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**INCONTINENCE
AND THE
OLDER PERSON**

Series on clinical management
problems in the elderly

No 5

Report of the Health Care Committee
Expert Panel for health care of the elderly

NHMRC

National Health and Medical Research Council

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Executive summary

- Incontinence is a common disorder which disproportionately affects the older person.
- There are numerous primary causes of incontinence in the older person. These may be primarily related to the pelvic structures or contributed to by various factors. Frequently the aetiology is mixed and complex.
- With adequate assessment and appropriate management many patients can be cured and almost all can be significantly improved.
- Success rates in the order of 50–70 per cent are achievable in community based older patients.
- Where cure of incontinence is not possible, assistance with social continence should be achieved.
- Continuing focus on incontinence particularly in the older person needs to be maintained.

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Introduction

Urinary incontinence is an unpleasant, distressing and embarrassing condition. It disproportionately affects the older person and is commonly suffered silently, despite the major effect on the person's quality of life and that of their family. It is estimated that about 900,000 adult Australians suffer from this affliction. Between 20–30 per cent of older hospitalised patients and 50–70 per cent of nursing home residents in Australia have urinary incontinence. The financial and personal costs to society are great. Surveys of health care professionals have suggested a low level of knowledge about how to deal with this problem.¹

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Physiology of continence and pathophysiology of incontinence

General

In the absence of a fistula, urine only escapes from the bladder when the pressure inside the bladder exceeds the pressure in the urethra. Factors that raise intra vesical pressure (poor compliance, bladder contractions, bladder overstretch or raised intra-abdominal pressure) or factors which lower urethral resistance (muscle weakness, denervation or drugs) tend to promote urinary incontinence (see Table 1) and vice versa.

During the filling/storage phase the bladder pressure remains low and the urethral pressure slowly increases to maintain continence. In the neonate, the micturition reflex empties the bladder when it is full or when it is provoked (eg by change of posture, cold water, tickling or movement). This primitive micturition reflex is coordinated in the brain stem. It consists of urethral relaxation, a coordinated sustained bladder contraction which expels the urine, followed by bladder relaxation and restoration of urethral pressure. Voiding occurs by higher centre facilitation of the micturition reflex.

Central inhibition of the micturition reflex is learned during toilet training. The normal, **STABLE**, adult bladder only contracts at the right time and place. This requires a normal bladder and urethra, an intact nervous system, motivation, and proper training. If any of these are missing the bladder will be overactive or **UNSTABLE**, contracting inappropriately (like that of the neonate) giving rise to the symptoms of frequency, urgency, nocturia and to urge incontinence when a toilet cannot be reached in time. The unstable bladder is the chief cause of enuresis, giggle and urge incontinence.

Urethral resistance is maintained by a combination of passive elastic and positional forces and by muscular tonus and contraction in the sphincter mechanism. The sphincter mechanism consists of both smooth and striated muscle wrapped around the whole of the female urethra and around the male membranous urethra. Sphincter weakness or damage may result in stress incontinence, leakage occurring coincident with raised intra-abdominal pressure. Reflex relaxation of the sphincter and pelvic floor can occur with faecal impaction promoting incontinence of both urine and faeces in this condition.

Bladder overstretch associated with chronic retention may lead to overflow incontinence often manifested by poor stream, persistent dribbling, mixed urge and

stress incontinence. In this condition the end filling pressure in the bladder may be high enough to overcome sphincter resistance allowing leakage to occur. Chronic retention may be the result of bladder outlet obstruction or of detrusor failure or a combination of these.

A number of medical conditions have an impact on continence (Table 2), and both environmental factors (Table 3) and drug induced incontinence (Table 4) become more prevalent with advancing age. Often a number of different conditions coexist and precipitate loss of control. Age alone is not a cause of incontinence. Incontinence is a symptom of an underlying problem. Success in its treatment is dependant upon accurate diagnosis of underlying cause(s) by informed assessment leading to specific restorative therapy.

Specific factors

The causes of urinary incontinence are often multifactorial and interrelated. The following highlight some of the many possible contributing factors.

Neurological disorders

There is a rising prevalence of neurological disorders in the older person. Stroke, cerebral atrophy, Parkinson's disease, acute delirium and dementia are often accompanied by hyperreflexic neurogenic bladder dysfunction with frequency, urgency, nocturia and urge incontinence. Depression, cognitive dysfunction and alcoholic brain damage can impair motivation or awareness of bladder filling until it is too late to reach the toilet in good time. Lesions of the conus and cauda equina due to slipped discs, spondylolisthesis, pelvic fractures or damage to the pelvic nerves by abdomino-perineal excision of the rectum or autonomic neuropathy in diabetes may significantly impair the bladder's ability to empty, causing retention with overflow incontinence.

Irritative changes

With age there is a rising incidence of irritative lesions such as carcinoma and carcinoma in situ of the bladder, urinary tract infections, non bacterial or radiation cystitis and stones. All can cause frequency and loss of control. Haematuria may be of sinister significance and should never be overlooked. Atrophic changes in the intrinsic sphincter mechanism occur at the same pace as atrophic changes in other skeletal musculature.

Locomotor dysfunction

Changes affecting the locomotor system may impair the ability of the older person to reach the toilet in good time.

Prostatic enlargement

The most prominent change that occurs in the lower urinary tract of older men is prostatic enlargement. This may be due to benign hypertrophy or to inflammatory changes consequent to acute or chronic prostatitis. Malignant change in the prostate gland is the second most common malignancy in men and has a rising

incidence with age. Bladder outlet obstruction from either benign or malignant causes is often associated with secondary detrusor instability giving rise to symptoms of frequency, urgency, nocturia and sometimes to urge incontinence as well. In addition, the obstructive symptoms of hesitancy, poor stream, terminal dribbling or incomplete emptying may be compounded by inflammatory symptoms of burning, stinging, pain or blood when either urinary tract infection or prostatitis supervenes. Other outlet obstruction due to strictures or bladder neck dysfunction can cause similar symptom complexes. Chronic prostatitis (often a bacteria), another common cause of frequency with urgency and discomfort, can be a cause of ongoing symptomatology after apparently adequate prostatectomy.

