Best practice approaches to minimise functional decline in the older person across the acute, sub-acute and residential aged care settings

Quick Guide

Developed by the Clinical Epidemiology and Health Services Evaluation Unit, Melbourne Health.
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Quick Guide 1

This **Quick Guide** provides an overview of recommendations for prevention of functional decline and the evidence that underlies recommendations for specific intervention and management strategies in each domain. Page references to corresponding sections in the comprehensive guideline have been provided.

What is functional decline? (Section 1.1)

Functional decline is defined as a decrement in physical and/or cognitive functioning (1). The age related functional decline of physiologic systems means that older people experience a decrease in reserve capacity, which renders them more susceptible to deconditioning. The cumulative nature of the functional decline that occurs with ageing and the deconditioning imposed on an older person with bed rest or immobility can thrust those who are vulnerable into a state of irreversible functional decline.

Who will use the guidelines? (Section 1.4)

These guidelines were developed for those who deliver and are responsible for patient/resident care. This includes clinical, management, corporate and environmental services staff.

What is the purpose of the guidelines? (Section 1.2)

The purpose of these guidelines is to provide recommendations about interventions and management strategies for preventing functional decline in older people in the acute, sub-acute and residential aged care settings. The overall objectives of the guidelines are to:

- provide older people with healthcare that is person-centred and evidence-based
- ensure the best possible health outcomes for older people
- improve the function and quality of life of older people in acute, sub-acute and residential aged care.

These guidelines were developed using the best available research findings and, where research gaps exist, consensus processes.

What components of care are included in the guidelines? (Section 1.3)

The focus of these guidelines is on intervention and management strategies to prevent functional decline in older people in the acute, sub-acute and residential aged care settings in the domains of;

- Cognition and Emotional Health
- Mobility, Vigour and Self-Care
- Continence

- Nutrition
- Skin Integrity

Levels of evidence of effectiveness (NHMRC classification) (3) describe the strength of the research evidence supporting each recommended strategy to prevent functional decline (see Table 1, Section 1.7))

What other care components should be considered when trying to prevent functional decline? (Sections 1.10, 1.11, 1.12)

Other factors that influence an older person's ability to maintain function should be considered in conjunction with the recommendations outlined in these guidelines. These include cultural beliefs and individual diversity, polypharmacy and environmental factors. All of these influence the health and wellbeing of older people across all sectors of the health system and therefore need to be considered in management strategies.

How can these guidelines recommendations be implemented and evaluated?

If guidelines are to have maximum impact, they need to form one element of an integrated quality planning and improvement strategy rather than be developed and implemented in isolation. To ensure the guidelines' effectiveness and to enable better health outcomes for patients/residents, implementation of these guideline recommendations should be integrated with appropriate risk screening and comprehensive risk assessment processes. Links to available guidelines are provided in the Quick Guide and Comprehensive Guide to facilitate this process.

Guideline recommendations should be integrated into workflow practice (for instance using clinical pathways). They are more likely to be associated with sustained effectiveness if they are integrated with broader organisational activities, such as continuing professional education, quality assurance, performance monitoring and accreditation, to promote and improve the quality of care at the local level. The guidelines also need to be embedded into an organisational quality framework which ensures adequate access to guideline recommendations, regular review of adherence to guideline recommendations, and appropriate updating of guidelines at least every three to five years.

The National Health and Medical Research Council has published information about implementing clinical practice guidelines (3) that can be accessed via the internet at http://www.nhmrc.gov.au/publications/synopses/cp30syn.htm.

These guidelines do not specifically address the financial implications of their recommendations' full implementation; however, many of the recommendations require small changes in staff practice, which can be implemented without substantial resource allocation.

Planning a guideline evaluation should commence in association with the implementation planning phase. For sustained effectiveness, an evaluation plan should include assessment of structure (relationship of guidelines to organisational quality framework and management processes), process (dissemination and implementation strategy review, review of integrative tools) and outcomes (including patient health, patient and staff satisfaction, and health care use and cost outcomes).

