Intermittent self-catheterisation: teaching the skill to patients


Summary

Intermittent self-catheterisation (ISC) is not a new concept. However, it is a method that could be more widely used by patients to drain the bladder rather than having an indwelling catheter with a drainage bag and its associated problems. The author describes the procedure, patient assessment, and the training required by patients so that they can undertake ISC. Self-catheterisation promotes patient independence, improves quality of life and helps to avoid complications associated with indwelling urinary catheters.

Author

John Robinson is district charge nurse, Continence Service, North Lancashire Primary Care Trust, Morecambe, Lancashire. Email: john.robinson@northlancs.nhs.uk

Keywords

Intermittent self-catheterisation; Patients: education; Urinary system and disorders

These keywords are based on the subject headings from the British Nursing Index. This article has been subject to double-blind review. For author and research article guidelines visit the *Nursing Standard* home page at [www.nursing-standard.co.uk](http://www.nursing-standard.co.uk). For related articles visit our online archive and search using the keywords.

Aims and intended learning outcomes

The aim of this article is to outline the teaching and training process required by patients undertaking intermittent self-catheterisation (ISC). After reading this article you should be able to:

- Identify various conditions where ISC may be undertaken by patients.
- Describe types of intermittent catheters and aids available for disabled patients.
- Understand the assessment process necessary for patients before they can undertake ISC.
- Understand the teaching and training process required by the patient undertaking ISC.
- Assess and evaluate the requirements of the nominated person willing to undertake the procedure on the patient’s behalf.

Introduction

Urinary catheterisation dates from 300-100BC, when river reeds, onion stems and other materials were used to drain the bladder. Later, single tubes (catheters) were made from gold, silver and bronze (Bloom *et al* 1994, Doherty 1999). These primitive catheters were passed up the urethra into the urinary bladder, draining it of urine and were then removed. Lubrication was either none, oil or animal fat. The mortality and morbidity rates of this primitive method of catheterisation are unknown. However, it was probably the earliest form of what is now known as ISC (Bloom *et al* 1994, Bloom 2000). In 1844, Charles Goodyear discovered a method of forming and shaping rubber (latex) catheters using vulcanisation to strengthen them. This material was rigid and a decade later Auguste Nelaton produced a more flexible rubber catheter. Patients undertaking this early form of ISC washed the catheter in soapy water after use, rinsed it and kept it inside a clean container, purse, bag, rim of hat or walking stick until it was needed again.

If the early rubber catheter had to remain *in situ*, it was either taped or sutured to the patient’s body. The modern indwelling, self-retaining balloon catheter was developed in the 1930s by Frederick Foley (Murphy 1972, Bloom *et al* 1994). It is not certain why indwelling catheterisation began to be used more frequently than self-catheterisation, but it may have been felt by urologists that it was easier to manage patients.
with bladder problems by inserting the newly developed catheter. Until the 1970s, urologists were reluctant to use ISC to drain the urinary bladder because of the perceived risks of infection. Jack Lapides (1914–1995) was professor of urology in Michigan, United States. Lapides identified persistent stagnant residual urine along with high bladder pressures as major factors in urinary tract infection (Lapides et al 1972). He found that undertaking ISC helped to prevent the urinary bladder from becoming over-distended or residual urine becoming stagnant and contributing to urinary infections. He first introduced and taught ISC to patients with multiple sclerosis and found that these patients were able to manage bladder function, which gave them more control over their daily lives. Today, thousands of patients who have various medical conditions and problems emptying the bladder can now undertake ISC and have an improved quality of life (Bloom 2000, Woodward and Rew 2003, Robinson 2006a).

Intermittent self-catheterisation

ISC can be taught to patients and to a person, for example, a spouse or carer, who is willing to undertake the procedure if the patient is unable to. However, if someone is undertaking the procedure on the patient’s behalf, it is taught as an aseptic technique to reduce the risk of introducing infection to the patient. There appears to be no age limit to the procedure. The author has taught the procedure to parents of young children, children from the age of six years when it is felt they are capable of undertaking the procedure themselves and a patient aged 102. Older patients can be taught ISC rather than having an indwelling catheter (Pilloni et al 2003).