Bladder neck dysfunction

Bladder neck dysfunction may be primary or secondary. Primary bladder neck dysfunction is probably congenital in origin with the patient having a lifelong non-competitive stream and presenting as prostatic obstruction or prostatitis between 40 and 60 years of age. Secondary bladder neck obstruction occurs when there is bladder neck fibrosis and stenosis after prostatectomy, usually when a small prostate has been resected in the presence of an unrecognised bladder neck obstruction. Urodynamic evaluation is usually required to make the diagnosis as this is a true muscular dyssynergia and is not always obvious at endoscopy.

Genital prolapse

Genital prolapse may have its origins in congenital deficiency of collagen and be aggravated by the ligamentous, muscular and neurological damage associated with childbirth. However, these changes tend to progress with age resulting in disruption of the normal anatomical configuration of the lower genital and urinary tracts. In turn, this may be associated with genuine stress incontinence.

Oestrogen deficiency

The changes of ageing are accelerated by a lack of oestrogen in hormonally dependent areas such as the vagina and the uroepithelium of the urethra. This may result in both incontinence due to irritative changes and an increase in stress incontinence due to a loss of secretions, elasticity and vascularity of the urethra.

Atrophic changes

Muscle weakness from atrophy, disuse, denervation or oestrogen deficiency causes weakness of the intrinsic sphincter mechanisms which may result in stress incontinence.

Surgical factors

Previous surgical attempts to repair genital prolapse or urinary incontinence may result in scarring of the urethra, anterior vaginal wall and possibly even of fistula formation.

Environmental causes

With increasing age and the potential loss in mobility, eyesight and mental status, environmental factors can be of increasing importance (Table 3).

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Drug or alcohol consumption

Older people are more likely to be on medication that may effect continence. Polyuria secondary to diuretic, alcohol ingestion, diabetes or lithium induced polydipsia should be considered (Table 4). Anticholinergic agents and tricyclic anti-depressants may cause retention with overflow either by directly relaxing the detrusor or by causing faecal impaction. Sedatives and tranquillisers may depress both motivation and sensory awareness. Caffeine ingestion may significantly aggravate detrusor instability and aggravate urge incontinence. Alcohol ingestion by the older person may be a cause of both nocturnal and diurnal incontinence. Alpha blockers may promote stress incontinence in females whereas alpha stimulation taken for upper respiratory infection may promote retention and overflow by increasing resistance in the urethra.

Assessment

A comprehensive history and examination should be carried out with special attention not only to the primary aetiologies of incontinence (see Table 1), but also looking for possible secondary factors (see Tables 2 and 3).

History

General, medical, surgical, gynaecological, obstetric and medication history needs to be obtained, as does a specific history pertaining to voiding patterns (eg frequency, nocturia, enuresis, urgency, urge incontinence, stress incontinence, dysuria, haematuria, hesitancy and stream), fluid intake, sleep pattern and bowel habit. Finally, what aids are currently being used, the current environment and impact of incontinence on the patient and carer need to be established.

Examination

General medical examination including cognitive function should be undertaken with specific attention to the following:

- Rectal examination to check for a loaded rectum (be it with hard, firm or soft stool), anal tonus and evaluation of prostatic size and consistency. Referral to a urologist may be indicated, particularly if associated with symptoms of prostatism.
- Vaginal examination looking for atrophic changes, pelvic masses and prolapse. A simple provocative stress test should be performed by asking the patient to cough with a full bladder in both standing and supine positions. If prolapse is severe or masses are present, referral to a gynaecologist may be appropriate.
- Palpation of the lower abdomen for an enlarged bladder. This can be easily verified by measuring the residual urine (see below), referral to a specialist is indicated if this is large.
- Urinary incontinence is commonly seen as a secondary consequence of a broad range of neurological disorders, both peripheral and central autonomic. If a neurological abnormality is found, referral to a specialist may be indicated for diagnosis and management of both the neurological and bladder problems.
- Establish whether incontinence is in fact secondary to more general problems related to medication, mobility, psychosocial factors, etc. If so, then these should be resolved with or without the assistance of a specialist. Referral to the local

geriatric service for inpatient assessment and rehabilitation or outpatient day hospital therapy may be indicated.

Baseline investigations

Appropriate investigations based on the above findings need to be performed. The minimum requirements are for urine analysis, urine dipstick for nitrates and a mid-stream specimen of urine for microscopy and culture. If this is negative, a two to three day bladder chart indicating frequency of micturition and incontinence is most helpful. This is particularly important as older patients are often poor historians when it comes to a description of bladder function and habits. The bladder chart forms a basis for successful bladder retraining programs.

Before accepting that incontinence is irreversible it is appropriate to measure the residual urine after the patient has voided with a full bladder. This can be measured by ultrasound, catheter or by performing urological radiological examination eg intravenous urogram. This can help exclude retention with overflow due to outlet obstruction or to an underactive detrusor or point to the diagnosis of detrusor hyper-reflexia with impaired contractility. This is a newly recognised condition in the older person in which there is an unstable bladder together with impaired bladder activity in the absence of obstruction. Residual urine estimation also gives an indication of total bladder capacity by noting the sum of the volume voided and the residual urine. A low total volume suggests a poorly compliant bladder for which a cause should be sought (eg severe detrusor instability, intravesical pathology). Normally the bladder should empty completely, but in the older person it is not uncommon to see residual volumes of 50–70ml.

Further investigations

Other tests may be ordered including urinary flow rate to confirm a history of poor stream, cystometry, complex urodynamics, cystoscopy, intravenous urogram or retrograde urethrography.

Maximum urinary flow rate in the older person should ideally exceed 25ml per second. A rate repeatedly below 15ml per second should raise suspicion of a voiding disorder which could be due to outflow obstruction or to an underactive detrusor.

