

P-Male patients

I- External urinary catheters

C- Indwelling urinary catheters

O- Provide a lower amount of risks with use (Risks- UTI, skin injuries, allergies, compression, etc.)

## Abstract

Urinary catheters are one of the most often utilized invasive devices used in the hospital. “15–25% of all hospitalized patients are catheterized at some time during their hospital stay” (Kranz, Schmidt, Wagenlehner, & Schneidewind, 2020, p.2). These devices have a purpose but they come with consequences, some unavoidable. The aim of this research is to use the available evidence of catheterization to discover which option, an indwelling urinary catheter or an external catheter device, provides better outcomes by posing the least amount of risks to the male patient. At the conclusion of this study, the hope is to have an answer to which type of these device poses the least amount of risks in order to have the best evidence-based practice when the use of one of these devices is necessary.

## Introduction

Urinary catheterization can be an appropriate intervention for male clients that need an accurate measurement of urinary output or to contain urine for patients who are incontinent. The two main forms of catheterization are an indwelling urinary catheterization and an external urinary catheter. Both of these interventions perform the same functions but have differing risks associated with each. The indwelling catheter consists of the insertion of a catheter through the urethra and into the bladder, where a balloon, that is located at the inserting end of the catheter, is inflated to hold the catheter in place with tubing leading to a collection bag (Lewis, Bucher, Heitkemper & Harding, 2017). An indwelling catheter can be utilized in patients in which the patient has urinary retention, hypotonic bladder, and special considerations (i.e. incontinence) (Holroyd, 2016). The external urinary catheter is a docile piece of sheath, similar to a condom, that has tubing at the end to allow for drainage to an external collection bag (Potter, Perry, Heitkemper & Harding, 2017). External catheters can only be utilized in a patient population that has the ability to void. The uses for an external catheter include incontinence in patients, spinal cord injuries, and when there is a need to monitor urinary output (Vaidyanathan, Selmi, Hughes, Singh & Soni, 2015). The purpose of the research is to compare the risks associated with each intervention to determine which one is more appropriate and beneficial in the male patients.

