Medicare Training

Manual for Urinary Catheter Care

During this module you will be asked some questions to simply provoke thought and test your current knowledge please have a note pad or supervision workbook to hand to make notes. Your performance will only be measured on the answers you select when completing the knowledge test at the end of the module.

Contents

Introduction

Instruments designed to drain the bladder have been used in medical practice for centuries. Since the development of the Foley type catheter in the 1930s, a variety of urinary catheters have been available which can be used in an array of different health care situations. The use of urinary catheters in health and social care has now become common place.

While they can perform several other functions, urinary catheters mainly provide a quick and simple method of draining the bladder of urine. However, having a catheter inserted is not without risk and potential complications. Therefore, it's imperative that health workers who care for clients with catheters are competent.

By using evidence-based practice and research, the aim of this manual is to equip care providers with the up-to-date knowledge and skills necessary to care for clients with urinary catheters.

Learning outcomes

- To describe what an indwelling urinary catheter is.
- To outline the types of urinary catheterization.
- The reasons for using a urinary catheter in health care.
- To explain the anatomy of the urinary system.
- To discuss the importance of the control of infection.
- To describe the principles of good practice in catheter care.

Inclusion:

- Equipment and Urinary products.
- Fitting and changing the catheter bag.
- Correctly positioning, securing and supporting the catheter.
- Detection of potential complications.
- Accurate record keeping and documentation.

Important Note: Although every care has been taken in the research and creation of this training manual e-cert Healthcare Training cannot be held responsible for the actions and omissions of students who have completed this course.

We believe that this manual reflects current law and good practice, but knowledge and procedures continue to progress, and you are advised to keep your knowledge and skills up to date.

Completion of this manual does not assure competency, this must be assessed and determined by management or a qualified person.

Chapter One

Introduction to Urinary Catheters

Catheters have been used as a medicinal device for centuries. During the time of Hippocrates, the term 'catheter' was used by the Greeks to describe `an instrument to drain fluid from a body cavity'. The actual word catheter comes from the Greek word for `let down' or `send away'. This is particularly meaningful for any person who is suffering from a full bladder and is unable to pass urine.

Urinary catheters are diagnostic and treatment appliances used in various areas of health and social care. There are a variety of urinary catheters available for use in different situations.

A study carried out between 2012 and 2016 discovered that 1 in 5 hospital patients and 1 in 14 individuals within community care were catheterized. There was a higher proportion of catheterization in males*

A urinary catheter also known as an indwelling catheter is a specially designed thin hollow tube, developed to be inserted into the urinary bladder, its main purpose is to drain urine. There are other reasons why a client may be given a urinary catheter and these will be discussed further on in the manual. Once the catheter is correctly inserted within the bladder it is secured in place by inflating a small balloon located at the tip of the catheter. The catheter is then attached to a urinary catheter drainage bag which collects the urine. Known as a closed system, this drainage bag can then be emptied of urine on a regular basis.

Using an aseptic technique, the indwelling catheter will allow for continuous urinary drainage. While in place the client will not need to pass urine in the usual way as the catheter channels the urine into the drainage bag. If required, this will enable the urine drainage to be observed, measured and accurately recorded by the care staff.

Urinary Catheter Type:

Intermittent: This is where the catheter is temporarily inserted into the bladder and removed once the bladder is empty. It is used for people with a poorly functioning bladder who have difficulties in satisfactorily emptying or passing urine.

Indwelling: This is where the catheter remains in place for many days or weeks.
There are two main types of an indwelling catheter.

A) Urethral Catheter.
B) Supra-pubic.

*** bmjopen.bmj.com Variation in the prevalence of urinary catheters: A profile of national Health service patients in England.**

Modern day catheters are made from a variety of different materials such as silicone, plastic, latex and Teflon and are produced in a range of sizes.

This variety in their manufacture ensures that the catheter is:

A catheter needs to be flexible, especially during its insertion into the client's bladder and comfortable for the client while it is in place. The type of catheter must match its required function e.g. duration of insertion or other medical purposes.

It also should be compatible with the client e.g. size and length of the catheter and any known allergies to the material used in the catheter. Importantly the use of catheters must be cost effective within strict health care budgets.

Catheters History

The use of catheters particularly in draining a person's painful distended bladder is a procedure that dates back to ancient times.

As far back as 30 BC, the ancient Syrians made catheters from wooden reeds and the Chinese created catheters from onion stems. The Egyptians preferred to fashion catheters from gold strips and palm leaves.

The Greeks used bronze as the metal of choice to make their catheters out of. In the Victorian era, silver catheters were popular as the metal silver was seen as having curative and antiseptic properties.

Development of Catheters

Two-way catheter

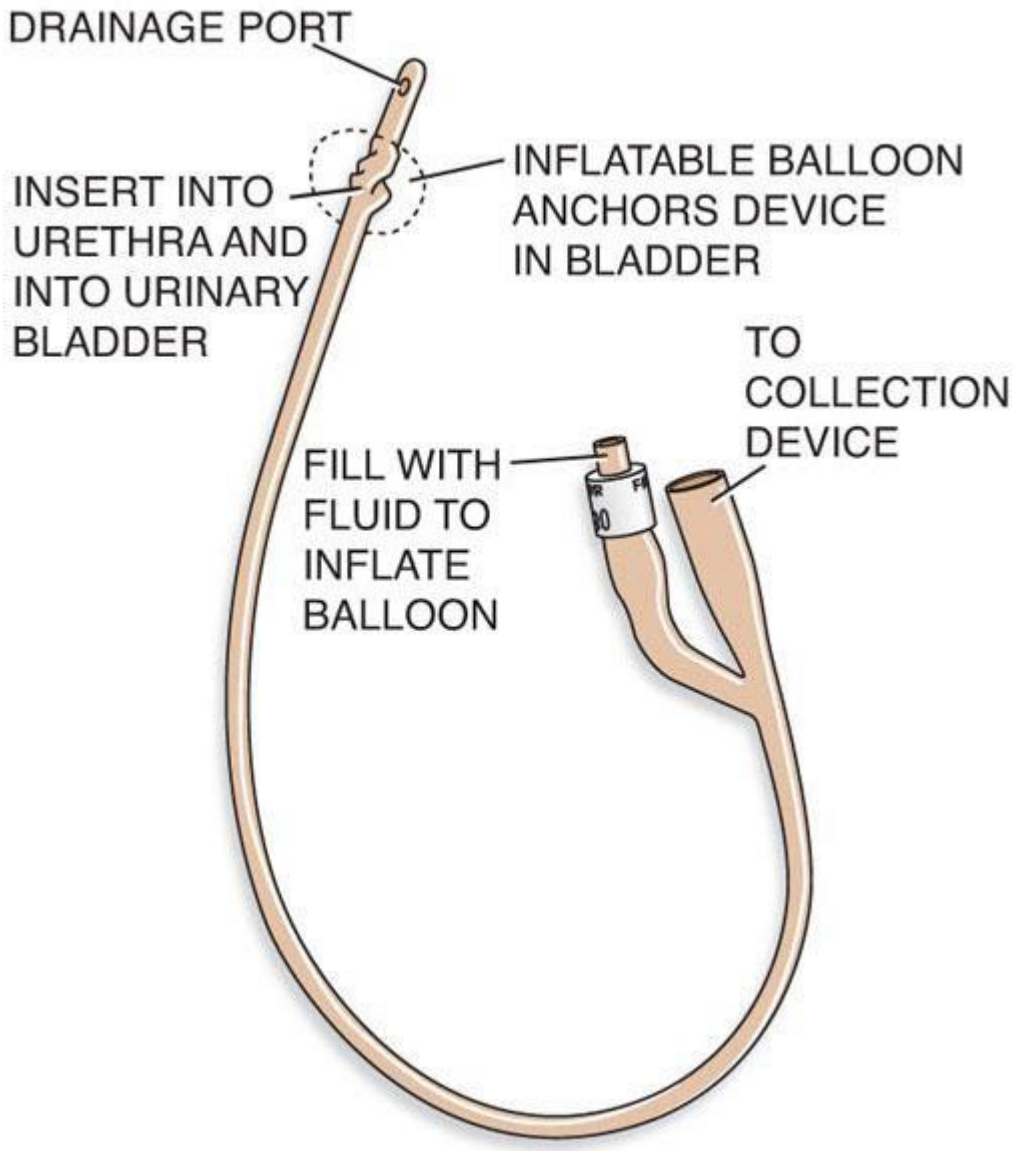
The design of catheters remained virtually unchanged until 1853, when the French surgeon Jean Francois Reybard developed the first indwelling **two-way catheter.**

This was designed with an integral balloon which could be inflated to secure it within the bladder. Now for the first-time urinary catheters had two distinct channels, one for the flow of urine and another to allow the holding balloon to be inflated.