**Advantages and disadvantages** As with any medical intervention, ISC has advantages and disadvantages. However, the procedure has more advantages than disadvantages (Box 1).

### Time out 1

Pause here to discuss with a colleague the psychology related to ISC versus an indwelling catheter. How might each appear to a practitioner or lay person? Do you think the patient would prefer an indwelling catheter or an ISC? As you discuss this, take into consideration:

- Understanding of anatomy and physiology.
- Convenience.
- Perceived comfort or discomfort.
- Other perceived risks, such as infection.

Identify why you think that the use of indwelling catheters was so common in the past.

### Time out 2

Identify a patient who you have cared for who required urinary catheterisation. How did colleagues decide the most appropriate way to proceed? Under what circumstances would it be disadvantageous to use ISC? Conversely, have there been any missed opportunities to use ISC?

### Indications

ISC can be undertaken for a variety of medical conditions as well as incomplete bladder emptying. The causes of incomplete bladder emptying are outlined in Box 2.
by staff working in urology units or urodyamics departments with district nurse follow-up. This procedure is usually started with a low Charrière (Ch) size catheter, for example, 12Ch, increasing to 14-16Ch and sometimes higher on the instructions of a urologist. Urethral bleeding is one of the main risks associated with intermittent self-dilation and increasing the Ch size.

Intermittent catheters

Intermittent catheters are available in paediatric, standard and female lengths with varying Ch sizes ranging from 6Ch to 20Ch available on Drug Tariff (Department of Health (DH) 2007). A selection of intermittent catheters is shown in Figure 1. Adults undertaking ISC usually use catheter sizes of 10-14Ch either standard or female length, while children use paediatric catheters of 6-10Ch depending on age and size. The types of catheter that can be used for ISC are available in packs of either five, 25 or 30 catheters and are sterile (Box 3). Hatch (2005) states that it is important that the catheter chosen:

- Is easy to use by the patient or person undertaking the procedure.
- Causes minimum discomfort during insertion and removal.
- Causes minimum urethral damage, which is avoided with good lubrication.

Reusable catheters

This type of intermittent catheter needs to be lubricated before insertion using a local anaesthetic gel with lidocaine, for example, Instillagel™ or a sterile lubrication gel without lidocaine. Patients must be taught how to instil the lubricant into the urethra as well as applying it to the catheter surface before use to promote maximum lubrication and to assist insertion and removal, reducing the risk of urethral trauma (Vapnek et al 2003). However, care must be taken if lidocaine is used long term and for patients with certain medical conditions because of the increased risk of systemic effects. For example, patients with epilepsy, hypotension, liver disease, or patients who are pregnant, frail and debilitated or have cardiac disease (Addison 2000a, Bardsley 2005).

Coated versus uncoated catheters

Because of the vast array of intermittent catheters available, there is some controversy about which type is best, not only in terms of effective use, but also cost. Pomfret and MacKenzie (2005) raise two questions:

1. If companies claim that hydrophilic catheters are best suited for ISC, are non-hydrophilic catheters inferior? If so, should gel-coated and non-hydrophilic catheters be removed from the Drug Tariff?
2. If gel-coated catheters are acceptable, why are...
more expensive hydrophilic catheters prescribed by health professionals?

The cost of intermittent catheters varies depending on the type selected. The cost of coated, single-use intermittent catheters versus reusable, uncoated catheters used over 30 days and performing ISC once per day is as follows (DH 2007):

1. Coated, single-use catheters x 30, £37.51-73.20.
2. Re-usable, including a lubricant with or without lidocaine, £39.57-52.90.