Simple cystometry is a simple bedside screening test that can be used for diagnosing detrusor instability. The patient is required to void and the residual urine is estimated. While the catheter is in situ, the bladder is then filled with sterile water or saline until maximum bladder capacity is reached or until an unstable contraction occurs.

Urodynamics is the standard for diagnosing bladder dysfunction. It is a complex investigation requiring expensive equipment. With a catheter in both, the rectum and the bladder pressures are measured both during filling and voiding phases. By electronic subtraction the true detrusor pressure can be estimated. Estimates of

urethral pressures and the relationship of flow to pressure can be ascertained. Further sophistication with the use of fluoroscopic examination and/or sphincter EMG measurements can also be made.

The more sophisticated forms of investigation such as video urodynamics may only need to be performed where symptom complexes are unusual or the exact nature of the incontinence is unclear.

Where there has been the development of haematuria or recurrent urinary tract infections then intravenous urography and cystoscopy are indicated. This is particularly important in the older person where conditions such as stones, carcinoma and carcinoma in situ are more common.

Management

Medical causes

Any reversible causes should be first looked for and ruled out. These will include acute states of confusion caused by pathology such as urinary tract infection or chest infection. Depression, withdrawal and self neglect should be treated appropriately.

Poor diet and an inadequate fluid intake may lead to constipation and general ill health. Gradual increase of fluid intake to a minimum of 1500ml should be advised unless there is a medical requirement for fluid retention. Appropriate remedies for constipation should be initiated.

Environmental factors

Where the mobility and mental status of the older person are considered to be important, attention to the environmental factors previously listed may be needed.

Drugs and alcohol

Medications either leading to incontinence, retention with overflow incontinence or diuresis need to be withdrawn or changes to dosage and ingestion times made. Alcohol ingestion may need to be curtailed (see Table 4).

Bladder retraining

In general, bladder retraining is most useful for people who experience symptoms of frequency, urgency and urge incontinence. Many people who suffer from these symptoms tend to go to the toilet frequently and often without experiencing an urge to go. This leads to inappropriate bladder sensation. The aim of bladder retraining is to restore the communication between the brain and the bladder. This is achieved by establishing a manageable and comfortable pattern of voiding in order to increase functional bladder capacity and thus lengthen the voiding interval. Many different regimens have been suggested.

See the Continence Foundation Fact Sheet 2 (p34) for an appropriate example. It is important to use a bladder chart as a baseline to establish the individual's urinary frequency and bladder capacity.

The following strategies may help the individual to hold on:

- applying pressure to the pelvic floor by sitting upon a small rolled up towel, the edge of a chair or hand;
- contracting the pelvic floor musculature; and
- mental distraction.

Another common bladder retraining program involves voiding at set time intervals to anticipate episodes of incontinence. This is mainly of use with the confused older person, often with the assistance of a carer ie prompted toileting.

Interest, support, reassurance and encouragement with frequent review by doctor and nurse are important to any method of bladder retraining. Cure or improvement is achievable in 50–70 per cent of community based older patients.

Pelvic muscle exercises

This is probably most useful in the management of stress incontinence, but is of some value helping individuals with urge incontinence to defer voiding. The aim is to tighten the pelvic musculature and give the individual greater sense of control over voiding. Weakness of the pelvic floor musculature may commence in women secondary to denervation of the musculature in childbirth. Menopausal and ageing changes may exacerbate the problem. Other factors such as constant straining from constipation, raised inter-abdominal pressure in association with coughing or excessive weight may result in a weak pelvic floor in both men and women. Several methods of pelvic muscle exercises have been suggested and are aimed at enhancing urethral resistance by improving sphincter function.

- Firstly it is necessary to ascertain if the patient is using the correct muscle. Common errors by patients are to either strain with the abdominal muscles or to tighten the gluteals. For appropriate methods of training refer to the Continence Foundation Fact Sheet 3 (p37).
- The use of weighted vaginal cones appears to be simpler in some patients.
- Faradism or the use of electrical stimulation to passively strengthen the pelvic floor muscles may also be used.

It has been difficult to show that any of these three methods has a great advantage over the other, but in patients with mild to moderate incontinence up to 50 per cent can be cured or improved.

Urethral massage

Urethral massage is a useful technique for men suffering post micturition dribbling. By pushing the hand up behind the scrotum the individual can drain the pooled urine from the bulbar urethra. Gentle milking with the other hand followed by a shake of the penis can drain most of the urine.

Pharmacological therapy

Before introducing new drugs to treat incontinence every effort should be made to review existing medication to see if these may be contributing to the incontinence. If there is doubt, referral to a specialist or geriatrician may be beneficial. Some drugs may be able to be weaned, others reduced in dosage or others exchanged for medication less irritating on the bladder. Angiotensin converting enzyme inhibitors (such as catopril or enalapril) may be successfully introduced to the patient with heart failure allowing the diuretic dose to be significantly reduced and the consequent diuresis to also be reduced.

There are no adequately documented control studies showing the effectiveness of specific drug therapy in the cure of older incontinent patients with detrusor instability. In fact, placebo has been effective in up to 30–40 per cent of patients. In some cases of detrusor instability these drugs can reduce the severity of symptoms, but usually do not cure the incontinence on a long term basis. Drugs such as imipramine (Tofranil), in divided doses up to 75mg a day, or propantheline bromide (Probanthine), up to 45mg in divided doses, are sometimes prescribed. However, these drugs can cause serious side effects in the older person and they are no substitute for the approaches described above. If the practitioner wishes to prescribe these drugs it is recommended that low doses are used initially; dosage increases are made slowly and the drug be stopped within four weeks if response is inadequate or if side effects occur. Oxybutynin may be a useful drug, but is currently only available from Canberra on an individual patient basis.

For women, particularly with evidence of oestrogen deficiency, hormonal replacement therapy may be valuable. This may be in the form of topical or systemic oestrogen. Topical oestrogens in low dosage have been used for periods of up to one year with no apparent effect on the endometrium². However, in the presence of the intact uterus, systemic or high dose topical oestrogens need to be opposed with a progestational agent.

