

Consensus

Assessment and treatment of urinary incontinence

*Scientific Committee of the First International Consultation on Incontinence**

The first International Consultation on Incontinence was held under the auspices of WHO in 1998. The multidisciplinary consultation covered anatomy, physiology, pathology, and the investigation and management of incontinent individuals. Because incontinence is a prevalent global disease, the consultation was mindful of the need to make its recommendations applicable in all health-care systems. The management recommendations are presented as nine algorithms divided into basic management (five) and specialised management (four), for men, women, children, the frail elderly, and individuals with neurogenic incontinence separately. The basic algorithms are intended for all health-care professionals working with incontinent individuals and are applied worldwide. The specialised algorithms are presented on *The Lancet* website.

In 1998, the first International Consultation on Incontinence was held after discussions between WHO and the International Consultation on Urological Diseases, a non-governmental organisation in official relation to WHO (EB93–R20). The International Consultation has an executive committee and a steering group with representatives from the major urological organisations, including Société Internationale D’Urologie, the European Association of Urology, and the American Urological Association. The International Consultation on Urological Diseases has organised consultations, cosponsored by WHO and the UICC, on benign prostatic hyperplasia, urological malignant disorders, prostate cancer, and andrology. Previous consultations had also emphasised the need for a multidisciplinary approach and had included basic scientists, professionals allied to medicine, and non-urological specialists, such as oncologists in the prostatic cancer consultation. The International Consultation asked the International Continence Society to organise the scientific programme for the 1998 international consultation on incontinence, since it is the world’s leading multidisciplinary society for the study of incontinence. The Society has a broad constituency with members from basic science disciplines, nursing, and physiotherapy, engineers, and doctors specialising in urology, gynaecology, paediatrics, geriatrics, and neurology.

The WHO recognised the worldwide problem of incontinence, which affects individuals of all ages, irrespective of sex or ethnic group. Incontinence becomes more prevalent with age and will therefore become a greater public-health issue as the population of the world ages. Incontinence affects children, adults, elderly people, and those with physical handicaps.

Methods

The International Continence Society, in consultation with the International Consultation on Urological Diseases, developed a committee structure to serve the consultation: three committees on basic science (gross

anatomy, cellular biology, and basic neurophysiology and neuropharmacology); an epidemiology committee; a pathophysiology committee; five committees on investigation (symptoms and quality of life, physical examination, urodynamics, imaging and other investigations, and clinical neurophysiology); five committees on conservative management (in children, women, men, individuals with neurogenic disorders, and frail older people), one on pharmacological treatment, and four on surgical treatment (in children, women, men, and neurogenic patients); and committees on the promotion, organisation and education in continence care; socioeconomic considerations; clinical guidelines and recommendations on clinical studies; and research methods. Each committee consisted of a chairperson, two co-chairpersons and five other members, and had the appropriate multidisciplinary composition. The membership of committees was decided during consultations between the International Continence Society, the International Consultation on Urological Diseases, and the major urological and urogynaecological professional bodies.

Each committee was set several major aims:

- to review the evidence according to its scientific weight by use of the guidelines of the US Agency for Health Care Policy and Research;¹
- to define the limits of our current knowledge and ignorance;
- to establish areas requiring further research; and
- to write a consensus report.

The consultation aimed to publish the committee’s consensus reports in book form² and to produce recommendations for the assessment and treatment of urinary incontinence from the consultation’s scientific committee.

In writing their reports, the clinical committees took into consideration the need for applicability of the recommendations in the many different health-care systems of less developed and more developed countries—for example, in the recommendations to assess postvoid residual urine (PVR). PVR can be assessed non-invasively and with adequate accuracy by abdominal ultrasonography. However, this method is available only in secondary-care facilities in more developed countries. In primary-care settings worldwide, abdominal palpation or perhaps “in-out” catheterisation is the practical method of assessment.

