Fact sheet
Urinary incontinence

CPPE
CENTRE FOR PHARMACY POSTGRADUATE EDUCATION

Contents

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Definition

Urinary incontinence is defined by the International Continence Society as any involuntary leakage of urine.[1] It can be further categorised into five types of urinary incontinence.[2]

Stress urinary incontinence occurs due to urethral sphincter or pelvic floor weakness, and incontinence can be triggered by increased intra-abdominal pressure. Stress incontinence is common in pregnancy and shortly after childbirth.[2]

Urge urinary incontinence can occur due to detrusor overactivity (overactivity of smooth muscle fibres located in the wall of the bladder), bladder irritation or neurological abnormalities, and is associated with a sense of urgency that may occur in some people prior to micturition.[2]

Mixed incontinence occurs when a person experiences both stress incontinence and urge incontinence simultaneously. It is very challenging to manage as it involves both muscle weakness and bladder overactivity.[2]

Functional incontinence is often associated with impaired cognitive functioning and poor mobility. Typically, urinary tract function is intact; however, impaired cognition may prevent people from recognising the need to go to the bathroom to urinate. Similarly, poor mobility may prevent people from getting to the bathroom in time to urinate.[2]

Overflow incontinence, which is also known as chronic urinary retention, occurs when the bladder is unable to fully empty itself during urination, and an involuntary leakage of urine occurs because of this.[2] It occurs when the bladder becomes full and overflows. Overflow incontinence can be caused by urinary tract obstruction. It can also be caused by nerve damage, medications, or weakened bladder muscles.[3]

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Prevalence and incidence

Urinary incontinence is likely significantly under-reported. Prevalence is based on those who self-report symptoms or engage with healthcare services, and some people may not seek treatment or report their symptoms as they may consider it to be an embarrassing problem.[4] Urinary incontinence is more common in women than in men.[5] Around one in three women over the age of 18 in the UK experience urinary incontinence. This rises to around 50 percent of women over the age of 65.[6] Around 1 in 10 men over the age of 65 experience some degree of urinary incontinence.[7]

The National Institute for Health and Care Excellence (NICE) **Clinical knowledge summary (CKS): *Incontinence – urinary, in women*** provides prevalence data for different population groups.

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Signs and symptoms

Urinary incontinence can present with various signs and symptoms, such as leaking urine during everyday activities like lifting, bending, coughing or exercising.[8] Additionally, an individual may experience the inability to hold in urine after feeling a sudden, strong urge to urinate; leakage without any warning or urge; or be unable to reach a toilet in time. Furthermore, urinary incontinence can lead to wetting the bed during sleep or leakage during sexual activity.[9]

Urinary incontinence can impact activities of daily living (AODL) to varying degrees, depending on its severity and the person's daily routine. It can make maintaining good hygiene challenging if an individual is prone to frequent urinary leakage, which can increase the risk of skin irritation or infections, and negatively impact self-esteem and confidence.[9] Social situations may also become difficult for individuals with urinary incontinence, as they may worry about leakage or have to plan activities around bathroom breaks.[11] Consequently, social isolation, depression and anxiety may occur.[11] Certain jobs or maintaining employment may become difficult, particularly if the job requires frequent movement or public interactions.[11] Additionally, urinary incontinence can disrupt sleep due to the need for frequent bathroom breaks or concerns about accidents during the night.[11] This can lead to fatigue, irritability and reduced daytime functioning. Finally, urinary incontinence can impact sexual activity by causing embarrassment or discomfort and limiting intimacy due to concerns about leakage.[10]

In the Prostate Cancer UK video ***Let's talk about incontinence***,[11] we hear about the impact of urinary incontinence associated with prostate cancer on Errol McKellar, a retired mechanic and football coach, and Bill Ribbans, a trauma and orthopaedic surgeon and professor of sports medicine.[12]

Source: Prostate Cancer UK, 2023[11]