In the 1930s Fredrick Foley perfected the technique for the manufacture of a one-piece catheter and inflating balloon. His design was made from a new flexible latex material. Based on two channels, the Foley type catheter remains the standard design in urinary catheters currently in use today.

In 1971 the intermittent catheter was developed in America by Dr Jack Lapides. As a urologist specializing in urinary medicine, his design not only provided a new type of catheter but essentially revolutionized catheter care.

Structure of a standard Foley urinary catheter



Introduction to Catheterization

The process of insertion of the catheter is a technique called catheterization. It is a very common procedure undertaken hundreds of times every day in health and social care establishments. It's carried out for a number of reasons and can be either temporary or a permanent solution to a number of health conditions. It is normally performed with the client's consent but can be undertaken in cases when it is in the best interests of the client, e.g in emergency situations.

Catheterization is regarded as one of civilizations first therapeutic interventions.

During Catheterization the catheter can be inserted in two main routes:

1). Through the natural channel of the urethra of the person into the bladder.

2). Via a small surgical incision made in the abdomen, just below the umbilicus or belly button. This method is known as a supra-pubic Catheterization as the client has a supra-pubic catheter instead of a urethral catheter.

Interesting Point:

It is a delicate and invasive clinical procedure which must be undertaken only by a trained, skilled and competent health professional (NICE 2012).

Chapter Two

Types of Urinary Catheter

There are many types of urinary catheter and the overall selection of a catheter depends on the client's assessment, the reason for Catheterization and the length of time the catheter is likely to be required.

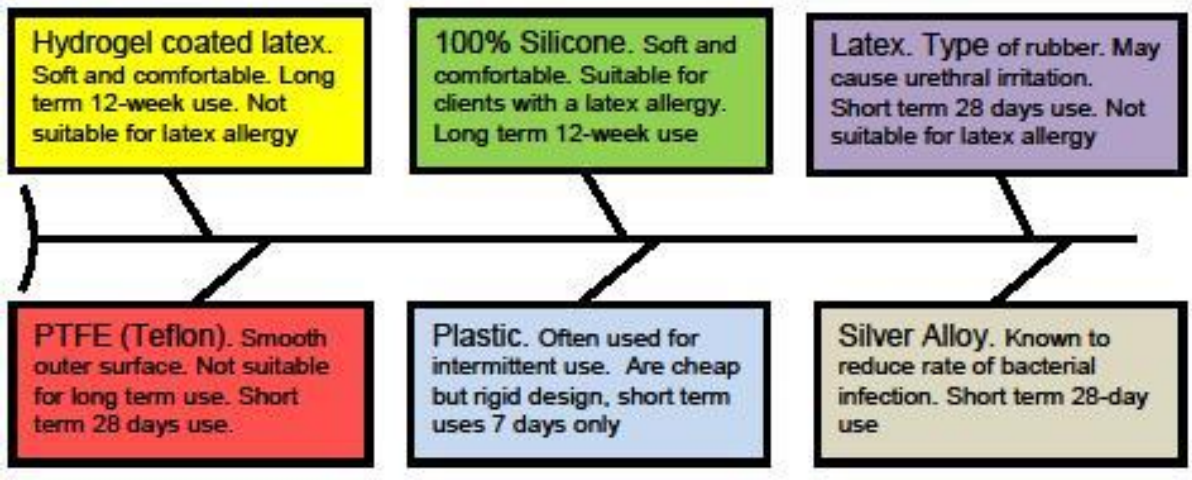
While the design of the urinary catheter has remained virtually unchanged since its modern day development by Foley in the 1930s, catheters are increasingly made from various materials and covered with different coatings.

Although it may not be the decision of the care provider which catheter a client will need to be prescribed, it is cruical for them to have an understanding of which of the various types of catheters are most suitable for the client.

Having this knowledage is vital as some types of catheters are made from latex, this is particularly important if it has been identified that a client has an allergy to latex.

If it is suspected that a client has a possible allergy to latex, then a latex type catheter should not be used unless it is proved otherwise. This should be reported to the GP/manager, documented in the client's care/catheter records.

It is well understood that once a catheter has been inserted in the bladder, bacteria will quickly start to settle on the catheter. This will result in the increased risk of urinary infection and the build up of bio film around the catheter known as encrustation. This encrustation will eventually lead to the catheter needing to be replaced. The material and coating of the catheter therefore determines how long they can remain in the bladder, as these will assist in



both the reduction of bacteria growth and development of encrustation.

Types of materials and coating used in urinary catheters

In addition to these, some types of catheters are coated with antibiotic solution which helps to reduce the risk of infection. This type of catheter is particularly used for hospitalised clients, normally for less than a week.

Currently there are two main types of urinary catheters used in health and social care and the usual time spans of use are:

- Long term use (Up to 12 weeks).
- Short term use (Up to 28 days).

Sizes and lengths of catheter

To prevent the risk of urethral irritation and trauma the size or diameter of the catheter must be carefully assessed.

Catheter sizes are measured by what is known as the **Charriere gauge** (Ch).

Always select the type of catheter most appropriate for the client and always select the smallest gauge catheter that will be consistent with good urinary drainage.

For supra-pubic catheters, since the potential damage to the urethra is not a consideration, a larger size catheter e.g. 16 Ch can be used.

However, if there are any clots or debris in the urinary drainage, the size of the catheter can be increased to an 18 Ch or 20 Ch.

Colour code	Size in FR / CH
LIGHT BLUE	8
BLACK	10
WHITE	12
GREEN	14
ORANGE	16

Colour code	Size in FR / CH
RED	18
YELLOW	20
VIOLET	22
BLUE	24

Any greater than this size requires a doctor's decision following an assessment and further review of the client's condition.

In accordance with an international colour coded system for easy recognition sizes of the catheter can be seen at the inflation channel on each catheter.

Lengths of Catheter

In the adult client, urinary catheters are produced in the following lengths:

The Standard-Length Catheter

The standard-length catheter may be referred to as a **male c**atheter. However, it can be used for both male and females. This length of catheter is more practical for some women than short catheters (23-26 cm) as they provide easier access to the catheter and drainage bag.

The standard-length catheter can also be used for supra-pubic Catheterizations.

Standard length 41 - 45 cm

The shorter or **female** length of catheter is only 23 - 25 cm as it can be more comfortable and discreet for some women. However, a female catheter can be too short if a woman is severely obese. A standard size catheter would be suitable in this case.

To avoid potential complications, tap water and saline solution should not be used to inflate the balloon. Instead it must be sterile water (Pellowe 2009)

Short or female length 23 – 25cm

Balloon sizes of urinary catheter

To ensure the catheter is secure within the bladder, unless indicated by the client's medical team the balloon must be inflated correctly. To prevent under or over inflation the balloon must be inflated with 10mls of sterile water **only.**

A short length catheter must never be used for a male; inflation of the balloon within the urethra could result in severe trauma to the urethra. (National Patient Safety Agency (NPSA 2009).

Chapter Three

Significance for a Urinary Catheter

Although catheters are commonly used in health care, the reasons why they are neccesary for clients are varied. In ensuring good clinical practice, there must always be clear evidence for why a urinary catheter is needed in the first place. Prior to its insertion, it is important to first consider any potential alternatives to the catheter.

