

**MANAGEMENT OF  
URINARY INCONTINENCE IN  
OLDER PERSONS AT  
PRIMARY LEVEL**

**NOVEMBER 2011**

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## ACKNOWLEDGEMENTS

## 1. INTRODUCTION

Urinary incontinence (UI) is a syndrome caused by various factors ranging from age-related changes and urinary pathology to conditions that impair the older person's functional ability to toilet him / herself.

The prevalence of urinary incontinence increases with age and affects women more than men until the age of 80, after which men and women are equally affected. The prevalence rate in long-term care residents is much higher than amongst the older persons in the community. Even though incidence as well as prevalence increases with age, urinary incontinence should not be regarded as "normal" as it remains treatable regardless of age.

Urinary incontinence has an effect on the older person's general health, psychosocial behaviour and well-being while impairing their quality of life. It also has severe economic implications.

Although some incontinent older persons manage to maintain their activities, they still experience an increased burden of coping, embarrassment and poor self-perception.

Some of the possible effects that urinary incontinence has on older persons are:

### General health

- causing fungal infections in wet areas
- resulting in pressure ulcers not being able to heal

### Psychosocial behaviour

- social withdrawal
- sleep deprivation
- depression

### Economic implications

- Urinary incontinence leads to a higher number of older persons being institutionalised which then also leads to a higher caregiver burden.
- The management of urinary incontinence is costly because incontinence products, e.g., nappies and linen savers are expensive.

## 2. WHAT CAUSES URINARY INCONTINENCE

### 2.1 Age-related changes

Although age-related physiologic changes do not contribute directly to incontinence, it increases the risk of incontinence in the presence of certain co-morbidities, medication, or lifestyle issues. Aging often results in an increasing number of medication being taken, comorbid illness, infection, restricted mobility, and stool impaction, all of which can predispose to urinary incontinence.

### 2.2 Risk factors

The table below indicates a number of medical conditions and other risk factors that are associated with an increased risk of urinary incontinence. See Appendix A for a Risk Factor Checklist

MEDICAL CONDITION/ RISK FACTOR	DESCRIPTION
<b>Diabetes</b>	There is an increased risk as high as 50% of UI in people with diabetes. Diabetes is associated diabetic cystopathy that is characterised by: <ul style="list-style-type: none"> <li>* decreased bladder sensation,</li> <li>* increased bladder capacity, and</li> <li>* impaired detrusor contractility.</li> </ul>
<b>Stroke</b>	Up to 47% of people have urinary incontinence after suffering a stroke and there is a 90% increase in prevalence of urinary incontinence in those who have suffered a stroke.
<b>Obesity</b>	Being overweight increases the pressure effects on the bladder and surrounding muscles, weakening them and allowing urine to leak out when a person coughs or sneezes.
<b>Smoking</b>	Smoking increases the risk of UI and dependents also on the number of cigarettes the person smoke. In addition, smokers cough more frequently than non-smokers and constant coughing puts stress on the urinary sphincter which may lead to earlier development of stress incontinence. A chronic cough can cause episodes of incontinence or aggravate incontinence that has other causes and smokers are at risk of developing overactive bladder.
<b>Dementia</b>	The prevalence of UI in people with dementia is 22 - 90% and increases with increasing severity of dementia. UI in demented persons may not be caused by dementia but other treatable underlying causes.
<b>Impaired mobility and activities of daily living</b>	Impaired mobility and functionality places the older person at risk of developing UI.
<b>Gynaecological factors</b>	Childbirth is the main cause of UI because it can cause pelvic floor damage (63%). UI is also more prevalent in women who have undergone gynaecological surgery, with hysterectomy in women under the age of 45 being identified as a risk factor for UI.

### 3. TYPES OF URINARY INCONTINENCE

There are two types of Urinary incontinence:

- transient incontinence; and
- established incontinence.

#### 3.1 Transient urinary incontinence

Transient urinary incontinence, sometimes also called acute incontinence, occurs unexpectedly during an acute illness or when a chronic medical condition worsens. Usually when the causes of transient incontinence are treated, continence is restored.

The most common causes of transient urinary incontinence are listed in the tables below.

#### CAUSES OF TRANSIENT URINARY INCONTINENCE

CAUSES	POSSIBLE REVERSIBLE FACTORS	RATIONALE
Clinical conditions	Faecal impaction	<ul style="list-style-type: none"> <li>▪ An over-distended rectum or anal canal impinges on the bladder neck and can lead to obstruction resulting in urine retention and overflow incontinence</li> </ul>
	Delirium	<ul style="list-style-type: none"> <li>▪ Acute confusion alters one's ability to anticipate and meet own needs</li> <li>▪ May occur from drugs, surgery, or acute illness</li> </ul>
	Symptomatic urinary tract infection (UTI)	<ul style="list-style-type: none"> <li>▪ Symptomatic UTI:               <ul style="list-style-type: none"> <li>- can increase the irritability of the bladder wall leading to unstable detrusor contraction</li> <li>- is associated with urgency and frequency leading to urge incontinence</li> </ul> </li> </ul>
	Atrophy-urethritis, vaginitis, yeast infections	<ul style="list-style-type: none"> <li>▪ Thin, dry, friable vaginal and urethral mucosa due to hypo-estrogenization in the woman is associated with:               <ul style="list-style-type: none"> <li>- irritative symptoms (burning on urination, urgency, frequency) and</li> <li>- urge incontinence</li> </ul> </li> </ul>

