

So, I find it helpful to think about those four categories because of what context, this is a great set of indications for medical patients, yet not as useful for surgical patients. Our hospital has actually developed a peri-operative set of indications where we look at the same four categories.

Is the surgery going to be long?
Are they going to get a lot of fluid?
Do they need monitoring of urine output post op?
Are they getting procedures of the GU tract?
Are they going to have prolonged effect of anesthesia affecting their ability to avoid spontaneously?

What I’ve found is that its incredibly context specific, depending on where in the hospital or in which unit what type of patient you’re dealing with.

So, we’re doing avoidance so we’ve avoided the catheter successfully and I think what makes UTI prevention somewhat unique compared to clabsi central line infection is that when you’re done with a central line you usually don’t need on-going access to the circulation except for a periodic blood drop.

When you’re done with a urinary catheter for medical reasons you still need to toilet the patient. You need to deal with their urine output and the slide brings home the point. You can avoid the catheter but you haven’t given the staff the tools and skills to manage the urine output and then you may find the catheters going back in or a lot of unhappy people, skin breakdown, etc.

My point here is that again you need to provide alternatives for managing urine output. It’s unfair to your nursing staff to take away, say you can’t use a catheter without helping them out. There are several really great alternatives, obviously not everyone can go without a catheter, but for those who can, condom catheters are incredibly underused. There’s data to suggest that infection rates are a little lower, they still have a small infection rate but it is lower and they’re generally perceived to be more comfortable for patients.
There’s national data to suggest that these really only get used in the DA setting regularly and often this setting is incredibly underused. Intermittent straight catheter with the adjunctive use of a bladder scanner can avoid re-insertion of urinary catheters. Incontinent pads, the technology has become exceptional, in terms of them soaking up urine and getting it away from the body. Commodes and urinals, obviously we all have used them. I think avoiding programs tend to be underused, we use them often in geriatrics but I think they are incredibly important.

The next strategy is to think that there are some patients where you cannot avoid the catheter, we have to use it so what do I do? How do I pick a catheter and care for it? I think itself could be such a common thing that we assume everyone is confident at, but I think we’d be surprised by the variations in practice that we see. So first, are insertion and care practices can and should be standardized and monitored. In terms of the care practices in particular, approaches must be multi-disciplinary and when I say that I mean who is touching the patient and the catheter?

We have done local work at the University of Colorado hospital we have included PT and OT, transport, radiology techs in thinking about how we handle urinary catheters, in addition to nurses and CNAs. Finally, next I want to talk about anti-microbial products.

What catheter to insert? I think the first point is for your standard material catheters there isn’t really evidence to recommend latex over silicone or other variations on that scene. So that may not be a particular driver of purchasing patterns at the institution. You hear a lot about anti-microbial catheters and it remains an area of controversy, so I would say there was a Cochran Review of all the evidence in 2008 that came up with the bottom line that it was inconclusive whether or not anti-microbial catheters really reduced symptomatic catheter associated UTI.

It is clear that they reduce asymptomatic bacteria or colonization of catheters but again, there hasn’t been a good study to show that they decrease symptomatic CAUTI. Generally, the approach that I take is that again, if your institution chooses to use a more expensive silver-coated catheter, that they realize it’s not an excuse to not do anything else properly. It is really to be reserved, so you implement your comprehensive program for CAUTI reduction and if you’re still having problems to consider then a silver catheter to see if you can reduce your CAUTI rate further.

Also is what you do to get the catheter in, what are the evidence-based practices. Obviously the first thing is to practice the hand hygiene and I think the interesting point is to ensure that your personnel are properly trained, that any med student walking into the OR shouldn’t be practicing on a patient, especially one getting hardware. Folks that are properly trained in techniques and use of sterile equipment and this one is tricky to choose as small a catheter as possible.

The folks who work in urology suggest for women the correct size is like 14-16 range, whereas for men is 16-18 catheter, but what I find is that most hospitals on the general floors are stocking one catheter so there’s not much of a selection, which is one I’ve had a more difficult time implementing.

Once the catheter is in there are good maintenance practices, but again some are based on minimal evidence and have a kind of good faith value, some have better evidence than others. There is a little evidence to suggest that securing a catheter reduces traction on the urethra and breaks in the mucosa and can help with CAUTI prevention. It probably helps a lot in that respect with comfort as well.