Ideally the catheter should not stay in place any longer than is absolutely necessary as they can cause significant harm and distress to some clients. Importantly it's vital for care providers to recognise that the prospect of having a catheter inserted may be viewed with apprehension and dread by some clients.

Therefore it's essential that a health professional explains fully to clients what is being carried out while caring for their catheter.

Care staff must always recognize the importance of making the client the center of care. Therefore, the main goals of providing person centered care for a person with a catheter are to:

1. Ensure that a comprehensive health assessment of the risks, alternatives and benefits of a client having a catheter is undertaken prior to its insertion.
2. Inform the client of any interventions you intend to carry out and gain consent.
3. Offer reassurance as necessary and allow client to verbalize concerns or queries.
4. To ensure the urinary catheter remains patent and is draining freely of urine when in place.
5. To monitor urine output frequently and document appropriately, i.e. Fluid Balance chart.
6. Ensure good hygiene practices are maintained to prevent the risk of CAUTI (catheter associated urinary tract infection).
7. Wherever possible remove the catheter as soon as practicable.
8. Maintain diligence, early detection and prompt reporting of any potential problems associated with having a catheter in place.
9. Produce accurate record keeping and ensure a detailed catheter history is maintained.

It is important to remember that when they are used in the best interests of the person and subsequently well managed, urinary catheters may bring obvious benefits to the care of an individual when there are no suitable alternatives.

A catheter should be the last resort when other options have failed or proved to be inadequate.

The reasons why a catheter is chosen is usually determined by the duration of the catheter usage.

The duration can be placed into three distinct time periods.

- Short term Up to 28 days.
- Medium – term Up to 6 weeks.
- Long term Up to 12 weeks.

In the **short** to **medium term** a catheter can be used in the following certain conditions.

Relief of retention of urine in a person unable to pass urine in the normal way because of an obstruction of the urethra such as a bladder stone or enlarged prostate.
To drain the bladder prior to an operation or procedure, e.g. before a caesarean birth. To monitor a person's urine output following an operation, serious illness or injury.
To instil drugs to the bladder such as chemotherapy or perform specialist tests.
To clear the bladder of any blood clots and debris following trauma or injury to the bladder.
Irrigation fluids can be passed up the catheter and into the bladder.
For a person who is incontinent of urine. This is particularly important if the person has wounds or pressure ulcers, as contact with urine will make the wounds worse through direct contamination. This promotes wound healing by keeping them continent and dry.

Long term Catheterization. In some cases there is a clinical need for the person to have a long term indwelling catheter inserted. The reasons include the following:

- To treat uncontrolled urinary incontinence - This **should only be used when all other types of treatment have failed.**
- To treat possible obstruction in the urinary tract - **In men this can include an enlarged prostate gland.**
- To drain urine due to poor nervous impulse control. (E.g. neuropathic bladder) **- caused by neurological conditions such as stroke, MS, Parkinson's disease.**
- To provide comfort in appropriate situations, such as frailty or illness - **this approach can be used with terminally ill clients.**

The reasons for Catheterization can be identified under the mnemonic

TIME IS NOW

T – **T**est: Uro-dynamic investigations / procedures.
I – **I**nstallation and irrigation e.g. medication and fluids.
M – **M**easurements and monitoring of urine output.
E – **E**nd of Life: to promote comfort.
I – **I**ntractable uncontrolled urinary incontinence.
S – **S**urgery: Pre & Post-operative.
N – **N**ervous control: e.g. neuropathic bladder.
O – **O**bstruction of the bladder outlet.
W – **W**ound and pressure ulcers: e.g. prevention of contamination / promoting Healing.

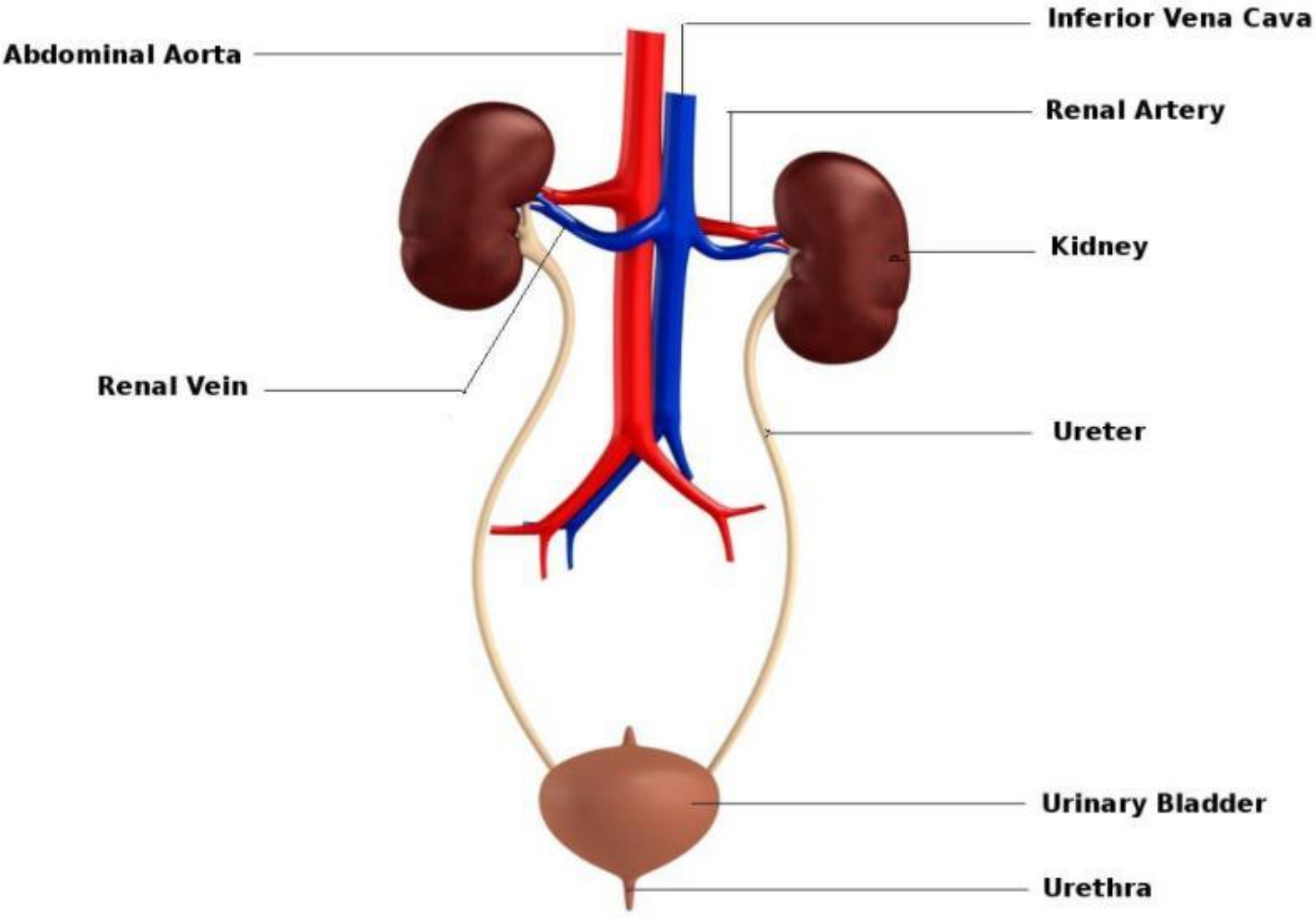
Chapter Four

The Anatomy and Function of the Urinary System

For the health professional performing the urinary Catheterization it's vital to have an understanding of the anatomy and basic function of the urinary system. The body takes nutrients from food and converts them to energy. After the body has taken the food that it needs, waste products are left behind in the bowel and in the blood.

The urinary system works with the lungs, skin, kidneys and intestines to maintain the balance of chemicals and water in the body.

