The risks of indwelling catheters are well documented and include catheter-associated urinary tract infections (CAUTIs), bacteraemia and increased mortality (Loveday et al, 2014; Adams et al, 2012; Saint, 2000). At Calderdale and Huddersfield Foundation Trust, a project nurse – working with the continence, urology and older people care teams – conducted a project promoting the use of intermittent catheterisation (IC) instead of indwelling catheters for managing urinary retention and incontinence associated with retention. A reduction in the number of patients with indwelling catheters, as well as cost savings, were observed, and patients and staff gave positive feedback. This article describes the project, which was led by a dedicated project nurse working closely with frontline staff and key stakeholders.

The presence of a urinary catheter and the length of time it stays in place are contributing factors to the development of urinary tract infections (UTIs) (Loveday et al, 2014). UTIs are the single largest cause of healthcare-associated infections (Health Protection Agency, 2012) and the cost to treat a hospital patient with a UTI was estimated to be £1,968 in 2010 (Ward et al, 2010). CAUTIs can lead to bacteraemia and other serious infections linked with increased mortality (Saint, 2000). Patients with long-term catheters may also experience catheter blockage, urine bypassing the catheter, and haematuria (Royal College of Nursing, 2012).

The risk of infection increases with the duration of catheterisation: it is estimated that the daily risk of acquiring a bacteriuria is approximately 3-8%, so all patients with long-term catheters potentially have bacteria in their urine (Adams et al, 2012). Patients who have an indwelling urinary catheter for more than nine months are three times more likely to be hospitalised; to receive antibiotics; and to die during the...
An alternative: intermittent catheterisation

Assessing patients before catheterisation to establish whether an indwelling catheter is clinically indicated is an essential aspect of individualised care (Loveday et al, 2014). IC can be a more effective option to manage urinary retention, with a lower infection risk than an indwelling catheter, and if appropriate, is the preferred option for bladder management (National Institute for Health and Care Excellence, 2012).

Urinary incontinence is common after stroke, affecting up to 60% of patients, it is also a significant indicator of poor outcome. There is some evidence that, in most patients who have urinary incontinence associated with retention, early intervention, bladder scanning and IC can re-establish continence (Jordan et al, 2011).

Improving care in an acute trust

At Calderdale and Huddersfield Foundation Trust, a number of improvements in catheter care had been made in recent years, including the development of a training and competency framework for nursing staff, regular audits of practice, and the inclusion, in patient care plans, of evidence-based bundles for catheter insertion and ongoing management.

Emphasis had been placed on assessing whether patients actually need a catheter, as well as on reviewing, on a daily basis, the need for it to remain in place. Working with the continence and urology teams, our urinary catheter steering group identified five valid reasons for catheterisation in the acute setting (Geng et al, 2012; Royal College of Nursing, 2012):

- Acute retention;
- Chronic retention;
- Post-operative drainage;
- Output monitoring;
- Instillation of medication.

These reasons had been included in patient care plans to act as an aide-memoire for staff and prompt removal as soon as indicated. However, because of the risks that are associated with indwelling catheters, we felt that more needed to be done to improve bladder management in patients with urinary retention and associated incontinence.

A neighbouring trust had introduced IC as an alternative to indwelling catheters for the first-line management for urinary retention and incontinence associated with retention. The success of their work appeared to stem from them having a project nurse work closely with frontline staff to change the culture of using indwelling catheters by default.

We decided to launch a similar initiative aimed at encouraging ward-based staff to use IC in a wider range of patients; it had previously been limited mainly to patients after gynaecology surgery.

The project

Aims

A business case was written and submitted to the local clinical commissioning group at the beginning of 2014. Funding was obtained for a project nurse to promote the use of IC over a two-year period, using the same methods as our neighbouring trust, the overall aim being to reduce the use of indwelling catheters.

Specific objectives were to work with frontline nurses to select the most appropriate patients for IC, and to identify the training needs of frontline staff in terms of assessing bladder problems and inserting intermittent catheters. The project was also an opportunity to educate medical and nursing staff on urinary continence issues. The project nurse came into post in July 2014.