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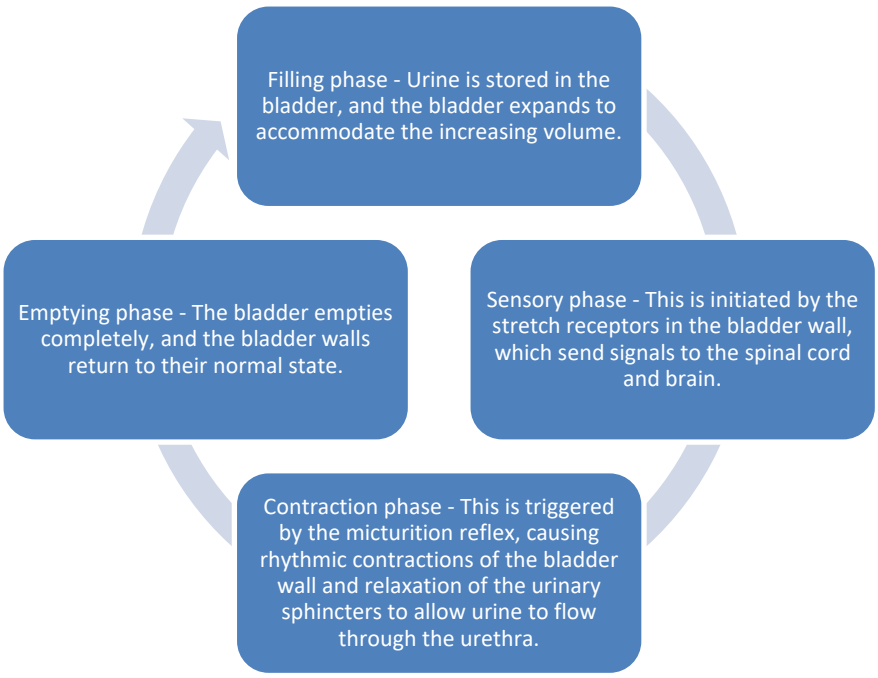
Causes/risk factors and pathophysiology (mechanism of condition)

Urinary incontinence is associated with various modifiable and non-modifiable risk factors.[13] Some of the non-modifiable risk factors include age, female sex and genetic predisposition.[13] Additionally, certain medicines and medical conditions, pregnancy and childbirth (particularly if a forceps delivery was required),[14] physiological changes that occur with natural ageing (including lack of oestrogen at menopause), physical trauma (including pelvic prolapse or surgical intervention to the pelvic area, such as hysterectomy), obesity, constipation, smoking, excessive alcohol or caffeine intake, and occupational and recreational factors that cause severe or repetitive increases in intra-abdominal pressure (such as high-impact sports like rugby), are also associated with urinary incontinence.[13]

Stress urinary incontinence is when someone leaks urine involuntarily while doing something physical, like exercising, coughing or sneezing. It can also happen when there is pressure inside the abdomen that is too much for the muscles that control urination to handle. This can cause leakage even if the bladder isn't contracting. Poor pelvic support or intrinsic sphincter deficiency can also cause stress urinary incontinence. This means that the urethra can't be supported properly, which can cause leakage, even if the muscles around the bladder are working as they should. Stress incontinence is also associated with increasing age, pregnancy and vaginal delivery, obesity and constipation. Stress urinary incontinence in men is mostly associated with surgery carried out on the prostate.[13]

Urge urinary incontinence is a type of urinary incontinence caused by detrusor muscle overactivity during the filling phase of the micturition cycle (see Figure 1), resulting in strong urges to urinate and frequent trips to the bathroom, often with leakage. Causes of urge urinary incontinence include detrusor myopathy, neuropathy, urological cancers, stones or infections in the urinary tract, and it may be associated with neurological conditions (such as Parkinson's disease, multiple sclerosis, or injury to pelvic or spinal nerves).[15] Comorbidities like obesity, type 2 diabetes and chronic urinary tract infections can worsen symptoms, and certain medicines such as parasympathomimetics, antidepressants, hormone replacement therapy,[16] and drinks containing caffeine, alcohol or acid can also exacerbate urinary urgency symptoms.[17]

Figure 1. The four stages of the micturition cycle



Source: Fowler, Griffiths, de Groat, 2008[18]

Overflow incontinence, also known as incomplete emptying, occurs when the bladder becomes too full and is unable to completely empty. This can be caused by several factors, such as bladder overdistension, impaired detrusor contraction and bladder outlet obstruction. Common symptoms of this type of incontinence include weak urinary stream, intermittent urination, hesitancy, frequent urination and nocturia.[19] It is more frequently observed in women with systemic neurological disorders or abnormalities, such as urethral obstruction.[20] Certain medicines, such as angiotensin-converting enzyme (ACE) inhibitors, antidepressants, antihistamines, antimuscarinics, antiparkinsonian drugs, beta-adrenergic agonists, calcium channel blockers, opioids, sedatives and hypnotics, can decrease bladder contractility, leading to retention and overflow incontinence.[19]

For more information about the mechanism of urinary incontinence, read Ash Monga and Abdul H Sultan's chapter ***The mechanism of continence*** (2011).