Good hygiene, aggressive scrubbing of the perineum or use of antiseptic cleaning agents isn’t necessary and in fact, could very well lead to increased infection. So routine hygiene is preferred, that kind of soap and water cleaning once a day and following bowel movements is probably more than good enough, in that if you’re too vigorous you’ll get into trouble.
The system is maintained sterily and continuously closed and samples that are taken are done so in a clean manner. That the flow is unobstructed, which is where you have to involve the ancillary staff in letting them know that we don’t want the tubing kinked, the bag lying on the floor or sitting on the patient’s chest so there’s reflux back into the bladder. It should really be positioned properly. The urinary drainage bag should be emptied in a clean manner as well.

So here we are where the inaudible is to minimize duration. Avoid them all together if you can and then minimize duration once they’re in. Like I said the evidence is pretty clear that many in-dwelling catheters are either, not medical necessity they may or may not be due to a convenience, I think more likely it’s due to not knowing when to take them out or not being aware that they’re no longer medically necessary because there hasn’t been a trigger to re-think it.

So excess catheter days often being a function of patient and provider factors such as again, being too busy, haven’t reconsidered it, etc and the best way to minimize the inaudible is really to implement system solutions and to trigger people to remove catheters.

There is a fair amount of evidence now that certain removal strategies are effective. Reminders—you can do paper or electronic reminders when the catheter has been in for two days. There’s a trigger that comes up on the EMR or a paper that gets put on the chart that says stop, this patient has had a foley catheter for two days, if they do not have one of these five indications the catheter should be removed.

There are stop orders and these and reminders both have been incredibly successful. A stop order is not as gentle as a reminder. When you write an order for a catheter it’s automatically self limited to 48 hours and there’s an order then to take it out, unless a doctor writes otherwise.

Nurse urine protocols, I think this is one that I haven’t seen as much in some of the literature where stop orders and reminders have been reviewed, but I see a lot of hospitals where the nurses are having a paradigm shift in taking the responsibility for getting these catheters out.

Education and performance feedback– there’s definitely a role for education and tracking catheter use which does have an impact on how folks practice.

The last strategy, the one that straddles across everything is supportive strategy. I would say documentation is particularly an interest of mine. Catheters are poorly and inconsistently documented, standardizing documentation and emphasizing the importance of it can be a big help. If you don’t know how you’re using catheters then you can’t necessarily track how you’re doing. I think training is overlooked and nursing policies and procedures drive a lot of catheter care and need to be evidence-based and revised as well as updated.

Surveillance has become important and is increasingly required and is also central to QIO effort, so these are just some supportive strategies.

We now have laid out four major strategies with specific interventions that should be applied within each of them. Then there is a lot of evidence that there’s room for improvement and that’s why we’re all on this call obviously. This is a recent paper that came out in December 2011 online, so it’s not in the print journal yet, but it’s a national sample of U.S. hospitals and these are the non-VA hospitals looked at.

They surveyed the infection control practitioners in 2005 and then went back in 2009. They found was the use of condom catheters was abysmal as alternatives to foley and may have even gone down a little bit in those four years. Use of bladder ultrasound went up a fair amount, but still isn’t as widely used as one would hope. The use of reminders or stop orders has definitely gone up, but again they’re evidence-based to reduce catheter duration and only 20% of hospitals are using them in 2009, which hopefully increases.
Interestingly, the use of anti-microbial catheters also jumped and whether or not that was done in conjunction with some of these other interventions is an interesting question.

I want to talk a little bit about my work, not just because I like talking about my work which I do, but because we did some baseline data collection from a large group of hospitals that gives a little more digging deeper about practice around catheter care and maintenance practices, infection control surveillance, etc. My project is called Stop CAUTI and funded by ARC. It's a collaboration between the University of Colorado School of Medicine where I am and NICHI, which some of you might be familiar with.

NICHE is a national geriatric nursing education program, Nurses Improving Care for Health System Elders. It is primarily focused on acute care and is based out of the Harvard Center for Geriatric Nursing at NYU. The Stop CAUTI project specifically works with 20 NICHE hospitals but for this survey we actually opened it up to the whole NICHE community. I’m going to skip our study goals and go to our current practices.

The NICHE community is 250 member hospitals that have made a significant commitment to geriatric care, including designating a coordinator at each site, which often has a geriatric resource nurse who is working on improving the care for geriatric patients across each hospital. Sometimes they work with an Ace Unit or other in-patient or surgical service. We sent the survey to all NICHE hospitals with the goal of describing CAUTI prevention activities in the hospitals and also to provide baseline data collection for our study and this was in early 2010, so after the survey I mentioned moments ago.