CAUSES	POSSIBLE REVERSIBLE FACTORS	RATIONALE
<b>Medication</b>	Adverse or unintended side-effects that lead to: <ul style="list-style-type: none"> <li>▪ bladder relaxation,</li> <li>▪ polyuria,</li> <li>▪ urinary sphincter obstruction or relaxation, or</li> <li>▪ drugs that affect mental cognition and awareness of continence status</li> </ul>	<ul style="list-style-type: none"> <li>▪ Alcohol and many drugs have an adverse effect on the bladder (see Table 4), especially:               <ul style="list-style-type: none"> <li>- diuretics,</li> <li>- anticholinergics,</li> <li>- narcotics,</li> <li>- sedatives or hypnotics</li> <li>- antihistamines,</li> <li>- antispasmodics,</li> <li>- calcium channel blockers</li> <li>- alpha adrenergic drugs</li> <li>- anti-Parkinson medication, and</li> <li>- nonsteroidal anti-inflammatory agents</li> </ul> </li> </ul>
	Polypharmacy	Polypharmacy leads to increased risk for adverse drug effects and drug interactions that lead to alteration in urinary pattern and/or incontinence
<b>Psychological conditions</b>	Depression	Depression impairs one's motivation and desire to manage self-care or be concerned about incontinence. Cause and effect, however, is controversial
<b>Chronic illness exacerbation</b>	<ul style="list-style-type: none"> <li>▪ Metabolic (hyperglycaemia, hypercalcaemia, diabetes insipidus, low albumin states)</li> <li>▪ Fluid volume overload (heart failure, venous insufficiency with oedema)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conditions associated with polyuria increase the fluid load on the bladder and increase risk for urge and stress incontinence</li> </ul>
	Acute or chronic pain, especially with arthritis or degenerative disc disease	<ul style="list-style-type: none"> <li>▪ Inadequately managed pain can cause excessive psychological distress and lack of attention to the bladder and toileting needs</li> <li>▪ Narcotic use:               <ul style="list-style-type: none"> <li>- can lead to severe constipation and faecal impaction that obstruct the bladder neck, leading to urine retention and/or overflow incontinence</li> <li>- decreases bladder contractility to incomplete bladder emptying, urine retention, risk for UTI, and overflow incontinence</li> </ul> </li> </ul>

CAUSES	POSSIBLE REVERSIBLE FACTORS	RATIONALE
<b>Gender issues</b>	Gynecological and prostate gland issues	<ul style="list-style-type: none"> <li>▪ Women: History of vaginal delivery, multiparity, large baby, prolonged stage II delivery, significant tears</li> <li>▪ Men: Enlarged prostate contributes to retention of urine and obstructive voiding symptoms, prostate surgery can result in stress incontinence</li> <li>▪ Both men and women: Pelvic radiation, and non-urolgic pelvic surgery can result in development of adhesions that can affect bowel and bladder function</li> </ul>
<b>Dietary factors</b>	Bladder irritants	<ul style="list-style-type: none"> <li>▪ Caffeine, artificial sweeteners (for some) can cause urinary urgency, frequency, nocturia, and urge incontinence</li> </ul>
	Dehydration	<ul style="list-style-type: none"> <li>▪ Limited fluid intake by older persons as they all loose their thirst feeling</li> <li>▪ Inadequate fluids lead to concentrated urine that is irritating to the bladder, potentially contributing to urgency, frequency, urge incontinence, faecal impaction, and urinary tract infection</li> </ul>
<b>Lifestyle factors</b>	<ul style="list-style-type: none"> <li>▪ Chronic cough (smoking, respiratory conditions)</li> <li>▪ Chronic straining at stool</li> <li>▪ Obesity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pressure on the bladder and pelvic floor leading to urinary sphincter weakness</li> </ul>

(Main source: Lekan-Rutledge, D. 2004. *Urinary incontinence strategies for frail elderly women*)

### COMMON DRUGS THAT CAN CAUSE OR AGGRAVATE INCONTINENCE

GROUP		POTENTIAL EFFECTS	TYPE OF UI
Drug Class	Examples		
Alcohol	Wine (especially white), beer, spirits	<ul style="list-style-type: none"> <li>▪ Polyuria</li> <li>▪ Frequency</li> <li>▪ Urgency</li> <li>▪ Sedation</li> <li>▪ Delirium</li> <li>▪ Immobility</li> </ul>	Urge
Alpha-adrenergic agonists	phenylpropanolamine	<ul style="list-style-type: none"> <li>▪ Decrease bladder contractions with retention</li> </ul>	Overflow
Alpha-adrenergic blockers	prazosin doxazosin	<ul style="list-style-type: none"> <li>▪ Urethral relaxation and stress incontinence (in women)</li> </ul>	Stress

GROUP		POTENTIAL EFFECTS	TYPE OF UI
Drug Class	Examples		
Angiotensin-converting enzyme (ACE) inhibitors	perindopril enalopril maleate	<ul style="list-style-type: none"> <li>▪ If cough is induced</li> <li>- Cough may precipitate or worsen stress leakage</li> </ul>	Stress
Anticholinergics	<ul style="list-style-type: none"> <li>▪ hyoscine butylbromide</li> <li>▪ metoclopramide</li> <li>▪ Antihistamine (promethazine)</li> <li>▪ Tricyclic antidepressants (amitriptyline, imipramine, clomipramine, trimipramine)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Decreased bladder contractions with retention and overflow</li> <li>▪ Constipation</li> <li>▪ Urinary retention and overflow</li> <li>▪ Delirium</li> <li>▪ Faecal impaction</li> </ul>	Overflow
Caffeine	Caffeine-containing medication (Compound analgesics)	<ul style="list-style-type: none"> <li>▪ Diuretic effect</li> <li>▪ Irritant to the bladder mucosa, which can create urgency and frequency</li> </ul>	Urge
Calcium channel blockers	nifedipine	<ul style="list-style-type: none"> <li>▪ Decreased bladder (detrusor) contractions with retention</li> <li>▪ Nocturia from peripheral oedema</li> <li>▪ Faecal impaction due to constipation</li> </ul>	Overflow
Cholinergic	neostigmine	<ul style="list-style-type: none"> <li>▪ Enhanced detrusor excitability</li> <li>▪ Polyuria</li> <li>▪ Frequency</li> <li>▪ Urgency</li> </ul>	Urge
High-ceiling (loop) diuretics	furosemide	Contractions stimulated by high urine flow	Urge
Hypnotics	<ul style="list-style-type: none"> <li>▪ Benzodiazepines (midazolam, zolpidem, temazepam, diazepam, oxazepam, lorazepam)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sedation</li> <li>▪ Delirium</li> <li>▪ Immobility</li> <li>▪ Constipation</li> </ul>	Overflow Functional
Narcotic analgesics (Narcotic agonists)	<ul style="list-style-type: none"> <li>▪ Opioids</li> <li>▪ morphine</li> <li>▪ pethidine</li> <li>▪ methadone</li> <li>▪ tramadol</li> </ul>	<ul style="list-style-type: none"> <li>▪ Weakens bladder contraction, causing incomplete bladder emptying, and alters ability to respond to need to urinate</li> <li>▪ Constipation</li> <li>▪ Delirium</li> <li>▪ Urinary retention</li> </ul>	Functional Overflow

