



The UTI Risk Factors Model: A holistic understanding of UTIs

In this article, we present the background for the development of the UTI Risk Factors Model and explore the model's focus areas as they apply to diagnosing, treating and reducing the occurrence of urinary tract infections in persons with adult neurogenic lower urinary tract dysfunction.

For individuals with adult neurogenic lower urinary tract dysfunction (ANLUTD), intermittent self-catheterisation (ISC) is the gold standard for bladder emptying. It is the safest method, as it has the lowest potential for long-term complications, when compared to alternative methods of bladder emptying, such as using an indwelling catheter.¹⁻³

However, individuals performing ISC still have to contend with urinary tract infections (UTIs). In fact, UTIs are the most common complication for this group of patients. On average, persons performing ISC have 0.8-3.5 UTIs each year.⁴

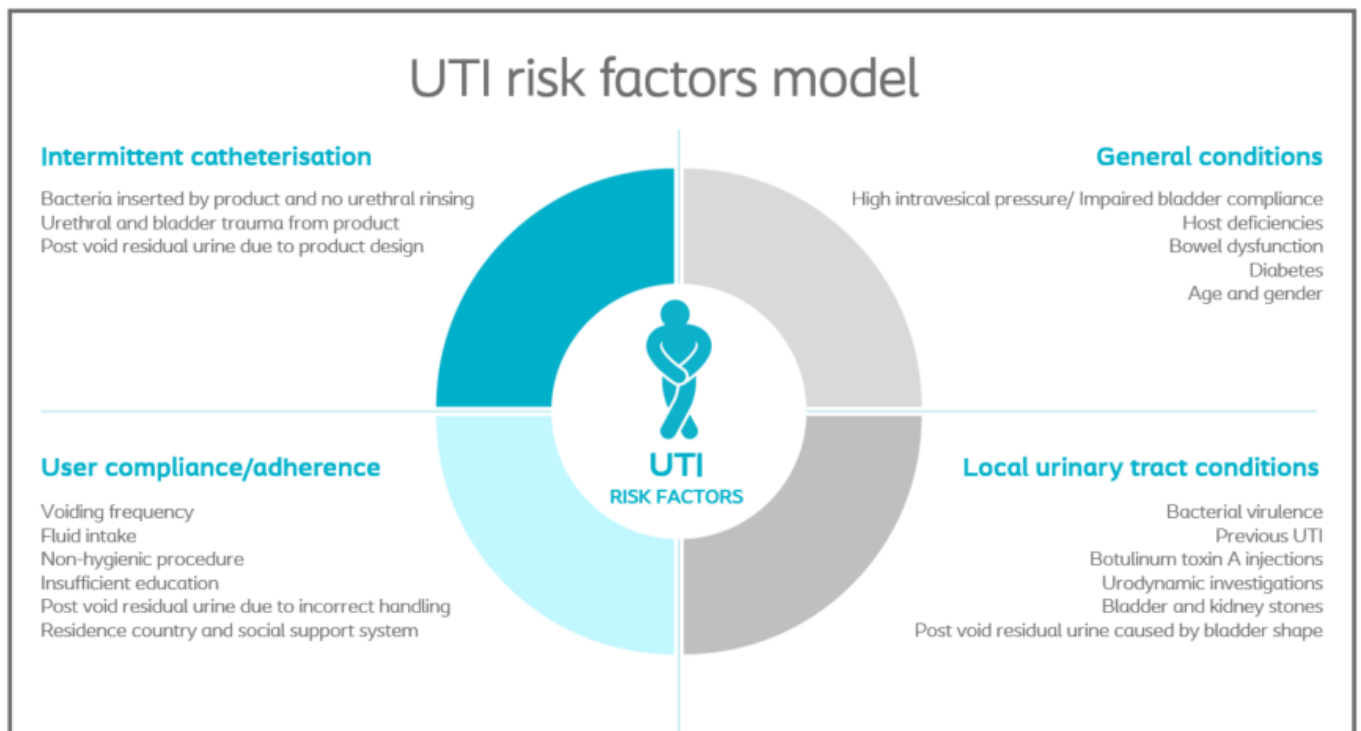
Healthcare professionals (HCPs) strive to reduce the occurrence of UTIs in this population. The question is, how can this be done? Are there factors that make an individual more susceptible to UTIs? Are there specific patterns of behaviour or circumstances which can be addressed proactively to reduce UTI occurrence?