These are the hospitals that responded. There were 75, so about a third of them responded and they were medium-sized with an average of 395 beds. The majority were in urban settings with close to 70% being teaching hospitals. A third of these are magnet hospitals and almost a third are participants of our study and at the time more than half were inaudible where reporting was mandatory.

There’s a lot of data and this article was supposed to have gone online to AGIC.

We directed the NICHE coordinators to pull in their infection control practitioners, nurses on the primary floors they were working with and products people, etc. to answer the survey. How often are these alternatives or adjuncts to in-dwelling urinary catheters used at your hospital? The green is always, red is frequently, dark blue is sometimes and light blue is never. I circled the ones where I saw the biggest opportunities existed.

I think common catheters aren’t used enough, some were about 75% of hospitals said they frequently use them. Straight catheters probably aren’t used enough and again the bladder scanner, a lot of people said they frequently used them, but the next question is…how often does access to the following equipment limit its use at your hospital and I’m always amazed that we have commode shortages at my hospitals. It does happen and looks like it happens in other hospitals, and also the bladder scanner. We used to have one scanner at University of Colorado Hospital and if a nurse from another floor wanted to use it you’d have to go to the floor and check it out with an ID and then drag it up to their floor, which I believe was a barrier to its use.

This was an interesting question, and again I’m providing a type of smorgasbord from the survey…who is responsible for insertion of in-dwelling urinary catheters at these hospitals? It amazed us that it said med students, patient care assistants were doing it sometimes, probably people who hadn’t been trained or were adequately supervised.

This next question is about products and I think the point here was with regard to the silver catheters. Some of our respondents, a fair number of around 35%, were using silver and another 5-10% were using other anti-microbial catheters in their hospitals, but a lot of variability there that was unclear whether or not they were getting the bang for the buck as they’d hoped.
Does your hospital have a system to remind providers to remove in-dwelling catheters? Of our responding hospitals, over half had a system. This was a little different from the national data and again, this is not a nationally representative staple hospital, so it may be a set of hospitals that is skewed. Again, many magnet hospitals are teaching hospitals and they are NICHE hospitals so they may be different.

Of those that did respond yes, 40% of them were using nurse-driven protocols to discontinue. About a third were using paper reminders and again about a third were using electronic reminders. Some were using in-dwelling catheters on a regular basis, which may or may not have included the nurses authority to discontinue on their own or go track down a medical team and ask them to discontinue.

People have shared some other strategies by putting stickers on the paper empty orders and medical records. There’s a prompt on the daily goal sheet, so it protocolized this part of ICU care at one of the hospitals. There was a variety of approaches used.

Next talks about the documentation questions. How is everything documented on your primary unit? Only a minority are using electronic documentation and you can really standardize data fields. A lot are using some sort of standardized paper documentation or narrative, nursing notes that were embedded in a paragraph, which I think is a real problem for monitoring catheters.

When you document, which of the following aspects of urinary output and catheter management are routinely documented in your primary unit? You can see there was no one thing that we asked about that every hospital did. You would think that every hospital was recording date of insertion, but actually the scale on the Y axis doesn’t go all the way to 100, but probably 70-75% are recording date of insertion. That’s somewhat shocking, but again I think there’s a lot of room for improvement in documentation.

The hospitals that responded the many places the inaudible are no, they did not have initial training about aseptic techniques or CAUTI prevention for the new nursing hires and under half of hospitals and any annual validation on aseptic technique. Again, it’s assumed that it’s a core competency and you don’t need validation training.

In terms of surveillance, again this is now two years ago so I don’t know if its increased, but the majority of our hospitals had surveillance performed for CAUTI, but of those many were actually collecting inaudible which surprised me a bit. A big chunk of them were collecting only in their ICUs that is surveillance for CAUTI, for catheter days, about half our hospitals were collecting catheter days on all units which is great, although if they’re not documented it’s unclear to me how that’s being calculated.

Policies and procedures, does your hospital have a policy procedure? The majority said yes, but we looked at a subset of the stop CAUTI hospitals, looked at 20 policies and procedures in detail and of those 20 about 40% were out of date. Again this is in 2010, so they hadn’t incorporated any of the new recommendations yet. A quarter of them were straight out of nursing techs and hadn’t been adapted to the local environment, and the evidence in many cases was to show they were out of date.