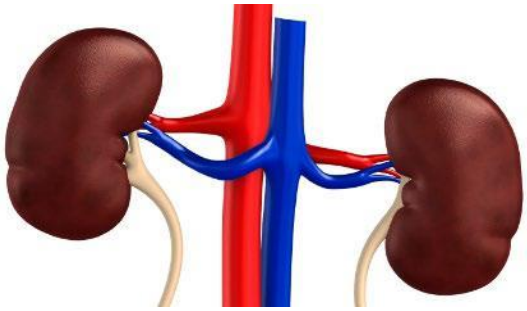
The urinary system importantly removes a type of waste called urea from the blood.
Urea is produced when protein, found in meat products, is broken down in the body.
Urea is carried in the bloodstream to the kidneys, where it is removed.



The parts of the urinary system

Two kidneys

The kidneys do the major work of the urinary system as the other parts of the urinary system are primarily passageways and storage areas for urine. The two kidneys are a pair of purplish-brown organs located below the ribs toward the middle of the back.



A typical kidney in an adult is 10 cm long, 5-7 cm wide and 3 cm thick. Kidneys are bean shaped and are about the size of a bar of soap. The body can function with only one kidney.

Each kidney contains many tiny tubules called nephrons that produce urine, once produced the urine is then emptied into a cavity drained by the ureter.

Because the kidney removes waste products from the body it has a very good blood supply. The renal arteries deliver 20 to 25% of the resting cardiac output. In adults that is around 1200ml of blood per minute.

In a healthy person, the kidney produces on average **30ml** of urine every hour. The amount of urine produced by a person can be affected by a number of factors such as fluid intake, diet, blood pressure, body temperature, medications such as diuretics and general health or illness.

The overall function of the kidneys is to:

- Remove liquid waste from the blood in the form of urine.
- Keep a stable balance of salts and other substances in the blood.
- Produce erythropoietin, a hormone that aids the formation of red blood cells.

The Ureters

From the kidneys, urine travels down two thin tubes, called ureters, to the urinary bladder. The ureters are about 8 to 10 inches long (25 to 30 centimetres). They are thick-walled, narrow tubes that vary in diameter from 1mm to 10mm. The ureters are made up of smooth muscle fibres called the **muscularis**. This layer contracts in waves called **peristalsis**. The waves of contraction push the urine down the ureters.

Every 10 to 15 seconds, small amounts of urine are emptied into the bladder from the ureters.

Normal urine contains 95% water and 5% of material such as urea, creatinine and other waste products. In a healthy person, urine is virtually free from proteins as these are reabsorbed back into the blood.

The Urinary Bladder

The Bladder - is a hollow balloon shaped organ located in the lower abdomen. In males, it is directly anterior to the rectum; in females it is anterior to the vagina. It is held in place by ligaments of the peritoneum that are attached to other organs and the pelvic bones.

The bladder has three major functions in relation to urine drainage. It:

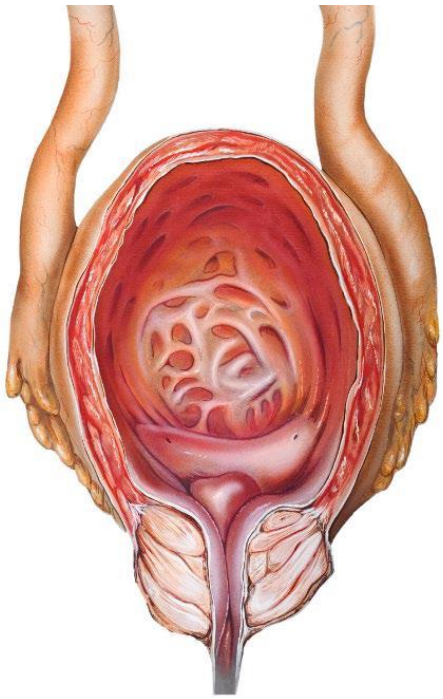
- Fills with urine.
- Stores the urine.
- Empties the urine.

The bladder stores urine until it is ready to be excreted. A normal, healthy bladder can hold up to 700-800ml comfortably for 2 to 5 hours. The urinary bladder is smaller in females, because the uterus occupies the space just in front of the bladder.

In the floor of the bladder there is a small triangular area called the trigone. Contained in the trigone are the two urethral openings.

This layer has a smooth appearance and stops the bladder closing off the urethral openings when it has been emptied.

Surrounding the trigone is the detrusor muscle, this layer contains stretch receptors or nerve receptors which react when the bladder is filling with urine.



When the bladder is full these nerve receptors sense this distension and tell the brain that it’s time to empty the bladder.

The Urethra

The Urethra is a small tube leading from the bladder to the external urethral orifice. This tube is the end point of the urinary system and the passageway for discharging urine from the body.

In females the urethra has a length of 4cm (1.5 inch). Because the urethra is shorter in females than males, females are more susceptible to urinary tract infections.

In males the length of the urethra is 15-20cm (6-8 inch). The urethra lies within the posterior area of the penis (the underside). The male urethra is used to eliminate urine as well as semen during ejaculation.

The Process of Urination

When the bladder is full of urine, nerves in the bladder send signals that it needs to be emptied. The sensation to urinate becomes stronger as the bladder reaches its limit. At that point, nerves from the bladder send a message to the brain that the bladder is full, and your urge to empty your bladder intensifies.

When you urinate, the brain signals the bladder muscles to tighten while simultaneously signaling the sphincter muscles to relax.

Chapter Five

Controlling Infection in Catheter Care

The National Institute for Health and Care Excellence has estimated that healthcare-associated infection costs the NHS over £1 billion a year. UTI's account for 17.2% of all HCAI's of which, between 43% and 56% are associated with an indwelling urinary (NICE) (2012).

Catheter Associated Urinary Tract Infections

Known as catheter associated urinary tract infections or (**CAUTIs**) these infections can be difficult to treat, be very painful, delay recovery, and be life threatening.

Those groups of people more at risk of CAUTIs include the elderly or young, the frail, elderly, acutely ill or those people who may be suffering from low immunity.

These infections occur because the insertion of the catheter tube can damage the delicate urethra as well as providing a pathway for bacteria and other different micro-organisms to gain entry into the person.

In this situation bacteria can rapidly bypass the body's own immunity system by tracking up both inside and outside of the catheter into the bladder. Once inside the bladder, the infection can quickly spread throughout the body.

Bacteria can also enter the body via the urinary bag itself and at the different connection points where the catheter is joined to the urinary catheter bag.

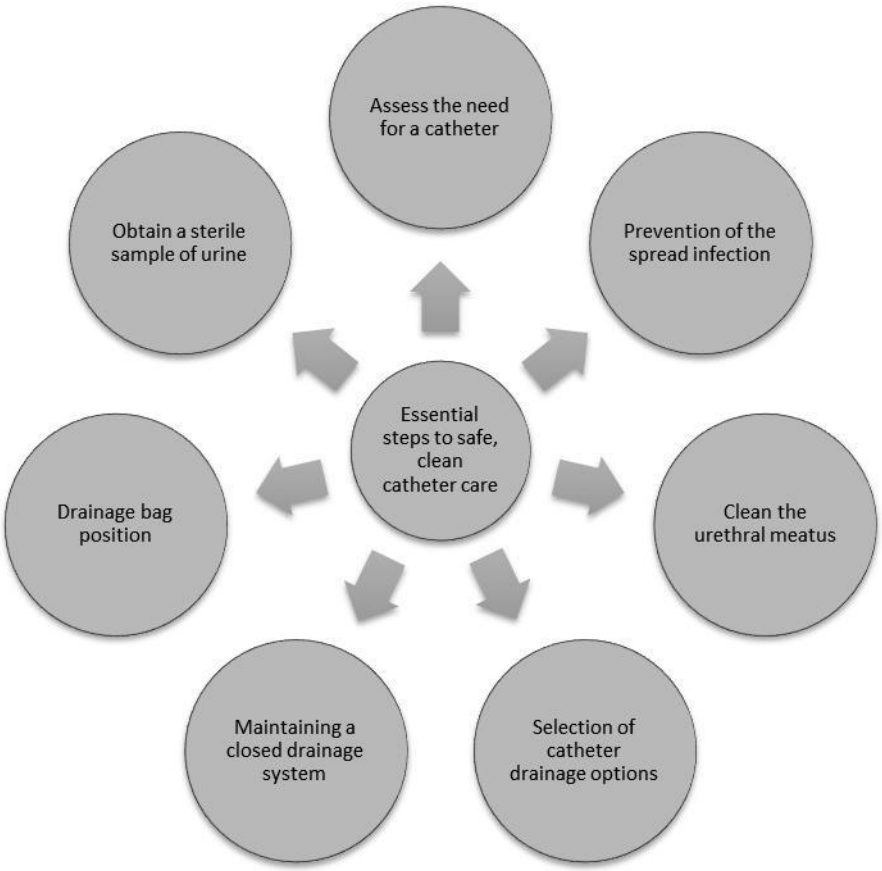
The risk of infection greatly increases during the changing and fitting of the drainage bag as the sterile closed drainage system is broken.

