Transcript of video

CAUTIs – National and Local Overview

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Morning everybody, first of all I’d like to thank NES for sponsoring today as Jan says it’s one of a number of regional workshops and we’re pleased they selected Ayrshire and Arran to host it and I think the attendance here today shows that it is something that’s needed.

I’d also like to thank Jan for facilitating today and Elaine who was outside giving you the packs for doing all the co-ordination and registration and making all of the arrangements.

My role here this morning is really just about setting the scene for everybody that comes after me because those are the people who have the useful information for you in terms of practical application of preventing urinary tract infections right from the start in terms of preventing catheterisation. making sure that we’ve got good bladder health care for our patients and our clients. It’s also important that we’ve got Margaret here as a patient who’s going to give us her own personal experience of catheterisation. I think that is really important for setting the scene for all that we’re going to discuss today because the patient, our client, the resident should be at the heart of all the decisions that we’re making so I think it’s important that we do start from that perspective.

I’m going to set the scene so I’m just going to answer some basic questions much of this information you’ll already know. There are some facts and figures - don’t get too hung up on the facts and figures they’re just to give you an idea of the big picture when it comes to urinary tract infections and CAUTIs relating to health and social care.

So, I’m going to look at what is a CAUTI? What’s the definition? so we’re all starting from the same point when we come to consider what a CAUTI is. How do they develop? How common are they? What
are the risk factors? And then what are the consequences for our patients, our residents, or clients? Also what are the consequences for our organisations because there are significant consequences for the organisations when it comes to CAUTIs because they are so common.

First of all what is a CAUTI? You’ll hear that term banded about all day and it’s on the literature in front of you. CAUTI simply means catheter associated urinary tract infection. So CAUTI’s a much easier thing to say than having to say that each time.

There’s a misconception that CAUTIs only occur when the catheter is in. But CAUTIs can occur up to seven days after the removal of the catheter. You’re in increased risk of a urinary tract infection in that period immediately following the removal of the catheter so, if somebody develops a urinary tract infection 3, 4, 5 days after that catheter has been removed it’s related to the catheter that was already in. The harm relates to that invasive device.

They are caused by organisms such as E. coli, Klebsiella pneumoniae, Candida, organisms that are commonly found in the bowel and normally for urinary tract infection it’s patient’s own organisms that are causing that urinary tract infection. They have migrated from the bowel and elsewhere in the body into the sterile urinary tract and so into the bladder.

However, cross infection does occur, particularly within hospitals and care settings. in particular where you have a large number of catheterised patients. The practises that staff carry out relating to catheter management and catheter care directly impact and increase the risk of cross infection between patients. Particularly when it comes to resistant organisms we’ll talk a bit about that later on I’m sure Chloe will touch on that in her presentation as well. There’s a significant means of resistant organisms spreading within hospitals and there’s significant consequences of that.

So, how do they develop? The organisms migrate from the external world into the sterile bladder. That can either happen on the outside of the catheter which is extra luminal or in the inside of the catheter so it’s intra luminal. in terms of extra luminal contamination the significant area is insertion. We take a catheter and if we don’t have optimal practise when it comes to inserting that catheter, if we don’t use a strictly aseptic technique, if we don’t wear the correct PPE, we don’t carry out hand hygiene, if we don’t carry out meatal cleansing to the highest standard, then that catheter will transport organisms directly into the bladder at the point of catheterisation and immediately put the patient at risk of developing a urinary tract infection.
Later on, once the catheter's established then organisms will migrate up the outside of the catheter by capillary action. It will happen. It's inevitable, but we can reduce and delay the onset of that by good practise.

You also get spread up the inside of the catheter. That can come when we break the closed drainage system, changing drainage bags if our practises are not optimal there then we introduce micro-organisms that will migrate then up into the bladder.

If we’ve not cared for the catheter in terms of placement and the tubing’s kinked and the urine can’t drain freely we’ll get stagnant urine and that can then cause organisms to grow within the urine, then migrate back up into the catheter.

Likewise if we’ve got poor placement of the bag - if it’s at patient level if we’ve not got it free draining then organisms will transfer and we'll get back flow of urine back into the bladder and carrying organisms in there.

Then when it comes to emptying the drainage bag - particularly in care homes and hospital settings if we've still got the communal jug for emptying the catheter bags - if we do the catheter bag emptying round at set times of day that's an ideal means of transferring organisms from one patient to another - via the catheter bag which again migrates up into the urinary tract.