This is a little more in-depth about policy and procedures, but the point is that there are some areas where nursing policy and procedures are not particularly uniform in terms of what they cover they’re kind of all over the map. So there’s definitely room for improvement there.

A summary of this particular in-depth look at NICHE hospitals is that they are implementing many evidence-based CAUTI strategies, particularly around evidence-based insertion and maintenance. CAUTI education, they’re probably doing reasonably well and they were doing a fair number of CAUTI QI projects, not surprisingly but they could improve on the use of the trigger tools, the use of certain types of alternatives and the documentation and surveillance.
Of course, we all know these gaps exist, so now I’m going to focus on closing those gaps in prevention activities. I think it’s useful to have an approach and afterward pick the tools you’re going to use. This is an approach that we use at the University of Colorado Hospital. We actually have a paper posted about this QI project in November online at AGIC. We’ve modified it since submitting that publication, but the first thing we did was to assemble a multi-disciplinary team, reviewed the evidence at the medical center.

I find again that it’s useful to break it down into smaller projects. We loosely looked at the model I presented at the beginning. We had a project that was really focused on avoidance and on ED in the OR with that project as well. We also had a project that was focused on care and maintenance. We focused on the medical nursing floors and then we had another project which now that we have our EMR is to focus on the trigger tool.

I think it’s useful to think about focus on what you want to do for your project, because you might not be able to do it all in one phase.

The fourth step is to complete a formal product review…I was amazed and I’m not a nurse so maybe that’s why I was at how deeply you have to get into the product when you’re working in this area that again, these are incredibly important to have the right products for your practice that fit into your workflow and work in the environment. If you want to trial a new product, justify a couple pennies more per item, it’s a big long and involved process.

Obviously education and training needs to go along with this, so strategies for engaging providers are important. Next is making it easy to do the right thing, which is where these system changes, trigger tools come into play. Our practitioners are busy but they do want to do the right thing. If it doesn’t fit into their workflow then they won’t be able to do it. Measure outcomes and refine what you’ve done.

In terms of following the evidence at our institution we did do a comprehensive revision of our policy and procedures, which is what we started with. It was based on an extensive literature review and we did a structured roll-out hospital-wide that was tied to an educational component on our information management systems.

We did a formal product review. You have to review both your catheter alternative and catheters and we found things like commodes were an issue, especially for obese patients. We had the frames but not the right basin to fit in it. Urinals, we found there had been a change of stretchers in the emergency department and our urinals no longer fit on the bed rail and therefore, it would sit on the bedside table where the food was. They would spill it often. We actually did a cause announcement to look at how much time our maintenance people were having to come in to clean up urine spills, which justified the slightly more expensive urinals that we ended up going with that had a wider distance between the collection device and it’s handle.

We did our best to inaudible in certain situations and train the nurses to know why they were different from inaudible and why we had to be judicious in your use of them. Also, catheters at our hospital, we didn’t realize that silver Foley were throughout the hospital. I guess they had been brought into the units about 10 years ago and kind of crept into the rest of the hospital. We actually made the decision at our institution to roll that back and moved away from antimicrobial catheters.

We trialed a new securement device and then once of the great things is to find for a reasonable price that fits that has all the things you need for a proper insertion. Often some of the fancy ones have them in particular order with instructions. Make it easy so the nurse doesn’t have to grab the device from a separate place from where she grabs the kit. Anyway, these are the kinds of things that go into your product review.

So in regards to knowledge we targeted nurses and CNAs, ancillary staff and we made up fliers for patients and families. We have classes and catheter insertion and care covered for new hires.
At the time of the roll out of our policies and procedures, on some of the floors we did need a base journal club. We had posters up in different areas and we had some trip cartridges translating research into practice. This is what a trip sheet looked like at our hospital for our nursing staff (slide).

Making it easy to do the right thing, we list some of the tools here and then we’ll go over individual ones in the subsequent slides. Insertion or removal decisions are things we have done at our hospital that we’ve seen elsewhere, standardizing EMR documentation as something that’s critically important, if you’re lucky enough to have your EMR or unlucky enough. Stop orders can actually be more difficult to implement than it might seem and I’ve heard of places that said they tried to do stop orders but it just failed miserably. You have to have buy-in from stakeholders to go forward with that, particularly the medical board and staff.

