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 notepad or supervision workbook to hand to make notes. Your performance will only be measured by the answers you select when completing the knowledge test at the end of the module.

Contents

Introduction

Throughout the history of medical practice, bladder-draining instruments have been employed for centuries. Among these instruments, the Foley type catheter, developed in the 1930s, revolutionized the field and led to the availability of various urinary catheters for diverse healthcare scenarios. Today, the use of urinary catheters in health and social care has become commonplace.

Though urinary catheters have multifunctional capabilities, their primary purpose remains the quick and straightforward drainage of urine from the bladder. Nevertheless, catheter insertion comes with inherent risks and potential complications. Hence, it is crucial for healthcare professionals responsible for clients with catheters to possess competence.

The objective of this manual is to equip care providers with the latest evidence-based knowledge and skills required for adeptly caring 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, utilized as medicinal devices for centuries, were termed 'catheter' by the ancient Greeks during Hippocrates' era, signifying an instrument for draining body cavity fluids. The term itself is derived from the Greek words for 'let down' or 'send away', and holds particular significance for individuals suffering from a full bladder and unable to pass urine.

In the realm of health and social care, urinary catheters serve as diagnostic and treatment tools, available in various types to suit different situations.

A study conducted between 2012 and 2016 found that catheterization affected 1 in 5 hospital patients and 1 in 14 individuals receiving community care, with a higher prevalence observed in males.

Also known as an indwelling catheter, a urinary catheter is a specialized, thin, hollow tube designed for insertion into the urinary bladder to facilitate urine drainage. Additional purposes for using a urinary catheter will be further explored in this manual. Once properly inserted, the catheter is secured in place by inflating a small balloon at its tip. It is then connected to a urinary catheter drainage bag that collects the urine. This closed system allows for regular emptying of the drainage bag.

Using aseptic technique, the indwelling catheter ensures continuous urinary drainage, eliminating the need for the client to pass urine conventionally. Care staff can observe, measure, and accurately record urine drainage if necessary.

Urinary Catheter Type:

Intermittent: The catheter is temporarily inserted into the bladder and then removed once the bladder is empty. This method is employed for individuals with a poorly functioning bladder who face challenges in adequately emptying or passing urine.

Indwelling: In this case, the catheter is left in place for an extended period, ranging from days to weeks.

There are two primary types of indwelling catheters:

a) Urethral Catheter.
b) Suprapubic Catheter.

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

Modern-day catheters are manufactured using various materials like silicone, plastic, latex, and Teflon, and they are available in multiple sizes.

This variety in their manufacture ensures that the catheter is:

Flexibility is crucial for a catheter, particularly during its insertion into the client's bladder, and comfort is essential while it remains in place. The catheter's intended function, such as the duration of insertion or other medical purposes, should dictate the type of catheter used.

Moreover, the catheter must be suitable for the client, taking into consideration factors like the catheter's size, length, and any known allergies to the material it is made of. It is of utmost importance that catheters are cost-effective within the constraints of healthcare budgets.

Catheters History

Dating back to ancient times, the practice of employing catheters, especially for alleviating the discomfort of a distended bladder, can be traced through history. In 30 BC, the ancient Syrians crafted catheters from wooden reeds, while the Chinese utilized onion stems for the same purpose. The Egyptians, on the other hand, favored gold strips and palm leaves as materials for their catheters. The Greeks opted for bronze as their preferred metal for catheter construction. Moving on to the Victorian era, silver catheters gained popularity due to the perceived therapeutic and antiseptic qualities associated with the metal silver.

Development of Catheters

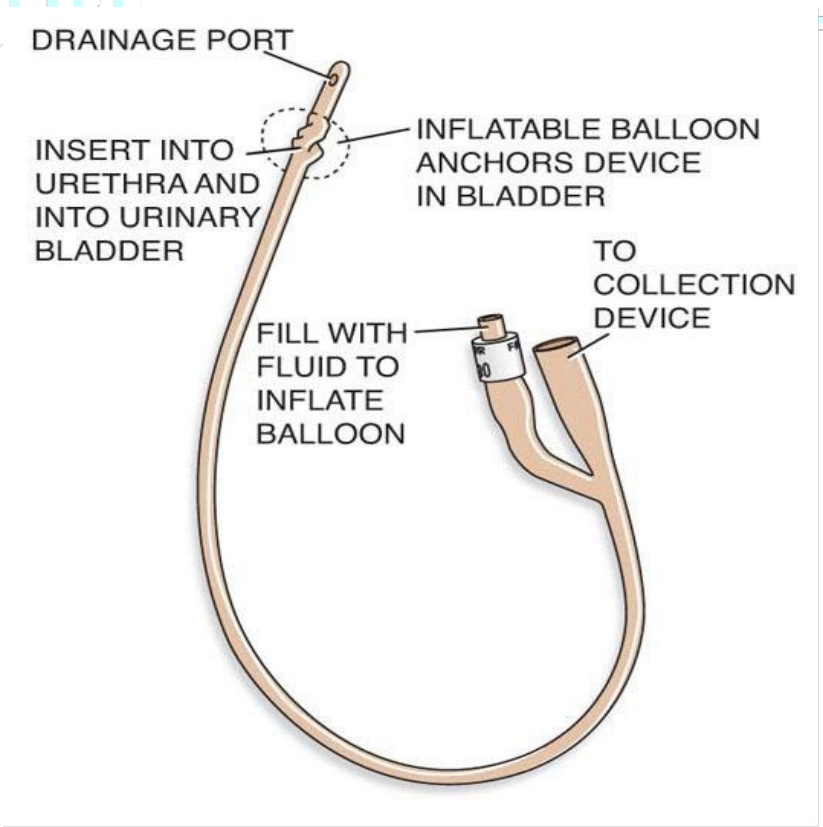
Two-Way Catheter

Until 1853, the design of catheters saw little change, until the French surgeon Jean Francois Reybard introduced the first indwelling two-way catheter. This innovative design featured an integrated balloon, enabling it to be secured within the bladder. It marked the first time that urinary catheters had two separate channels—one for urine flow and another for inflating the holding balloon.

In the 1930s, Fredrick Foley made significant advancements, perfecting the production of a one-piece catheter with an inflating balloon. Utilizing a flexible latex material, his Foley-type catheter, based on dual channels, remains the standard design currently used in urinary catheters.

Fast forward to 1971, when Dr. Jack Lapides, an American urologist specializing in urinary medicine, developed the intermittent catheter, a groundbreaking innovation that not only introduced a new catheter type but also revolutionized catheter care.

Structure of a standard Foley urinary catheter



Introduction to Catheterization

Catheterization, known as the insertion of the catheter, represents a well-established technique in health and social care settings, being performed numerous times daily. This procedure serves various purposes and can offer both temporary and permanent remedies for different health conditions. Typically, it requires the client's consent, although in emergencies or situations where it benefits the client, it can be carried out without explicit consent. It is worth noting that catheterization is considered one of the earliest therapeutic measures in human civilization.

During Catheterization, there are two primary routes for inserting the catheter:

1. Through the individual's natural urethral channel into the bladder.
2. By creating a small surgical incision just below the umbilicus or belly button, known as supra-pubic Catheterization. In this method, the client utilizes a supra-pubic catheter rather than a urethral catheter.

Noteworthy Observation:

This delicate and invasive clinical procedure should only be performed by a proficient and competent healthcare professional (NICE 2012).