(Source: South African Medicines Formulary, 2005; Merck Manual of Geriatrics, 1995-2007; Molony, S.L., 1999. Gerontological nursing: an advanced practice approach)

If incontinence persists six months after the transient causes of urinary incontinence have been addressed, it is referred to as established urinary incontinence and the prognosis is now poorer.

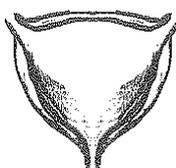
### 3.2 Established urinary incontinence

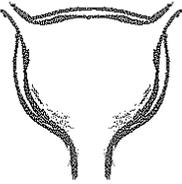
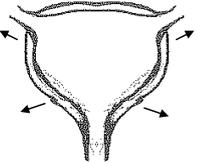
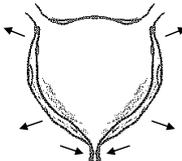
Established urinary incontinence is due to the predisposing pathology of the lower urinary tract. The bladder muscle can contract involuntarily and be overactive or fail to contract effectively and be underactive leading to retention. There are three distinct types of established urinary incontinence: **urge** incontinence, **stress** incontinence and **overflow** incontinence. When both urge and stress incontinence are present, **mixed** incontinence occurs.

Another type of established incontinence is **functional** incontinence, but this type of incontinence is not characterised by bladder dysfunction, but rather by contributing factors located outside of the urinary tract. Functional incontinence is also often a major contributing factor to urinary incontinence in frail older persons.

The types of established urinary incontinence are listed in the table below.

#### TYPES OF ESTABLISHED URINARY INCONTINENCE

TYPE	DEFINITION	COMMON CAUSES	CLINICAL FEATURES
<b>Urge</b>  (Detrusor overactivity)	<ul style="list-style-type: none"> <li>▪ Leakage of urine, usually larger amounts, due to inability to delay voiding after an abrupt and intense urge to void occurs.</li> <li>▪ Detrusor contraction is present</li> </ul>	<ul style="list-style-type: none"> <li>▪ Urinary tract infection.</li> <li>▪ Parkinson's disease</li> <li>▪ Neurological diseases, e.g. multiple sclerosis</li> <li>▪ Neurological injuries, e.g.:               <ul style="list-style-type: none"> <li>- Spinal cord injury</li> <li>- Stroke</li> </ul> </li> <li>▪ Idiopathic in the majority of older persons</li> </ul>	<ul style="list-style-type: none"> <li>▪ Irritative voiding symptoms</li> <li>▪ Urgency, frequency, nocturia, urge UI.</li> <li>▪ Moderate to large volumes of UI.</li> <li>▪ Small bladder capacity, normal post-void residual volume.</li> <li>▪ "When you gotta go, you gotta go."</li> <li>▪ Most common type of UI in older persons</li> </ul>

TYPE	DEFINITION	COMMON CAUSES	CLINICAL FEATURES
<p><b>Stress</b></p>  <p>(Outlet incompetence: open sphincter/ sphincter failure)</p>	<ul style="list-style-type: none"> <li>▪ Involuntary loss of urine, usually in small amounts, that occurs simultaneously with abrupt increases in intra-abdominal pressure.</li> <li>▪ Typical provoking events coughing, sneezing, laughing, lifting, bending, changing position.</li> <li>▪ No detrusor contraction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Weakened pelvic floor muscles and ligaments due to: <ul style="list-style-type: none"> <li>- vaginal delivery, multiparity,</li> <li>- obesity,</li> <li>- chronic cough,</li> <li>- straining at stool</li> </ul> </li> <li>▪ Gynaecologic disease (pelvic organ prolapse, urethritis)</li> <li>▪ Sphincter weakness, after: <ul style="list-style-type: none"> <li>- prostate surgery (men)</li> <li>- pelvic surgery (women)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ UI in frequent, small amounts. Occurs during physical activity (coughing, sneezing, laughing, or exercise).</li> <li>▪ No irritative symptoms or nocturia.</li> <li>▪ No post-void residual urine.</li> <li>▪ Normal bladder capacity.</li> <li>▪ Occurs in about 50% of women with UI.</li> </ul>
<p><b>Mixed</b></p>	<ul style="list-style-type: none"> <li>▪ Urine loss having features of two or more types of incontinence</li> </ul>		<ul style="list-style-type: none"> <li>▪ Older persons often experience a mixture of both stress and urge incontinence</li> </ul>
<p><b>Overflow</b></p>  <p>(Detrusor underactivity: impaired ability to contract)</p> <hr/>  <p>(Outlet obstruction: closed sphincter)</p>	<ul style="list-style-type: none"> <li>▪ Leakage of urine usually in small amounts resulting from mechanical forces on an over-distended bladder</li> </ul>	<ul style="list-style-type: none"> <li>▪ Medication that decrease bladder contractility.</li> <li>▪ Peripheral neuropathy due to diabetes</li> <li>▪ Sacral spinal cord injury</li> <li>▪ Pelvic malignancies or surgery</li> <li>▪ Multiple sclerosis</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ Prostatic hypertrophy (either benign or malignant)</li> <li>▪ Faecal impaction</li> <li>▪ Urethral stricture</li> <li>▪ Cystocele</li> </ul>	<ul style="list-style-type: none"> <li>▪ Obstructive voiding symptoms <ul style="list-style-type: none"> <li>- Hesitancy, straining to void.</li> <li>- Intermittent and reduced urine stream.</li> <li>- Prolonged voiding.</li> <li>- Post-void dribbling and sensation of bladder fullness.</li> </ul> </li> <li>▪ Characterised by distended bladder and elevated post-void residual urine.</li> <li>▪ Can mimic stress UI when there is leakage in small amounts with increased intra-abdominal pressure</li> </ul>