Catheter Duration

It is recognized that the longer a catheter is in place the higher the risk of developing a severe type of urinary infection known as bacteriuria.

Pratt et al (2009) suggests that over 50% of all clients catheterized for longer than 7-10 days will develop bacteriuria.

The DoH (2006) produced the Essential steps to safe, clean urinary catheter care:



Catheter care: Standard principles of infection control and prevention

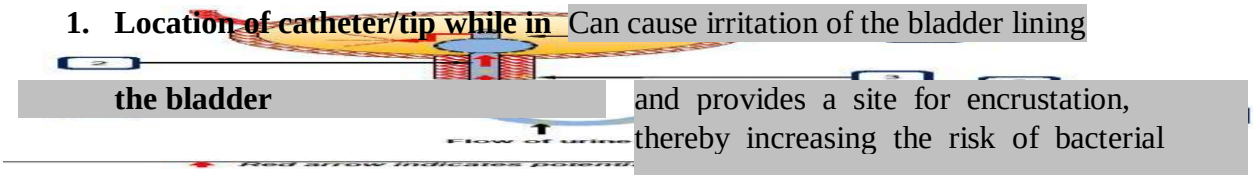
To minimize the risk of CAUTIs it is vital to ensure that the highest standards of hygiene, prevention of cross infection and catheter care are maintained at all times.

Closed urinary drainage system

One of the most important ways of reducing the risk of CAUTIs is to maintain a closed urinary drainage system.
A closed drainage system involves the catheter itself, the attached drainage tube and the urinary collection bag. The design of the modern urinary drainage system allows emptying via a small valve or tap located at the base of the bag.

This means that the whole system can remain intact for longer periods of time. Staff therefore can ensure that access and breaks in the system be kept to the absolute minimum.

Potential routes of infection in catheter associated urinary tract infections.



1.	**Location of catheter/tip while in the bladder**	Can cause irritation of the bladder lining and provides a site for encrustation, thereby increasing the risk of bacterial growth.
2.	**Backflow of urine along the catheter or drainage system**	Prevents free flow of urine down the drainage system. Increases risk of bacteria remaining in the drainage system and bladder.
3.	**Urethra opening**	Provides a portal of entry for bacteria into the body
4.	**Urine sampling site**	Provides a portal of entry for bacteria into the body when obtaining a urine sample.
5.	**Catheter/drainage tube collection portal/junction**	Provides a portal of entry for bacteria into the body when the closed drainage system is broken, e.g. during changing of leg or night bags
6.	**Potential damage of the drainage bag allows bacteria to enter**	Provides a portal of entry for bacteria if the drainage or urine bag is broken.
7.	**Stagnation of urine while in the drainage bag**	Allows for the development of bacteria within the drainage bag. Drainage bags must therefore be regularly emptied to prevent this.
8.	**Drainage bag emptying valve or tap**	Provides a portal of entry for bacteria into the body

Maintaining a closed system has been shown to reduce the risk of infection by almost 40% in clients with a urinary catheter.

Interesting Point

It is good practice that when considering the need for a catheter, the client's risk of CAUTI should be assessed.

It is crucial therefore that all care staff understand the importance of correctly changing both a leg and bed drainage bags.

Clinical Practice	Yes	No
Leg bags once attached to the catheter should remain undistributed unless they get dirty or damaged for at least 5-7 days undisturbed.	✓	
Leg bags can be reused after they have been removed.		✓
If the client has a urinary infection, blood or debris in the urinary bag it may need to be replaced more regularly.	✓	
When changing the leg bags, the tip of tube which gets pushed into the catheter must not be touched.	✓	
Urine can be left in the collection drainage bags for long periods.		✓
Stagnation of urine in drainage bags can increase risk of infection.	✓	
The catheter tubing should also be observed for any kinks, blockages, if it has become disconnected or has fallen out.	✓	
Catheters that are found to be blocked, leaking or bypassing should be quickly reported	✓	

Interesting Point

To reduce the risk of CAUTI's all urine samples must be obtained from a sampling port using an aseptic technique. Prior to obtaining a catheter sample of urine, the sampling port must be cleaned with an isopropyl alcohol 70% impregnated swab and allowed to dry thoroughly.

Glossary of Terms

Bacteriuria: The presence of bacteria in the urine.
Bacteraemia: The presence of bacteria in the bloodstream.
Haematuria: The presence of blood in the urine.

Hand hygiene for Standard Infection Control precautions

Research has clearly identified that good hand hygiene is crucial in minimizing the risk of CAUTI's. Pratt et al in 2007 produced national guidelines establishing essential infection control precautions and practices in catheter care.

These guidelines reinforced the evidence that health professionals reduce infection risks by washing their hands and wearing gloves and aprons before and after contact with a urinary catheter and drainage system.

Healthcare workers must decontaminate their hands and wear a new pair of clean, non-sterile gloves before handling client's catheter, and must decontaminate their hands after removing gloves.

The most important preventive measure in reducing the risk of cross contamination in caring for urinary catheters is to ensure that health workers correctly wash their hands.

NICE (2012) recommended that hands must be washed in all of the following circumstances:

- Immediately before every episode of direct patient contact or care, including aseptic procedures.
- Immediately after every episode of direct patient contact or care.
- Immediately after any exposure to body fluids.
- Immediately after any other activity or contact with a client's surroundings that could potentially result in hands becoming contaminated.
- Immediately after removal of gloves.

A clean pair of gloves and apron should be worn for emptying the drainage bag and a new pair should be used for each client.

using liquid soap and running water and must follow a six step process. Hands must be dried using paper towels.

This hand washing technique has been shown to remove the majority of transient micro-organisms and should be undertaken before and after Catheterization, emptying, disconnecting or changing the drainage system.

Alcohol gel can be used as an alternative to liquid soap and water on visibly clean hands, but not if the hands are potentially contaminated with bodily fluids.

Plastic aprons and sterile latex free gloves should be worn during catheter insertion to ensure personal protection and infection prevention and control.

Personal protective equipment (PPE) is worn to prevent the transmission of micro-organisms to the patient and prevent the risk of contamination of the healthcare practitioner's clothing and skin.

Clinical waste must also be correctly disposed of in line with local infection control policy and procedure. Yellow clinical waste bags should always be used for the disposal of urinary products; infected waste should be contained in clearly visible red waste bags.

Maintaining Hygiene for Catheter Care

Once the urinary catheter has been inserted, care staff must ensure that the highest possible of standards of hygiene are maintained. It's also crucial that care providers are able to distinguish between what is normal and abnormal in the functioning of a catheter. Being aware of these differences will enable the care provider to know when to seek prompt medical help.

Individuals should be encouraged to bath or shower daily (Pratt et al, 2007), and to wash their hands thoroughly with soap and water before and after handling their catheter and / or drainage system.