Chapter Two

Types of Urinary Catheter

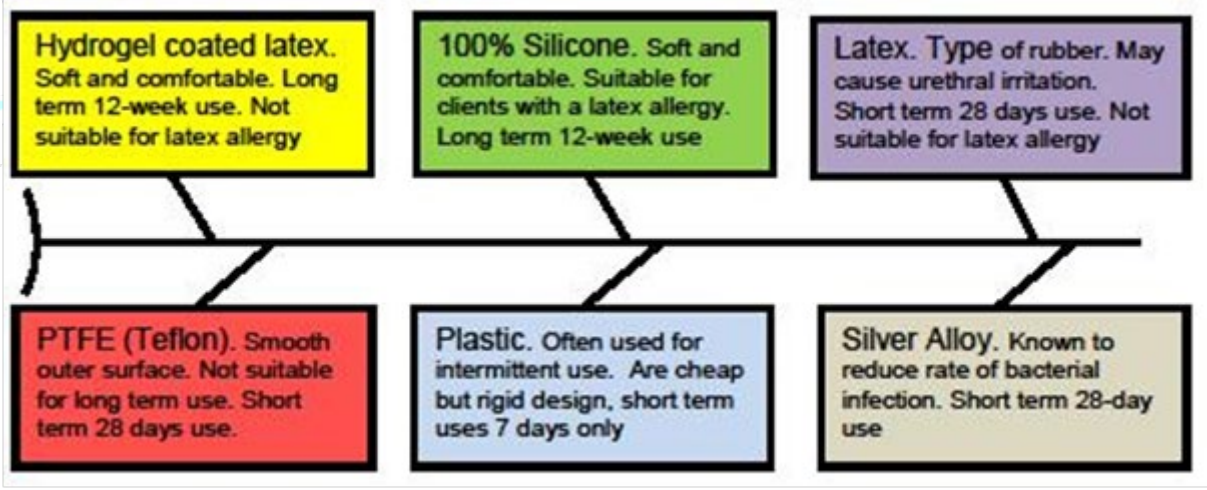
The selection of a urinary catheter depends on the client's assessment, the purpose of catheterization, and the expected duration of use. While the basic design of the urinary catheter has remained unchanged since its development by Foley in the 1930s, modern catheters are now constructed using different materials and coatings.

Although the care provider may not have the final say in which catheter a client needs, understanding the various types of catheters and their suitability for the client is crucial. This knowledge becomes especially important when considering clients with latex allergies, as some catheters are made from latex.

In cases where a client is suspected to have a latex allergy, it is essential to avoid using a latex catheter unless confirmed otherwise. This information should be promptly reported to the GP/manager and documented in the client's care/catheter records.

Once a catheter is inserted into the bladder, bacteria quickly colonize its surface, leading to an increased risk of urinary infection and the formation of a biofilm called encrustation. The catheter's material and coating play a crucial role in determining how long it can remain in the bladder, as they can help prevent or delay encrustation and infection.

Types of materials and coating used in urinary catheters



In addition to the aforementioned catheter types, certain catheters are coated with antibiotic solution to mitigate infection risk. These catheters are primarily employed for hospitalized patients and are typically used for less than a week.

In health and social care settings, two primary types of urinary catheters are currently utilized, each with specific duration of use:

1. Long-term use (up to 12 weeks).
2. Short-term use (up to 28 days).

The sizes and lengths of catheters must be carefully assessed to prevent urethral irritation and trauma. Catheter sizes are measured using the Charriere gauge (Ch). Always choose the most suitable catheter type for the client and opt for the smallest gauge catheter that ensures effective urinary drainage.

For supra-pubic catheters, as the risk of urethral damage is not a concern, a larger size catheter such as 16 Ch can be used. However, if there are any clots or debris in the urinary drainage, the catheter size can be increased to 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 size larger than this necessitates a doctor's decision after conducting an assessment and reviewing the client's condition further.

As per an international color-coded system for easy identification, catheter sizes can be observed at the inflation channel on each catheter.

Lengths of Catheter

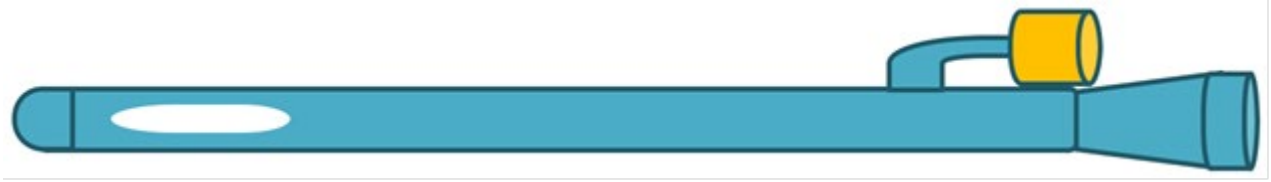
In the adult client, urinary catheters are produced in the following lengths:

The Standard-Length Catheter

The catheter of standard length is commonly known as a male catheter, even though it is suitable for both males and females. This particular catheter length proves more convenient for certain women compared to shorter catheters (ranging from 23 to 26 cm) since it offers improved accessibility 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 catheter measures 23 - 25 cm, chosen for its comfort and discreetness among some women. However, for severely obese women, this length may be insufficient, and in such cases, a standard-sized catheter is more appropriate.

To avoid potential complications, it is crucial to refrain from using tap water or saline solution to inflate the balloon. Instead, only sterile water should be used, as emphasized by Pellowe in 2009.

The correct inflation of the balloon is vital to ensure the catheter's secure placement within the bladder, unless otherwise advised by the client's medical team. To prevent issues related to under or over inflation, the balloon should be inflated with precisely 10mls of sterile water.

It is essential to note that a short-length catheter should never be employed for a male patient, as inflation of the balloon within the urethra could lead to severe trauma to the urethra, as highlighted by the National Patient Safety Agency (NPSA) in 2009.

Chapter Three

Significance for a Urinary Catheter

Despite their common usage in health care, the necessity of catheters for clients varies. To ensure proper clinical practice, there must always be clear justification for the use of a urinary catheter. Before insertion, it is crucial to explore potential alternatives to the catheter.

The ideal approach is to minimize the catheter's duration, as it can cause considerable harm and distress to certain clients. Care providers should acknowledge that some clients may feel anxious or fearful about having a catheter inserted.

Thus, it is essential for health professionals to thoroughly explain the catheter care process to clients. Putting the client at the center of care is of utmost importance for care staff. The main objectives of providing person-centered care for a person with a catheter include:

1. Conducting a comprehensive health assessment to evaluate the risks, alternatives, and benefits of using a catheter before insertion.
2. Informing the client about any planned interventions and obtaining their consent.
3. Offering reassurance and providing a platform for clients to express their concerns or questions.
4. Ensuring the urinary catheter remains patent and drains urine freely when in place.
5. Frequent monitoring of urine output and appropriate documentation, such as a Fluid Balance chart.
6. Maintaining good hygiene practices to prevent catheter-associated urinary tract infections (CAUTI).
7. Removing the catheter as soon as feasible whenever possible.
8. Being diligent in detecting and promptly reporting any potential problems associated with the catheter.
9. Keeping accurate records and maintaining a detailed catheter history.

It is vital to remember that when used in the best interest of the person and managed well, urinary catheters can provide significant benefits to the care of an individual when no suitable alternatives are available.

When all other options have failed or proven to be insufficient, a catheter should only be used as a last resort.

The period of catheter use typically dictates the reasons why a catheter is selected.

Three different time periods can be used to describe the duration.