*Members given at end of paper

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Panel: **Classification of diagnostic tests**

Highly recommended diagnostic tests

- History: nature and duration of symptoms
- General assessment: mobility and mental status; relevant drug and surgical history; sexual and bowel functions
- Quantification of symptoms: bladder diary
- Effect on quality of life
- Physical examination: abdominal and perineal; vaginal and rectal (not in children); stress test for incontinence; simple neurological examination
- Urinalysis, depending on facilities available
- Estimation of PVR method, according to facilities available

Recommended tests

- Further symptom assessment by validated questionnaire
- Detailed physical examination, for example use of pelvic organ prolapse assessment
- Renal function assessment
- Uroflowmetry and PVR measurement when facilities available
- Urodynamic testing if elective incontinence surgery is being carried out
- Urinary-tract imaging for specific indications (eg, to exclude other disorders)
- Endoscopy to exclude other disorders

Optional diagnostic tests

- Additional urodynamic testing
- Pad testing
- Neurophysiological testing
- Further urinary-tract imaging
- Imaging of the central nervous system
- Endoscopy in complex incontinence

Tests not recommended

- Urinary-tract imaging without a specific indication
- Endoscopy without a specific indication
- Gas cystometry

Recommendations

The consultation chose to use the term recommendations rather than guidelines because there are barriers to the acceptance of guidelines. The issue of why physicians do not follow clinical practice guidelines has been reviewed lately.³ This article presents the initial management of five groups of patients: children, men, women, individuals with neurogenic incontinence, and frail disabled elderly people. Each initial management algorithm indicates the path to specialised management, the algorithms for which are available on *The Lancet* website (www.thelancet.com). The consultation agreed to use the current International Continence Society definitions for lower-urinary-tract dysfunction (LUTD).⁴ Urinary incontinence is defined as “the involuntary loss of urine which is objectively demonstrable and a social or hygienic problem”. Urge incontinence (that preceded by an urgent desire to void) and stress incontinence (that during physical exertion) are the most prevalent forms of incontinence.

Assessment of incontinence

The consultation divided diagnostic tests and studies into highly recommended diagnostic tests, recommended tests, optional diagnostic tests, and tests not recommended (panel).

When recommendations for clinical assessment are made, there are the problems of generalisability worldwide. For most of the world’s population, most of the tests listed are not available. However, in those parts of the world that can afford to use the tests described, justification of the tests is important, both when included and when excluded. For initial management, highly recommended testing can be

carried out in all situations by trained staff, whether doctors, nurses, or other health-care workers. Testing may have to be modified—for example, urinalysis might be limited to asking the patient to pass urine into a clear glass jar.

Urodynamic studies are not recommended in the initial management of incontinent patients. When specialised care is available, urodynamic studies are recommended before the patient undergoes invasive, dangerous, or expensive therapies.

The highly recommended tests in the panel form the basic assessment. In addition, the patient’s desire for treatment is paramount and is an essential part of the joint decision-making between the patient and health-care advisers.

Management recommendations

The consultation divided its recommendations into five major client groups because particular problems are prevalent in each. The recommendations for each group are divided into initial management, which can be done by various health-care workers (primary health-care assistants, nurses, physiotherapists, family doctors, as well as specialists such as urologists or gynaecologists), and specialised management, intended for use by specialists, expert in the management of incontinence.

In each algorithm, treatments are listed in the order in which they should be instituted. This approach tends to list treatments in order of increasing invasiveness, complexity, and cost. In the initial management algorithms, treatments are empirically based, whereas the specialist management algorithms (see www.thelancet.com) rely on precise diagnosis from urodynamic studies and other tests.

Children

Few children are investigated for incontinence before the age of 5 years. Recurrent urinary infections and persistent bedwetting (nocturnal enuresis) with or without daytime symptoms suggestive of detrusor overactivity are the main reasons for referral. There may be difficulty in gaining the child’s cooperation for examination and consent for treatment. Physical examination should attempt to exclude the presence of a congenital anomaly that may be the cause of the incontinence. The algorithm (figure 1) indicates behavioural modification, including star charts and enuresis alarms; together with pharmacotherapy, including analogues of antidiuretic hormone and antimuscarinic drugs, these are the mainstays of conservative management.