### Appliances to help undertake intermittent self-catheterisation

Some patients performing ISC may have some degree of disability. However, this should not stop them being capable of undertaking the procedure (Robinson 2006b). Some companies who manufacture intermittent catheters have either very limited or no appliances available to help disabled patients undertake ISC and some patients may therefore be deemed unsuitable to perform the procedure. However, the manufacturer Manfred Sauer produces a range of appliances to aid ISC for disabled patients. Some of these items are available on FP10, but others are not. You should, therefore, check with the company. Examples of these aids are shown in Figures 2-5.

### Patient suitability for intermittent self-catheterisation

Before undertaking teaching and training in ISC, patients should be assessed to determine if they are suitable and able to undertake the procedure. Practical necessities required are patient dexterity, cognitive ability, eyesight (although a blind patient can be taught the procedure) and learning aptitude. In some cases emotional and psychological aspects, such as embarrassment at exposing the genitals, fear of pain, discomfort and self-image could become barriers to ISC (McConville 2002). If the patient is unable to undertake ISC, another person can be taught the procedure on the patient’s behalf if this is acceptable to him or her and to the patient. The practitioner should consider issues such as the:

- Patient’s attitude to someone performing the procedure on his or her behalf.
- Attitude of the person undertaking the procedure and monitoring for later difficulties or problems.
- Learning aptitude of the person undertaking ISC on the patient’s behalf.

Guidelines issued by the MDA (2000b) regarding the safe use of medical devices such as catheters are shown in Box 4.

### Time out 4

With a colleague, discuss how you would go about teaching a patient ISC for the first time. What teaching aids and materials would you consider suitable to use in the teaching and training process?

### Teaching and training patients

Discussion should take place with the patient on ISC and the following areas should be addressed:

- Details of the procedure and what it involves.
- The reasons for ISC.
Both patient and practitioner should be clear about the clinical outcome they are trying to achieve following a teaching programme (Mangnall 2006). Some patients may feel reluctant to undertake ISC because of what it involves. If this occurs, do not pressurise the patient as he or she may become more anxious or distressed. Allow the situation to calm down for one to two days, then contact the patient again to see if his or her thoughts and ideas have changed. It may be helpful to provide examples of past patients (while maintaining anonymity and confidentiality) who have been taught ISC and how this has benefited them. You may also wish to consider using the help of an expert patient who is undertaking ISC or find out if a local support group is available for patients who undertake ISC.

Patients should be issued with an information booklet on undertaking ISC and if possible a video of the procedure being undertaken, which you should watch with them if practical. Good educational material is available from catheter manufacturers for both adults and children. The information booklets provide diagrams of either the male or female anatomy, which are beneficial to patients with no previous knowledge of this area and include clear written and pictorial instructions on how to undertake the procedure. Videos for male patients commonly show a male undertaking ISC, but videos for females are less likely to show the procedure as, to date, no female has volunteered to be filmed undertaking ISC. Patients should be encouraged to ask questions about ISC and be given clear, understandable answers.

Introducing patients to ISC and teaching them to perform the procedure should not be taken lightly and requires careful consideration as they often need a significant amount of education, support and guidance (Doherty 1999, Hatch 2005). It is also important to develop good communication and a trusting relationship between the patient and the practitioner. Teaching and training should be undertaken in a relaxed environment, explaining what the procedure involves and its outcome. The process should accommodate the patient’s own learning pace and should not be rushed as some aspects may have to be repeated to enable the patient to gain confidence in undertaking ISC. All teaching should ideally be undertaken by the same practitioner.

> What it involves in terms of hygiene and preparation of the catheter for insertion.
> How often catheterisation will be necessary each day.
> Length of time ISC will need to be undertaken, that is, short or long term.
> Types of intermittent catheter available.
> How to obtain intermittent catheters.
> Disposal of used catheters.

Introducing patients to ISC and teaching them to perform the procedure should not be taken lightly and requires careful consideration as they often need a significant amount of education, support and guidance (Doherty 1999, Hatch 2005). It is also important to develop good communication and a trusting relationship between the patient and the practitioner. Teaching and training should be undertaken in a relaxed environment, explaining what the procedure involves and its outcome. The process should accommodate the patient’s own learning pace and should not be rushed as some aspects may have to be repeated to enable the patient to gain confidence in undertaking ISC. All teaching should ideally be undertaken by the same practitioner.