Nursing protocol it’s the same thing, you have to get the right stakeholders on board. You really have to empower the nurses for this new paradigm where teaching didn’t meet the criteria and it’s okay to take the catheter out. Catheter rounds again so there’s a daily time and place where you think about whether or not the catheters are supposed to be in and then electronic reminders. These are ways that make it easier for folks to do the right thing and get the catheters out.

Next is an example of the decision aids we did here that’s published in that November article and this was for emergency department nurses. Is there a need for in-dwelling catheter? Does it meet one of the things on the chart? If yes fine, then go ahead and insert the catheter but re-evaluate it each shift. If not, then consider one of these other modalities for managing the patients urine output.

The ED is a particularly place to work because the pace is so fast that the order, it’s hard to put a inaudible function in your EMR in ED because the catheter gets placed before the order is written, so it’s tricky to do. This is an approach that we wrote out at our hospital and we also do the decision aid in the OR that’s centered on your post-op removal because we get some of these while in the PACU for some of the more straightforward surgeries.

In terms of documentation, I’ve done a lot of work around electronic surveillance of catheter duration. Documentation can be standardized for surveillance and these are some of the things that make appropriate documentation. Some of the EMRs are quite good about this stuff, but it needs to be used. We’ve found that a lot of places the nurses don’t document on day of discharge, which has been their standard practice but in fact, then you don’t know whether or not the catheter was removed, if the patient went home with it, you don’t have a removal date.

Next is a sample of stop orders from several years back and how things worked. You can do this type of thing on paper charts, a trigger tool which can be challenging, but it certainly can be done. We’ve had a lot of success with using a paper stop order.

Nurse protocol, this is one I wanted to highlight. This is from somebody in Pennsylvania who gave a talk to my group about how they implemented nursing protocols at her hospital and basically, they have their indications for catheters that they determine this big stakeholder input and buy-in from lots of docs and they think they got pushed back not from the doctors testing but from other folks.

They came up with the indications at their hospital that if the patient didn’t meet those criteria the nurse was given the authority, 24 hours after catheterization, to write a nursing order to remove the catheter in the early a.m. when they were totaling the main shift output and to document the removal and time of the removal. They were also given some strategies for caring for the patient post-removal.

If the patient met the criteria they were instructed to make sure the physicians order included one of the indications from the list, that it was on the plan of care and that it was continually monitored at least daily to remove as soon as appropriate. Again, in my experience, many hospitals are using one that’s not talked about as much as soft orders and reminders.
Measurement, here is the rub for this from Albert Einstein. “*Not everything that counts can be measured and not everything that can be measured counts.*” so essentially measurement is tricky because obviously you want stuff that’s meaningful and again, unless things are documented well your measures might not be particularly meaningful.

I have Florence Nightingale here because she was one of the first people proponents to measure performance and outcomes in a systematic way.

One of the things I would say is to consider what you’re measuring, because it can be really useful to target your process measurement to your goals. The CDC usually declares things like a catheter gauge per unit, which is useful from an epidemiologic point of view, but is less useful for quality improvement. I’ve been a much bigger proponent of catheter days per patient, because I’m a clinician and I can relate to that. I think about patients not units. So I think, kind of mean, catheter days per patient is particularly useful for quality improvement initiatives.

The skip measure email, be familiar with that similar is catheter duration per patient it just nips the threshold, so it inaudible urine and catheter removal on day one or two in the surgical patient population, obviously most hospitals are measuring and reporting on that. When we focus on insertions in our ED or OR, we actually look at their proportion of admitted patients that they send up to the floors with catheters. Are they appropriately throwing them in the patients or is it a problem in the ED when they’re evaluating the patients?

You can also do appropriateness audit, look at a sample periodically to see if utilization met one of the medical indications for catheter insertion or not. These are the types of project measurements you can do. This is from a project we did at University of Colorado Hospital where we looked at this proportion of catheterized admitted patients over the total, admitted patients from the ED and you can see that from Dec. 09’ to May of 10’ we’ve been able to process here.

There was not a lot of fluctuation and you can see we did our intervention in May of 10’ and it was a little unstable in the initial follow up, but we found this improved the proportion of appropriate catheter. So not only did the total number go down but the proportion, that were appropriate went up, which is just what you would hope for.

There may be other measures of catheter use and care coming down the pike. It hasn’t happened yet, but if you think about the inaudible central line insertion practice is a bundle. It is possible that in the future regulatory body use will consider similar types of bundles for urine catheters. Conceptually, I think of them as maybe there’s an insertion bundle and daily care bundle and then I’ve listed some of the evidence-based practices that might go into each of those.