Making sure that the catheter is not unduly pulled, the top several centimeters of the catheter should be gently cleaned with soap and water. This cleaning will help with the buildup of any encrustation that frequently occurs around the catheter entrance site.
Male clients should wash carefully under the foreskin with soap and water. The foreskin must then be replaced back into its normal position. There is currently no evidence to support the use of antiseptic solutions for cleaning under the foreskin and it may also increase the risk of infection.

Females should be encouraged to wash from `front to back' around their back passage (anus) to reduce the risk of bacteria spreading to the catheter site.

The application of creams, talcum powder or antiseptics should be avoided unless prescribed as they can potentially block around the catheter site and increase the risk of infection.

Indwelling catheters are connected to a closed drainage system which should be maintained as much as possible to reduce the risk of infection (Pratt et al, 2007). Individuals with catheters should be encouraged to drink around 2 liters of mixed fluids per day.

Promoting a high fluid intake will produce a good urinary output which in turn will help flush the catheter and keep it draining freely.

The drinking of cranberry juice (one cup) per day may help to keep the urine clear and reduce the risk of infections. A high fiber diet should be given as this would help to prevent constipation.

Urine drainage bags are to be emptied regularly (usually when two-thirds full) and positioned below the level of the bladder.

Bed bags must always be supported above the floor level on an appropriate stand or hanger. This is to ensure a good flow of urine and prevent the risk of harmful urinary reflux back into the bladder.

Antiseptic solutions should not be added into the bag.

Steps in emptying a drainage bag:

- Explain procedure and gain consent.
- Maintain dignity and privacy at all times.
- Wash and dry hands thoroughly.
- Put on protective gloves.
- Get access to the leg bag.
- Open the tap at the bottom of the bag and drain it into a suitable container.
- Close the tap after the bag has been drained. Wipe it dry with a clean tissue or toilet paper to remove excess urine.
- Secure the leg bag to the client correctly and cover.
- Remove gloves and wash hands.
- Document urine output on fluid balance or in the client's daily care notes.

To avoid kinking and pulling, both the catheter and drainage systems must be properly secured in a comfortable position for the individual.

Any retaining straps that secure the drainage system should be regularly checked for tightness and the skin around them observed for soreness or irritation.

Catheter tubing should be positioned correctly so not to cause friction sores developing on the skin.

When emptying the drainage bags, urine should be drained into a separate clean container. This container should then be emptied and washed clean ready for the next catheter to be emptied.

Contact between the drainage tap and container should be avoided. If suitable, a client's leg bag may also be emptied directly into the toilet.

Catheter Changing

This must always be performed by a competent person, trained in the procedure. It is normally undertaken by a trained nurse.

Hygiene Guide for Suprapubic Catheter Care

Caring for a suprapubic catheter is similar to caring for a urethral catheter although there are some different considerations regarding their cleaning. The catheter insertion site should be washed with sterile water at least twice a day.

Although dry gauze is normally applied to the site 24-48 hours after the initial insertion, a further dressing is not normally required.

Care providers should be vigilant for any soreness, leaking around the site or signs of infection. It is always prudent to have a spare catheter available in case of any emergency.

Potential Urinary Catheter Complications

Early detection of any complications or problems arising from having a urinary catheter should be reported.

The signs and symptoms which are concerning and will need prompt attention are the following:

- The urine has a strong offensive smell or becomes thick and/or cloudy.
- If the catheter falls out or is blocked.
- The client has developed a fever, temperature, sweats or chills.
- There is a change in mental status of the client.
- There is swelling around the catheter site, e.g. signs of irritation, discomfort or infection. The vagina or the tip of the penis may become swollen and sore.
- The catheter stops draining or there is very little urine despite adequate fluid intake. If no urine has drained after three hours.
- There is leakage of large amounts of urine around the catheter.
- Bleeding into or around the catheter.
- The person complains of lower abdominal pain, burning feeling or back pain or becomes agitated.

Complications can include urinary tract and kidney infections, blood infections (septicaemia), urethral injury and skin breakdown.

Some people can develop allergies or sensitivity to the latex used for catheters, these people should be changed to silicone or Teflon catheters.

Chapter Six

Understanding of Catheter Equipment and Accessories

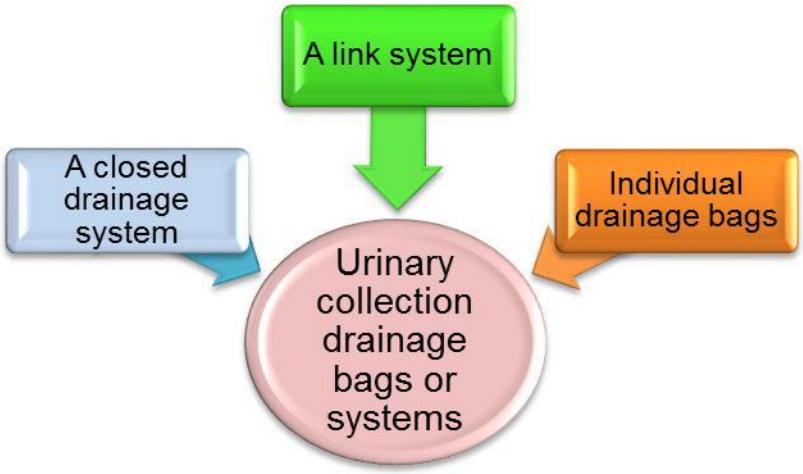
While the different types of urinary catheter, their lengths and the materials they are made from have been previously discussed, it's also important that the health professional caring for a person with a catheter has a good knowledge and understanding of the variety and types of catheter equipment and accessories available and crucially know how to use them.

These particular kinds of equipment / accessories can be placed into the following categories:

> Urinary collection drainage bags.
> Catheter valves.
> Catheter stabilisation and retaining devices.
> Leg bag holders stands or hangers.

Urinary collection drainage bags

There are 3 main types of drainage bags or systems that care workers should be familiar with.



The Closed Drainage System

The characteristics of this type involve the urinary catheter and drainage bag being continuous. It is crucial that they should remain attached to each other, ideally for 5-7 days. The drainage bag most suitable for this type will have an outlet tap so that the bag can be drained of urine when it is two thirds (2/3) full. This system should not be broken unless absolutely necessary because maintaining it as a closed system has been shown to greatly reduce the risk of clients being exposed to CAUTI's.

Link System

This is where a client's bag is connected to the catheter for 5-7days. While during the night time a bed bag also commonly known as a night bag can be linked to the outlet drainage tap of the client's leg bag.

Due to the length of the tubing, the bed bag can then be attached to a catheter holder or stand and placed on the floor next to the bed.

The benefits of this system include:

1. Comfort for the client as it permits better movement while in bed.
2. Good urine flow as the drainage bag is below the level of the bladder.
3. Enables staff to observe the urinary drainage without disturbing the client unnecessarily, especially during the night.

Drainage bags

These come in a wide range of sizes and fluid capacity and they can be worn directly or free standing. When using drainage bags, the client should be assessed to ensure that they receive the appropriate drainage system for their health needs.

Interesting Point

The correct selection should also involve the personal choice of the client, their overall comfort and the manageability of the chosen drainage type.

Leg bags

A leg bag is attached to the end of the catheter and strapped to the leg and is worn under clothing for security and discretion.

A leg bag's capacity is limited due to its overall size and holds approximately 350 to 750mls. Leg bags should not be changed on a daily basis.

There is a small tap at the bottom of the bag to enable drainage. It should remain attached to the catheter for a maximum of 7 days. It is vital that care providers should only disconnect the leg bag from the catheter when required.

Interesting Point

Clients who are less mobile may need the bed bag type of drainage. This would be directly connected to the catheter with the bed bag being supported by a catheter stand or hanger. The bag should then be regularly emptied by using the outlet tap.

How to change a urinary catheter drainage bag?

- Explain procedure and gain consent.
- Maintain dignity and privacy at all times.
- Wash hands and dry hands thoroughly.
- Apply disposable gloves.
- Pinch off the catheter using the thumb and forefinger.