Social or assisted continence

It is not possible to restore continence in all cases. However, it is important to reach the maximum level of continence for each patient. It may be that with the appropriate aids, appliances or assistance from carers the patient may be able to return to independent existence or a satisfying lifestyle. Older people with an altered mental state, poor mobility or dexterity may need physical assistance to void or may be managed with supervision or prompting only.

Aids and appliances

Many aids and devices are now available. Where a patient is unable to be made fully continent, reliance on such aids and appliances may again return the patient to a more satisfying lifestyle. Aids and devices include the use of disposable or reusable absorbent pads, bed sheets and chair covers. The use of collection or

drainage devices such as condoms, indwelling or intermittent catheters, female or male urinals may be necessary. As a general principle, the use of a long term indwelling urethral catheter is usually inappropriate. Continence nurse advisers are skilled in making appropriate selections of aids and appliances.

Surgical treatment

A reversible cause of incontinence should be sought in the older incontinent person of either sex. Urinary retention should be excluded by abdominal palpation, percussion or bimanual examination. If uncertainty exists, a post micturition residual by catheter or ultrasound can be performed.

Prostatic obstruction

A digital rectal examination is mandatory in all patients. It should be used to assess impaction as well as prostate size and consistency. If the prostate is other than rubbery and contains either a hard nodule or is generally rock hard a prostate specific antigen estimation should be performed (PSA is prostate specific, but not prostate cancer specific). If PSA is elevated above 10 and the digital rectal examination is abnormal, there is a higher chance that the patient has prostatic cancer and he should be referred for a trans rectal ultrasound biopsy and urological evaluation. When there is both neurological deficit and mild prostatic enlargement, urodynamic assessment to elucidate whether the patient is suffering from detrusor hyperreflexia or instability secondary to obstruction is indicated. Prostatectomy is only indicated in such cases where there is clear evidence of obstruction. When the post void residual exceeds 500–600ml and is associated with overflow incontinence, urodynamic evidence of obstruction is indicated for surgical intervention only when the bladder has preserved contractility. If there has been chronic overstretch, management by intermittent catheterisation may be preferable.

Obstruction to the bladder outflow should be removed surgically if the patient is fit enough for surgery. Trans urethral resection of the prostate remains the standard for the treatment of benign disease in the surgically fit patient. Laser therapy is under research evaluation at the present time and has not yet been cleared for wide spread use. If the patient has a localised prostatic cancer then a radical prostatectomy may be indicated. In patients who have obstruction, but are unfit for major surgery, a variety of urethral stents are available. These are metal devices inserted into the prostatic urethra to overcome the obstruction and these can be inserted under local anaesthesia. Balloon dilatation is only transiently effective and is not recommended.

In a mild obstruction medical treatment may be appropriate. Alpha blockers such as Prazosin and Phenoxybenzamine relax the smooth muscle of the bladder neck and prostatic capsule and reduce obstruction. Side effects are common. Failure of seminal emission and ejaculation are invariable. Five alpha reductase inhibitors have been shown to cause up to 30 per cent reduction in prostatic size in clinical trials. They may reduce the severity of the symptoms of prostatism, but do not overcome obstruction when it is present. Their place in therapy remains to be evaluated.

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In 60 to 70 per cent of post prostatectomy patients detrusor instability secondary to the obstruction resolves after prostatectomy taking up to six months to do so. In the remainder detrusor instability persists. Residual detrusor instability accounts for 80 per cent of post prostatectomy incontinence. Sometimes this is due to the original obstruction. Stress incontinence or continuous dribbling raises the possibility of sphincter damage or sphincter weakness. Alternatively, they can be part of a complex of symptoms associated with overflow chronic retention. The post void residual needs to be checked. Sphincter weakness due to senile atrophy may respond to pelvic floor exercises, but if the sphincter or its nerve supply has been damaged by prostatic resection or radical prostatectomy for carcinoma of the prostate then an artificial urinary sphincter should be considered. In post-prostatectomy urge incontinence reversible causes such as UTI or chronic prostatitis must be excluded or treated. Overflow due to residual obstruction should be excluded by a post voiding residual. Bladder training and anticholinergic agents can then be considered.

Stress incontinence

Minor degrees of stress incontinence may be cured or improved in up to 50 per cent of patients with pelvic floor exercises, but improvements are only sustained while patients continue physiotherapy. In those with genital atrophy topical oestrogen may also improve symptoms.

In patients in whom such measures have failed or with major degrees of stress incontinence, surgery is indicated.

Some form of urodynamic examination before surgery is generally indicated because differentiation between genuine stress incontinence and detrusor instability has been shown to be relatively difficult to do on the basis of signs and symptoms alone, particularly in cases of mixed incontinence, and because of the need to exclude the rare case of chronic retention and overflow. This is particularly so if patients have had previous surgical treatment.

Some controversy still exists over the preferred method of surgical treatment. However, it appears that open supra pubic colposuspension techniques have better long term success rates (80–90 per cent) than vaginal surgery alone (50 per cent). Needle suspension techniques, as described by Stamey, may fall somewhere in between, but have the advantage like vaginal surgery of being less invasive. In the presence of marked utero-vaginal prolapse, repair of the prolapse with restoration of normal anatomy also appears to be important.

Where repeated surgery has caused scarring and devascularisation of the urethra, success has been obtained with colposuspensions combined with attempts to revascularise the urethra using Martius grafts.

Peri-urethral collagen injections and the use of artificial sphincters are further options, however, both are expensive.

Detrusor instability

Refractory detrusor instability in the absence of obstruction or infection remains a management problem. Options for the patient who does not respond to two or three months of bladder training and to a variety of anticholinergic agents are limited. Hydrostatic distension of the bladder does not result in permanent improvement. Transvesical phenol nerve block performed endoscopically through a cystoscope aims to produce partial blockage of the nerve supplies of the bladder. About 50 per cent response rates are seen in men, but there is danger of impotence if the nerve blocks effect the nervierigentes. Success rates in women are better, but in both sexes it has been difficult to show sustained response beyond twelve months and repeated use may lead to fistula formation.