Cognition and Emotional Health 2

Summary and recommendations

COGNITION AND EMOTIONAL HEALTH
Subjective wellbeing is defined as positive evaluation of one's life associated with positive feelings.
Cognitive impairment can result from a number of conditions, including dementia, delirium and depression.
Delirium is an acute organic disturbance of higher cerebral function associated with impaired ability to attend to the environment. • The prevalence of delirium in older people on admission to hospital ranges between 10 per cent and 24 per cent and new cases arise in 6–56 per cent of older patients during hospitalisation. • Overall, it appears prevention of delirium is more efficacious than early detection and treatment.
Dementia is a general term used to describe a form of cognitive impairment that is chronic, generally progressive and occurring over a period of months to years. • Forty-five per cent of people with moderate to severe dementia are living in residential aged care facilities. • The disability burden from dementia in Australia was found to be the second highest of any disease.
Depression is a multifaceted syndrome, comprising a constellation of affective, cognitive, somatic and physiological manifestations in varying degrees from mild to severe. • The incidence in long-term care settings is three to four times higher than in the general population.

RECOMMENDATIONS
Assess cognitive status (delirium, dementia and depression) including premorbid status
Consider the need for specialist geriatric or psychiatry assessment.
Perform proactive assessment for delirium risk.
Provide optimal pain management.
Implement measures to prevent cognitive functional decline: • Undertake early medical evaluation. • Encourage physical activity. • Undertake medication review. • Optimise environmental stimulation and familiarity with surroundings. • Consider behavioural and psychosocial interventions.
Consider disease-specific pharmacological interventions for dementia and depression.
Consider transitional care needs and community-based strategies for people discharged from hospital and residential care.
Include and consider patient/resident's carer or family.

Links to delirium, dementia and depression specific guidelines

Current guidelines addressing aspects of delirium and depression include:

- Registered Nurses Association of Ontario 2003, Screening for delirium, dementia and depression in older adults, RNAO, Ontario. <*www.rnao.org/bestpractices* >
- Registered Nurses Association of Ontario 2004, Caregiving strategies for older adults with delirium, dementia and depression. RNAO, Ontario. <*www.rnao.org/bestpractices*>

Summary of the evidence

+ = demonstrated positive effect

– = demonstrated harmful effect

± = equivocal effect identified in the research, however recommended by expert opinion

COGNITION AND EMOTIONAL HEALTH			
	Goals of management		
INTERVENTIONS	Maintain optimal cognitive function	Prevent demoralisation	Maintain emotional health
Delirium			
Multicomponent strategy	+		
Level II evidence: Standardised protocols for the management of six established risk factors for delirium (cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment and dehydration) significantly reduced the number and duration of episodes of delirium in hospitalised older patients (4, 5). Methodological constraints apply, with poor methodology and heterogeneity.			
Proactive geriatric consultation	+		
Level I evidence: A systematic review identified one randomised controlled trial which indicated that a proactive geriatrics consultation, including reference to adequate oxygen delivery, fluid/electrolyte balance, treatment of severe pain, elimination of unnecessary medications, regulation of bowel and bladder function, adequate nutritional intake, early mobilisation and rehabilitation, prevention, detection and treatment of major post-operative complications, appropriate environmental stimuli and treatment of agitated delirium, reduced the risk of delirium development (particularly severe delirium) after hip fracture (5, 6).			
Physiological interventions			
Nurse-led interdisciplinary intervention program	+		
Level II evidence: Education of nursing staff, systematic cognitive screening, consultative services by a delirium resource nurse, a geriatric nurse specialist or psycho-geriatrician and use of a scheduled pain protocol resulted in a shorter duration and lower severity of delirium in the intervention cohort (5, 7).			
Sleep–wake cycle	±		
Level I evidence: A systematic review identified one randomised controlled trial which indicated that delirium could be prevented by improving the post-operative sleep–wake cycle by using a combination of benzodiazepines and an opioid. The intervention was not associated with severe complications or side effects, but morning lethargy was observed in 40 per cent of patients (5, 8). However, expert opinion suggests other options should first be considered and the use of medication to manage the sleep–wake cycle should be a last resort due to the effect of opioids and benzodiazepines on older patients/residents.			