- Remove the drainage bag tubing from the catheter.
- Remove the protective cap from the new bag and immediately insert the new drainage bag into the catheter.
- Replace the protective cap on to the old bag.
- Secure and support the new bag using straps or hanger.
- Measure and record amount of urine on fluid balance chart.
- Dispose of the old drainage bag into yellow clinical waste bag.

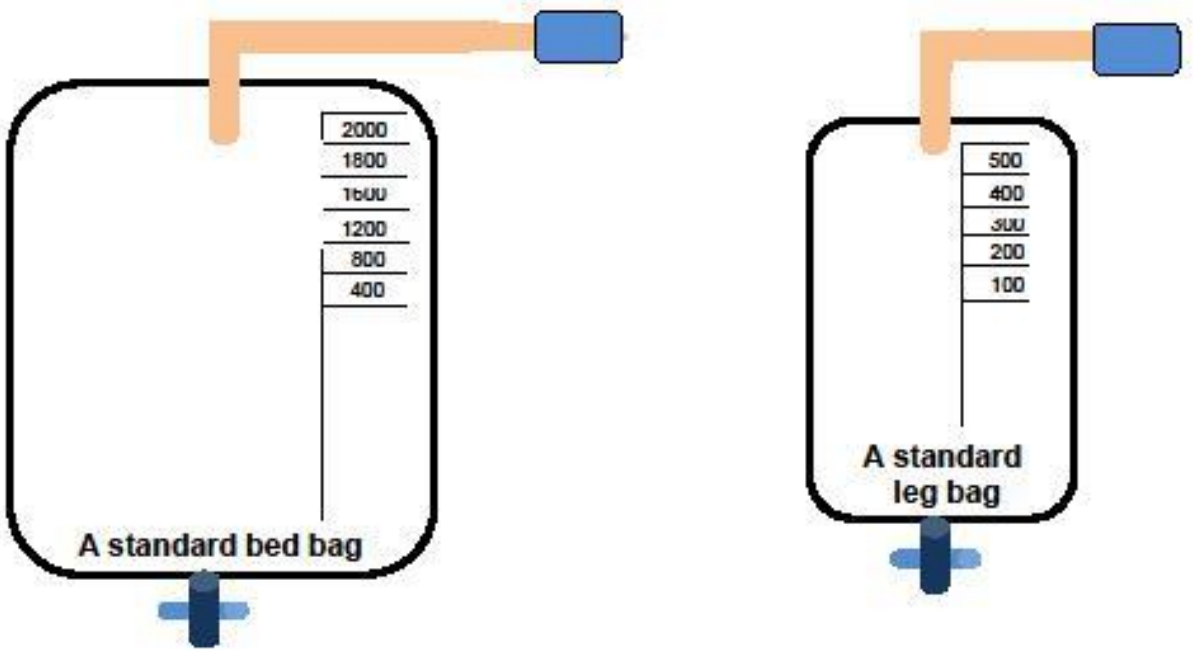
Bed bags

These are normally fitted for the night or when the client has a lot of urine to drain, e.g. following urological surgery. Due to their size bed bags are able to hold over 2 litres of urine.

However, to avoid potential reflux and stagnation of the urine it is good practice to empty them when they are 2/3 full. Bed bags can come in reusable or once only form and should be attached to the end of the leg bag.

The care provider should write on the leg bag the date when the leg bag was changed. This would act as a written record for other care providers as to when the bag was replaced.

To prevent the risk of CAUTI's, the practice of rinsing out a bed bag and then using it again should be avoided.



Disposable drainage bags should only be used ONCE. When leg and bed bags are attached together they make up a closed drainage system.

How to attach a bed bag to a leg drainage bag?

- Explain procedure and gain consent.
- Maintain dignity and privacy at all times.
- Wash and dry hands thoroughly.
- Apply disposable plastic gloves.
- Insert the connector of the 2 litre bag into the tap of the leg bag.
- Ensure that there is an adequate seal.
- Open the tap on the leg bag and drain the urine into the larger bag.
- Attach the night bag to the catheter frame or stand.
- Remove gloves, wash and dry hands thoroughly.

Clients who are mobile may prefer to use a leg bag. To maintain the flow of urine the leg bag must always be positioned below the level of the bladder.

Urinary Collection Drainage Systems

Urine drainage bag capacity varies from 350ml to 750ml in leg bags. Bed bags are designed with a larger capacity of 2 litres so they can be used overnight or following an operation.

Catheter Valves

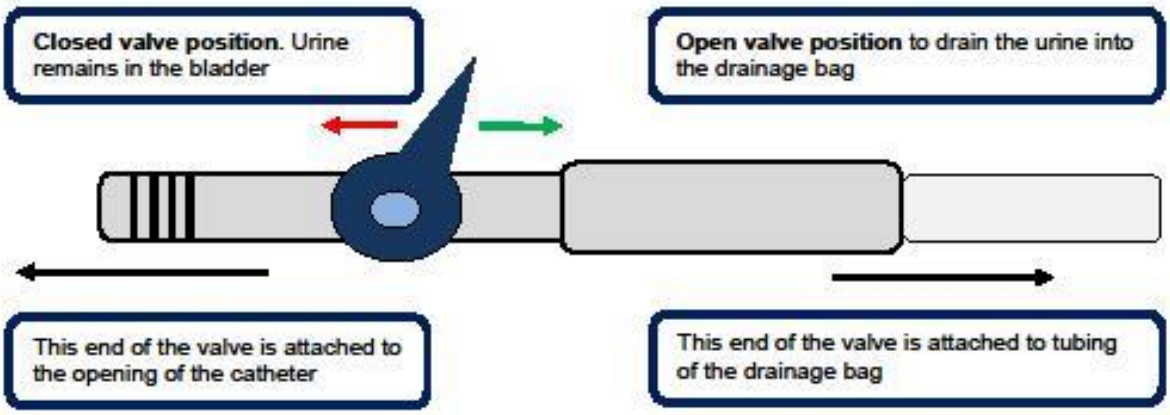
Catheter valves have been used in catheter care for many years. They are designed as a tap which is connected directly to the catheter outlet.

Their function is to allow drainage of urine from the bladder to be controlled normally by the person themselves. These valves help to maintain bladder muscle tone and increase good urine capacity.

Catheter valves are a popular alternative to wearing what can be a cumbersome and sometimes unsightly urine drainage bag. They are easy to use, whilst offering the wearer discretion, comfort and independence in managing their own drainage system.

However, once again the client needs to be assessed for the appropriateness of the device as they will need to have bladder sensation and have the ability to handle and operate the valve.

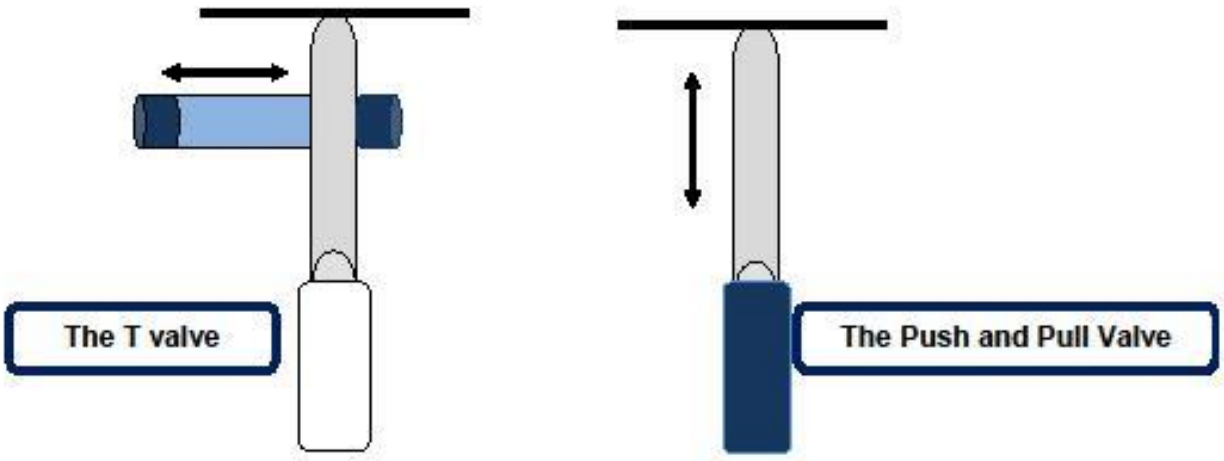
A representation of a catheter valve



Other types of catheter valves and outlet taps

These come in a variety of types which are generally based on a lever design or a push across mechanism.