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 instill 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 may be necessary in certain situations, wherein there is a clinical requirement to insert a long-term indwelling catheter. The reasons for this procedure encompass the following:

- As a remedy for uncontrolled urinary incontinence - This option should only be considered after all other forms of treatment have proven ineffective.
- To address potential obstructions in the urinary tract - For men, this may involve an enlarged prostate gland.
- To facilitate urine drainage due to impaired nervous impulse control, as seen in cases of neuropathic bladder resulting from neurological conditions like stroke, multiple sclerosis, or Parkinson's disease.
- To offer comfort in appropriate scenarios, such as in frail or ill individuals - This approach is applicable, for instance, to terminally ill patients.

The reasons for Catheterization can be identified under the mnemonic

TIME IS NOW

T **Test: Uro-dynamic investigations/procedures.**

I **Installation and irrigation e.g., medication and fluids.**

M **Measurements and monitoring of urine output.**

E **End of Life: to promote comfort.**

I **Intractable uncontrolled urinary incontinence.**

S **Surgery: Pre and Post-operative.**

N **Nervous control: e.g., neuropathic bladder.**

O **Obstruction of the bladder outlet.**

W **Wound and pressure ulcers: e.g., prevention of contamination / promoting Healing.**

Chapter Four

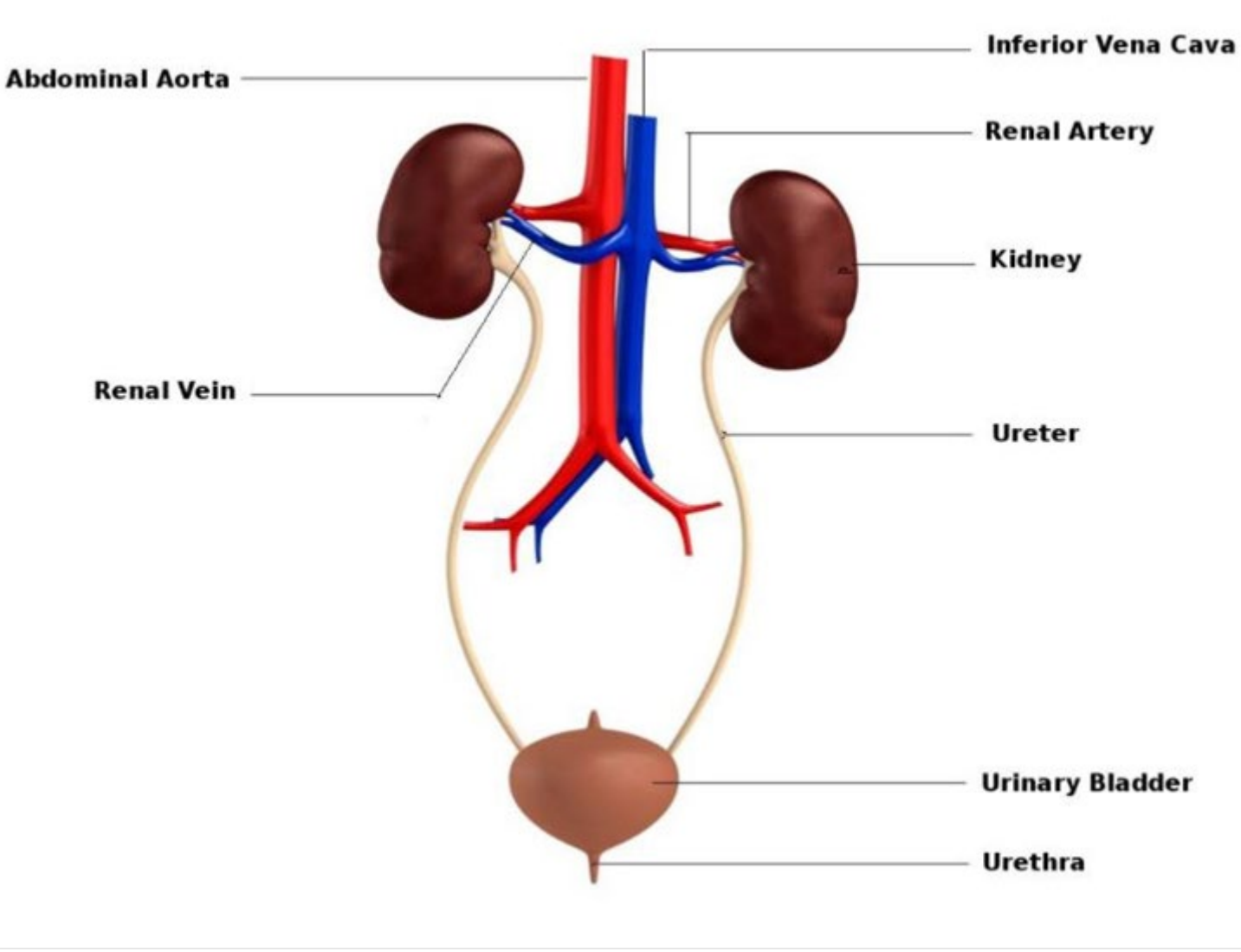
The Anatomy and Function of the Urinary System

Having a grasp of the anatomy and basic function of the urinary system is crucial for health professionals performing urinary catheterization. The body derives nutrients from food and converts them into energy. Subsequently, waste products are left in both the bowel and the blood after the necessary nutrients have been absorbed.

Working in conjunction with the lungs, skin, kidneys, and intestines, the urinary system plays a vital role in maintaining the body's chemical and water balance.

Of utmost importance, the urinary system eliminates a specific type of waste known as urea from the bloodstream. Urea is generated during the breakdown of protein, typically found in meat products, within the body.

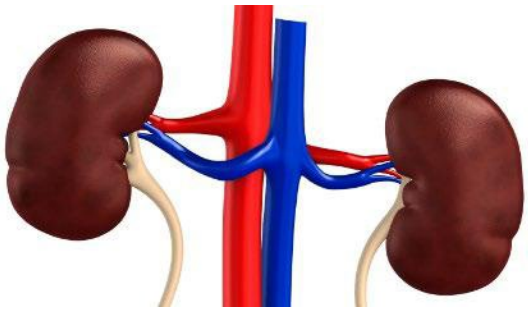
The bloodstream carries urea to the kidneys, where it is subsequently eliminated.



The Parts of the Urinary System

Two kidneys

The primary role in the urinary system is performed by the kidneys, while the other components primarily function as passages and reservoirs for urine. Positioned below the ribs, towards the center of the back, are two kidneys, which are purplish-brown organs functioning as a pair.



An adult kidney typically measures 10 cm in length, 5-7 cm in width, and 3 cm in thickness, with a bean-shaped appearance similar to a bar of soap in size. Remarkably, the human body can effectively function with just one kidney.

Within each kidney are numerous tiny tubules, known as nephrons, responsible for producing urine. Once urine is formed, it is channeled into a cavity and drained through the ureter.

The kidney's excellent blood supply is crucial for its waste-removal function. Approximately 20 to 25% of the resting cardiac output, which equals around 1200ml of blood per minute in adults, is delivered by the renal arteries to the kidneys.

In a healthy individual, the kidney produces an average of 30ml of urine per hour. However, the volume of urine produced can be influenced by various factors, including fluid intake, diet, blood pressure, body temperature, medications (e.g., diuretics), and overall health condition.

The kidneys play several essential roles, such as eliminating liquid waste in the form of urine, maintaining a stable balance of salts and other substances in the blood, and producing erythropoietin, a hormone vital for red blood cell formation.

The Ureters

Urine from the kidneys travels down two slender tubes, called ureters, to the urinary bladder. These ureters, ranging from 8 to 10 inches long (25 to 30 centimeters), consist of thick-walled, narrow tubes with varying diameters between 1mm to 10mm. The muscularis, composed of smooth muscle fibers, contracts in rhythmic waves called peristalsis to push the urine along the ureters.