TYPE	DEFINITION	COMMON CAUSES	CLINICAL FEATURES
<b>Functional</b>	<ul style="list-style-type: none"> <li>▪ Loss of urine related to the older person's:               <ul style="list-style-type: none"> <li>- inability to get to the bathroom and remove clothing, or</li> <li>- decreased awareness of the need to void.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Environmental barriers (e.g. lack of easy access to toilet)</li> <li>▪ Decreased mental function (e.g. dementia, delirium)</li> <li>▪ Decreased functional status (e.g. immobility)</li> <li>▪ Impairments (including poor vision, hearing, or speech) may influence success in reaching toilet or notify care giver</li> </ul>	<ul style="list-style-type: none"> <li>▪ Continence improves when appropriate help is provided.</li> <li>▪ Many frail older persons have some component of functional UI that can be alleviated with proper attention to environment, caregivers, and assistive devices</li> </ul>

(Main source: Lekan-Rutledge, D. 2004. *Urinary incontinence strategies for frail elderly women*)

#### 4. ASSESSMENT

A thorough assessment of the older person's incontinence problem is necessary to determine the:

- type of incontinence; and
- best interventions.

The assessment should essentially achieve the following three goals:

1. Identify if incontinence are transient in nature (as this type are reversible) and treat accordingly
2. Identify reversible conditions that may require special evaluation or referral.
3. After transient causes and indications for special evaluation or referral have been excluded, decide if the older person's symptoms are more indicative of urge incontinence or stress incontinence and treat accordingly.

Health professionals can do the basic assessment of older persons with urge, stress and overflow incontinence in mind because in most cases the assessment requires only a medical history, a physical examination, urinalysis and measurement of post-void residual (PVR) urine volume. However if treatments are ineffective, the older person should then undergo a more specialised evaluation.

## **4.1 History taking**

It is important to fully characterise the older person's problem by taking a detailed history, including the duration of the symptoms, timing of voluntary or involuntary voiding, volume voided involuntarily, and the relationship to voluntary voiding. (See Appendix B: Continence Assessment Tool.)

### **4.1.1 Voiding history**

When assessing the older person's voiding history, the following is important:

- The severity of the incontinence (how many pads or diapers does the older person use)
- Loss of urine with coughing, laughing, or lifting heavy objects (refer to stress type)
- Inability to hold urine after having the urge to urinate, in other words loss of urine associated with a strong desire to void (refer to urge type)
- Pain or discomfort (the older person might have an infection or inflammation)
- Inability to fully empty bladder (an obstruction might be the problem)
- Decreased urinary stream (an obstruction might be the problem)
- If symptoms of mixed urinary incontinence are present, determine which type is more bothersome.

### **4.1.2 Medical condition history**

Assess if the older person has any known condition that is associated with urinary incontinence. These include:

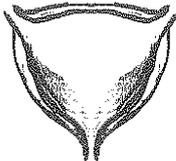
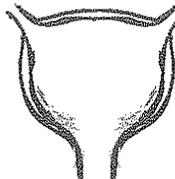
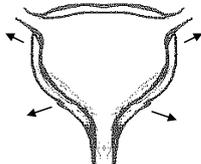
- diabetes mellitus
- heart failure
- menopause
- neurological problems
- psychiatric illness
- other urogenital symptoms

If the older person is a female, take a detailed obstetric history.

### 4.1.3 Medication history

Since medication is a major cause of incontinence, a thorough medication history is essential. Medication that can contribute to specific types of urinary incontinence are listed in the table below.

#### MEDICATION THAT CAN CONTRIBUTE TO SPECIFIC TYPES OF URINARY INCONTINENCE

TYPE OF UI	MECHANISM	DRUG CLASS
Urge	Detrusor overactivity 	<ul style="list-style-type: none"> <li>▪ Alcohol</li> <li>▪ Caffeine</li> <li>▪ Carbonated drinks</li> <li>▪ Cholinergic</li> <li>▪ High-ceiling (loop) diuretics</li> </ul>
Stress	Outlet incompetence (Open Sphincter/Sphincter failure) 	<ul style="list-style-type: none"> <li>▪ Alpha-adrenergic blockers</li> <li>▪ Angiotensin-converting enzyme (ACE) inhibitors (<u>only</u> when a chronic cough is produced by the ACE-I)</li> </ul>
Overflow	Detrusor underactivity 	<ul style="list-style-type: none"> <li>▪ Alpha-adrenergic agonists</li> <li>▪ Anticholinergics</li> <li>▪ Calcium channel blockers</li> <li>▪ Hypnotics</li> <li>▪ Narcotic analgesics (e.g. opiate containing drugs)</li> </ul>
Functional	Physical or cognitive impairment	<ul style="list-style-type: none"> <li>▪ Hypnotics sedatives, anticholinergics</li> <li>▪ Narcotic analgesics</li> </ul>

(Adopted from: Fonda, D & DuBeau, C.E. *Incontinence in the Frail Elderly.*; Weiss, B.D. 1998. *Diagnostic Evaluation of Urinary Incontinence in Geriatrics Patients.*)

### 4.2 Physical examination

The physical examination should focus on establishing the underlying cause(s) of the incontinence:

- General
  - Is the older person physically capable of getting to the toilet?
- Mental status
  - Identify delirium, dementia
  - Is the older person able to understand and act on the urge to void?
- Neurologic examination
  - Identify stroke, Parkinson's disease, spinal cord compression

- Abdominal examination
  - Is the bladder distended?
- Rectal or prostate
  - Does the older person have:
    - ★ faecal impaction; or
    - ★ an enlarged prostate?
- Pelvic examination
  - Assess for:
    - ★ atrophic vaginitis;
    - ★ uterine prolapse; or
    - ★ a pelvic mass

## **5. ASSESSMENT TOOLS**

### **5.1 Voiding diary**

A voiding diary (see to Appendix C: Voiding diary) is a good way to get additional information about the older person's problem. The older person/caregiver must record the time and approximate amount of each voiding, and whether he/she was wet or dry. Although a week's record is desirable, two to three continuous days of recording can give a baseline record of incontinence.