Fig 1. Bladder function assessment and management algorithm

Source: Urinary Catheter Steering Group, Calderdale and Huddersfield Foundation Trust
**Stakeholders**
Engagement with stakeholders was essential. They included the trust’s older people care physician, members of the continence and urology teams, matrons and ward managers. The project nurse attended patient safety groups, clinical governance meetings, and medical and nursing forums in the trust to explain the project. Soon there was a group of strong supporters, who helped select wards for the project.

**Participating wards**
We did not want to implement the project in too many wards at the same time, the idea being to conduct improvement work in one area and then move on to the next. The first ward to be selected was the acute stroke unit, as the ward sister had expressed an interest.

It then seemed logical to continue with the stroke rehabilitation ward. The third ward chosen was a complex care ward with many older patients, where the work proved more of a challenge, and progress was slower, due to the complexity of patients’ needs.

In the meantime, the word had spread about the project and the manager of the elective orthopaedic ward — thinking IC could be an option for orthopaedic patients with post-operative urinary retention — expressed interest. Two more complex care wards followed, so a total of six wards were included in the project.

**Bladder management algorithm**
All wards had bladder scanners available, but staff were not consistent in their actions after identifying patients with residual urine. There was no consistency according to the amount of residual urine detected, when to catheterise and when to re-scan. After scanning the bladder of a patient found to have residual urine, inserting an indwelling catheter was often the only action considered; the length of time before catheters were reviewed varied with anecdotal information suggesting anything from 24 hours to several days.

There was clearly a need to standardise actions around bladder management, which prompted the creation of a bladder function assessment and management algorithm (Fig 1). This was developed with support from the senior urology consultant and the older people care consultant, who agreed on the thresholds, reviewed at the regular project meetings, and adjusted as required.

The algorithm provides clear information about when to scan, re-scan, perform IC, insert an indwelling catheter and refer to the urology specialists. It also highlights the need to exclude constipation and review medication that may be causing the urinary retention.

**Patient selection**
Patient selection for IC included those with problems passing urine, unable to pass urine, experiencing a constant dribble of urine, frequency of urine or an awareness of not emptying their bladder. These patients then were assessed using the assessment and management algorithm to determine the need for an IC.

**Choosing the catheter**
There are a number of intermittent catheters on the market, but it seemed important to use the same one on all wards, as a choice of several products can cause confusion and each catheter has different insertion advice. Early contact with the trust’s procurement department helped to determine the best method for procurement, ensure the best price, and enable staff to purchase small numbers of catheters to be delivered directly to the wards, as storage space was minimal.

Two products were selected for a short trial on the acute stroke unit, where nursing staff and patients were asked to express their preference. The ‘winning’ catheter was selected by all six nurses and nine of the 10 patients. The nurses liked it because it is pre-lubricated and ready to use, and comes with an integral drainage bag featuring a sampling port.

**Education and training**
The project nurse identified that nursing staff needed training on how to insert an intermittent catheter, so a short video demonstrating the procedure was produced in-house supported by a commercial company. The video was deemed appropriate for staff who were already trained and competent in inserting indwelling catheters, and did not replace the need to attend training and competency assessment for staff who had not yet been trained.

The project nurse provided informal, ad-hoc education and training was provided by the project nurse to ward staff, including nursing and medical staff on the bladder management algorithm, continence issues, bladder scanning and use of the IC.

**Urine colour chart**
A urine colour chart was created to improve fluid intake among patients, as good hydration helps with both continence and the prevention of UTIs (Beetz, 2003). It was developed in partnership with the urology and older people care teams, and provided to all wards and departments. It has proved popular, as it is applicable to all healthcare settings and provides a visual prompt reminding staff to check their patients’ fluid intake and encourage them to drink.

**Data collection**
Data collection was important, as it enabled us to measure improvement. The trust’s audit team collected weekly data on:

- The number of patients having an indwelling catheter;
- Whether there was a documented reason for patients having an indwelling catheter and if so, what the reason was;

**Fig 2. Number of patients with indwelling catheters**

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**Legend**
- number of patients
- median number of patients
- project nurse into post
A significant reduction in the number of patients with indwelling catheters during a six-month period at the beginning and a six-month period at the end of the project (September 2015 to February 2016). Although cost savings were not a stated aim of the project, it was requested from ward staff: Number of patients with an intermittent catheter; Why they required IC; Whether patients requiring IC had a UTI and/or bowel problems.