Approximately every 10 to 15 seconds, small amounts of urine are released from the ureters into the bladder.

Ordinary urine is primarily composed of 95% water and 5% materials like urea, creatinine, and other waste products. In healthy individuals, proteins are reabsorbed back into the blood, leading to virtually protein-free urine.

The Urinary Bladder

The Bladder, situated in the lower abdomen, takes on the shape of a hollow balloon. In males, it is positioned directly anterior to the rectum, while in females, it lies anterior to the vagina. Ligaments of the peritoneum secure the bladder in place, attaching it to other organs and the pelvic bones.

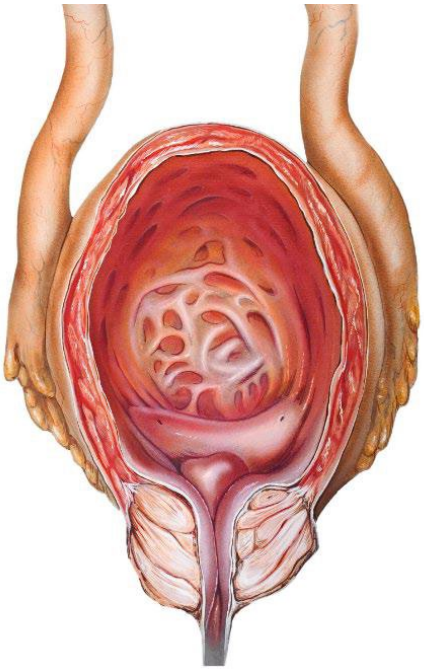
Concerning urine drainage, the bladder fulfills three main functions:

- It fills with urine.
- It stores urine.
- It empties the urine.

The bladder retains urine until it is ready for excretion. A normal and healthy bladder can comfortably hold 700-800ml of urine for 2 to 5 hours. However, in females, the bladder is relatively smaller due to the uterus occupying space just ahead of it.

Located in the bladder's floor is a small triangular area known as the trigone, housing the two urethral openings. This smooth layer prevents the bladder from obstructing the urethral openings once it has been emptied.

Enveloping the trigone is the detrusor muscle, which contains stretch receptors or nerve receptors. These receptors react when the bladder fills with urine.



When the bladder becomes full, these nerve receptors sense the distension and signal the brain that it is time to empty the bladder.

The Urethra

The Urethra functions as a small tube, which serves as a conduit for releasing urine from the bladder through the external urethral orifice, thereby concluding the urinary system.

Females possess a 4cm (1.5 inch) long urethra, making them more vulnerable to urinary tract infections due to its shorter length compared to males.

Males, on the other hand, have a longer urethra measuring 15-20cm (6-8 inch), situated in the posterior region of the penis (the underside). The male urethra fulfills the dual purpose of expelling urine and semen during ejaculation.

The Process of Urination

When urine fills the bladder, signals are sent by nerves within the bladder, indicating the need for emptying. As the bladder approaches its capacity, the urge to urinate intensifies. At this stage, the bladder's nerves send a message to the brain, further amplifying the urge to empty the bladder.

During urination, the brain instructs the bladder muscles to contract and simultaneously communicates to the sphincter muscles to loosen.

Chapter Five

Controlling Infection in Catheter Care

The National Institute for Health and Care Excellence (NICE) (2012) estimated that healthcare-associated infection costs the NHS more than £1 billion annually, with UTIs accounting for 17.2% of all HCAIs. Among these, between 43% and 56% are linked to indwelling urinary catheters.

Catheter Associated Urinary Tract Infections

Referred to as catheter-associated urinary tract infections (CAUTIs), these infections pose challenges in treatment, cause significant pain, lead to delayed recovery, and can even be life-threatening.

Individuals at higher risk of CAUTIs include the elderly, young, frail, acutely ill, or those with compromised immunity.

The insertion of the catheter tube can damage the delicate urethra and create a pathway for bacteria and other micro-organisms to enter the body. Consequently, bacteria can bypass the body's immunity by tracking up and down the catheter, leading to bladder infection and rapid systemic spread.

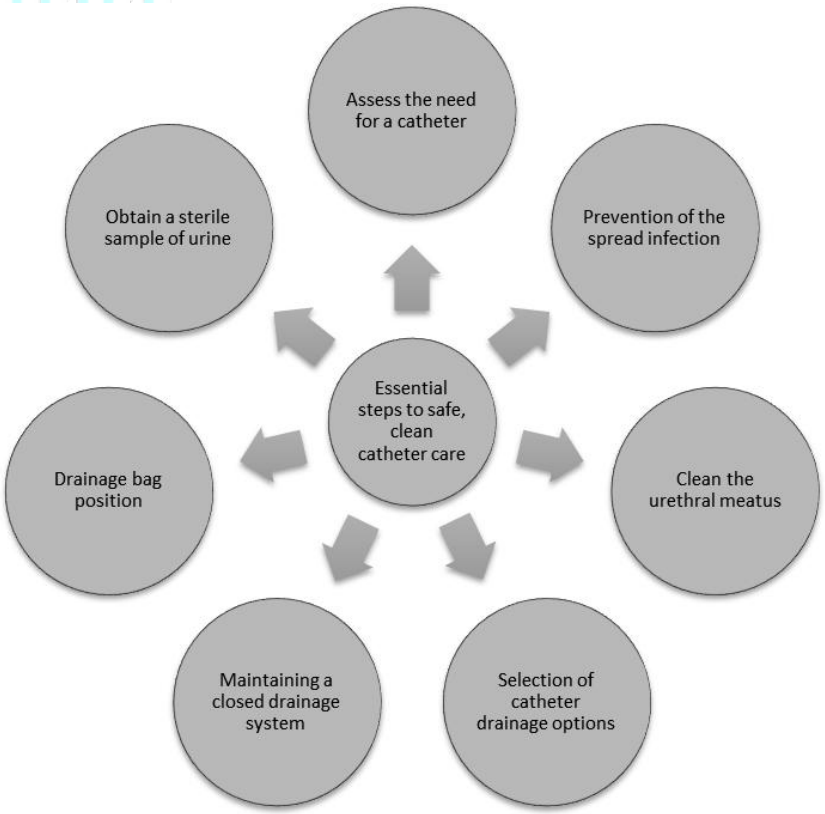
Moreover, bacteria can enter through the urinary bag itself and at various connection points where the catheter is linked to the urinary catheter bag.

Changing and fitting the drainage bag present an elevated risk of infection since it breaks the sterile closed drainage system.

Catheter Duration

The longer a catheter remains in place, the greater the likelihood of contracting a severe form of urinary infection called bacteriuria, as acknowledged. According to Pratt et al's (2009) findings, more than half of the clients who have catheters for a duration exceeding 7-10 days will experience bacteriuria.