So, how common are they? Well, obviously to develop a urinary tract infection you need to have a urinary catheter so we need to start looking at how common are urinary catheters.

Approximately 25% of patients in hospital are catheterised at any given time. That's a significant number of people who are at risk of developing a CAUTI. Within care homes it's estimated that 5% of care home residents have a urinary catheter innate any one time. Catheterised patients can account for 4% of a district nurses workload.

So, significant numbers of people have got a urinary catheter in at any one time and as a population they are at risk of developing a CAUTI.
Looking in more detail at the hospital data in terms of prevalence - in 2011 and 2016 all boards in Scotland participated in a European wide study looking at healthcare associated infection and antimicrobial use.

Amongst the data that we collected we looked at the usage of certain invasive devices and found the number of patients in the hospital at the time of the survey who had those invasive devices in. And in 2011 within Ayr hospital 23% of our patients had a catheter in. When we carried out the study last September that was up to 29%. University hospital Cross House here it was 14% in 2011 and 15% in 2016. Bit of caution about comparing directly hospital and hospital because each hospital has different patient populations, different specialties that mean direct comparisons aren’t appropriate. For example Cross House has maternity, it has paediatrics which would lower the prevalence of catheters compared to Ayr hospital.

What’s more important is you look at the trend across time and different hospitals and certainly within Ayr there’s something that we need to look at in terms of the number of patients who have got a urinary catheter in because that is increasing.

East Ayrshire hospital in Cumnock weren’t part of the survey in 2011 but this last year 22% of the patients had a urinary catheter. In Biggart hospital down in Prestwick 21% in 2011 and down to 18% which is encouraging because there’s been a bit of work done in one of the wards in Biggart around catheter usage so that may feed through into the use of catheters and certainly that was the feedback from the staff there that what they felt was that they were using certain catheters less and they were removing catheters quicker and that’s certainly one of the key messages that you’ll get from today as we go through it.

The Scottish prevalence across all the hospitals was 19% in 2011 we haven’t had the 2016 figures I think it’s May were expecting the reports coming out so it’ll be interesting to see how Scotland has progressed as a whole whether we’ve got more patients at risk than we did 5 years ago.

So, how common are CAUTIs? Well in the 2011 study across Scotland urinary tract infection was the most common hospital acquired infection, followed by surgical site infection, and then pneumonia and bloodstream infection. Now we didn’t have data on all of those urinary tract infections in the report as to who had a catheter in but the estimate is roughly 50-60% from the data that’s available had a urinary catheter in and the time they had a healthcare associated urinary tract infection. So when you think of the number of patients then that’s significant number of patients who’ve been harmed because of an invasive device within the hospital setting.
Now not all of those are preventable but I’m sure a significant number of those are preventable.

Our local figures from the last study in 2016. Remarkably similar to the Scottish picture in terms of the scale of the problem or the proportion of hospital acquired infections. urinary tract infection was our most common, 22% of those who had a hospital acquired infection it was a urinary tract infection. And 60% of those were CAUTIs. Now our overall rate of hospital acquired infection was relatively low I’m pleased to say but it still points to the fact that we need to continue to focus on urinary tract infections in terms of making the biggest impact in preventing harm to patients.

One of the things I’m sure Chloe’s going to talk about antimicrobial use and the use of antimicrobials appropriately and inappropriately when it come to treating urinary tract infections. As part of the study last year - of the surveillance we looked at the antimicrobial use in patients. Why were patients getting an antibiotic in the first place? Whether that was related to a hospital acquired infection or to a community acquired infection. We didn’t distinguish that we just counted all the patients the reason why they were getting an antibiotic and to put it in context approximately 35, 36% of our patients are on an antibiotic within our acute hospitals and if you look at the reason for prescribing those antibiotics number 3 on the list is for urinary tract infection. So a significant proportion of patients in hospital at any one time are getting an antibiotic because of urinary tract infection. Possibly hospital, possibly community acquired.

This bit here the most common cause with respiratory was chest infections. Then there’s this bit undefined. But a significant proportion of that undefined was when the medical staff weren’t quite clear what was causing the patient’s symptoms and a lot of them were query chest, query urine. So a lot of that 18% is actually directed towards urinary tract infections as well. So undoubtably we’re looking at one fifth to one quarter of our patients at any one time are receiving antibiotics for treating a urinary tract infection. And we need to do what we can to reduce that number that have suffered from that infection.