COGNITION AND EMOTIONAL HEALTH			
	Goals of management		
INTERVENTIONS	Maintain optimal cognitive function	Prevent demoralisation	Maintain emotional health
Pain management	+		
Level I evidence: A systematic review identified one randomised controlled trial where patient controlled analgesia virtually eliminated the occurrence of delirium in the frail elderly surgical patient (9).			
Pharmacological interventions			
Reduce or eliminate non-essential medication	±		±
Expert opinion: The reduction or elimination of non-essential medication can reduce episodes of delirium. Special attention should be given to those medications known to contribute to delirium. Evaluation and monitoring of pharmacological measures should occur, including rationalisation (10).			
Environmental interventions			
Optimise environmental stimulation	±	±	±
Expert opinion: Optimisation of environmental factors, including stimulation, sensory impairments, familiarisation and orientation, allow delirium to be managed (10).			
Educational interventions			
Tailor disease-specific information	±	±	±
Expert opinion: Assessing individual educational needs of the client and the care giver enhances the understanding of the condition (10).			
Communication and emotional support			
Maintain a supportive therapeutic relationship	±	±	±
Expert opinion: Consideration of the client's and carer's needs enhances the management of delirium (10).			
DEMENTIA (Section 2.3)			
Psycho-social interventions			
Consider the patient	±	±	±
Expert opinion: Relations between the carer and client are facilitated when their abilities are recognised and the environment in which they are surrounded is understood (10). Counselling the patient/resident and family can assist with symptom management and acceptance (11).			

COGNITION AND EMOTIONAL HEALTH			
	Goals of management		
INTERVENTIONS	Maintain optimal cognitive function	Prevent demoralisation	Maintain emotional health
Pharmacological management			
Oestrogen replacement therapy	–		
Level II evidence: A randomised controlled trial of 4,532 post-menopausal and dementia-free women identified that those taking a combined oestrogen and progesterone tablet had an increased risk of probable dementia (12).			
Non-steroidal anti-inflammatory drugs (NSAIDs)	±		
Level III-2 evidence: A meta analysis of six cohort and three case-control studies found that non-steroidal anti-inflammatory drugs gave some protection against the development of Alzheimer's disease (13).			
Aspirin	±		
Expert opinion: A Cochrane Review was unable to identify that aspirin has an effect on vascular dementia, despite its wide use in practice (14).			
Statins	±		
Expert opinion: Lipid lowering statins may prevent the development of dementia via indirect effects of stroke prevention (15).			
Antihypertensives	+		
Level II evidence: Two randomised controlled trials have found that long term use of antihypertensives reduces the risk of dementia and cognitive decline (16, 17).			
Anticholinesterase	+		
Level I evidence: Two meta analyses identified that cholinesterase inhibitors have a positive effect on delaying and minimising the decline in dementia (18, 19). These drugs work most effectively in mild to moderate Alzheimer's disease.			
Neuroleptics	±		±
Expert opinion: The method of treatment is often chosen with the side effects in mind (20).			
Natural alternative treatment			
Antioxidant vitamins	+		+
Level II evidence: A randomised controlled trial suggests cognitive function in older people taking oral supplementation of vitamin E is improved compared with placebo (21). It has been proposed that high dietary intake of vitamin E is associated with lowering the risk of Alzheimer's disease (15, 20).			