Bladder scanner what can you do to justify the expensive of one because they’re very expensive? Our nurses have found increased access to bladder scanners as being incredibly helpful in the practice. We decided to try and justify it with a bladder scanner use log. Nurses log 50 uses in two months, which is probably under recorded I would imagine, because not every use gets recorded. The most common reason for the bladder scanner was a post catheter check, once the catheter is removed. In all those 50 uses, the patients avoided re-insertion of catheters in all but two instances. It was very useful for us to document that.

Just to conclude now I go back to the original title of the talk *What's Inside Your CAUTI Prevention Toolkit*? Again, my message is that it’s a complicated problem and you may find that you need a variety of different tools and I bring you words of Abraham Maslow who said *listen, if you only have a hammer you tend to see every problem as a nail*, but an extension of that is if you have a variety of tools at your disposal you will be able to tailor what you’re doing to the task. That’s a complicated problem that’s important.
I’m going to wrap up here. I mentioned my funding as being from ARC and NIH. These are the folks I work with both at the University of Colorado and NICHE. I want to thank you all for your attention and hanging in with me for the full hour. I think we’re now ready to open up for questions.

**Guest:** I was just curious how other people were addressing the identification of catheter associated UTIs in terms of assessing the patient for presence on admission UTIs and considering on NHSN definitions for CAUTI.

**Dr. Heidi Wells:**
Great. Obviously this is a big issue related to the importance of knowing whether or not UTI is present on admission. I did spend time in the beginning when I do a talk with the NHSN definition. I think I mentioned the 48 hour cutoff, so hopefully you’re all familiar with the fact that first, we don’t attribute a UTI to the site of care where it was diagnosed unless they had been in that area for 48 hours.

If it had been 48 hours then we attribute it to the prior site of care, which may have been from home, from the community or a nursing home and another facility, first. I wonder if you’re getting at, how are other places dealing with it? I think a present on admission indicator was rolled out and the non-payment policy for hospital-required conditions, including CAUTI started which caused a huge uproar from the community. There was a lot of talk about screening patients in the ED for CAUTI’s and I myself have not heard of places doing that. Inaudible hospitals threatening to do that but I have not seen it done.

It hasn’t been widespread to my knowledge. Of course, the concern is if you start looking at every older patient who comes to the ED, a third of elderly women, particularly those in nursing homes are frail and colonized. They have asymptomatic bacteria, so if we go looking for it we’ll find it and if folks are vigilant about looking for symptoms and they just treat then you’ll have a lot of elder treatment of asymptomatic bacteria and that will cause its own problems.

I hope I answered your questions. Do you have a follow on to that?

**Guest:** Actually, you’re hitting on all the points we’ve been discussing, specifically for the CMS. I’m in California. The catheter associated UTIs in the ICU population are required to be reported to any pass down. I’ve been discussing with our ICU director and his concern was, because of their initial diagnosis, not wanting the ICU to be tagged with a catheter associated UTI, when they in fact, have done a UTI that was present upon admission.

That we have not initially been worked out because the patient was being admitted for sepsis but it was only later the sepsis was linked to inaudible…So that’s been the discussion, did it make any sense at all in any situation to do a culture on patients admitted to ICU, for instance.

**Dr. Heidi Wells:**
I have a couple responses to that. The first is that your infection control practitioners know they shouldn’t attribute to the unit if the urine cultures sent were positive in the first 48 hours. The coders don’t know that and the current non-paying condition is related to what the physicians document in the charts and not what the infection control practitioners do in their surveillance.

That may change going forward, as CAUTI reporting becomes universal, at least from ICUs, it may be possible to do the same type of thing that they’re doing with lung infections, in that the HAC non-payment will be applied based on actual infection control surveillance, rather than IC denying codes and what doctors are documenting in the charts.

That being said my other response is first, I would venture that most septic patients will have to inaudible so I’m not sure that should change that much. If you’re sepsis in those sorts and again, I’m a geriatrician so we’re always looking into urine, the second is that sometimes the
doctors need to educate to keep inaudible position champion, either you’re infection control, person, hospital, epidemiologist or someone like me.

We had a case in our hospital recently where it was actually to diagnose an asymptomatic bacteria but they called it a catheter associated UTI, so our infection control practitioners didn’t report it to NHSN, but the coders might pick it up as a CAUTI because that is what the doctors documented. I was then asked to educate the doctors about the difference between asymptomatic bacteria and catheter associated UTI.