Introducing patients to ISC and teaching them to perform the procedure should not be taken lightly and requires careful consideration as they often need a significant amount of education, support and guidance (Doherty 1999, Hatch 2005). It is also important to develop good communication and a trusting relationship between the patient and the practitioner. Teaching and training should be undertaken in a relaxed environment, explaining what the procedure involves and its outcome. The process should accommodate the patient’s own learning pace and should not be rushed as some aspects may have to be repeated to enable the patient to gain confidence in undertaking ISC. All teaching should ideally be undertaken by the same practitioner.

> What it involves in terms of hygiene and preparation of the catheter for insertion.
> How often catheterisation will be necessary each day.
> Length of time ISC will need to be undertaken, that is, short or long term.
> Types of intermittent catheter available.
> How to obtain intermittent catheters.
> Disposal of used catheters.

Introducing patients to ISC and teaching them to perform the procedure should not be taken lightly and requires careful consideration as they often need a significant amount of education, support and guidance (Doherty 1999, Hatch 2005). It is also important to develop good communication and a trusting relationship between the patient and the practitioner. Teaching and training should be undertaken in a relaxed environment, explaining what the procedure involves and its outcome. The process should accommodate the patient’s own learning pace and should not be rushed as some aspects may have to be repeated to enable the patient to gain confidence in undertaking ISC. All teaching should ideally be undertaken by the same practitioner.

Introducing patients to ISC and teaching them to perform the procedure should not be taken lightly and requires careful consideration as they often need a significant amount of education, support and guidance (Doherty 1999, Hatch 2005). It is also important to develop good communication and a trusting relationship between the patient and the practitioner. Teaching and training should be undertaken in a relaxed environment, explaining what the procedure involves and its outcome. The process should accommodate the patient’s own learning pace and should not be rushed as some aspects may have to be repeated to enable the patient to gain confidence in undertaking ISC. All teaching should ideally be undertaken by the same practitioner.
determine how often ISC needs to be undertaken (Naish 2003). ISC mainly is taught by continence advisers or nurses working in urology wards or urodynamic departments. However, if a nurse undertakes urinary catheterisation, he or she can teach ISC. Available courses on ISC for nurses include hospital or community in-service teaching schemes or Masterclasses held by manufacturers. The nurse responsible must be fully trained and competent to undertake teaching and training of ISC and should be aware of local policies, procedures and protocols on this intervention. Authorisation must be obtained from the patient’s GP or consultant before teaching ISC (Doherty 1999), and verbal/written consent should be obtained from the patient.

Teaching ISC is different in the hospital and home setting. Patients may feel more relaxed at home than in a clinical environment. However, ISC is also taught in the acute setting before discharge with primary care follow-up. Ideally, in either setting if possible, everything should be in one room with a comfortable atmosphere, a sink for washing with running water, toilet and disposal bin or bag. Good lighting and a mirror on a wall or an adjustable mirror are beneficial, in addition to adequate room for the trainer and patient. A seat and adequate floor space are

Taking a history from the patient, GP or consultant is important before teaching and training the patient to undertake ISC. This will identify any previous urological intervention that may have been undertaken or is planned to be undertaken, for example, Mitrofanoff diversion or other conditions as some patients may have to be taught ISC before surgery. A Mitrofanoff diversion involves the creation of a channel into the bladder from the abdominal surface so that intermittent catheterisation may be undertaken. This is different to a suprapubic catheter, where the catheter has to remain in place to drain the bladder. Undertaking a daily fluid intake and urinary voiding assessment including the time and amount of urine voided is required and if possible night-time voiding. A post-voiding urinary residual measurement should also be undertaken. Residual measurements can be undertaken in two ways, as indicated in Box 5.