The alternative to this relatively minor day case procedure is a clam ileocystoplasty. In this operation the bladder is opened from side to side and bi-valved like a clam. A segment of detubularised ileum is then stitched into the defect to augment bladder capacity and to disrupt coordinated contractions thereby alleviating instability in up to 95 per cent of cases. Some voiding dysfunction ensues in a large proportion of patients.

Overflow incontinence

When there is overflow incontinence due to neuropathy or detrusor failure, management by intermittent catheterisation may be indicated. Failing this, consideration should be given to the placement of the supra pubic catheter using a Staubli valve to empty the bladder every three to four hours. If the patient is unable to manipulate this, reliance must be placed upon continuous drainage. The supra pubic catheter in this situation has a lower incidence of infection and complication such as prostatitis and urethritis than a chronic indwelling catheter. They are also easier to change and enable perineal hygiene to be maintained. There is some evidence that the concomitant use of anticholinergics is beneficial.

Assistance for the carer

Incontinence is often the main reason why carers request placement into nursing homes. It becomes imperative to provide assistance for the carer. This may take the form of support, advice, respite, ongoing monitoring and help with managing the incontinence or other aspects, such as showering, shopping and home cleaning.

Incontinence in nursing homes

The specialised network of services such as hostels, special accommodation homes and nursing homes provide regular and ongoing care for individuals who require supervision and assistance. They exist because attempts to maintain their lifestyle at home have been unsuccessful. An inability to manage an individual's incontinence is often one of the reasons why individuals require this additional care.

The rights and dignity of individuals living in residential care is of primary importance. The Federal Government's Nursing Home Outcome Standards have been developed to ensure that individuals in residential care receive the highest possible quality of care. Incontinence is one of these outcome standards and the Continence Foundation of Australia (CFA) was funded to run a series of national nursing home workshops in 1992 and produce a resource book for staff.

The causes of incontinence of individuals in residential care are often complex and multifactorial, making management more difficult. Moreover, nursing time is becoming a scarce resource, and financial constraints related to the management of incontinence are high. Expenditure of nursing time and energy in frequent toileting and changing wet or soiled clothing is great. While providing individual assessment and management regimens may not actually save significant time or money, research has suggested that nursing homes can achieve a higher level of continence — a most important goal for patients, families and staff.

The principles of assessment and management of urinary incontinence described so far, apply equally in residential care settings. It should be noted that the residential care setting itself, may be a contributing factor in each case of incontinence. The increasing frailty of residents and their dependence upon others for care also contributes. Understanding the resident's pattern of incontinence prior to entering residential care is important.

It is therefore important to obtain individualised assessment of the problems as every case of incontinence may be related to a variety of reasons. In the long term this would be time well spent.

Recent and future developments

There is a growing awareness of what can be done to help the older incontinent patient. Some recent developments have been:

- The setting up of continence clinics at some public hospitals.
- The appointment of continence nurse advisers to advise on treatment, management and education both in the hospital and the community.
- The development of expertise by some physiotherapists in pelvic floor exercise.
- Representations to government to try to expand aids available under the Provision of Aids to Disabled Persons Scheme (PADP), the Home and Community Care Program (HACC) and the Continence Aids Assistance Scheme (CAAS).
- The establishment of the National Task Force on Incontinence in 1986 which led, subsequently, to the formation of the Continence Foundation of Australia (CFA) in November 1989. The CFA has among its aims the promotion of public and professional awareness of incontinence, education of health care professionals and research.
- The production by the CFA of a number of educational aids including an education kit for nursing home staff and an education kit for general practitioners and a series of seven Foundation Fact Sheets available from the CFA, aimed at people with incontinence and their carers (see Additional reading).

Conclusion

Older people should not be denied the benefit of comprehensive assistance for incontinence, nor should they be placed in a nursing home because of incontinence without an appropriate attempt at modification of this condition. It can be seen that urinary incontinence is a complex, multifactorial syndrome in the older person. Despite this, much can be done to modify or even cure this condition by careful attention to the numerous factors involved. Patience is required both on the part of the patient and the doctor remembering the stigma attached to this condition. Periodic review should take place because relapse may occur in these susceptible people and it is likely that the patient will not otherwise volunteer this information. It should always be remembered that incontinence can frequently be cured or significantly improved in the older person and when this fails, dependent or social continence can usually be achieved.

Management of incontinence in the older person: check list

1. Assessment

History and examination

A comprehensive history and examination should be carried out with special attention given to the primary aetiologies of incontinence and possible secondary factors that may contribute to urinary incontinence.

Investigation

Baseline investigation should include a bladder chart, urine analysis, urine for microscopy and culture as well as exclusion of urinary retention should be undertaken in all patients. Some patients may require further investigations, including urinary flow rate, cystometry, complex urodynamics, cystoscopy, and intravenous or retrograde urograms.

Referral

- a Where specific gynaecological, urological and neurological disorders are identified referral for specialist investigation should be considered. Referral to a geriatric service may be indicated for various geriatric problems that may be contributing to incontinence.
- b Referral to continence nurse advisers for nursing assessment education and support should also be considered.

2. Treatment

Medical causes

Acute reversible causes such as urinary tract infection, chest infection, depression and acute confusional states need to be identified and treated. Adequate fluid intake and treatment of constipation should be undertaken.

Environmental factors

Environmental factors need to be considered and altered as appropriate.

Drugs and alcohol

Drugs and alcohol may need to be withdrawn or changes to dosage and ingestion times made.

Bladder retraining

Bladder retraining can restore a comfortable pattern of voiding by increasing functional bladder capacity and increasing voiding interval.

Pelvic muscle exercises

Pelvic muscle exercises are useful in stress incontinence and possibly in detrusor instability.