Children should be referred for specialist management if they have persistent incontinence after initial management or if incontinence is complicated by evidence of poor bladder emptying or urinary-tract anomalies or if the child has previously had pelvic surgery.

Men

Incontinence occurs in various forms in men. It is largely a condition of elderly men, and incontinence commonly occurs as urge incontinence or as postmicturition dribble. A small proportion of men have a lifetime history of frequency, urgency, urge incontinence, and even enuresis. In societies in which prostatectomy is done, a small proportion of patients have postprostatectomy stress

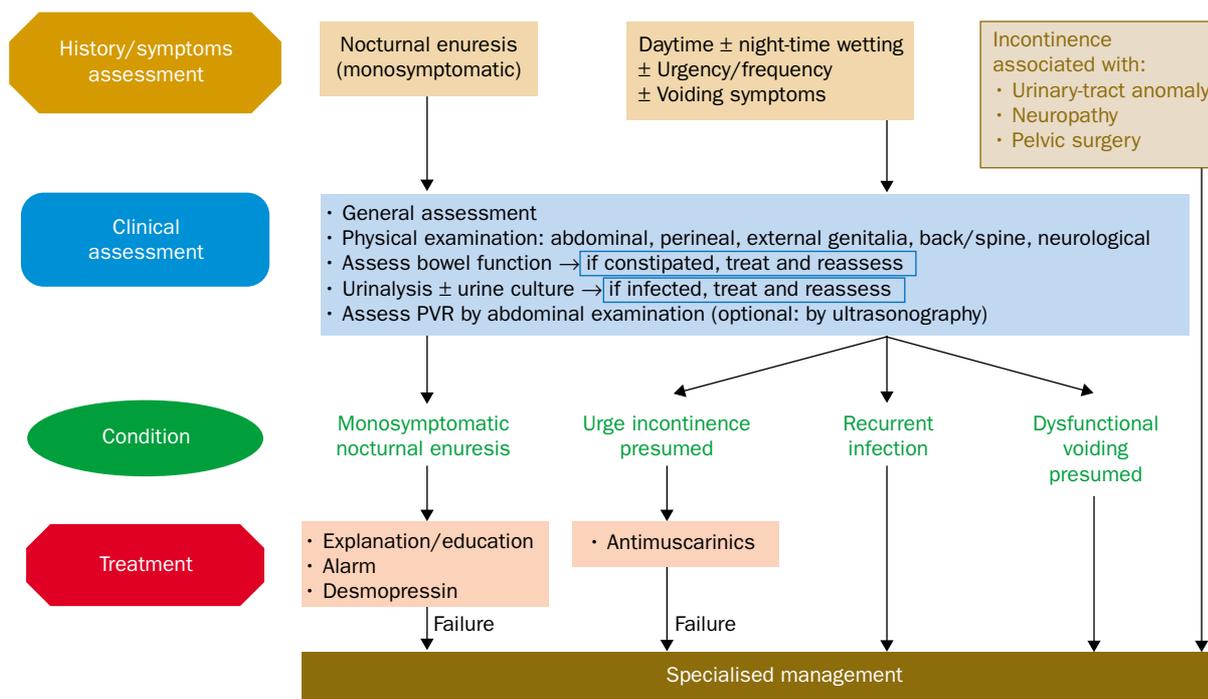


Figure 1: Initial management of urinary incontinence in children

incontinence due to iatrogenic sphincter damage. After basic assessment, treatment is started on an empirical basis (figure 2). Postmicturition dribble can be treated by pelvic-floor exercises and manual compression of the bulbous urethra with milking of urine from the whole length of the penile urethra. Urge incontinence, thought to be due to detrusor overactivity, can be treated by

bladder training, pelvic-floor exercises, and anti-cholinergic drugs. In many older men there are also voiding symptoms; these patients should be referred for specialised management.