ISC is not recommended for patients with a urinary residual volume of less than 30ml. Patients who may be incontinent or wetting with urine between undertaking ISC may need to perform the procedure more frequently. Some patients may require anticholinergic medication, for example, in cases of detrusor instability, to help increase bladder capacity (Winder 2002c). Each patient has to be assessed individually to

<table>
<thead>
<tr>
<th>BOX 4</th>
<th>Medical Devices Agency guidance on safe use of medical devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What are the patient’s clinical and social needs?</td>
<td></td>
</tr>
<tr>
<td>• Which medical device (intermittent catheter) best suits the patient’s needs?</td>
<td></td>
</tr>
<tr>
<td>• Are the risks associated with this device acceptable and minimised?</td>
<td></td>
</tr>
<tr>
<td>• What are the patient’s physical capabilities, for example, manual dexterity in using the device?</td>
<td></td>
</tr>
<tr>
<td>• What are the patient’s sensory capabilities, for example, hearing and eyesight?</td>
<td></td>
</tr>
<tr>
<td>• Is the patient able to remember and understand how to use the device?</td>
<td></td>
</tr>
<tr>
<td>• What is the patient’s previous experience with the medical device?</td>
<td></td>
</tr>
<tr>
<td>• What are the patient’s expectations?</td>
<td></td>
</tr>
<tr>
<td>• Is the environment in which the device will be used suitable, for example, home or work?</td>
<td></td>
</tr>
<tr>
<td>• What is the patient’s level of responsibility in obtaining, storing and disposal of used catheters?</td>
<td></td>
</tr>
<tr>
<td>• Does the manufacturer provide informal educational material for the patient?</td>
<td></td>
</tr>
<tr>
<td>• Is the product available on prescription? (MDA 2000b)</td>
<td></td>
</tr>
</tbody>
</table>
to the patient’s personal hygiene – hand hygiene, that is ready for immediate use.

that requires rehydration compared to a catheter undertake ISC are poor, for example, a catheter another for work especially if the facilities to intermittent catheter, one for home use and suitable for the patient’s needs or circumstances. Some patients may require two types of intermittent catheter may not be one type of intermittent catheter may not be suitable for the patient’s needs or circumstances. For experience has shown choice. The author tries to issue at least three catheters for patients to try. Experience has shown that one type of intermittent catheter may not be suitable for the patient’s needs or circumstances.

It is helpful where possible to issue different catheters for patients to try to find their preferred choice. The author tries to issue at least three catheters to patients to try. Experience has shown that one type of intermittent catheter may not be suitable for the patient’s needs or circumstances. Some patients may require two types of intermittent catheter, one for home use and another for work especially if the facilities to undertake ISC are poor, for example, a catheter that requires rehydration compared to a catheter that is ready for immediate use.

When teaching ISC, attention should be paid to the patient’s personal hygiene – hand hygiene, cleansing of the genitalia and preparing the catheter for insertion. The importance of good hygiene should be emphasised to the patient to avoid urinary tract infection or trauma (Doherty 1999). Patients should keep their training booklet nearby for step-by-step guidance, until they are fully confident and competent to undertake ISC.

In the early stages of undertaking ISC, patients should keep a daily fluid intake and output diary to enable the practitioner to assess if ISC is appropriate. Patients need to understand the risks associated with restricting their fluid intake to cope with their problem, for example, stagnant urine may result in a urinary tract infection. If possible patients should try to pass urine before ISC. If the nurse is trained to use a portable bladder scanner, a post-voiding bladder scan can show the patient his or her post-voiding residual of urine. Likewise, after the patient has drained the bladder by ISC, a follow up scan will indicate if the bladder has been totally emptied (Addison 2000b, 2000c). This helps to give patients confidence and they should be praised for their achievements.