Urethral massage

Urethral massage is a useful technique for men suffering post micturition dribbling.

Pharmacological therapy

Review existing medication.

Anticholinergic agents may be helpful particularly in the overactive bladder, but in the older person serious side effects need to be considered. Where oestrogen deficiency is present, hormonal replacement therapy may alleviate the severity of symptoms.

Surgical treatment

In prostatic obstruction, surgical treatment remains the mainstay of treatment. There may be a role for alpha blockers in the elderly.

In stress incontinence where pelvic muscle exercise has not been successful surgical treatment may be indicated.

In refractory detrusor instability, surgical bladder augmentation may have a place.

In overflow incontinence, intermittent catheterisation or suprapubic catheterisation may be considered.

Social assisted continence

Though it may not be possible to restore continence in all cases with appropriate aids, appliances or assistance from carers, patients may be able to return to independent existence or a more satisfying lifestyle.

Aids and appliances

Aids and appliances such as absorbent pads and collection or drainage devices may be required to establish social continence.

Assistance for the carer

Aiding the carer may help the incontinent person maintain an independent existence.

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Incontinence in nursing homes

The principles of assessment and management of urinary incontinence apply equally in residential care settings as elsewhere.

Recent and future developments

Focusing attention on the incontinent remains a priority.

The Continence Foundation of Australia has a role in helping promote public awareness and improved continence management.

3. Conclusion

An older person should not be denied the benefits of comprehensive assistance for incontinence, nor should they be placed in a nursing home because of incontinence without an appropriate attempt at modification of this condition.

Tables

Table 1 Aetiology of incontinence

A. Factors which raise intravesical pressure

Overactive bladder		
Detrusor instability	Primary	– Idiopathic
	Secondary	– Outlet obstruction (Prostate, bladder neck)
		– Severe bladder inflammation, Carcinoma in situ
Detrusor hyperreflexia	Secondary to neuropathy	
Low compliance	Neuropathy	– central/peripheral/autonomic
	Myopathy	– radiation; bladder fibrosis
	Encasement	– pelvic fracture or surgery
	Chronic retention	

B. Factors which lower urethral resistance

Sphincter weakness	Childbirth trauma	
	Surgical damage	
	Disuse or senile atrophy	
	Oestrogen deficiency	
	Denervation	– parturition, chronic straining at stool
		– sacral fracture, spondylolisthesis
		– caudal equina lesion or injury, disc lesion
		– abdomino-perineal excision of rectum
Drug effects		– Alpha blockers

* Note: One or more underlying cause may be present synchronously.

Table 2 Medical factors contributing to incontinence in the older person

Impaired mobility	Arthritis Neuropathy, Stroke, Parkinsons Fractures Obesity
Medications and alcohol (Table 4)	
Impaired sensation, cognition or motivation	
Depression	
Acute medical illness	Pneumonia UTI
Constipation	
Diabetes	

Table 3 Environmental factors contributing to incontinence in the older person

Excessive distance to toilet	
Inappropriate furniture height	chair bed toilet commode
Need for assistance	
Restraints	cot sides IV infusions plaster casts traction
Toilet difficult to identify	poor signs dim lighting
Access to toilet	stairs competition wheelchair/walker accessibility
Lack of privacy	
Clothing difficult to undo	buttons and zips versus velcro
Cold environment	cold air cold water cold seat cold bed

Table 4 Mechanisms by which common drugs can cause or aggravate incontinence

Make sure you are not prescribing incontinence

Group of drugs	Mechanism	Type of incontinence
Hypnotosedatives	Excessive sedation, decreased mobility	functional
Antidepressants	Constipation	overflow/urge/ functional
Lithium	Polydipsia	functional
Major tranquillisers	Constipation, confusion, sedation, rigidity	overflow/functional
Anticholinergics	Urinary retention, constipation	overflow
Narcotic analgesics	Constipation, confusion	functional/overflow
Alphadrenergic blockers	Sphincter relaxation	stress
Cholinergic agents	Enhanced detrusor excitability	urge
Caffeine	Frequency, urgency	urge
Antihypertensives	Postural hypotension (unsteadiness)	functional
Alcohol	Frequency, urgency, sedation, unsteadiness	urge

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Glossary

Artificial Urinary Sphincter: An implanted device consisting of a hydraulic cuff which constricts the bulbous urethra or bladder neck to replace a damaged urethral sphincter.

Biofeedback: A behavioural modification technique utilising the demonstration to the patient of a quantified physiological parameter eg blood pressure, pulse rate, sphincter, EMG, bladder pressure.

Bladder Compliance: A measure of the stretchability of the bladder. Low compliance resulting from loss of elasticity in the bladder wall may result from radiation, interstitial or tuberculous cystitis or may result from neuropathy. Loss of compliance may compromise capacity.

Bladder neck dyssynergia: The male bladder neck tends to close during a voiding bladder contraction causing obstruction — probably a congenital abnormality.

Bladder resuspension procedure: A surgical operation involving elevation and support of the bladder and bladder neck into its normal position.

(a) Retropubic suspension — performed through a lower abdominal incision — (eg Colposuspension. Marshall Marchetti procedure).

(b) Needle suspension — supporting sutures are positioned by passing needles from the lower abdomen to the bladder neck region (eg Stamey, Peyreyra. Raz procedures). The position is checked cystoscopically.

Condom Catheter: A condom type device placed on the penis to collect urine and drain into a bag.

Contractility: The ability of a muscle to contract.

Cystometry: A test to measure the pressure/volume relationship in the bladder during filling and sometimes under provocation (sneeze or coughing, change of posture etc).

Cystourethrography: X-ray imaging of the bladder and urethra. In voiding cystourethrography (VCU). Images are obtained during voiding.

Cystoscopy: Optical inspection of the bladder and urethra using a flexible or rigid cystoscope.

Detrusor: The name given to the bladder smooth muscle.