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



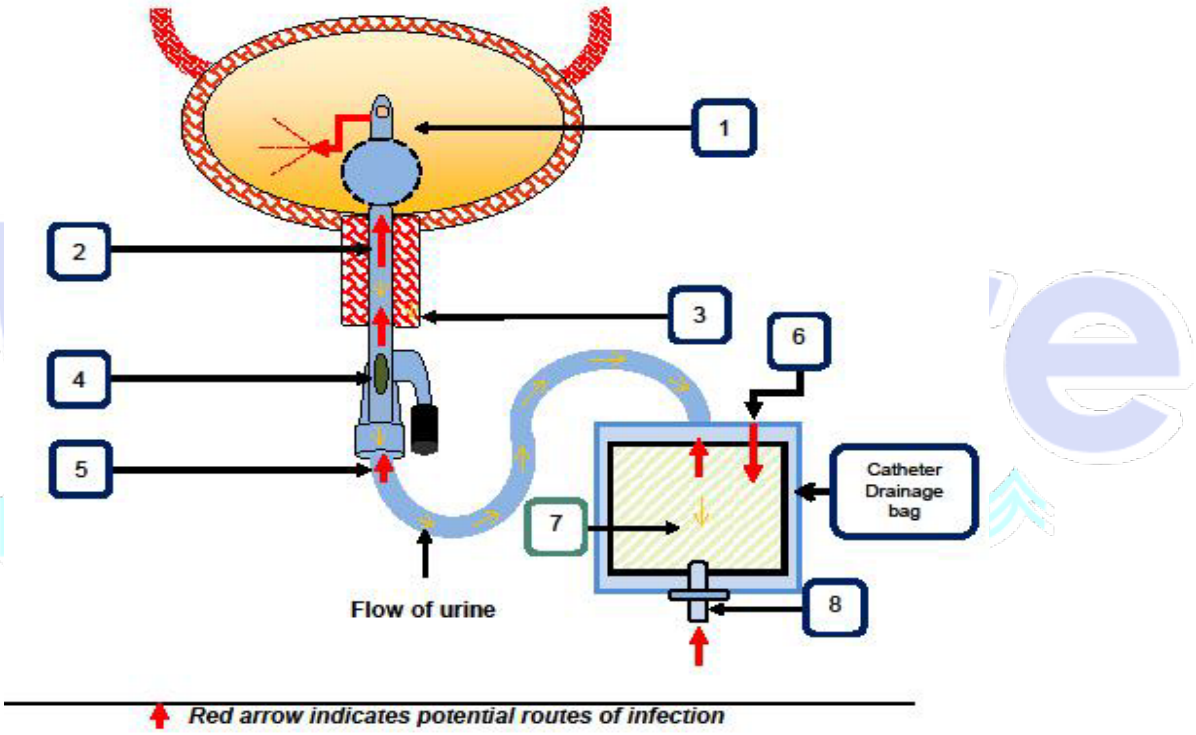
Catheter care: Standard Principles of Infection Control and Prevention

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

Maintaining a closed urinary drainage system stands out as a crucial method for reducing the risk of CAUTIs. This system comprises the catheter, the attached drainage tube, and the urinary collection bag. The contemporary design of the urinary drainage system enables easy emptying through a small valve or tap positioned at the bag's base. As a result, the system can remain undisturbed for extended durations, enabling staff to minimize access and breaks in the setup.

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.
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 within the drainage bag. Drainage bags must therefore be regularly emptied to prevent this.
7	**Stagnation of urine while in the**	Allows for the development of bacteria
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

In order to decrease the chances of CAUTI's, it is necessary to acquire all urine samples through a sampling port using an aseptic technique. Before obtaining a catheter urine sample, it is essential to cleanse the sampling port with a 70% isopropyl alcohol impregnated swab and ensure thorough drying.

Glossary of Terms

Bacteriuria: The presence of bacteria in the urine.

Bacteremia: The presence of bacteria in the bloodstream.

Hematuria: The presence of blood in the urine.

Hand Hygiene for Standard Infection Control precautions

It has been well-established through research that maintaining proper hand hygiene plays a critical role in minimizing the likelihood of CAUTI's. In 2007, Pratt et al. formulated national guidelines aimed at establishing essential infection control precautions and practices for catheter care.

These guidelines served to reinforce the evidence supporting the notion that healthcare professionals can effectively reduce infection risks by adhering to specific practices, such as washing their hands, wearing gloves, and putting on aprons both before and after coming into contact with a urinary catheter and drainage system.

To handle a client's catheter, healthcare workers must first decontaminate their hands and then put on a new pair of clean, non-sterile gloves. After removing the gloves, they are required to decontaminate their hands once again.

To minimize the risk of cross-contamination in the care of urinary catheters, the utmost crucial preventive measure is to ensure that health workers adhere to proper handwashing. According to NICE (2012) guidelines, handwashing should be performed under the following circumstances:

- Prior to any instance of direct patient contact or care, including aseptic procedures.
- Right after any instance of direct patient contact or care.
- Immediately following any exposure to body fluids.
- Without delay after engaging in any other activity or contact with a client's surroundings that may lead to hand contamination.
- Promptly after removing gloves.

When emptying the drainage bag, it is essential to wear a fresh set of gloves and an apron, which should be changed for each client.

The hand-washing process involves using liquid soap and running water, following a six-step procedure. To dry hands, paper towels should be used. This effective technique removes a significant number of transient micro-organisms and must be performed both before and after Catheterization, emptying, disconnecting, or changing the drainage system.

Visibly clean hands can be sanitized with alcohol gel as an alternative to liquid soap and water, but it is not suitable for potentially contaminated hands with bodily fluids.

For catheter insertion, wearing plastic aprons and sterile latex-free gloves is necessary for personal protection and infection prevention and control.

Personal protective equipment (PPE) is crucial to prevent the transmission of micro-organisms to patients and protect healthcare practitioners from contamination of clothing and skin.

Regarding clinical waste disposal, it is essential to adhere to local infection control policies and procedures. Yellow clinical waste bags are designated for urinary products, while clearly visible red waste bags should be used for containing infected waste.

Maintaining Hygiene for Catheter Care

Once the urinary catheter has been inserted, it is crucial for care staff to maintain the highest standards of hygiene. Additionally, it is essential for care providers to differentiate between the normal and abnormal functioning of the catheter, enabling them to seek prompt medical assistance when necessary.

Encouraging individuals to bathe 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 is recommended.

To ensure the catheter's integrity, the upper portion should be gently cleaned with soap and water, which will help prevent encrustation often observed around the catheter entrance.

For male clients, careful washing under the foreskin with soap and water, followed by replacing it in its normal position, is advised. There is currently no evidence supporting the use of antiseptic solutions for this purpose, as they may increase the risk of infection.

Female individuals should wash from 'front to back' around their back passage (anus) to minimize the risk of bacteria spreading to the catheter site.

Avoiding the use of creams, talcum powder, or antiseptics unless prescribed is crucial, as they can block the catheter site and raise the risk of infection.

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

Promoting a high fluid intake helps maintain good urinary output, flushing the catheter and ensuring unobstructed drainage.

Drinking one cup of cranberry juice per day may assist in keeping urine clear and reducing infection risk. Additionally, a high-fiber diet should be encouraged to prevent constipation.

Regularly emptying urine drainage bags (usually when two-thirds full) and positioning them below the bladder level is important.

Bed bags must always be supported above the floor level on an appropriate stand or hanger to facilitate a smooth urine flow and prevent harmful urinary reflux into the bladder.

Adding antiseptic solutions into the bag is not recommended.

The steps for emptying a drainage bag are as follows:

1. Begin by explaining the procedure and obtaining consent.
2. Always ensure the maintenance of dignity and privacy during the process.
3. Thoroughly wash and dry your hands before proceeding.
4. Put on protective gloves as a precautionary measure.
5. Gain access to the leg bag.
6. Open the tap located at the bottom of the bag and allow the contents to drain into a suitable container.
7. Once the bag has been drained, close the tap and use a clean tissue or toilet paper to wipe it dry, removing any excess urine.
8. Correctly secure the leg bag to the client and cover it appropriately.
9. Remove the gloves and wash your hands again.
10. Document the urine output on the fluid balance chart or the client's daily care notes.