When specialised management is available, patients with incontinence should be referred. There are three main categories of patients: those with postprostatectomy

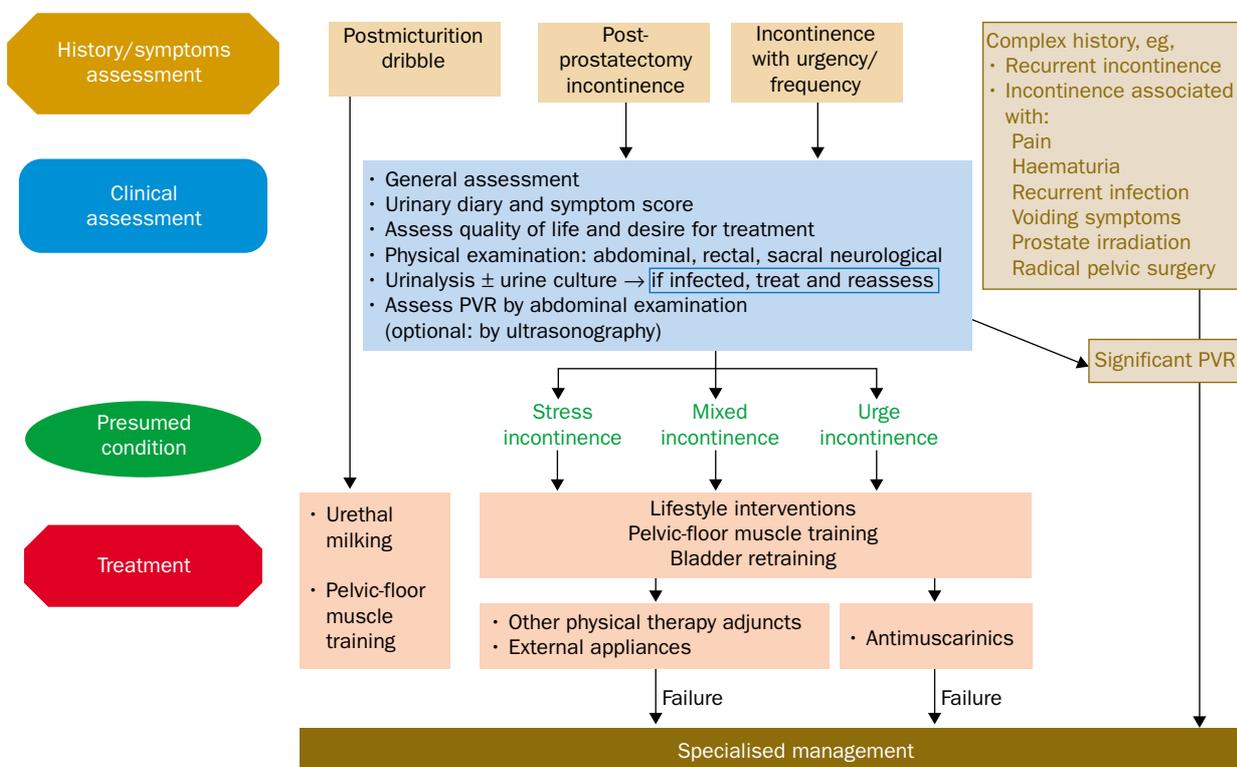


Figure 2: Initial management of urinary incontinence in men

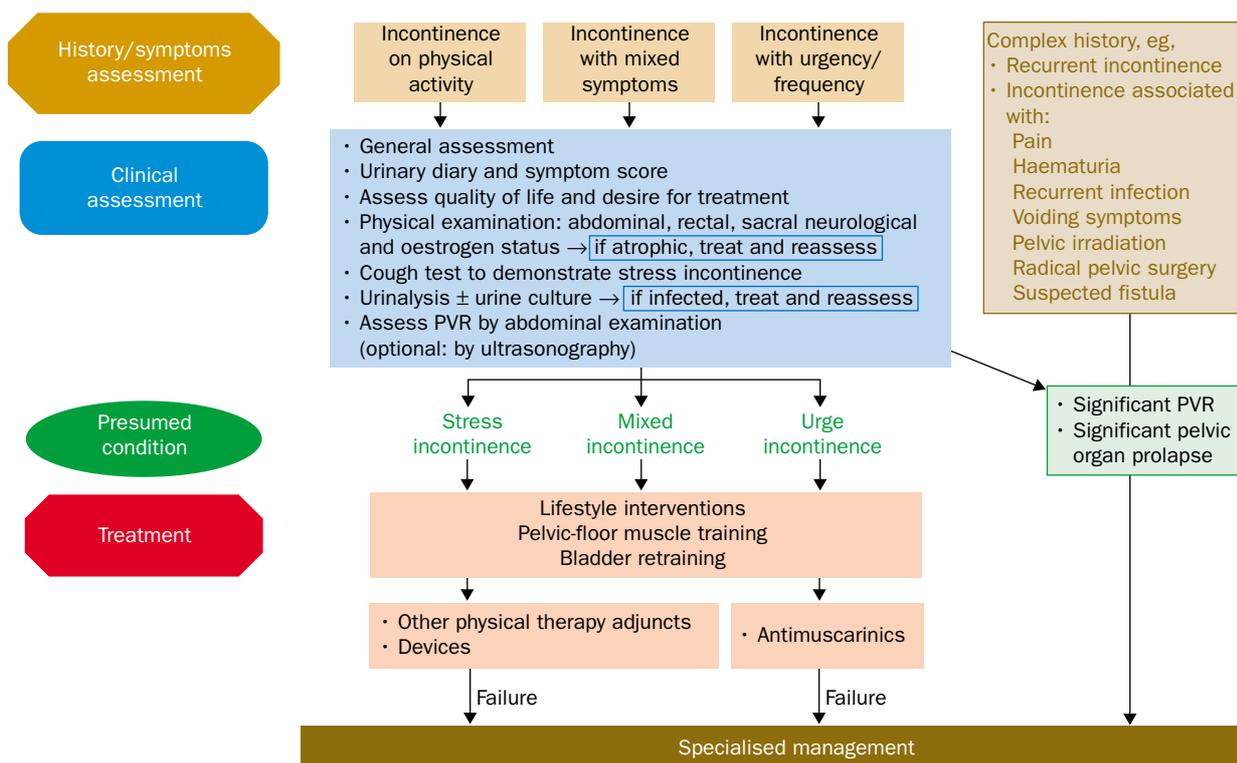


Figure 3: Initial management of urinary incontinence in women

incontinence, those with persistent urge incontinence after initial management, and those with a complex history, for example associated with previous radical pelvic surgery.

Women

Incontinence in women differs greatly between less developed and more developed countries. In some less developed countries, such as sub-Saharan Africa, incontinence is commonly due to childbirth injury and results in urinary fistulae. These devastating injuries affect 50 000–100 000 women each year. These patients form part of the complex incontinence group and need specialised care. Other types of incontinence, although they affect the quality of life, are viewed as minor compared with incontinence secondary to obstetric trauma. However, in more developed countries, many women with stress incontinence or urge incontinence seek treatment. History-taking and physical examination aim to classify an individual into one of three groups (figure 3): women with incontinence on physical activity (stress incontinence); women with urge incontinence, most of whom also have urgency and frequency; and women with mixed urge and stress incontinence. Stress incontinence can be detected in many patients by a stress test in which the woman is asked to cough and strain repeatedly. The patient’s oestrogen status should be assessed by examination of the perineum and introitus. Initial treatment is based on correction of any oestrogen deficiency, and treatment of urinary infection. Lifestyle interventions, such as weight reduction, smoking cessation, and regulation of food and drink intake, are recommended. Directed management for stress incontinence includes pelvic-floor exercises. For urge incontinence, pelvic-floor exercises, bladder retraining, and antimuscarinic drugs are used.