**Guest:** I think you make a good point about being able to validate your data. Currently, for surveillance, we look at who in ICU having it fully put in and second against culture results taken before and after insertion and then make the data link that way, the timing and such and definitions are met and it’s called the zill culture or the definition of CAUTI’s not reportable. That’s how we’ve been doing it and we’ll have to continue doing it that way until we’re able to validate our data.

**Dr. Heidi Wells:**
Great thank you.

**Chat Box:** We’re seeing more super pubic catheters in our elderly men and women, why do you think that is?

**Dr. Heidi Wells:**
That’s an interesting question. Super pubic catheters, I actually don’t put that in my list of alternatives but I do think some people consider them as alternatives to foley catheters. Obviously, they’re also in-dwelling so they do have some of the same issues like having a finite infection rates. Some people are proponents of using super pubic catheters as alternatives.

I haven’t looked at the data recently. I can’t tell you for sure that they have lower infection rates, but they may be easier to keep clean in certain patients. I haven’t seen them as much in elderly but as more of a neurological patient with a neurogenic bladder.

**Chat Box:** Do you recommend Chlorhesidine for perennial cleansing over Betadine?

**Dr. Heidi Wells:**
I don’t recall head to head data there, so I’d have to say I don’t know but I can see if there is data available.

**Chat Box:** How do you address keeping the drainage bag below the level of the bladder for MRIs and also forward for rehab, when the patients laying on the floor?

**Dr. Heidi Wells:**
Great. I don’t know much about floor work for rehab that’s not an area where I practice, so that certainly hasn’t come up for me but it’s an interesting question. For MRIs I can tell you that we actually found plastic non-medical foley sans for the MRI scanners.

**Chat Box:** For long-term use in the nursing homes, how often do you recommend the catheter be changed?

**Dr. Heidi Wells:**
This is one I don’t think there has been good data on. People empirically change a 30-day schedule but I don’t know of any great data to support that, besides the fact that we know everybody is colonized by 30 days. I don’t know there’s any data to support that.

**Guest:** I’m just wondering, we were thinking about the indications for catheter usage and I was worried about a couple things we might get some feedback on.
One is that often we get patients that might have a pressure ulcer but may have bad perennial redness, like maybe they've had diarrhea and things when they come in, but they always feel like its indicated to put a catheter in to keep that area dry and let it heal up.

Second is that we have many patients that come in with congestive heart failure that they may be diuresing with large amounts of lasiks.

Dr. Heidi Wells:
We as a geriatric unit managed many more patients without catheters than we used to and you’re right we try. If it’s not a pressure ulcer, we try and keep the catheter out and use other modalities to keep them dry. Most of the time we’re successful, so we do try to avoid it, whether it’s using products like incontinence pads or schedule toileting for the patients. I hate to recommend rectal tubes but sometimes we have to resort to that just to control the moisture in a bed in case of diarrhea. So it’s multi approaches to keeping the catheter out, because the last thing that patient needs is to be tethered and to get infected.

The other thing was diuresis, I think the place that had the nurse driven protocol they decided with their cardiologists on a certain dosage of lasiks like more than twice their lasiks so if you’re doing three or four times daily that was an indication for catheter just for diuresis. We’ve gotten more comfortable with incontinence in certain patients, but it’s hard.

Obviously for a patient’s sanity you don’t want them to be incontinent or sitting in urine but we have been aggressive about only using a catheter if they’re totally incontinent and can’t handle the diuresis. You may need to set some sort of standard for how much diuresis is a lot. One dose of lasiks is not enough, but if it’s around the clock diuresis that could be justifiable.

Guest: Thank you.

Chat Box: Do you feel cranberry capsules help with the bacteria in infections?

Dr. Heidi Wells:
I think there was an article if I recall that debunked cranberry. I think there are often good reasons why some kind of natural product is usable, but I believe something recently showed that cranberry was of no benefit but I don’t have that reference at the top of my head, so I’d have to check on it.

Chat Box: How can our relationship with our nursing homes help in the decreasing of CAUTI?

Dr. Heidi Wells:
Great question. An area that I’ve been interested in thinking about is as we think of episodes of care and patients moving between sites of care and where did the hospital condition start and end, I think one of the things that would be incredibly important is a hand-off. Again, your hospitals are like my hospitals the hand-offs are like, we call it the pink sheet and it has very little information on it. The medical team filled it out and presumably the receiving nurse in the nursing facility or home is preceding that.