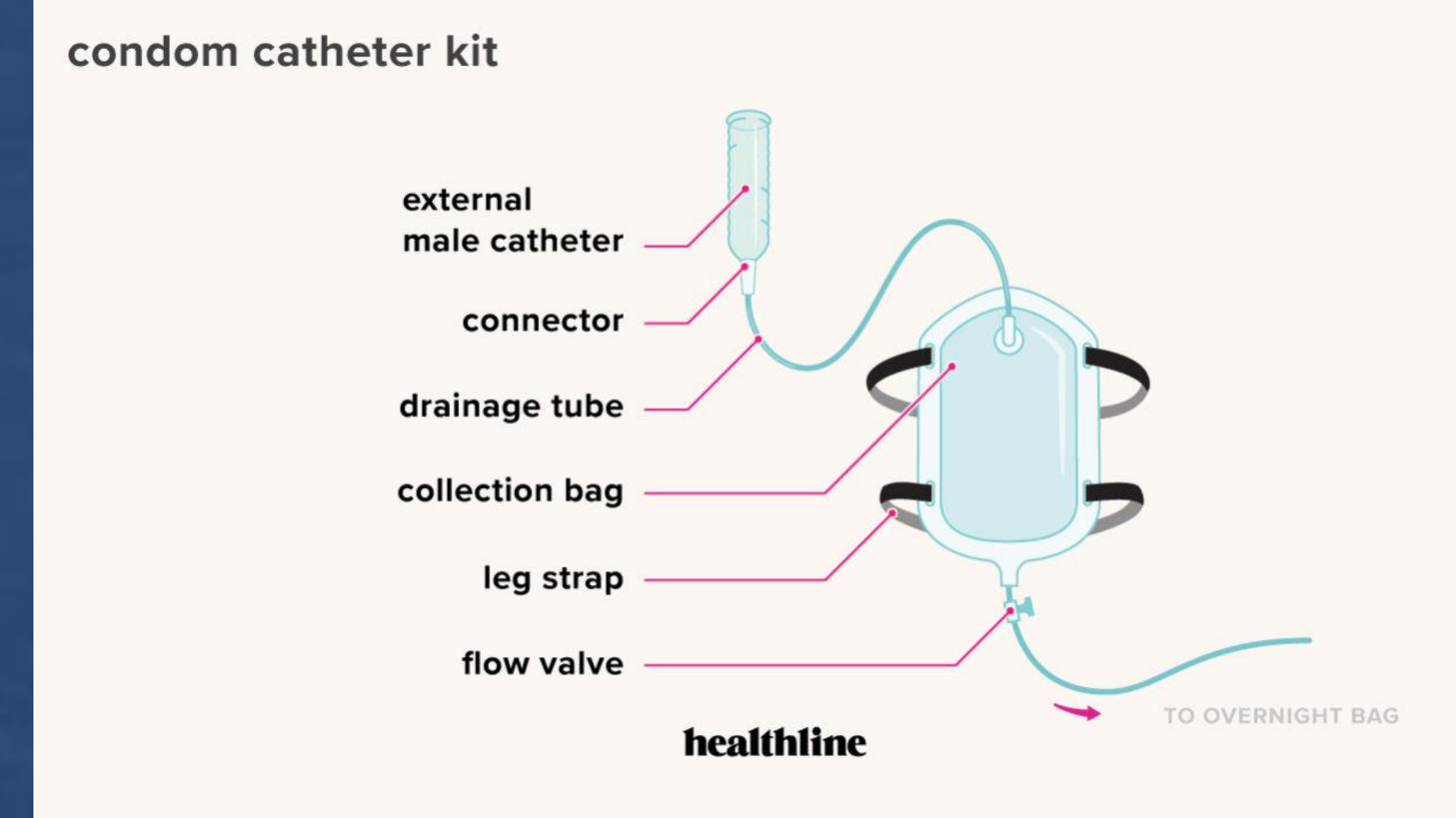
## Methods

This research study was conducted by reading literature published from January 2015- April 2020. The focus was on finding the risks of using indwelling urinary catheters and external urinary catheters. The research was based on a diverse selection of peer-reviewed research articles and other credible text to decide which option for male patients presents the better outcome with the lowest amount of risks. The information was gathered together and critically appraised in order to come to a conclusion. The aim was to discover the best evidence-based practice for male patients that need a urinary drainage device.