### **5.2 Urinalysis**

Urinalysis can identify acute urinary tract infection and diabetes-induced glycosuria, both of which can cause or aggravate urinary incontinence and these conditions are reversible with treatment. If appropriate, a urine culture should also be obtained. If urinalysis indicates cystitis or urethritis it should be treated.

## **6. MANAGEMENT OF URINARY INCONTINENCE**

Treatment of urinary incontinence requires a multifactorial approach and should be tailored according to each older person situation, especially for the reason that factors outside the lower urinary tract often play an important role in urinary incontinence symptoms such as age-related changes together with factors such as medical illness and medications that render older persons more vulnerable to developing urinary incontinence. Correction of those factors alone can often improve continence. Initial treatment should focus on the correction of these basic factors before moving to more severe treatments like surgery.

## **6.1 Identify and treat transient causes**

Initially, the health professional needs to identify and treat any reversible or transient causes of urinary incontinence.

## **6.2 Education on lifestyle changes**

The following lifestyle changes can contribute to the prevention or reduction of urinary incontinence.

### **6.2.1 Adequate fluid intake**

Older persons lose their feeling of thirst and as a result will not take in the required 2 litres of fluid per 24 hours. This increases their risk of becoming dehydrated, especially in hot weather. Older persons also often limit their amount of fluid intake in order to avoid going to the toilet more often. This results in concentrated urine, which acts as an irritant to the bladder wall, causing contraction of the bladder (result is frequency, urgency, or urge incontinence). Incontinent persons with low fluid intakes (< 1 500 ml/day) may reduce their night-time incontinence episodes through increasing their fluid intake during the morning and afternoon hours and reducing fluid intake after 18:00.

### **6.2.2 Dietary modification**

Limit intake of foods/beverages that may irritate the bladder and cause the body to produce more urine, e.g.:

- Coffee (even decaffeinated), tea (English tea) and Cola as caffeine affects the bladder pressure
- Fizzy drinks
- Citrus juices
- Alcoholic beverages, including beer and wine
- Chocolate
- Salt (salt encourages urine formation)
- Fruits, tomatoes and tomato-based products
- Spicy foods

### **6.2.3 Smoking cessation**

Nicotine is irritating to the detrusor muscle, causing bladder contractions and a feeling of urgency and to stop smoking can reduce this irritation to the detrusor muscle. Chronic coughing due to smoking may also cause urinary leakage which may decrease with smoking cessation.

### 6.2.4 Healthy weight

Being severely over-weight can increase pressure on the bladder that may contribute to bladder control problems and can be improved by losing weight.

### 6.2.5 Bowel regularity

The bowel pattern of an older person may contribute to his/her urinary incontinence. If stool is hard, resulting in faecal impaction, this impaction can press against the urethra and may change the angle of the urethra slightly, preventing complete emptying of the bladder. Older persons should keep regularity through increased fibre, exercise and adequate fluid intake.

## 6.3 Behaviour therapy

Behaviour therapy is usually the first management option for stress, urge, and mixed incontinence and includes behavioural therapy methods such as toileting regimes, pelvic floor muscle exercises and bladder urge inhibition.

### 6.3.1 Toileting regimes

Toileting regimes include scheduled toileting, habit training, prompted voiding and bladder training. These regimes are appropriate for the more cognitively intact older person and also considered as appropriate for the primary treatment of stress and urge incontinence.

The table below describes the different types of toileting regimes

#### DIFFERENT TYPES OF TOILETING REGIMES

TYPE	DESCRIPTION
Scheduled or Timed Toileting	The schedule to toilet is fixed, usually at every 2 hours, with the goal of avoiding an incontinent episode. <ul style="list-style-type: none"> <li>The schedule avoids instances where the bladder becomes overfilled and is therefore subject to leakage.</li> </ul>
Habit Training	The schedule is adapted to the voiding and incontinence pattern of the older person. <ul style="list-style-type: none"> <li>The cognitively intact person can relay the timing of voids and leakages.</li> <li>Over a period of 3 to 7 days, a pattern is established.</li> </ul> <i>(Note: If the individual is cognitively impaired, it is not possible to identify the timing and volume of incontinent episodes).</i>
Prompted Voiding	A communication protocol accompanies a scheduled toileting or habit-training regime. <ul style="list-style-type: none"> <li>Positive verbal reinforcement and praise are provided to the person for identifying if he/she is wet or dry, for staying dry, for voiding, and for consuming liquids after the procedure.</li> </ul>
Bladder Training	A short voiding interval is progressively lengthened as the person volitionally suppresses bladder urges and stays dry. <ul style="list-style-type: none"> <li>As bladder capacity increases, voiding intervals increase and urgency decreases.</li> </ul>

- |  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>Usually, bladder training starts at hourly intervals and gradually lengthens to every 2 to 3 hours in older persons.</li> </ul> |
|--|--|

(Source: Lekan-Rutledge, D. 2004. *Urinary incontinence strategies for frail elderly women*)

### 6.3.2 Pelvic floor muscle exercises

Pelvic floor muscle exercises (or Kegel exercises) are used to help strengthen the pelvic floor muscles. These muscles provide support to the bladder neck, urethra, and external urinary sphincter. Pelvic floor muscle exercises are used for both stress and urge incontinence. See Appendix D: Pelvic floor muscle exercises.