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Prognosis and complications

The prognosis depends on the type of urinary incontinence, severity, the underlying cause, any contributory factors (particularly if modifiable) and the motivation for treatment.[21]

Urinary incontinence significantly impairs quality of life by affecting employment and leisure activities.[22] It can exacerbate various psychological issues, including depression, anxiety, embarrassment, feelings of shame, loss of self-confidence, low self-esteem and fear of smelling urine or losing bladder control.[23] People with urinary incontinence may also experience social isolation and avoid going to places where access to a bathroom may be difficult.[24] In addition, sexual problems may arise, as urinary incontinence can lead to reduced intimacy, affection and physical proximity, and some people may avoid sexual activity if they are concerned about incontinence. Loss of sleep is another common problem, particularly for women with overactive bladder, as nocturia is a common symptom.[20] Furthermore, older people with urinary incontinence may be at higher risk of falls and fractures.[25] Financial problems can also arise due to the cost of absorbent products and laundry.[22] Furthermore, people living with urinary incontinence are more prone to cellulitis, perineal fungal infections, recurrent urinary tract infections, pressure sores and skin irritation. Similarly, people whose urinary incontinence is treated with catheterisation are at increased risk of catheter-associated urinary tract infections.[26] Urinary incontinence is a major case of admission to nursing and care homes.[27]

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Diagnosis/detection

NICE guideline [NG123]: *Urinary incontinence and pelvic organ prolapse in women: management* recommends that clinicians categorise the **type of urinary incontinence** during the initial assessment and tailor treatment accordingly. For mixed urinary incontinence, clinicians should direct the treatment at the predominant symptom. NICE also recommends identifying any causes and contributing factors, and investigating other potential diagnoses that may require additional investigation. Clinicians should also assess for the presence of any complications, and assess the severity of urinary incontinence.[28]

Additional investigations that may be necessary include urine testing, digital assessment to confirm pelvic floor muscle contractions, bladder scan or catheterisation to assess post-void urinary volume, baseline urinary incontinence-specific symptom and quality-of-life questionnaire, and bladder diaries. The person's wishes and preferences for treatment should be discussed to come to a shared decision. Referral to a specialist service is required if there is any persisting bladder or urethral pain, or palpable bladder on bimanual or abdominal examination after voiding, clinically benign pelvic masses, associated faecal incontinence, suspected neurological disease, symptoms of voiding difficulty, suspected urogenital fistulae, previous continence surgery, previous pelvic cancer surgery or previous pelvic radiation therapy.[28]

For more information on referral criteria for people presenting with red flag symptoms, read **NICE guideline [NG12]: *Suspected cancer: recognition and referral*** for recommendations on **urinary tract symptoms.**

Read the ***NICE CKS: Incontinence – urinary, in women*** for more information about the **diagnosis of urinary incontinence**. Read the **NICE CKS on lower urinary tract symptoms (LUTS) in men** for more information about differential diagnoses.

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Non-pharmacological treatment

Information about lifestyle interventions should be offered to people living with urinary incontinence. Recommendations on **non-surgical management of urinary incontinence** in **NICE guideline [NG123]: *Urinary incontinence and pelvic organ prolapse*** covers the information that should be delivered, along with links to other relevant NICE guidance. In summary, NICE recommends a trial of caffeine reduction, modifying fluid intake, smoking cessation (if appropriate) and weight loss advice in people with a BMI

greater than 30, in addition to pelvic floor muscle training and behavioural therapies. Clinicians should only offer containment products, handheld urinals or toileting aids as coping strategies while awaiting definitive treatment, as an addition to ongoing therapy, or for long-term management of urinary incontinence only after exploring all available treatment options.[29]

The European Association of Urology (EAU)'s **Patient Information website** provides **background information on urinary incontinence**, including treatment options for different patient populations.

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Pharmacological treatment

Prior to starting any treatment with a medicine for urinary incontinence, clinicians should discuss potential benefits of the medicine, any common side effects (such as anticholinergic side effects), and explain that the long-term effects of anticholinergic medicines on cognition are not fully understood. Therefore, when assessing pharmacological treatment options, clinicians should consider any pre-existing conditions (such as dementia, frailty or poor bladder emptying), total anticholinergic burden, and risk of worsening cognitive impairment.

NICE guidance

Section 1.4.25 *Medicines for overactive bladder* of **NICE guideline [NG123]: *Urinary incontinence and pelvic organ prolapse in women: management*** outlines the NICE recommendations for pharmacological treatment for urinary incontinence.