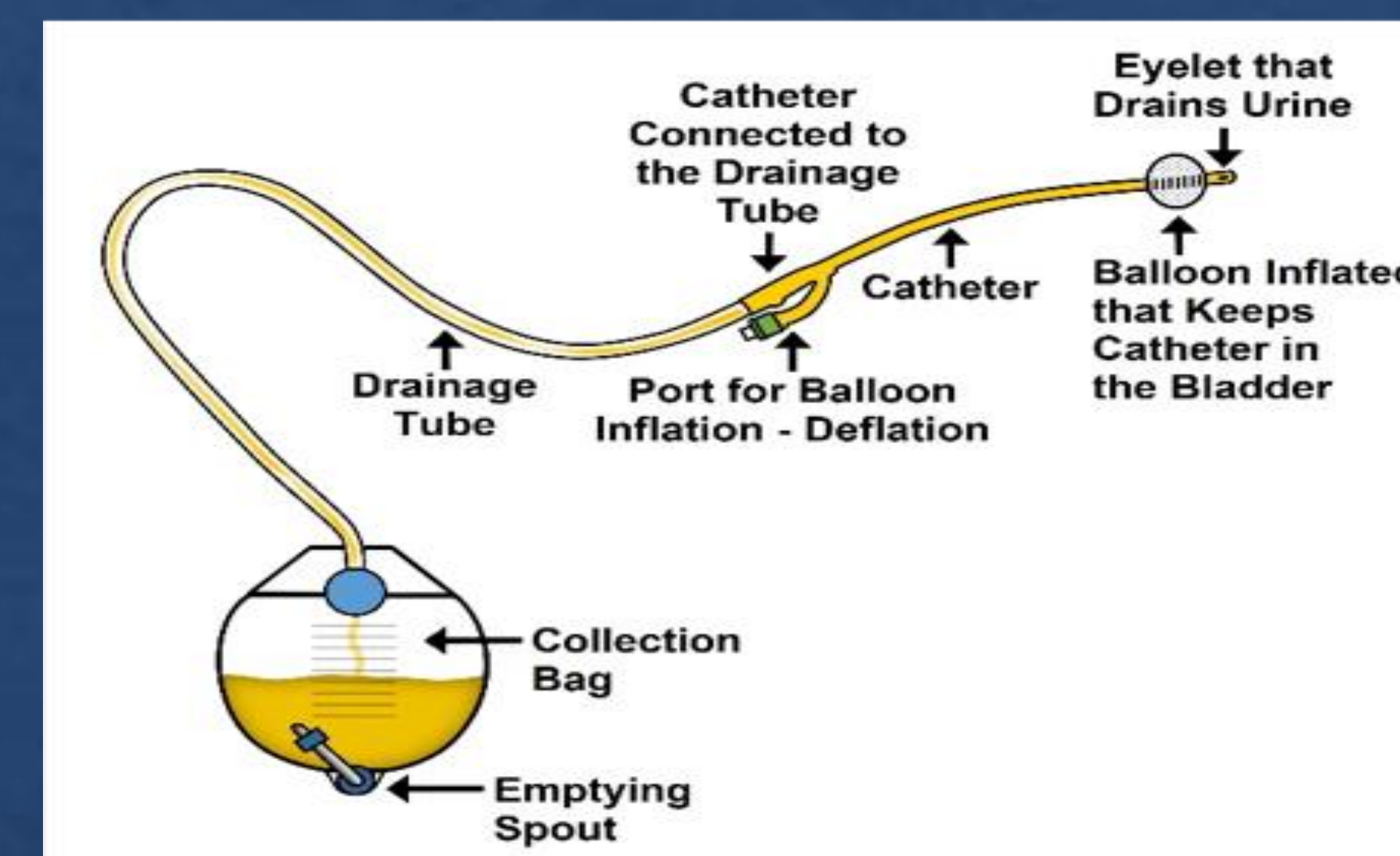
## Evaluation & Analysis

Both an indwelling urinary catheter and external urinary catheter perform similar functions, but the strengths and weaknesses between them vary significantly. With the indwelling urinary catheter, the risks primarily stem from the invasiveness of the catheter entering into the bladder. One of the major risks that stem from indwelling catheter usage is an infection occurring, also known as catheter associated urinary tract infection, abbreviated as CA-UTI. Every day that an indwelling catheter remains inserted into a patient, their risk for experiencing a CA-UTI increases by 5% (Maxwell, Murphy, McGettigan, 2018). To further this point about infection rates, the incidence of bacteriuria in the hospital setting increases by 3% to 8% each day after a catheter is inserted. After 30 days of a catheter being inserted in a patient, nearly all patients have bacteria noted in their urine (Kranz et al., 2020). Another issue surrounding CA-UTI is that they are caused by bacterial infections. Bacterial infections can only be treated with antibiotics and utilizing them contributes to antibiotic resistant bacterial strains (Feneley, Hopley & Wells, 2015). The patient may experience complications such as pain, trauma to the urethra and the blockage of the catheter may occur when the catheter is inserted (Holroyd, 2016). If an indwelling catheter is not secured with an appropriate fixation, there is an increase in skin damage and break down, which results in an increased risk for the patient to have a secondary infection (Holroyd, 2016). With appropriate fixation of an indwelling catheter the risk for adverse events occurring is significantly decreased (Holroyd, 2016).

External urinary catheters have their own risks as well, some of which are relatively underestimated. One major complication that can occur when utilizing an external catheter is skin erosion occurring. The skin erosion typically occurs via strangulation when the external catheter is too constrictive around the penis (Sinha, Kumar, Kumar & Singh, 2018). If an external catheter is utilized in a home setting for urinary incontinence, and alcohol is consumed by the patient, urinary retention can occur. If urinary retention occurs because of this, the patient is at an increased risk for infections, acute kidney injuries, sepsis, and very rarely, bladder rupture (Vaidyanathan et al., 2015). Another issue with external urinary catheters is making sure there is a secure fit that, at the same time, is not restrictive. External catheters come in a multitude of different sizes and shapes to help combat this issue (Potter et al., 2017). Most external catheters are made with a silicon coating, which reduces allergic reactions. If the external catheter is made solely with latex, an allergic reaction could occur, so it is important to check the patient's allergies to latex (Sinha et al., 2018).



From Health Line by Nancy Moyer, N.D.,  
<https://www.healthline.com/health/condom-catheter>.



From UroToday by Diane Newman, N.D.,  
<https://www.urotoday.com/urinary-catheters-home/indwelling-catheters/description/definitions.html>.

## Conclusion & Implications for Future Research

There are multiple factors that are considered when choosing an intervention, especially when it comes to the urinary system. The reason for the catheterization, duration of therapy, and the risk of infection are some of the major factors considered. To achieve the best results utilizing either intervention, the catheter should be left in place for the shortest possible time (Kranz et al., 2020). In patient's who are both candidates for indwelling catheters and an external catheter, the external catheter appears to offer less risks while being able to perform the same function. External urinary catheters have a lower incident rate of urinary tract infections occurring when compared to an indwelling catheter (Potter et al., 2017). The more severe risks that are associated with external catheters are rare, and can be avoided when proper education is given about the fit of the external catheter, external catheter care is administered and the dietary restriction of alcohol is followed. The risk of infection is one of the major disadvantages of an indwelling catheter, especially if the catheterization is needed for long term use.

The implications for future research would entail looking at the interventions needed to further decrease or eliminate any of these risks. However, risk-free options are not something easy to come by in the healthcare field. It is important to research and find evidence for the best practice for patients who have to have these invasive devices intermittently or on a daily basis for certain medical conditions. Whichever type of device is used, the most up-to-date research should be utilized and followed to give the patient the best possible outcome of care.

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## COMPARISON OF RISKS FOR...

### Indwelling catheters:

- Urethral diverticula(UD) (Virseda-Chamorro, Salinas-Casado, Rubio-Hidalgo, Gutiérrez-Martín & Esteban-Fuertes, 2015)
- Pain/ Trauma
- Infection
- Skin damage
- Cross-contamination of existing pressure wounds/ incontinence-associate dermatitis (IAD) (Holroyd, 2016)

### External catheters:

- Skin erosion
- Allergic reaction (Sinha, Kumar, Kumar & Singh, 2018)
- With alcohol consumption...
  - Urinary retention
  - Infections
  - Acute Kidney Injuries
  - Sepsis
  - Bladder rupture (Vaidyanathan, Selmi, Hughes, Singh & Soni, 2015)