To shed light on these issues, an international group of urologists, neurourologists and physicians in the field of rehabilitation medicine worked together to develop a UTI risk factor model.⁴ The purpose of this model is three-fold:

- to draw attention to the fact that diagnosing and treating UTIs correctly in this population is challenging and complex
- to identify UTI risk factors associated with ISC in a community (non-clinical) setting
- to provide a simple, holistic model outlining risk factors, which healthcare professionals can use on a daily basis in their practice, to help reduce UTIs in this population.

The UTI Risk Factors Model

By taking a holistic approach, the UTI risk factors model can help HCPs dig deeper into the patient's unique circumstances and see how they can prevent UTIs from occurring.



Let's take a closer look at the model's four main areas.⁴

The model is divided into four broad categories:

1. General, or systemic, conditions in the patient
2. Individual urinary tract conditions in the patient
3. The patient's adherence to ISC
4. Factors related to intermittent catheters

General conditions

The 'General conditions' relates to the person's health conditions. It includes factors such as high intravesical pressure due to the patient's underlying condition, if they suffer from diabetes or bowel dysfunction.

One of the greatest contributors to UTIs is faecal incontinence and constipation. Two separate studies found that treating these conditions with transanal irrigation (TAI) resulted in a more than three-fold reduction in UTI incidence rates^{5,6}. The reason for this reduction is unknown, but it does stress the importance of focusing on good bowel management along with bladder management.

Local urinary tract conditions

The 'Local urinary tract conditions' relates to conditions specific to the urinary tract that make the patient susceptible to UTIs. Previous UTIs are considered a risk factor, because they damage the bladder urothelium and make it easier for bacteria present in the urine to multiply and cause systemic problems.⁷ Another risk factor is Botulinum toxin A (Botox) injections. For reasons not fully understood, patients receiving Botox injections have a higher risk of developing UTIs than those that do not, regardless of whether they use ISC or not.⁸ Bladder and kidney stones are also well-known risk factors for UTIs^{9,10}, well as residual urine in the neurogenic population.¹¹

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Intermittent catheterisation

This section of the model relates to the process of catheterisation including product design. There has been considerable discussion over the influence of catheter design on UTIs. In 2014, the Cochrane Review published a report stating that there was no evidence hydrophilic catheters were safer than uncoated catheters.¹² This report was later withdrawn.¹³

A meta-analysis of recent studies exploring UTI frequency showed that there is a 16% lower risk ratio associated with hydrophilic catheters than standard ones.¹⁴ When selecting a catheter, the patient's cognitive function, hand dexterity and gender should always be taken into consideration, to make sure the product matches the patient's abilities and limitations.⁴

User compliance/adherence

The 'User compliance/adherence' looks at patient factors and behaviour. In this context, adherence refers to the extent to which the patient complies with the instructions provided by the HCP when performing ISC.⁴

Key risk factors include voiding frequency, urine volume and education. Failure to catheterise often enough can lead to bladder distension, which increases the risk of a UTI.¹⁵ Looking at fluid intake is also important, as poor fluid intake is generally considered a UTI risk factor in persons with neurogenic bladder disease.¹⁶

Technique and education are important areas to consider. A patient may start off with an excellent textbook technique. But over time, bad habits might occur, such as forgetting to wash their hands before catheterising, so re-education may be necessary.⁴

The need for a holistic approach

The UTI risk factor model illustrates the need to take each patient's individual conditions into consideration when treating UTIs.

If you would like to see the full presentation on the UTI risk factor model, given by the four doctors at the Coloplast Continence Days event, please contact your Coloplast representative for information on how to access it.

Key takeaways

1. There is a need for a global, unified UTI definition.
2. There are a number of factors to take into consideration when an ANLUTD patient believes they have a UTI. The fact that they are performing ISC is just one factor among many that should be considered.
3. Each new UTI should trigger a holistic assessment of the patient's situation, including general conditions, lower urinary tract conditions, intermittent catheterisation and user compliance/adherence.
4. The type of catheter used appears to be important. Evidence suggests that hydrophilic catheters are linked to the lowest UTI risk.¹⁴

You can also read the full Review Article here: <https://doi.org/10.1155/2019/2757862>

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