The procedure

The procedure for males is easier than for females, though good light is needed and a mirror is useful. Men with a retracting penis should gently grasp the shaft of the penis just behind the glans and gently pull the penis forward during insertion. If they have had a stroke with partial or total loss of an arm, they could use an aid to hold the penis (Figure 6). If the penis is not pulled forward, the catheter may push the retracting penis back into the pelvic cavity, which may cause discomfort and difficulty inserting the catheter safely into the bladder.

Female patients may have to try different positions while inserting the catheter to find which is best suited for them and most comfortable. Again, a good light source and mirror are useful in identifying the urethral orifice (Bennett 2002). For women with disabilities there are a variety of aids available, for example, the labia separator (Figure 7).

In the initial stages of undertaking ISC, patients may find it a little uncomfortable, but this is usually due to apprehension and anxiety (Barton 2000, Simpson 2002, Robinson 2006a). Occasionally, a slight rotation assists insertion into the bladder. Once urine has stopped draining, withdraw the catheter slightly so that further drainage of residual urine can take place. Once drainage has ceased, the catheter should be removed slowly. The used catheter should then be disposed (unless reusable) according to local policy. Post-ISC cleansing of the genitalia is advisable to remove any excess lubrication.
Post-training follow up

Depending on local policy, follow-up visits should be undertaken at various intervals, for example, two weeks, four weeks, three, six and 12 months to reassess the patient’s need for ISC.

In some cases the procedure may only need to be undertaken in the short term, for example, in pre and post-operative patients (Hatch 2005). The author recommends obtaining a sample of urine and testing it using reagent strips after the patient has been performing ISC for two weeks. If an infection is suspected a mid-stream urine or catheter sample should be sent for culture and sensitivity. The patient should then obtain and send a sample of urine at three months and every six months after commencing ISC. Patients are advised that if they suspect they have a urine infection, they should send a sample as required.

Periodic checks should be undertaken to check the patient is still performing ISC correctly. A contact telephone number should also be given to patients so that they can obtain help and advice should any problems arise. Further help and advice are available from a number of sources, for example, continence advisers and companies producing intermittent catheters. Patients should contact their local continence advisory service or the person who taught them the procedure. In addition the manufacturers of catheters for intermittent use all have customer helplines.

Stopping intermittent self-catheterisation

In time, because of deteriorating health, mobility and dexterity, patients may not be able to undertake ISC. To avoid having an indwelling catheter inserted, it is possible that another person can be trained to perform the procedure, for example, a family member or carer. If no one is willing or able to undertake the procedure, or the

References


Mangnall J (2006) Intermittent
Learning Zone: Continence Focus

Patient will not allow another person to perform ISC, the most likely alternative is that the patient will require an indwelling urethral or suprapubic catheter. This may be deemed a backward step and less desirable since indwelling catheters are associated with a number of potential problems (Lowthian 1998, Robinson 2004).

In some situations, the procedure may have to be stopped because of poor patient concordance. This might be due to patients not accepting changes to their lifestyle or finding ISC difficult to undertake. Ideally, these issues should have been recognised during the assessment and early teaching stages. ISC may also have to be stopped because of urethral or bladder neck obstruction, urethral spasm and bleeding (Winder 2002a). These patients may require insertion of an indwelling catheter and should be referred to a urologist for urgent cystoscopy.

Conclusion

ISC is becoming a more widely used procedure to drain the bladder and where possible should be taught to patients in preference to the insertion of an indwelling catheter. If the patient cannot perform ISC and an alternative person is willing and the patient agrees, the nominated person can be taught to undertake the procedure. In some cases, undertaking ISC can help to achieve continence.

It is important that the procedure, teaching and training given to patients is undertaken at the patient’s own learning pace and is not rushed. Careful consideration should be given to selecting the appropriate intermittent catheter for that patient’s needs which may require the patient to try out different catheters. Patients should also be issued with teaching aids, for example, manufacturers’ booklets, and a contact telephone number should any problems occur. It is important to have good policies and accurate documentation which reflect all aspects of teaching, training and follow-up within the multidisciplinary team NS

References

catheterisation: using a reflective framework. Nursing Standard. 20, 43, 57-64.