To prevent kinking and pulling, ensure that both the catheter and drainage systems are adequately secured in a comfortable position for the individual.

Regularly check the tightness of any retaining straps that secure the drainage system and observe the skin around them for any signs of soreness or irritation.

Position the catheter tubing correctly to avoid the development of friction sores on the skin.

When emptying the drainage bags, make sure to drain the urine into a separate clean container. Clean this container afterward, so it is ready for the next catheter to be emptied.

Avoid any contact between the drainage tap and the container. If suitable, the client's leg bag may also be emptied directly into the toilet.

Catheter Changing

A competent individual, well-versed in the procedure, must always carry out this task. Typically, it is handled by a trained nurse.

Hygiene Guide for Suprapubic Catheter Care

Caring for a suprapubic catheter bears resemblance to caring for a urethral catheter, albeit with certain distinctions in their cleaning approach. The insertion site of the catheter should undergo cleaning with sterile water at least twice daily.

Typically, dry gauze is applied to the site within 24-48 hours after initial insertion, while an additional dressing is generally unnecessary.

Care providers must remain vigilant for any indications of soreness, site leakage, or signs of infection. It is advisable to keep a spare catheter on hand to address any potential emergencies.

Potential Urinary Catheter Complications

Reporting any complications or problems resulting from the use of a urinary catheter at an early stage is crucial. The following signs and symptoms require immediate attention:

1. Offensive smell or thick/cloudy urine.
2. Catheter falling out or being blocked.
3. Development of fever, temperature, sweats, or chills.
4. Change in the client's mental state.
5. Swelling around the catheter site, with signs of irritation, discomfort, or infection, potentially causing swelling and soreness in the vagina or the tip of the penis.
6. Catheter not draining or minimal urine output despite adequate fluid intake, especially if no urine has drained after three hours.
7. Leakage of large amounts of urine around the catheter.
8. Bleeding into or around the catheter.
9. Complaints of lower abdominal pain, burning sensation, back pain, or signs of agitation.

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

For those with allergies or sensitivity to latex used in catheters, switching to silicone or Teflon catheters is recommended

Chapter Six

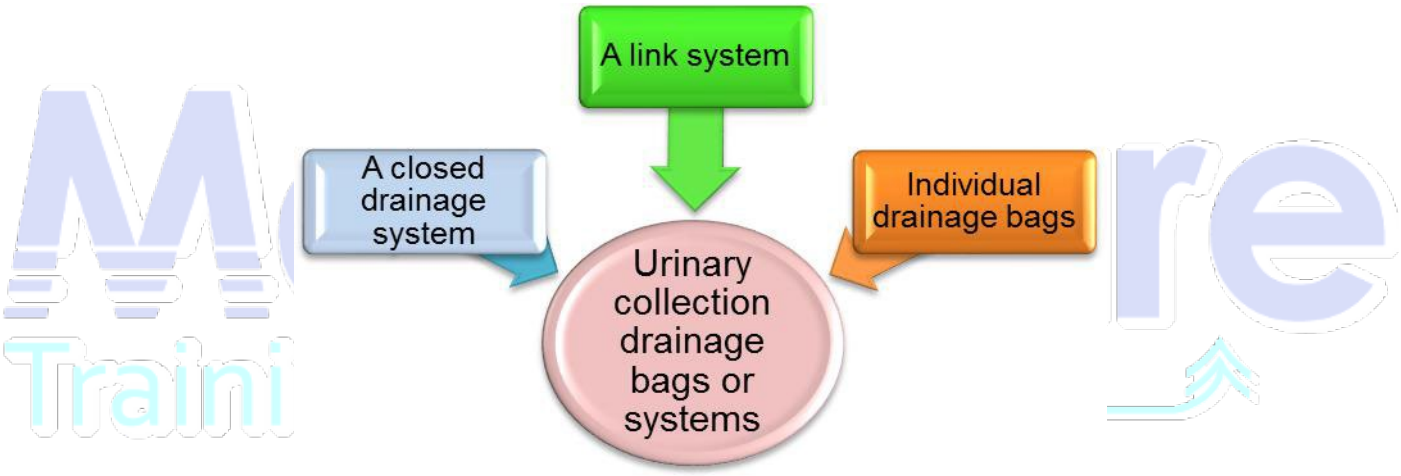
Understanding of Catheter Equipment and Accessories

Though the discussion has covered various urinary catheter types, their lengths, and materials, it remains essential for healthcare providers responsible for catheterized patients to possess a comprehensive understanding of the diverse catheter equipment and accessories, as well as the proficiency to employ them effectively. The mentioned equipment and accessories can be categorized as follows:

1. Urinary collection drainage bags.
2. Catheter valves.
3. Catheter stabilization and retaining devices.
4. 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 continuous connection between the urinary catheter and the drainage bag is a defining feature of this type. It is essential for them to stay attached to one another, preferably for a duration of 5-7 days. The most appropriate drainage bag for this type will have a tap outlet, enabling the emptying of urine when it reaches two thirds (2/3) of its capacity. It is strongly advised not to disrupt this closed system unless absolutely necessary, as studies have demonstrated that maintaining its integrity significantly lowers the likelihood of clients being exposed to CAUTI's.

Link System:

In this setup, the client's bag connects to the catheter for a duration of 5-7 days. At night, a bed bag, which is also referred to as a night bag, can be connected to the outlet drainage tap of the client's leg bag. This bed bag can then be secured to a catheter holder or stand and positioned on the floor beside the bed, facilitated by the length of the tubing.

The advantages of this system are as follows:

- Enhanced client comfort, allowing for improved movement while in bed.
- Improved urine flow due to the drainage bag positioned below the bladder level.
- Uninterrupted observation of urinary drainage by staff, especially during nighttime, without causing unnecessary disturbance to the client.

Drainage Bags

A vast array of sizes and fluid capacities are available for these, and they can be worn directly or positioned independently. It is crucial to assess the client when employing drainage bags to ensure they receive the suitable drainage system according to their health requirements.

Interesting Point

The appropriate choice should also consider the client's personal preference, their overall comfort, and the ease of managing the selected drainage type.

Leg Bags

The leg bag is fastened to the catheter's end and secured to the leg, discreetly concealed under clothing to ensure safety and privacy.

In terms of capacity, the leg bag is constrained by its size, accommodating around 350 to 750mls of liquid. It is not necessary to replace the leg bag daily.

The bag features a small tap at its base to facilitate drainage. To ensure proper care, it should stay connected to the catheter for a maximum of 7 days, and caregivers must only disconnect the leg bag when necessary.

Interesting Point

Clients with limited mobility may require the bed bag type of drainage, which involves connecting the bag directly to the catheter and supporting it with a catheter stand or hanger. The bag should be regularly emptied using the outlet tap

How to change a urinary catheter drainage bag?