A similar study was carried out in 2013 across Europe called a HALT study. It’s organised by the European Centre for Disease Control. A large number of countries across Europe were involved in the study unfortunately Scotland wasn’t though England, Wales and Northern Ireland were included.

I think there’s plans to repeat that study this year so hopefully we’ll get Scottish Care Homes and long term care establishments enlisted into that study because I think it would really help give us some valuable local information.
The study looked at 77,000 residents within care homes across Europe. 3.4% of the, which is 2,500 had a hospital acquired infection which they had acquired in the care home or long term health care facility. And third of those were urinary tract infections. So again, similar to healthcare the single most common cause of hospital acquired infection within care homes and long terms care facilities is urinary tract infection. Unfortunately the report didn’t give any details on catheter usage in terms of the study and their role within this chunk here. But I think it probably fair to say that as with hospitals, a significant proportion of these patients - their infection will be directly related to a urinary catheter.

So, regardless of which setting you work in whether it’s within hospital, within the community or within care homes we all have similar challenges and have a need to look at how we manage urinary tract care and CAUTIs.

So what are the risk factors? So to get a CAUTI you obviously must have, or have recently had a urinary catheter. That seems an obvious statement to make. The opposite is also very obvious and very true. If you don’t have a catheter in in the first place you can’t develop a CAUTI . So much of what you’ll hear today is very much about preventing the catheter in the first place.

About accurate continence assessment, about good hydration and nutrition, to improve and maintain bladder health. All of those are important to prevent that insertion in the first place. If you can avoid a urinary catheter going in, you significantly reduce the risk to your patient.

if the catheter is in there’s a number of factors I’ve already touched on that lead to that increased risk of developing a CAUTI . It can be improper insertion as we’ve already talked about, you insert the catheter, you don’t use a strict aseptic technique you will introduce organisms into the bladder.

You don’t maintain the closed drainage system and when you have to break the system you don’t do it using an aseptic technique, you’ll introduce organisms and increase the risk.

We don’t manage the draining bag properly, we increase the risk to our patients. So it’s a whole process of catheter management that’s important in reducing the risk to the patients. And likewise, it’s obvious to say that the presence of a catheter increases the risk is essential and also the longer that catheter is in the more likely the patient is to develop a urinary tract infection. Duration is directly linked to the risk of CAUTI .
Once we insert a catheter into a patient. If we insert 100 catheters into 100 patients at the end of day one, 3% of those patients will have bacteria introduced into the sterile bladder as a result of that catheterisation. The rate of patients who have bacteria in their bladder increases at a rate of 3 - 4 % each day and by day 30, every single patient who has a catheter in situ will have bacteria within their bladder.

Now that doesn’t mean they’ve got an infection it just means they’re colonised. The organisms are present within the urine, present within the bladder, not causing damage to tissue therefore not causing the signs and symptoms that you associate with infection but that patient because they now have organisms within the bladder are at a much greater risk of developing an infection.

For example if we don’t care for the catheter and the catheter ends up getting tugged and pulled and will cause damage to the neck of the bladder because of the catheter, then we’ve breached the mucosa there within the bladder and the organisms penetrate through into the tissues and can cause infection.

So, even though there’s bacteria present within that individuals bladder it’s important that ongoing catheter management continue to minimise the risk of damage with the bladder that will then trigger an infection with the organisms that are present there.

So, who’s at risk? Well, everybody’s at risk who’s got a catheter in. In terms of relative risk females are at greater risk that males and that’s because of anatomy, The female urethra is closer to the rectum in females than males, so there’s less distance for the organism to travel so it’s easy enough to get contamination, the female urethra is shorter than the male so therefore organisms have less distance to travel from the external environment into the bladder. So, females are at increased risk.

The elderly, as with all infections the elderly are at increased risk because their immune system wears out, it wears down, it doesn’t respond promptly to challenges. It’s therefore much more susceptible to developing infection the older we get. And the older we get, the more likely we are to have a catheter in situ as well.