Specialised management, where available, is indicated after failed initial management and for women with complex incontinence including fistulae, and incontinence after pelvic irradiation or radical pelvic surgery.

Neurogenic incontinence

Management of patients with neurogenic vesicourethral dysfunction is more complex for several reasons. First, bladder and urethral sensation may be absent or reduced. Second, neurogenic LUTD is the most frequent cause of dysfunction of the upper urinary tract, which can lead to renal failure. Third, management may be complicated by other sequelae of urological disease, such as effects on cerebral functioning and on the patient’s mobility. Initial management depends on an assessment of the cause of incontinence (figure 4). If the peripheral nerves have been damaged, stress incontinence is a very likely sequela. If the neurological disease largely affects the central nervous system, reflex incontinence or detrusor hyper-reflexia are the most likely causes. These are both types of detrusor overactivity seen in neurogenic LUTD. Management depends on the ability of the patient to cooperate with the treatment. Cooperation may be restricted by the patient’s mental ability or mobility. Management therefore requires a holistic approach. In most instances of neurological disease affecting mental function, behavioural modification, such as timed voiding, together with pharmacological treatment, such as anticholinergic drugs, and external urinary appliances and catheters, is needed to allow the patient to be dry or socially dry (ie, dry with the use of pads, pants, and appliances).

Patients who have normal cerebral functioning and who cannot be adequately managed by the methods described in the initial management algorithm require specialist referral where available. In certain centres, a wide range of sophisticated treatments are available, including