### 6.3.3 Bladder urge inhibition

Bladder urge inhibition is when the bladder urge occurs the person wilfully focuses on controlling the urge and waiting for the urge to pass before going to the bathroom.

In other words, when the bladder urge occurs, the person has to:

- Stop all activity that he/she is busy with and stand or sit still
- While breathing normally, contract the pelvic muscles rapidly five to six times, or until the urge subsides (some form of distraction like counting backwards from 100 or humming a tune might help to alleviate the anxiety or discomfort )
- After the urge has finally subsided, the person can go to the bathroom

To prevent incontinence, it is important for the older person with an urgency to delay going to the bathroom too frequently and to resist the sudden need to void.

A summary of the behavioural therapy methods for specific types of urinary incontinence is indicated in the table below.

#### BEHAVIOURAL THERAPY METHODS FOR TYPES OF URINARY INCONTINENCE

METHOD	TYPE
Scheduled/timed toileting (voiding)	*Overflow
Habit training	*Overflow
Bladder training	Urge
Pelvic muscle exercise	Stress Urge (with no nerve damage)
Bladder urge inhibition	Urge

(\* Overflow with no outlet obstruction)

## **7. SUPPORTIVE CARE**

### **7.1 Absorbent products**

Absorbent products like pads should not be the first option treatment for incontinence and older persons with incontinence should be made aware of alternative treatments such as behavioural therapy methods. However older persons should have a choice in this decision.

### **7.2 Condom catheters**

The condom catheter is recommended for an incontinent man, who can adequately empty his bladder and has intact penile skin, and in whom other therapies have failed or are not appropriate. Although this device drains the urine and keeps the skin dry, improper or prolonged use can cause contact dermatitis, maceration of the penis, ischaemia and penile constriction.

### **7.3 Intermittent catheterisation**

Intermittent catheterisation involves passing a catheter into the bladder every 3 to 6 hours and is an alternative for willing older persons and especially for those who are able to catheterise themselves as it can improve their quality of life.

It is also recommended as supportive care for older persons with:

- chronic urinary retention related to a underactive detrusor muscle (as in diabetic neuropathy);
- a blockage of the urethra (as in benign prostatic hypertrophy)
- reflex incontinence related to a spinal cord injury.

### **7.4 Indwelling catheters**

Indwelling catheters should be reserved for short-term supportive care and when:

- retention cannot be managed surgically or medically,
- wounds or pressure ulcers need to be kept clean of urine or just dry, or
- a terminally ill or severely impaired persons for whom alternative interventions are not an option.

Care should be taken with indwelling catheters as a means of care as bacteriuria is usually present 2 to 4 weeks after the catheter has been put in and the patient is also at risk for symptomatic urinary tract infection and sepsis. Other complications can also present itself such as bladder spasms, bladder stones and renal damage to name a few.

## **8. URINARY INCONTINENCE AND FALLS**

There is a strong link between urinary incontinence and falls amongst older persons and it is important for carers of older persons to be aware of the risk factors.

### **8.1 Fall risk factors**

The following are risk factors that might increase the risk of falls:

- The increased sense of urgency which necessitates them to rush to the toilet to avoid incontinent episodes.
- Wet floor surfaces caused by an incontinence episode.
- An incontinence episode can lead to dizziness due to severe drop of blood pressure.
- Transient incontinence due to acute illness (e.g. urinary tract infection), can cause delirium, drowsiness and hypotension.
- Medication used to treat incontinence, such as anticholinergics, can cause postural hypotension.
- Waking up at night to void can result in poor quality of sleep.
- Impaired mobility and balance make it difficult to reach the toilet.
- Reduced ability to undress or to remove under-ware.
- Impaired cognition influences the older person's ability to perform more than one task such as walking and concentrating on getting to the toilet.
- Older person's who need to use a walker and who can't stand without support.

### **8.2 Strategies for reducing fall risk**

The following strategies may reduce the risk of falls:

- Identify and treat the cause of incontinence.
- Identify and address risk factors.
- If the older person requires toileting assistance, respond to their toileting requests promptly.
- Locate the older person near to the toilet if possible or use a bedside commode or urinal.
- Ensure that the older person is wearing clothes that can be easily removed or undone and that he/she wears footwear to reduce slipping.
- Keep the pathway to the toilet obstacle free
- Leave a nightlight on in the bedroom and/or bathroom at night.

## URINARY INCONTINENCE RISK FACTOR CHECKLIST (\* may cause transient UI)

### Aging-related changes to urinary system

- Decreased bladder capacity
- Decreased ability to postpone voiding
- Decreased flow rate
- Decreased urethral length, compliance, and pressure in females
- Increase in uninhibited bladder contractions
- Increase in post-void residual volumes
- Increase in night-time fluid excretion

### Genitourinary conditions

- Intrinsic sphincter deficiency
- Detrusor instability
- Detrusor hyperactivity
- Urinary tract infection \*
- Atrophic urethritis or vaginitis \*
- Enlarged prostate in males
- Pelvic prolapse in females

### Chronic health state factors

- Cardiovascular conditions 
  - Congestive heart failure \*
  - Orthostatic hypotension \*
  - Peripheral oedema \*
- Endocrine conditions 
  - Diabetes mellitus
  - Hyperglycaemia \*
  - Diabetes insipidus \*
  - Hypercalcemia \*
  - Oestrogen depletion in females
  - Obesity
- Neurological conditions 
  - Spinal cord injury
  - Cerebrovascular accident
  - Multiple sclerosis
  - Parkinson's disease \*
- Orthopaedic conditions 
  - Arthritis \*
  - Recent fracture \*

### Mental health related factors

- Depression \*
- Dementia
- Delirium \*
- Psychological unwillingness to toilet

### Lifestyle factors

- Caffeine \*
- Alcohol \*
- Smoking
- Recent admission to long-term residential facility \*
- High impact physical activity \*