Detrusor instability (unstable bladder) (DI): Involuntary detrusor contraction in response to filling or provocation in absence of neuropathy.

Distal sphincter mechanism: (External sphincter): The periurethral sphincter mechanism consisting of both smooth muscle and striated muscle (Rhabdosphincter) and elastic components.

Dyssynergia: Incoordination of action — failure to work together.

Detrusor sphincter dyssynergia: Inappropriate contraction of the distal sphincter mechanism concurrent with a detrusor contraction especially in neurological disorders.

Hyperreflexia: Any overactivity of reflexes. Involuntary detrusor contractions due to neurological disease.

Incontinence: (Involuntary) loss of urine or faeces which is sufficient to be a social or hygienic problem.

Indwelling catheter: Self retaining catheter inserted into the bladder (or urinary reservoir or urinary conduit) and left in situ to drain the organ for some time. May be urethral or suprapubic.

Nocturnal Enuresis: Involuntary loss of urine during sleep (bedwetting).

Overactive bladder: Involuntary detrusor contractions during filling or provocation which the patient cannot suppress. May be due to instability — or hyperreflexia.

Overflow incontinence: Involuntary loss of urine associated with an overdistended bladder. Continuous or intermittent leakage may occur. The PVR is elevated.

Pelvic floor exercises: A behavioural technique involving repeated contraction of pelvic floor and sphincter mechanism to improve their strength.

Periurethral bulking injections: Surgical injection of substances such as Polytetrafluoroethylene Collagen or Uroplastique into periurethral tissues to increase urethral closure.

Post voiding residual (PVR): The measure of fluid remaining in the bladder following normal voluntary micturition. Measured by catheterisation, ultrasound, radiography or radio isotope studies. Normal PVR is <50ml.

Pressure Transmission Rate: The ratio between the rise in urethral pressure and the rise in bladder pressure during raised intra-abdominal pressure. If positive the patient is dry; if negative the patient has stress incontinence.

Prompted toileting: A technique for use with dependant or cognitively impaired patients in which the care giver prompts the patient to ask for voiding assistance to enhance bladder sensation awareness.

Reflex incontinence: Involuntary loss of urine without sensation occurring in detrusor hyperreflexia due to neuropathy.

Sensory urgency: Urgency associated with bladder hypersensitivity or discomfort.

Stress profile: Measurement of urethra and bladder pressures during coughing, straining etc.

Stress urinary incontinence (SUI): Involuntary loss of urine from the urethra in association with raised intra-abdominal pressure, but in the absence of detrusor activity. (It is due to sphincter incompetence).

Transient incontinence: Temporary incontinence reversible once the precipitating factor is identified and corrected (eg UTI).

Urethral Pressure Profilometry (UPP): Measurement of the pressures in the urethra throughout its length.

Urge incontinence: Involuntary loss of urine associated with a strong desire to void. Caused by detrusor overactivity (instability when associated with motor urgency and detrusor hypersensitivity with associated sensory urgency).

Urinary tract infection: Infection of the urinary tract by pathogenic organisms sufficient to incite a host inflammatory response.

Urodynamics: Test of bladder function during filling and voiding consisting of one or more of cystometry, electro-myography, UPP, Uroflowmetry, Videourodynamics.

Uroflowmetry: Measurement of urine flow parameters.

Videourodynamics: Filling cystometry and pressure flow studies conducted synchronously with video cystography.

Continence Foundation Fact Sheet 2

Who can benefit from a bladder training program?

Patients who can benefit from bladder training are those who find they frequently have an urgent need to pass urine, but only pass very small amounts, or wet themselves in this situation; that is, bladder training is for people with urgency or urge incontinence.

What is the aim of a bladder training program?

It is normal for an adult to pass a little more than a mug full of urine each time you empty your bladder (between 300 and 500 millilitres), and to pass urine four to six times during the day and once at night.

As we get older, our bladder capacity gets smaller (300 to 400 millilitres) and we need to pass urine more frequently (six to eight times per 24 hours).

The aim of bladder training is to increase your bladder capacity.

What is a bladder training program?

First it is important that you know your current bladder habits, that is:

- how much your bladder usually holds by measuring how much urine you pass;
- how many times you are passing urine each day and night (after going to bed).

If you haven't been given a chart by your doctor or continence adviser, you can draw yourself a chart by copying the following example.

Time	Amount Passed	Leakage
5am	200ml	damp
8am	70ml	soaked

Each time you pass urine:

- do it into a measuring container (any kind);
 - write down the time you passed urine; and
 - the amount you passed.
- * It is also important to record any accidental wetting that you might have had, by recording how wet you were in the leakage column.

After two to three days of charting you should be ready to start learning how to be in control of your bladder.

How long are you able to hold on?

One minute? 15 minutes?

Whatever is the longest time you can possibly hold on, add one minute.

Add more if you think you can handle it (up to 15 minutes). However, it is better to set a goal that you are confident of achieving.

Remember, success breeds success!

Hold on for this length of time every time you feel the need to empty your bladder during the day.

Each time you feel that strong urge to pass urine follow these three simple steps that will help you 'hold on'.

STEP 1. Stand still, or better still, sit down, if possible.

It is also helpful to apply firm pressure to your pelvic muscles (crutch) by placing a rolled-up hand towel on the seat before you sit down.

STEP 2. Squeeze up those pelvic muscles, as shown in Foundation Fact Sheet No 3. Hold the squeeze for as long as you can, relax and then do it again until the feeling of urgency goes away.

Don't give up!

STEP 3. Get your mind off the sensation.

Close your eyes, and try one of these tricks:

Pretend you have just won Lotto — how will you spend all that money?

Count backwards from 586 by sevens.

Think of three towns in Australia beginning with 'A', then three beginning with 'B', and so on.

The mind plays a big part in bladder control

When you can easily hold on for the length of time you set yourself, it is time to extend the 'holding on'. You might decide to extend your holding on time by one, five or 20 minutes — it is entirely up to you.

Keep challenging yourself to do a little better.