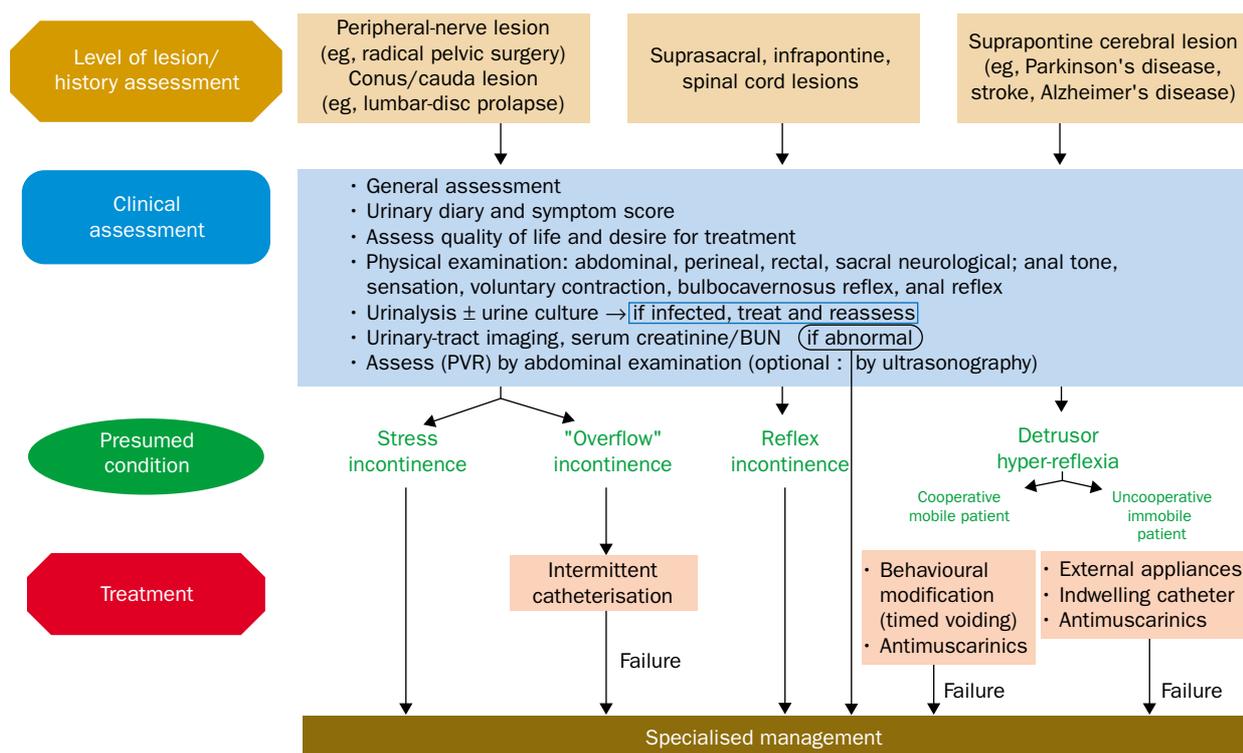


Figure 4: **Initial management of neurogenic urinary incontinence**
 BUN=blood urea nitrogen.

neuromodulation, implanted stimulators, bladder augmentation with bowel, and procedures for correcting incontinence secondary to sphincter incompetence.

Frail older people

Implicit in the term frail is the acceptance that most such individuals may neither wish, nor be fit enough, to be considered for the full range of therapies likely to be offered to younger incontinent individuals. However, every older person should be given the opportunity to achieve continence irrespective of frailty or disability. The aim may be independent continence, dependent continence whereby the individual can be dry with the assistance of reminders from carers, or controlled continence, so that the patient is dry with the use of appropriate aids and devices. The treatment of such patients requires specific enquiries about cognitive abilities, mobility, activities of daily living, and the level of support available to the incontinent person (figure 5). In older people there are a series of reversible disorders, which should be identified and corrected. These are sometimes known collectively under the mnemonic DIAPPERS (the disorders shown in the panel on the left of figure 5). The extent of the investigation is defined by the degree of bother to the patient and carer, the patient's motivation and degree of cooperation, the patient's comorbidities, and the patient's prognosis and life expectancy. Treatment is conservative, consisting of measures for stress or urge incontinence, as well as assisted toileting and prompted voiding to achieve dependent continence. Social (controlled) continence by use of devices, pads, and catheters may be necessary.

The consultation did not provide a specialised management algorithm for frail older patients, because referral for specialist practice is rarely necessary. Nevertheless, if the individual is motivated and wishes to

have investigation and specialised treatment, referral should be made.

Promotion of incontinence care

The consultation made a series of recommendations in an effort to raise the profile of incontinence as a worldwide problem. It was recommended that incontinence should be identified as a separate issue on the healthcare agenda and that government policy should include a prevention strategy, starting with the provision of basic obstetric facilities. Education might prevent physically immature girls, who have the highest rates of complications, from becoming pregnant. In addition, public awareness campaigns were recommended to break down the taboos surrounding incontinence. Management of incontinence should be taught at all nursing, medical, and physiotherapy training schools. Each country should establish a national continence organisation, with partnerships between patients, health-care professionals, and the institutions.

Research in incontinence

Recommendations were made encompassing three main areas—basic research, epidemiology, and clinical research including socioeconomic studies. In basic research, increased collaboration is needed between clinicians and basic scientists. Where possible, human tissue should be used to further our knowledge of the basic physiology and morphology of the lower urinary tract. A minimum dataset is required for epidemiological studies, and the next International Consultation on Incontinence in 2001 intends to recommend such an instrument. In clinical research the method of choice for the evaluation for all modalities is the randomised controlled trial. For drug therapies such trials are required before licensing of any medication. The consultation took the view that