### Iatrogenic (treatment-induced) factors

- Post-prostatectomy in males
- UI corrective surgery in females
- Stool impaction \*
- Medication 
  - Diuretic \*
  - Anticholinergic agent \*
  - CNS depressant
  - Narcotic analgesic
  - Sedative/hypnotic agent \*
  - Alpha-adrenergic agent \*
  - Beta-adrenergic agonist
  - Calcium channel blocker \*
- Fluid intake 
  - Excess \*
  - Decreased/restricted
- Restricted mobility 
  - Bedrest \*
  - Traction \*
  - Restraints \*

### Environmental barrier factors

- Distance to toilet \*
- Poor lighting \*
- Environmental clutter \*
- Bedrails \*
- Complicated clothing \*
- Unable to locate toilet \*
- Unable to get assistance to toilet \*

### Functional status factors

- Decreased manual dexterity
- Poor eyesight \*
- Communication alteration 
  - Speech problems
  - Hearing problems
  - Speaks different language than caregivers

*(Adapted from: Lyons, BSN & Pringle Specht, JK. 2005. Evidence-based practical guideline: Prompted voiding for persons with urinary incontinence)*

CONTINENCE ASSESSMENT TOOL

**A. SUGGESTED QUESTIONS**

- Do you ever lose control of your urine? 

Yes/No
Yes/No
- Do you ever leak?
- Can you tell be about the problems you are having with your bladder? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Can you tell me about the trouble you are having holding your urine (water)? \_\_\_\_\_
- How often do you lose urine when you do not want to? \_\_\_\_\_

\_\_\_\_\_

- When do you lose urine when you do not want to? \_\_\_\_\_
  - Do you leak when coughing, sneezing, laughing, or lifting objects? \_\_\_\_\_
  - Do you leak when hurrying to the bathroom? \_\_\_\_\_

- Can you sense when the bladder is full? 

Yes/No
--------
- Can you sense when voiding occurs? 

Yes/No
--------
- Do you recognise the need to go to toilet? 

Yes/No
--------
- Are you able to find the toilet? 

Yes/No
--------
- How long have you had this bladder problem? \_\_\_\_\_

**B. COLLATERAL (Suggested Questions)**

*(Note: It is essential to obtain a reliable collateral history from a close relative or friend, as it may differ substantially from the history given by the older person.*

- Does he/she ever lose control of his/her urine? 

Yes/No
Yes/No
- Does he/she ever leak?
- Can you tell be about the problems he/she is having with his/her bladder? \_\_\_\_\_

\_\_\_\_\_

- Can you tell me about the trouble he/she is having holding his/her urine (water)? \_\_\_\_\_
- How often does he/she lose urine when he/she does not want to? \_\_\_\_\_

\_\_\_\_\_

- When does he/she lose urine when he/she does not want to? \_\_\_\_\_
  - Does he/she leak when coughing, sneezing, laughing, or lifting objects? 

Yes/No
  - Does he/she leak when hurrying to the bathroom?
- Can he/she sense when his/her bladder is full?
- Can he/she sense when voiding occurs?
- Does he/she recognise the need to go to toilet?
- Is he/she able to find the toilet?
- How long has he/she had this bladder problem? \_\_\_\_\_

**C. HISTORY**

**Allergies** \_\_\_\_\_

**Medical history**

DISEASE/CONDITION	YES	NO	DISEASE/CONDITION	YES	NO
Diabetes			Glaucoma		
Hypertension			Respiratory disease		
Congestive cardiac failure			Arthritis		
Cancer			Other:		

**Current medication**

- Prescribed medication: \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- Transfer aforementioned applicable information in the following table:

DRUG CLASS	PRESCRIBED AND OTHER MEDICATION/DRUGS
Alcohol	
Alpha-adrenergic agonists	
Alpha-adrenergic blockers	
Angiotensin-converting enzyme (ACE) inhibitors	
Anticholinergics	
Beta blockers	
Caffeine	
Calcium channel blockers	
Cholinergic	
High-ceiling (loop) diuretics	
Hypnotics	
Narcotic analgesics (Narcotic agonists)	

**Surgical history**

- Colon: \_\_\_\_\_ Rectal: \_\_\_\_\_
- Pelvic: \_\_\_\_\_ Abdominal: \_\_\_\_\_
- Other: \_\_\_\_\_

**Mental status**

- Do you recognise the need to go to toilet? 

Yes/No
--------
- Are you able to find the toilet? 

Yes/No
--------
- Depressed? 

Yes/No
--------

 Forgetful? 

Yes/No
--------
- Anxious? 

Yes/No
--------

 Confused? 

Yes/No
--------

**Neurological history**

DISEASE/CONDITION	YES	NO	DISEASE/CONDITION	YES	NO
Cerebrovascular accident			Parkinson's disease		
Spinal cord injury			Disc disease		
Multiple sclerosis			Dementia		

**Gynaecology**

- Number of pregnancies: \_\_\_\_\_ Number of episiotomies: \_\_\_\_\_
- Mode of childbirth: \_\_\_\_\_

DISEASE/CONDITION	YES	NO	DISEASE/CONDITION	YES	NO
Genital prolapse			Vaginitis		
Postmenopausal			Atrophic vaginitis		

**Urologic history**

DISEASE/CONDITION	YES	NO	DISEASE/CONDITION	YES	NO
Urinary tract infection			Tumor		
Calculi			Urinary procedures involving bladder/urethra/prostate		
Prostate problems					

- Do you have any difficulty passing your urine?
- If "yes", explain: \_\_\_\_\_
- Any pain?  Or burning?