The type chosen depends on individual preference and the manual dexterity of the client. To assist the visually impaired, the outlet taps have textured surfaces bonded on them



Catheter stabilization and retaining devices

In both men and women, traction and pulling of the catheter while it is in the bladder can increase the risk of infection and potentially cause severe and painful injury.

Although it is accepted that not all catheter movement can be avoided, it may be considered poor practice to leave a catheter hanging loose without some form of support or stabilization.

Therefore, in order to prevent the uncontrolled and potentially hazardous movement of the catheter, securing or stabilizing the catheter is a necessary part of good catheter care.

Securing and supporting the catheter and drainage bags will reduce the risk of pulling and causing injury to the catheter entry site and the bladder.

There are many devices available for this function, but in general there are two main types of devices:

2. Straps.

3. Adhesive devices.

Straps

These are placed around the person's thigh or leg. The catheter is then attached with Velcro tabs or specially designed retaining or locking devices. Straps work best for those who spend much of their time in bed and are not very active.

However, it important to be aware that when securing the straps not to make them fit too tightly around the thigh as this could cause the skin to become sore and because it could restrict the blood flow may well cause the beginning of a pressure ulcer.

Straps should be regularly checked and the position of them changed to prevent this occurring. They should be removed at night.

Care providers should also check the straps as they can slide down the leg and put traction on the catheter. If there is a history of venous or arterial supply problems to the legs, then leg straps must not be used.

Adhesive devices

For more active people, there are specially designed adhesive anchoring or stabilizing devices that are attached to the upper thigh and hold the catheter securely.

These devices have plastic molded places shaped like the end of the catheter and the appendage where the water is inserted. Those parts of the catheter fit right in there.

Another plastic piece snaps over the top and doesn't allow the catheter to slide up or down, and it swivels with movement.

One such type which is commonly used is the latex free Stat lock stabilization device. This is a hypo allergenic, breathable, waterproof adhesive pad fitted with a 360-degree swivel retainer clip which allows the catheter to move with the client.

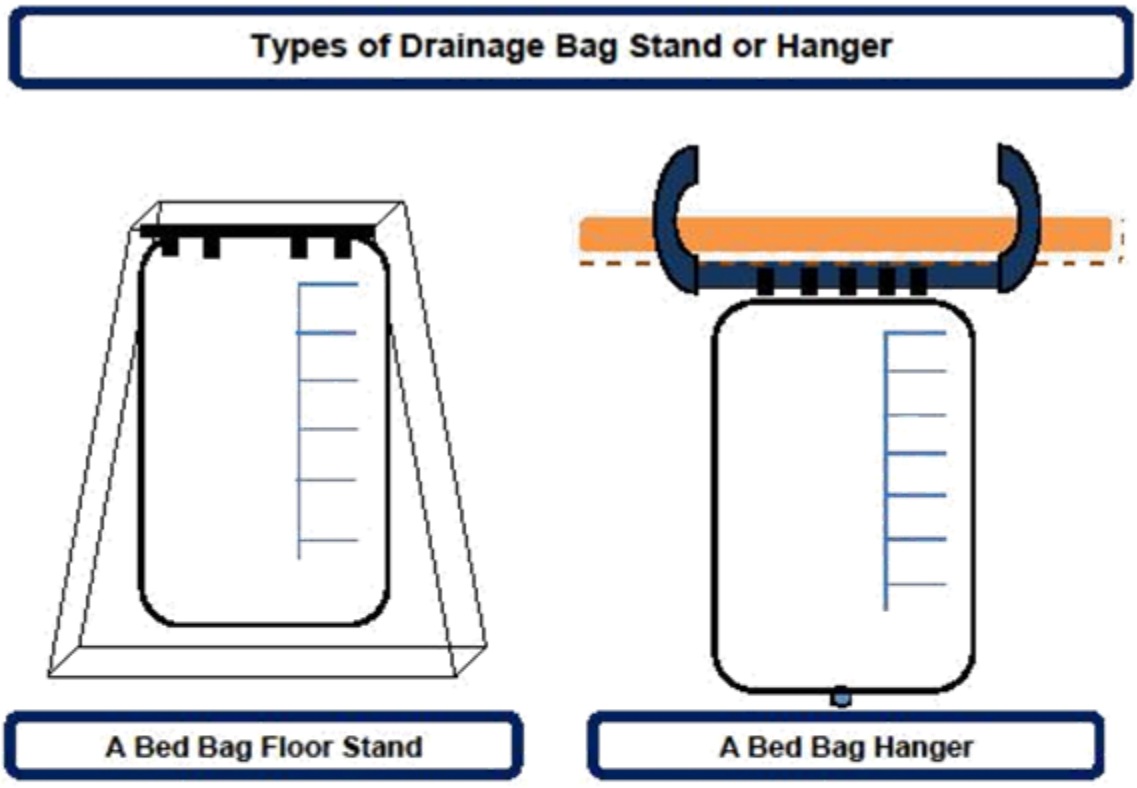
It has the advantage, unlike straps, of not slipping down the thigh and the adhesive pad is designed to be worn for up to seven days to coincide with leg bag changes.

Holders stands or hangers for leg bag

In cases where adhesive pads or straps are not suitable leg bag holders are alternative methods to prevent any dragging on the catheter. Made as a stretchy washable sleeve, they come in a range of sizes, and are worn on the client's calf or thigh.

They are designed to distribute the weight of the urine in the bag evenly around these areas. This helps to reduce the risk of pressure ulcers occurring and dampens the noise of the fluid in the bag.

Catheter bag stands or hangers



Interesting Point

To prevent the risk of cross infection, the drainage bag must not be allowed to drag along the floor and it must not be put directly on the floor without a stand or placed for convenience in a non-sterile washing bowl.

To provide support for the bed bag and to reduce the risk of pulling or kinking of the tubing, the drainage bag should always be attached to a catheter stand or hanger.

Using a stand or hanger will help ensure the drainage tubing is correctly positioned to allow free flow of urine. Once the drainage bag is secured to the stand it can then be placed on the floor next to the client's bedside.

An alternative to the floor stand is a hanger. Drainage bag hangers are designed to be hooked on the sides of a suitable bed rail.

Caution is needed however when using hangers as they can get trapped in between the actual bed rail themselves.

Documentation

Under the NICE guidelines (Quality statement 4: Urinary catheters) care facilities should have written evidence of procedures to ensure those needing a urinary catheter have their risk of potential infection minimized by the completion of the necessary procedures to insert, maintain and remove the catheter as and when required.

Throughout all stages of caring for a client with a urinary catheter, the health professional must ensure that all documentation is written accurately and comprehensively. Fluid balance charts must always be correctly completed especially input and output. This is to maintain a high level of monitoring. This comprehensive information would not only ensure a high level of client's safety but demonstrates consistency and continuity in ensuring good client centered care. Good record keeping also protects the care provider. If care has not been documented a court of law will assume it has not been done. All clients with a catheter should have a record of their catheter history. This individual urinary catheter monitoring form can be used as an ongoing progress record as well as a detailed account of any catheter changes.

Individual urinary catheter monitoring form

Name of Client: Date of Birth: Contact Numbers: Doctor: Address		
The reason for the urinary catheter is: -		
Date catheter was last inserted	Batch No: Make of catheter:	

	Date of Expiry:	
Known allergies		
Balloon size		
Size of Catheter		
Length		
Type of catheter		
Bed or leg bag used		
Type of lubricant used		
Were there any problems when catheterising?		
Type of securing device		
Date of next catheter change		
Signature		

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