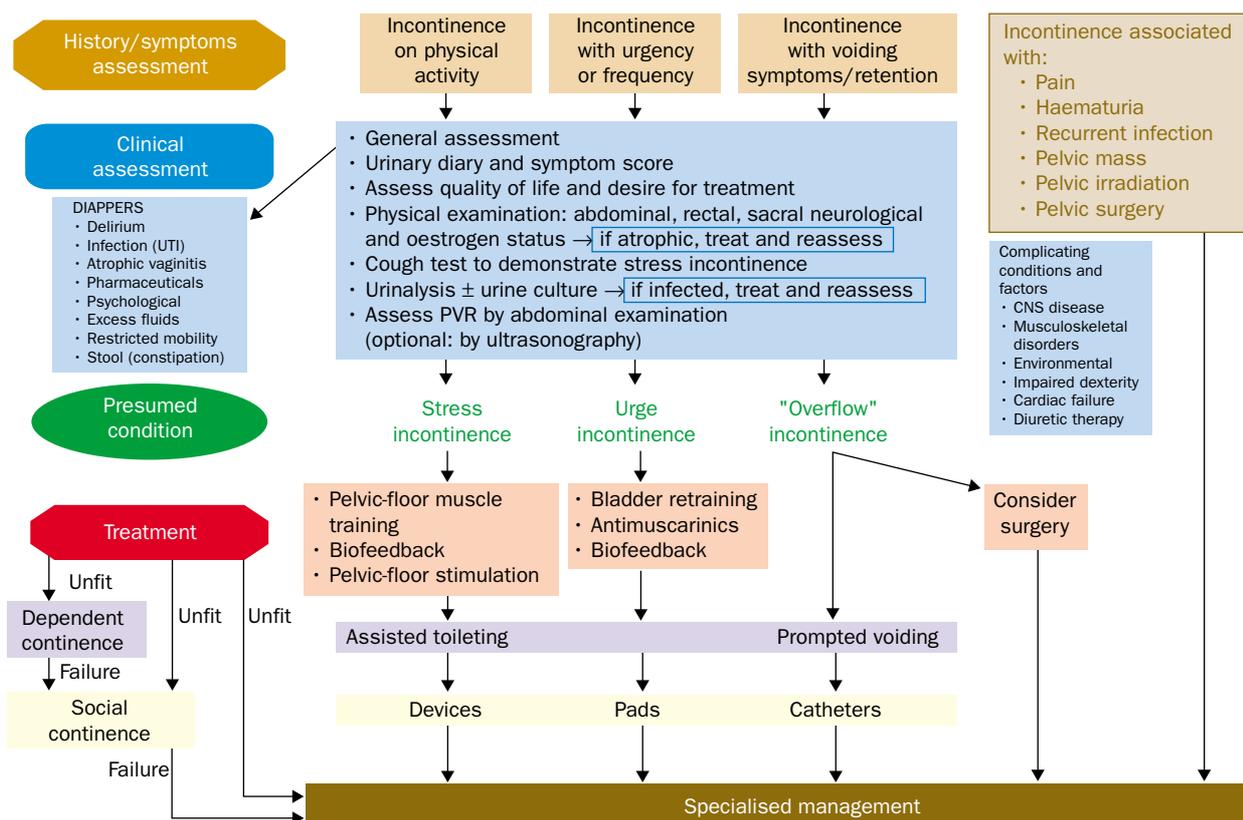


Figure 5: **Initial management of urinary incontinence in frail disabled elderly people**
 UTI=urinary-tract infection; CNS=central nervous system; ADL=activities of daily living.

similar methods should be adopted for other interventions, such as surgical procedures. The consultation believed that insufficient properly designed controlled studies have been published for many therapies. Randomised controlled trials that follow the CONSORT guidelines⁵ are few and far between. In addition, there are few data on the economic evaluation of new techniques.

Conclusion

The first International Consultation on Incontinence has provided the first systematic recommendations for the assessment and treatment of urinary incontinence in all groups of patients, by means of a multidisciplinary approach. Where possible, recommendations have been based on the highest quality of information, namely randomised controlled trials and other high-quality studies. However, the consultation had to rely on expert opinion in some instances. The research proposals should allow the next consultation to rely more completely on data of the highest quality in making its recommendations.

Scientific Committee

P Abrams, S K Lowry, A J Wein, R Bump, L Denis, A Kalache, K Kawabe, H Melchior, F Richard, J Thuroff, M S Tsechkovski.

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