**Onset of urinary incontinence**

- Frequency of:
  - Daytime voiding pattern: \_\_\_\_\_
  - Night-time voiding pattern: \_\_\_\_\_
  - Incontinence pattern: \_\_\_\_\_
  - Previous treatment:  Outcome: \_\_\_\_\_
  - Absorbent product (e.g pad) used:  Effective: \_\_\_\_\_
- Device used:
  - External catheter:  Effectiveness: \_\_\_\_\_
  - Intermittent catheter:  effectiveness: \_\_\_\_\_
  - Other:  Effectiveness: \_\_\_\_\_

**Bowel pattern**

- Frequency: \_\_\_\_\_
- Consistency: \_\_\_\_\_
- Use of laxatives: \_\_\_\_\_

**Lifestyle history**

- Smoking:  How long: \_\_\_\_\_ How many per day: \_\_\_\_\_
- Fluid intake pattern:
  - Amount / 24 hours: \_\_\_\_\_ Restrict fluids: \_\_\_\_\_
  - Caffeine (e.g. coffee) intake: \_\_\_\_\_
  - Alcohol: \_\_\_\_\_
- Physical activity: \_\_\_\_\_
- Weight: \_\_\_\_\_

**Functional abilities**

- How good is your eyesight? \_\_\_\_\_
- Mobility: \_\_\_\_\_
  - Independent \_\_\_\_\_
    - ★ Able to transfer out of bed, dress and use the toilet?
    - ★ How much/long does it take to get from the bed to the bathroom? \_\_\_\_\_
  - ★ Can you dress / undress well?
  - ★ Do you have problems (un-) fastening zips etc.?
  - Assistance required: \_\_\_\_\_
  - Assistive device \_\_\_\_\_

**Environment**

- Is the bathroom accessible?
- Clear path:  Sufficient lightning:

**Psychosocial effects**

- How does this problem (incontinence) affect your personal life? \_\_\_\_\_
- How do you feel about it? \_\_\_\_\_

(Adapted from: Molony, S.L., 1999. *Gerontological nursing: an advanced practice approach*; Pringle, J.K. 2005. *Nine myths of incontinence in older adults*)

## VOIDING DIARY

**PATIENT NAME:** \_\_\_\_\_

This chart will provide information that is important in identifying the cause of your problem.

- Please complete it as accurately as possible.
- Complete one page for each of the next 3 days.

**Date Commenced** \_\_\_\_\_

TIME	INTAKE	URINE PASSED	LEAKAGE	COMMENTS
06...				
07...				
08...				
09...				
10...				
11...				
12...				
13...				
14...				
15...				
16...				
17...				
18...				
19...				
20...				
21...				
22...				
23...				
24...				
01...				
02...				
03...				
04...				
05...				

(Source: Scottish Intercollegiate Guidelines Network. 2004. Management of urinary incontinence in primary care.)

## **APPENDIX D**

### **PELVIC FLOOR MUSCLE (KEGEL) EXERCISES**

#### **1. PURPOSE**

The purpose of pelvic floor muscle exercises (or Kegel exercises) is to strengthen the muscles of the pelvic floor to improve the function of the urethral sphincter. The success of these exercises depends on proper techniques and sticking to a regular exercise programme.

#### **2. PROCEDURE**

##### **2.1 Getting Ready to begin Pelvic Muscle Exercising**

- First, empty bladder.
- Adjust clothing to be comfortable
  - Loosen belts or garments that are tight around abdomen.
- Find a quiet location
  - As exercise is mastered, it can then be performed while doing other activities.
- Relax entire body.
- When starting pelvic muscle exercising, a most comfortable position must be found.
  - **Positions:**
    - ★ Sit upright in a straight-back chair, knees slightly apart, feet flat on the floor, or
    - ★ lie on back, flat or with head slightly elevated, knees bent, and feet slightly apart, or
    - ★ stand by a chair keep back straight and knees slightly bent, feet slightly apart with toes slightly pointed outward.

##### **2.2 Locate and Isolate the Pelvic Floor Muscle**

- Pretend to be shutting off urine flow or tightening anus as to hold back gas.
  - A sensation of closing and lifting should be felt.
- Concentrate to tighten (squeeze) only the pelvic floor muscle.
  - DO NOT:
    - ★ tighten leg muscles (thighs), buttocks, or abdomen; or
    - ★ hold your breath. Breathe normally.
  - It is important to isolate the pelvic muscle in order to experience the best exercising outcome.

## 2.3 Controlling the Pelvic Muscle

The proper exercise is a series of pelvic muscle tightening (squeezing and contracting are words also used) and relaxation.

- One exercise is tightening and relaxing
  - Control is achieved by timing oneself.
    - ★ Example: Tighten and hold for 3 seconds, relax for 3 seconds.
  - It is equally important to control both muscle tightening and relaxing. Therefore, one should:
    - ★ relax for the same amount of time one tighten and hold, and
    - ★ relax completely between each tightening.
  - Slowly but steadily one will build the ability to hold the tightening.
  - It is important to build gradually as indicated in the following example:

STEPS	SESSIONS	PROCEDURE			DURATION
		Tightening/ Holding	Relaxing	Repetitions (Tightening & Relaxing)	
<b>First</b>	2 per day	3 sec.	3 sec.	10 times	At least 1 week
<b>Second</b>	2 per day	5 sec.	5 sec.	10 times	At least 1 week
<b>Third</b>	2 per day	10 sec.	10 sec.	10 times	At least 1 week
<b>Fourth</b>	3 per day	10 sec.	10 sec.	15 times	Until improved urinary control is achieved
<b>Maintenance</b>	2 per day	10 sec.	10 sec.	15 times	Maintenance schedule

- Incontinence will return to its original severity if these exercises are discontinued, so commitment to the programme must be high and possible life-long.
  - The challenge is to consistently make pelvic muscle exercising a regular part of one's life.
- **Cautions:**
  - Do not stop and start urine flow as a form of exercising.
  - Do not over exercise the pelvic muscle: start slow, build gradually.

## **ACKNOWLEDGEMENTS**

- Department of Health (National, Provincial and District)



**Compiled by the:**  
**Directorate: Chronic Diseases, Disabilities and Geriatrics**  
**National Department of Health**  
**Private Bag X828**  
**Pretoria**  
**0001**

**Tel no: 012 395 9000**

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