You can also help your bladder to stretch and hold more by:

- Drinking 1500 millilitres or more of fluids each day unless told otherwise by your doctor.
- Moderating your intake of fluids which irritate the bladder, eg coffee, cola, cocoa and alcohol.
- Avoiding going to the toilet 'just in case' except before retiring at night.
- Avoiding certain drugs which can aggravate bladder control.
- Check with your doctor.

How do you know if the bladder training program is working?

Regularly, record the times you pass urine and the amount of urine passed as described previously.

It won't be long before you start to see the difference as well as feel it.

- Your volume of urine should gradually increase as you aim toward the goal of at least 300 millilitres.
- The length of time between trips to the toilet should get longer until you need only go to the toilet less than eight times per 24 hours.

Will there be setbacks?

Everybody who starts a bladder training program is likely to experience some 'setbacks'.

There are times when you are more likely to slip back into old patterns. They are:

- When you are tired or 'run down'.
- Whenever you have a cold or flu.
- When you get a urinary tract infection (see your doctor immediately!).
- When you get anxious, nervous or emotionally upset.
- When the weather is wet, windy or cold.

If this happens to you, accept it and carry on.

Think positively — you will soon improve!

What to do if there is no response to bladder training

If this program fails to produce any significant change in your bladder control problems after four weeks, please seek medical attention or contact your local continence adviser. Sometimes your doctor may be able to prescribe medications that can assist in your bladder training.

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Continence Foundation Fact Sheet 3

Pelvic muscle exercises

What is the pelvic muscle?

In women, the pelvic muscle is a large sling of muscle that lies between the tip of your tailbone at the back and your pubic bone at the front.

The outlet pipes from your bladder (the urethra), your uterus (the vagina) and your back passage (the rectum) all pass through your pelvic muscle.

What does it do?

- It supports all the organs inside your abdomen, especially when you are standing upright.
- It helps to hold the bladder in its correct place.
- It gives extra 'squeeze' control when you cough, sneeze or lift.
- It helps you to 'hold on' whenever you need to — to both your front and back passages.
- It puts you in control of your bladder instead of your bladder in control of you.

Who needs to do pelvic muscle exercises?

Every woman, regardless of her age, needs to have good bladder control. Childbirth and the menopause both help to weaken the control of the pelvic muscle as does being overweight and straining to use your bowels.

Women with stress incontinence, that is, those who regularly leak when coughing, sneezing or exercising, especially should learn these exercises.

Men might need to do pelvic muscle exercises after having prostate surgery if there is a problem with leaking.

The best way to have good control is by getting these muscles fit and keeping them that way.

How do you exercise your pelvic muscles?

Pelvic muscle exercises may be taught in a number of different ways. The following method is recommended by the CFA:

- STEP 1. Sit forward on your chair and place your feet and knees wide apart. Place your elbows on your knees and lean forward. Your pelvic muscles should be touching the seat now.

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- STEP 2. Close your eyes, imagine that you want to stop yourself from passing wind or imagine that you have diarrhoea.
- STEP 3. Now squeeze the muscles tightly around your back and front passages and lift your pelvic muscles up and away from the chair.
- STEP 4. Repeat this squeeze and lift movement with a four second rest in between.

You should not bear down.

During the exercise, you should:

- not feel any downward movement as you do a contraction.
- not use your tummy, thigh or buttock muscles.
- not hold your breath.

Note: If your pelvic muscles are very weak, you may not be able to feel it working unless you actually place your finger(s) inside your vagina to do so.

If you wish to do this, try it while sitting on the bed or toilet. Simply insert two clean fingers into your vagina and proceed to squeeze and lift up as described above.

A physiotherapist who specialises in these exercises or a continence nurse adviser can accurately assess this for you.

How long do you ‘squeeze and lift’ your pelvic muscles?

- a First of all, find out how long you can maintain Step 3 (‘squeeze and lift’). How long can you hold? Two seconds? Five seconds? Or longer?
- b Then rest for at least five seconds between contractions.
- c Note how many times you can repeat this squeeze and hold contraction before your muscles fatigue. Four? Six? Or eight times?

Answers to (a) and (c) provide a ‘set’ for your muscle strengthening program. Write them down here or in your diary so you can check your improvement each week.

Date	How long can you hold each contraction?	How many repeats?

How strong should the pelvic floor be?

A strong muscle should be able to do 10 squeezes, with each squeeze being held for 10 seconds.

It may take months for you to reach this level. Do not expect immediate results.

How often should you do your pelvic floor exercises?

Your 'set' should be repeated as often as you can remember, at least six times per day:

- Each time you finish going to the toilet.
- Each time you put the kettle on.
- Each time you answer the phone.
- Driving in the car — when you stop at red lights.
- When watching television.

When do you use your pelvic muscles?

Now that you know how to use your pelvic muscles, it is important for you to know when to use them.

To prevent little leaks, pull up your pelvic muscles before each time you:

laugh,
cough,
sneeze,
exercise,
lift, or push!

Pelvic muscle exercises may need to be done in conjunction with bladder training (see Foundation Fact Sheet No 2).

It is never too late to start exercising your pelvic muscles.

Get started NOW!

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Foreword

Urinary incontinence disproportionately affects older people. Sufferers commonly delay seeking help despite the major effect on their quality of life and that of their families. It is estimated that about 900,000 adult Australians are affected. Between 20 to 30 per cent of older hospitalised patients and 50 to 70 per cent of nursing home residents in Australia have urinary incontinence. This paper provides a practical comprehensive overview of the management of this distressing condition. It emphasises the multiplicity of causes which therefore require clear identification and individualised management approaches. Information about how to access various community resources is provided as well as some background on the important role and achievements of the Continence Foundation of Australia.

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Membership

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1. *Pneumonia in the elderly* (1991)
2. *Exercise and the older person* (1994)
3. *Minimising adverse consequences of hospitalisation in the older person* (1994)
4. *Musculoskeletal disorders in the older person* (1994)

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