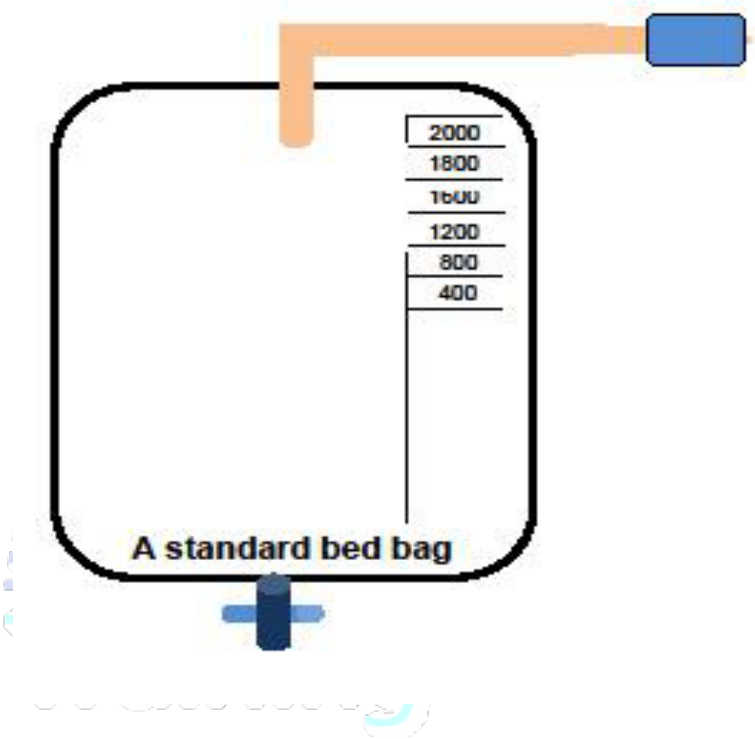
Here's how to change a urinary catheter drainage bag:

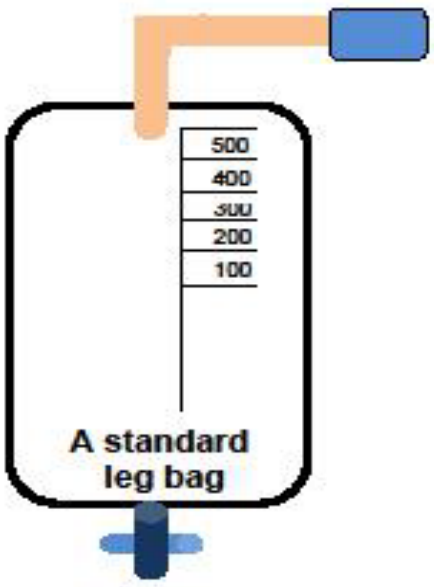
- Begin by explaining the procedure and obtaining consent.
- Always maintain dignity and privacy throughout the process.
- Start by washing and thoroughly drying your hands.
- Put on disposable gloves.
- Pinch off the catheter using your thumb and forefinger.
- Disconnect the drainage bag tubing from the catheter.
- Take off the protective cap from the new bag and promptly insert it into the catheter.
- Reattach the protective cap onto the old bag.
- Securely fasten and support the new bag using straps or a hanger.
- Measure and document the amount of urine on the fluid balance chart.
- Dispose of the old drainage bag into the designated yellow clinical waste bag.

Bed Bags

Typically, they are worn during the night or when the patient needs to drain a large volume of urine, such as after urological surgery. Bed bags, owing to their capacity, can hold more than 2 liters of urine. To prevent possible reflux and urine stagnation, it is recommended to empty them when they reach 2/3 of their capacity. These bed bags can be found in either reusable or disposable versions and should be connected to the end of the leg bag.

The date of leg bag change should be written by the care provider on the bag, serving as a written record for other care providers regarding the replacement time. To avoid the risk of CAUTI's, refrain from rinsing out a bed bag and reusing it.





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 fasten a bed bag to a leg drainage bag?

- Obtain consent and explain the procedure.
- Respect dignity and privacy throughout.
- Thoroughly wash and dry hands.
- Don disposable plastic gloves.
- Introduce the connector of the 2-litre bag into the tap of the leg bag.
- Verify a secure seal.
- Unseal the tap on the leg bag to empty urine into the larger bag.
- Affix the night bag to the catheter frame or stand.
- Discard gloves, wash, and dry hands properly.

Clients who can move around may opt for a leg bag. To ensure the continuous flow of urine, the leg bag should always be positioned below the level of the bladder.

Urinary Collection Drainage Systems

UThe capacity of urine drainage bags range from 350ml to 750ml in leg bags, while bed bags are specifically designed with a larger capacity of 2 liters, making them suitable for overnight use or post-operative situations.

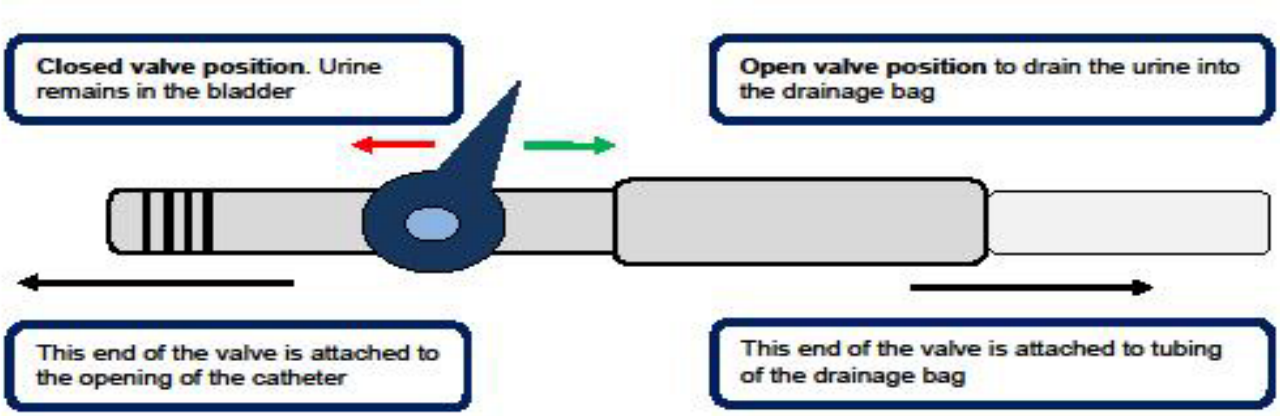
Catheter Valves

For many years, catheter valves have been employed in catheter care. They serve as a direct connection to the catheter outlet and function like a tap. Their purpose is to enable individuals to regulate the drainage of urine from the bladder on their own. These valves play a crucial role in maintaining bladder muscle tone and enhancing urine capacity.

A popular alternative to cumbersome and sometimes unsightly urine drainage bags, catheter valves offer wearers ease of use, discretion, comfort, and independence in managing their own drainage system.

Nevertheless, before implementing the device, clients must undergo an assessment to determine its suitability. Having bladder sensation and the ability to handle and operate the valve are essential factors to consider.

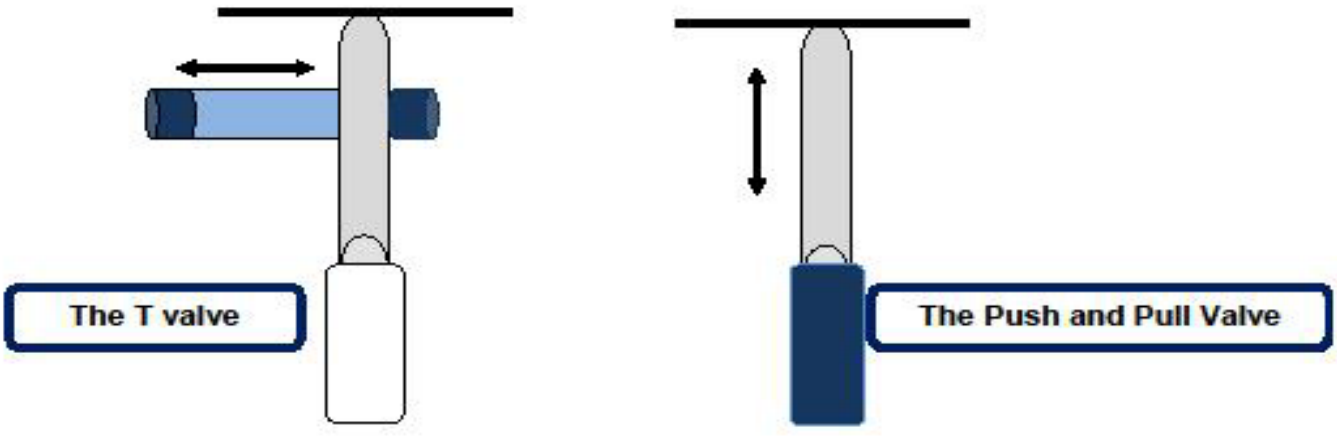
A representation of a catheter valve



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

The risk of infection and the potential for severe injury increase when the catheter experiences traction and pulling while inside the bladder, a concern applicable to both men and women.