I think a simple thing to do would be to put the implications of the catheter and whether or not it’s chronic and when it would be expected to be removed. I don’t know why we would expect them to know so if you didn’t put the catheter in than you may not feel like you have ownership of it and you may not be inclined to remove it unless there’s something on the discharge sheet that says oh, this catheter was placed for acute urinary retention, needs to be removed within 2 weeks. Obviously that probably happens but it was just de-conditioned coming from the ICU…whatever it was I think a plan of car about the catheter would be helpful.

Guest: Various information is being passed around at some conferences related to removing urinary catheters, putting a new urinary catheter in prior to obtaining a urine specimen and recently at one of the conferences for position, the speaker said to take the foley catheter out, have the patient inaudible twice and then slip the new catheter in before you get a specimen.
I see no information anywhere in the literature to support either of those practices and I wanted to get your opinion.

**Dr. Heidi Wells:**
I agree with you. I haven’t seen information supporting those practices myself, so we aren’t proponents of it but I’d be interested in reading or hearing what and why they’re proposing those.

**Guest:**
Usually it’s non-infection control people at the conference but the physicians seem to be latching onto that information and are starting to order specimen collection that way, which is increasing the cost of the use of catheters and if they can go twice then why do we need to put the catheter back in?

**Dr. Heidi Wells:**
Good point.

**Guest:**
Just something that I wanted to throw out there. Thanks

**Dr. Heidi Wells:**
Great. Thank you.

**Chat Box:** When educating docs on asymptomatic UTIs vs. colonies, was there a change in the CAUTI coding documented by doctors?

**Dr. Heidi Wells:**
I haven’t studied that. I’ve done conferences at my hospital and I actually practice with our hospital groups but we haven’t done a thorough review of documentation, but my own experience, and I’m in a teaching hospital and work with a lot of residents is that folks are much more likely to admit anecdotes. I feel they’re more likely to identify asymptomatic bacteria and be able to hold off on the antibiotics, the medical service I work on.

I won’t say that about the ED, because everybody who comes in with confusion in the ED gets treated. It’s sometimes unclear whether or not they need to be, so I feel like it’s a big place to educate about asymptomatic bacteria is the emergency department. I don’t have data on physician documentation.

**Chat Box:** In a nursing home we do rarely use led bags during the waking hours in certain cases. When changing between a urinary drainage bag and the led bag, what is the best protocol for disinfection?

**Dr. Heidi Wells:**
I would refer that to one of my nursing colleagues, because it’s not something I do specifically in terms of how to keep that system sterile. I have not received training on that so I can’t answer that.

**Chat Box:** What’s the incidence of UTIs with intermittent straight top irrigation, how many times should it be done?

**Dr. Heidi Wells:**
This comes up a lot. My sense from talking to nurses is that they’re very concerned about straight calves, because a patient inaudible nobody wants an in-dwelling foley but most people don’t want to be instrumented multiple times either. There is a finite rate of UTI related to straight tap and it’s mostly because of this idea if you’re talking about early infection where bacteria gets in at the insertion.

It’s probably under a 2-3% chance per time. Most of the time, as you know, there are folks who live and chronically straight cast themselves and do clean catheterization that’s not sterile, and because their bladder is being emptied and there isn’t a culture median or foreign body in there most of them don’t have chronic infection. So while there is a small risk with
each individual instance, when it’s done properly the risk is less than doing a foley catheter over a period of time.

What we generally recommend, we don’t do chronic straight tap for our acute patients but in lieu of foley we usually do a trial of three and if they can’t void spontaneously after that then we’ll revert back to a foley catheter.

Diana: Thank you Dr. Wells so much. Excellent presentation, you’ve answered many of our questions. I know there were some questions we didn’t get to on the chat box, so if you have additional questions for Dr. Wells you can send them to your QIO rep who will get them to me and I’ll get them to Dr. Wells.

This call is recorded and posted to your QIO website so you can obtain the slides and recording. Your QIO may also send you an evaluation form. Dr. Wells has asked for feedback so we’ll be sending those out and compiling them for her.

Again, thank you for your time and sharing your expertise with all of us, it was an invaluable presentation. Thank everyone for joining us we appreciate you taking time out of your day for us. Have a great day.

Dr. Heidi Wells:

Thank you.

If you have any questions, please contact us at info@stratishealth.org.