People who are diabetic, as with a range of infections are much more likely to develop urinary tract infections, those who are malnourished and as I said Lesley Faulds will be here later today to talk about nutrition and hydration and the role that plays in minimising the risk of urinary tract infection. Both related to, and not related to a catheter.
Renal impairment, renal damage, again increases the risk of developing a urinary tract infection. and we’ve already highlighted putting somebody in hospital, you’ve got a 25% chance they’re going to get a urinary catheter inserted. That automatically increases your risk of developing a urinary tract infection.

So, what are the consequences for the patient? First of all there’s the obvious the signs and symptoms of infection. The pain, the fever, the general feeling of being unwell, and anyone who’s had a urinary tract infection it’s not a pleasant experience.

But beyond that there are further complications that make it a much more significant infection rather than just something that you get a few days antibiotics and you’re fine and you get on with your life.

It can lead to complicated upper urinary tract infections, infections of the kidneys that are more serious and much more difficult to treat, require longer courses of antibiotics.

And from those upper urinary tract infections the risk of developing blood stream infections. And with that a very high mortality rate 20 - 30% mortality rate related to bacteremia. So, the fact that a simple urinary tract infection can progress up to the situation where somebody actually dies because of that urinary tract infection should really helps to focus the mind on preventing that urinary tract infection in the first place.

And antibiotics, Jan touch on this and again, Chloe will touch on it as well. But giving somebody antibiotics we increase the risk of resistance to those antibiotics developing. The more antibiotics we give the greater the risk of resistance. And also if you’ve had one urinary tract infection you’re much more susceptible and much more likely to get a second urinary tract infection further on so you’re likely to get more antibiotics. So you’re more likely to develop resistance to the antibiotics that we’d normally use to treat your urinary tract infection.

So that means maybe by your 3rd or 4th urinary tract infection the antibiotics that we first give you don’t work. So we don’t treat the infection as well or as quickly so you’re suffering for longer. Also you’re much more likely then to go on to develop these complications because you’ve got an untreated urinary tract infection going on.

You’re probably aware that antibiotics are strongly associated with Clostridium difficile infection, diarrheal illness and the more you’re exposed to antibiotics the more likely you are to develop
Clostridium difficile infection which itself is a very significant illness it carries with it a significant mortality rate.

And all of those consequences can arise out of a simple urinary tract infection. So the patient- it’s not just that single episode of urinary tract infection it’s the potential for it to become much more significant that we need to consider.

Finally, what are the consequences for the organisations. And there are consequences it’s not just the patient that’s adversely affected but the organisations that we work for.

First of all we as an organisation, we as a care team are giving poorer patient care in many instances because they have developed a urinary tract infection.

Florence Nightingale said ‘first rule of hospital is you should do the sick no harm’. But we know from the rates that we’ve seen that we do the sick harm by causing urinary tract infection. Not all are preventable but a significant proportion are and a significant proportion of CAUTIs are.

So, as an organisation we’ve failed in one of our duties to our patients or to our residents. Within a hospital setting you’ll have increased length of stay an average of 3 to 4 days longer in hospital because you’ve developed a urinary tract infection and all of the adverse impact on the families and the patient as a result of that.

As well as the increased costs associated with lengths of stay in treatment to an organisation from a urinary tract infection.

And because you do get the risk of cross transmission within hospitals there the chance of outbreaks developing where you get multiple patients affected. That can very often be with resistant organisms.

So the spread of those organisms is enhanced by the outbreaks that happen within health care.

And that in itself will lead to increased antibiotic resistance.
I’m going to finish off and ask you as you go through today and listen and reflect on it afterwards that you ask yourself 3 questions throughout your reflection and once is ‘are there any of my patients or residents who are unnecessarily catheterised?’ Did we actually need to put that catheter in? Do we have a clear rational? And catheters I want to emphasise are very essential medical devices. Another rational is when they should be used and why they should be used. But can you be sure you have a clear rational for every patient that’s been catheterised? If you have, fantastic, if not, the it’s something to discuss within your teams.

Are there any of your patients or residents catheterised just now where it can come out? Why’s it still in? Do you have a clear plan for removal of that catheter? is it absolutely a long term catheter? is it something that can be removed or is there a plan for removing it?

Finally, do you have a management plan for all your catheterised patients? Whether that includes removal or whether it’s a long term catheter that can’t be removed - have you got a clear management plan for all of your patients and is that a documented plan that everybody is aware of and everybody is signed up to?

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