While it's understood that complete elimination of catheter movement is not always feasible, leaving the catheter unsecured without any form of support or stabilization might be viewed as poor practice.

Hence, to avert uncontrolled and hazardous catheter movements, it becomes essential to secure and stabilize the catheter as an integral aspect of proper catheter care.

The act of securing and supporting the catheter, along with drainage bags, is effective in minimizing the chances of injury to the catheter entry site and the bladder.

This function can be achieved through a variety of devices, with two main types being **straps and adhesive devices.**

Straps

Placed around the person's thigh or leg, these catheters are fastened using Velcro tabs or specially designed-retaining devices. For individuals spending extended periods in bed and with limited activity, straps are the preferred option.

Nevertheless, caution must be exercised while securing the straps to avoid excessive tightness around the thigh. Tightness can lead to skin soreness and potential blood flow restriction, possibly leading to the development of pressure ulcers.

To prevent such issues, it is essential to regularly inspect the straps and change their positions. Moreover, it is advisable to remove the straps during the night.

Care providers should also monitor the straps closely to prevent any slipping down the leg that may cause unnecessary pressure on the catheter. In cases where there is a history of leg vascular issues, leg straps should not be utilized.

Adhesive Devices

Specially designed adhesive anchoring or stabilizing devices are available for more active individuals who wish to securely hold the catheter in place on their upper thigh.

These devices come with plastic molded areas that match the shape of the catheter's end and the appendage where water is inserted, allowing a perfect fit.

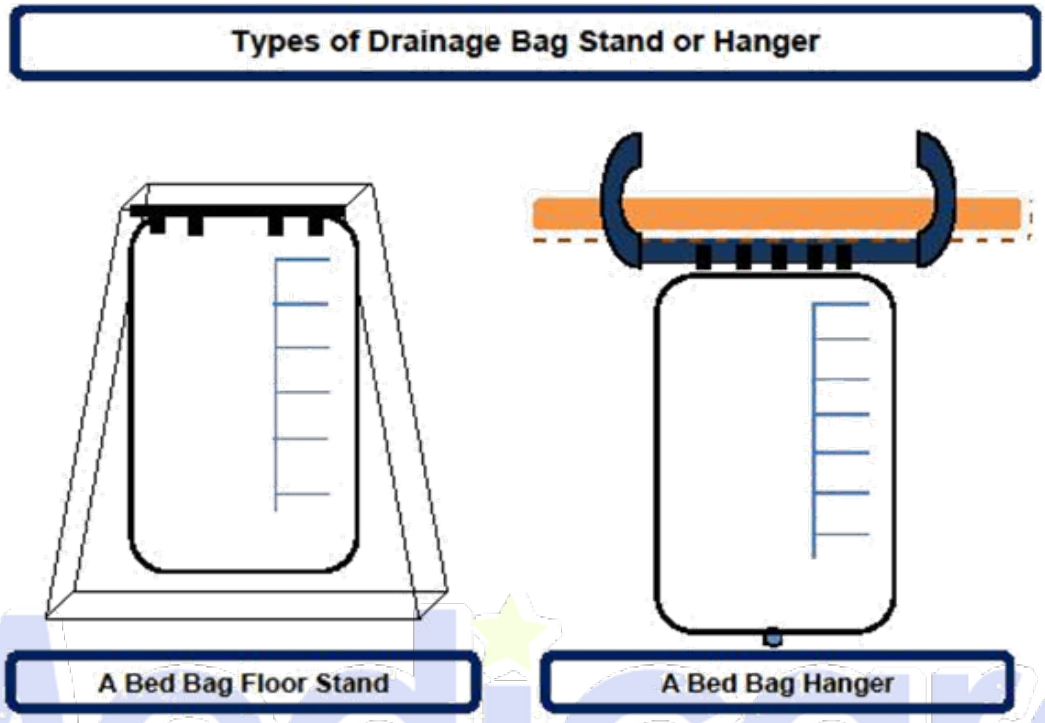
A plastic piece is also included, which snaps over the top to prevent the catheter from sliding up or down while allowing it to swivel with movement.

One commonly used type is the latex-free Stat lock stabilization device, which features a hypoallergenic, breathable, and waterproof adhesive pad equipped with a 360-degree swivel retainer clip, allowing the catheter to move comfortably with the client.

The advantage of using this type of device over straps is that it stays in place on the thigh and can be worn for up to seven days, perfectly aligning with leg bag changes.

Holders Stand or Hangers for Leg Bag

Leg bag holders serve as alternative options for situations where adhesive pads or straps may not be appropriate for preventing catheter dragging. These holders are designed as stretchy, washable sleeves, available in various sizes, and worn around the client's calf or thigh. Their purpose is to evenly distribute the weight of the urine in the bag across these regions, effectively lowering the likelihood of pressure ulcers and minimizing the noise generated by the fluid bag.



Catheter Bag Stands or Hangers

For optimal support of the bed bag and prevention of tubing pulling or kinking, it is essential always to connect the drainage bag to a catheter stand or hanger.

By employing a stand or hanger, the proper positioning of the drainage tubing can be ensured, allowing for unobstructed urine flow. Once securely fastened to the stand, the drainage bag can be conveniently placed on the floor beside the client's bedside.

Alternatively, one can use a hanger as a substitute for the floor stand. These hangers are designed to be hooked on the sides of a suitable bed rail.

Nevertheless, caution is necessary when using hangers, as they may become trapped between the bed rail themselves.

Documentation

According to the NICE guidelines (Quality statement 4: Urinary catheters), care facilities must have written procedures in place to minimize the risk of infection for individuals requiring a urinary catheter. These procedures encompass the insertion, maintenance, and removal of the catheter as needed.

Throughout the entire process of caring for a patient with a urinary catheter, healthcare professionals should ensure accurate and comprehensive documentation. Particularly, the proper completion of fluid balance charts, including input and output details, is crucial for effective monitoring. This meticulous information not only enhances the safety of the patient but also demonstrates a consistent and continuous commitment to providing excellent client-centered care. Additionally, meticulous record-keeping safeguards the care provider, as a lack of documentation may imply negligence in a court of law.

Every patient with a catheter should possess a comprehensive record of their catheter history. This specific form for monitoring individual urinary catheters serves as an ongoing progress record and a detailed account of any catheter-related changes.

Individual urinary catheter monitoring form

Name of Client: **Date of Birth:** **Contact Numbers:** **Doctor:** **Address:**		
The reason for urinary catheter is:		
Date catheter last inserted:	**Batch No:** **Make of Cather:** **Date of Expiry:**	
Known allergies		
Balloon size		
Size of Catheter		
Length		
Type of Catheter		
Were there any problems when catheterizing?		
Type of securing device		
Date of next catheter change		
Signature		

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