Outcomes
Between April 2014 and February 2016, between 50 and 75 patients passed on a regular basis. We did know that this lady had used indwelling catheters before and had had several catheter-associated urinary tract infections. During her time with us she never contracted a urinary tract infection, even though we used intermittent catheters twice daily for several weeks. (Stroke rehabilitation specialist nurse)

“Used the intermittent catheter on a patient in my care following a stroke who also suffered with dementia unrelated to the stroke. It was a difficult decision each time as to which type of catheter to use, as she couldn’t fully understand our explanation of the need to drain her bladder when she kept going into acute retention. We had to constantly balance the risk of infection from an indwelling catheter against the indignity of having a catheter passed on a regular basis. We did know that this lady had used indwelling catheters before and had had several catheter-associated urinary tract infections. During her time with us she never contracted a urinary tract infection, even though we used intermittent catheters twice daily for several weeks.” (Stroke rehabilitation specialist nurse)

References

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Developing a guide to nurses for undertaking regular catheter reviews
Bit.ly/NTCatheterReviews

Urinary catheters 4: teaching intermittent self-catheterisation
Bit.ly/NTTeachIntermittentCatheter

Conclusion
The project has resulted in a significant reduction in the number of patients with indwelling catheters, and has therefore reduced the associated risks. It has opened up the opportunity to offer IC to patients unsuitable for self-catheterisation, who previously would have had an indwelling catheter inserted as a matter of course.

IC is now embedded into the trust’s training programmes for nurses and midwives and ward-based champions ensure the sustainability of the changes in practice. The project, which continues to be led by the continence team, has been rolled out to other wards in the trust.

The advantage of having a project nurse has been the time spent with frontline nurses and medical staff to enable a change in the practice of automatically reaching for indwelling catheters to manage patients with urine retention. Training and education at ward level has empowered staff to make the right choice for their patients. NT

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Innovation

Box 1. Patient feedback
“A far better experience than before with an indwelling catheter” (75-year-old retired nurse undergoing a second hip replacement)

“I could concentrate on my mobility rather than worrying about a bag of urine hanging down my leg” (66-year-old man after orthopaedic surgery)

Box 2. Staff feedback

“I love using the intermittent catheter, as opposed to an indwelling catheter, on patients with acute retention. It is so much easier for the patient, with less risk of infection […] and my patients prefer not to have a catheter bag hanging down their leg.” (Orthopaedic specialist nurse)

Younger patients and staff respectively.

Deaths in the number of patients with indwelling catheters. However, conversations with staff pointed to an increase in the use of intermittent catheters, and this was backed up by evidence of intermittent catheters being supplied to the wards.

Whether patients with an indwelling catheter had a UTI (which, for the purpose of the project, was defined as being treated for a UTI).

Additionally, the following information was requested from ward staff:

- Number of patients with an intermittent catheter;
- Why they required IC;
- Whether patients requiring IC had a UTI and/or bowel problems.

There were gaps in the data obtained through ward staff, particularly regarding the number of patients with intermittent catheters. However, conversations with staff pointed to an increase in the use of intermittent catheters, and this was backed up by evidence of intermittent catheters being supplied to the wards.

Outcomes
Between April 2014 and February 2016, there was a significant reduction in the number of patients with indwelling catheters in the trust overall (Fig 2). The monthly median decreased from 96 patients in the first year to 34 in the second. The greatest success was obtained with patients who had had a stroke and those who had undergone elective orthopaedic surgery.

The acute stroke unit staff explained that, after a stroke, continence was restored much quicker in patients who used intermittent catheters compared with the previous management method of using indwelling catheters. The orthopaedic ward staff suggested a high prevalence of post-operative urinary retention following hip and knee replacements, but they claimed that the majority of patients only required one IC before returning to normal voiding. The orthopaedic surgeons were particularly pleased with the reduction in the use of indwelling catheters for their patients.

Cost savings in consumables were estimated at £12,000 per year across the participating wards; this figure was the difference in the cost of purchasing indwelling and intermittent catheters during a six-month period (July to December 2014) at the beginning and a six-month period at the end of the project (September 2015 to February 2016). Although cost savings were not a stated aim of the project, it was a bonus to be able to demonstrate them.

Patient experience was an important consideration throughout the project. We collected a number of positive patient stories, as well as positive feedback from staff. Boxes 1 and 2 give examples of feedback from patients and staff respectively.