Therapeutic options

Before initiating medicines, discuss with the person that it may take at least four weeks to take effect, and there may be anticholinergic side effects (such as dry mouth, constipation and blurred vision). If conservative treatment options fail to control symptoms of urgency, clinicians in primary care should consider referral for specialist urological assessment and management in secondary care.[30] Treatment options include botulinum toxin type A injections into the bladder wall, percutaneous sacral nerve stimulation, augmentation cystoplasty (enlarging the capacity of the bladder by using a section of the bowel or synthetic material to create a bladder patch or substitute) and urinary diversion.[30]

If conservative treatment options fail to control symptoms associated with stress incontinence, referral to a urogynaecologist, gynaecologist or urologist should be considered.[31] Treatment options in secondary care include colposuspension (repositioning the bladder and urethra to correct their alignment), autologous rectus fascial sling (creating a supportive sling around the urethra with tissue from the fascia), retropubic mid-urethral mesh sling (creating a supportive sling underneath the urethra with synthetic material), or using intramural urethral bulking agents (injecting collagen or synthetic polymers into the urethral wall to increase its thickness and create a better seal).[31]

Clinicians should refer women with suspected urogenital fistulae to an appropriate specialist, such as a urologist or a urogynaecologist.[32]

Anticholinergics

NICE recommends that clinicians consider anticholinergics with the lowest acquisition cost to treat overactive bladder or mixed urinary incontinence in women if symptoms persist despite bladder training, and if frequency is a troublesome symptom.[30] Oxybutynin (immediate release), tolterodine (immediate release), or darifenacin (once daily preparation) can be used first line. Second-line options include fesoterodine, oxybutynin extended release (or transdermal for people unable to tolerate oral medicines), propiverine or propiverine (extended release), solifenacin, tolterodine (extended release) or trospium (immediate or extended release).[30] Do not offer flavoxate, propantheline or imipramine.[30]

Mirabegron
If an anticholinergic drug is contraindicated, then mirabegron can be offered for persistent symptoms despite bladder training (particularly if urinary frequency is a 'trouble symptom' – a symptom that may be distressing or particularly disruptive to a person's ability to carry out their AODL).

Duloxetine
NICE recommends that clinicians consider duloxetine as a second-line treatment.[31] However, this is only suitable if the previously mentioned conservative management fails to control symptoms, and if the person prefers treatment with medicines instead of surgical treatment, or if surgical treatment is not suitable. The clinician and the person should discuss the side effects of duloxetine and come to a shared decision about starting treatment.

Desmopressin
If a referral is not indicated, desmopressin could be offered off-label to manage urgency incontinence symptoms predominantly, and if the person has troublesome nocturia (the need to get up at night on a regular basis to urinate). However, desmopressin should be avoided in women over 65 who have cardiovascular disease. The clinician should discuss the off-label use of desmopressin, providing evidence for efficacy and safety, discussing alternatives, obtaining informed consent, and emphasising the importance of monitoring and follow-up.

Oestrogens
Intravaginal oestrogen should also be considered in post-menopausal women with vaginal atrophy. Clinicians must review treatment at least annually to re-assess the ongoing need for this treatment, and monitor for signs and symptoms of endometrial hyperplasia or carcinoma in women with a uterus.

The Trends in Urology and Men's Health article ***Management of urinary incontinence in men*** (2020) focuses on the management of urinary incontinence in men.

The International Journal of General Medicine article ***Diagnosis and non-surgical management of urinary incontinence – a literature review with recommendations for practice*** (2021) focuses on the diagnosis and non-surgical management of urinary incontinence.

The *British National Formulary* (BNF) also offers a treatment summary on the topic of ***Urinary incontinence and pelvic organ prolapse in women,*** in addition to the treatment summary on **urinary retention**, which covers self-management strategies, and pharmacological and non-pharmacological treatment options.

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Patient support

The **Bladder and Bowel Community** is an organisation that offers information, support and advice for people with bladder and bowel conditions, including incontinence.

The **Continence Foundation** is a charity that provides information, resources and support for people with bladder and bowel control problems, including incontinence.

The **Urology Foundation** is an organisation dedicated to raising awareness and providing support for urological conditions, including incontinence. They offer information, patient stories and resources on their website.

Bladder Health UK is a charity that offers information, support and advocacy for people with bladder conditions, including incontinence. They provide a helpline and online resources.

The NHS website has dedicated **treatment and support** and **living with urinary incontinence** pages.

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Further resources

CPPE's ***Urinary incontinence and retention*** learning gateway offers further learning on the topic of urinary incontinence, urinary retention and lower urinary tract symptoms.

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External websites

CPPE is not responsible for the content of any non-CPPE websites mentioned on this page or for the accuracy of any information to be found there.

All web links were accessed in May 2023.

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