COGNITION AND EMOTIONAL HEALTH			
	Goals of management		
INTERVENTIONS	Maintain optimal cognitive function	Prevent demoralisation	Maintain emotional health
Ginkgo biloba	±		±
Expert opinion: A Cochrane Review identified there is promising evidence of improvement in cognition and function, however, results are inconsistent. There is need for a large trial using modern and more robust methodology (22).			
Non-pharmacological interventions			
Non-pharmacological interventions	±		±
Expert opinion: Interventions that focus on the stimulus of the behavioural symptoms are beneficial.			
Reality orientation classes	+		
Level I evidence: Reality orientation classes (ten sessions in three weeks) have a positive effect on community-dwelling elderly with dementia. This might be able to be extrapolated into sub-acute and residential care settings (23).			
DEPRESSION			
Target known risk factors	+		+
Level I evidence: A systematic review identified risk factors among community-dwelling adults such as bereavement, sleep disturbance, disability, prior depression and the female gender. Screening individuals to identify those at risk might provide the opportunity to reduce the risk of depression (24).			
General management principles	±		±
Expert opinion: The general management principles include monitoring for self-harm, educating the patient and carer, treating the whole person, treating the depressive symptoms and prompt referral (25).			
Relapse prevention program	+		
Level I evidence: A relapse prevention program targeted at primary care patients with a high risk of relapse/ recurrence who had largely recovered after antidepressant treatment significantly improved antidepressant adherence and depressive symptom outcomes (26).			
Depression care managers	+		
Level I evidence: A combination of a clinical algorithm for treating geriatric depression and treatment management by depression care managers was effective in reducing suicidal ideation and depressive symptoms in patients with major depression and, when suicidal ideation was present, minor depression (27).			
Exercise	+		+
Level I evidence: Two randomised controlled trials demonstrated that exercise can affect depressive symptoms of older adults in a positive way in the community setting (28, 29). A systematic review identified that mood in elderly people who participate in exercise or physical activity is significantly improved compared with those who do not (30). Another systematic review identified that physical activity might enhance total sleep duration, sleep onset latency and global sleep quality, therefore enhancing quality of life in the aged (31).			

Mobility, Vigour and Self-Care 3

Summary and recommendations

MOBILITY, VIGOUR AND SELF-CARE
The ability to walk, climb stairs, transfer in and out of bed, shower, dress and toilet is related to an older person's level of strength, balance and endurance. • The rate of loss in strength might be as high as 5 per cent a day with bed rest and is greater in the lower limbs than in the upper limbs. • Effective balance is important to reduce the likelihood of falling in situations when balance is threatened. • Reduced aerobic capacity can occur with prolonged periods of bed rest.
Age related functional decline of physiologic systems means that older people are more susceptible to deconditioning; however, deconditioning is manageable with regular exercise.
Reduced mobility and falls can result from poor balance, reduced muscle strength and lack of endurance. • In the acute hospital setting, fall rates of between two and seven falls per 1,000 bed days have been reported. • In sub-acute care, up to 46 per cent of patients from high risk clinical groups (such as those who have suffered stroke) fall, while fall rates in residential care settings are often considerably higher, in the range of 30–50 per cent.
Falls can also have psychological and social consequences. Recurrent falls are a common reason for admission to residential aged care.

RECOMMENDATIONS
Perform a comprehensive assessment for falls and fracture risk, mobility and functional status
Develop an individualised care plan, encourage appropriate incidental activity throughout the day and minimise bed rest.
Assess and modify the environment to encourage independence and mobility.
Consider referral to a physiotherapist or occupational therapist for: • individual or group exercise training for muscle strength, endurance and balance • retraining of activities of daily living.
Maintain nutritional supplementation in combination with strengthening exercises to improve strength.
Provide supervision of walking and transfers in those identified to be at risk of falling.
Consider transitional care needs and community-based strategies for minimising post-discharge falls and maintaining ongoing strength, mobility and vigour.

Links to falls specific guidelines

- American Geriatrics Society, British Geriatrics Society & American Academy of Orthopaedic Surgeons 2001, 'Guideline for the prevention of falls in older persons', *Journal of the American Geriatrics Society,* vol. 49, no. 5, pp. 664–72.
- Queensland Health 2003, *Falls prevention: best practice guidelines for public hospitals and state government residential aged care facilities incorporating a community integration supplement*, Queensland Health, Brisbane. <http://www.health.qld.gov.au/fallsprevention/best_practice/falls_best_practice.pdf> [Currently being updated.]
- Victorian Quality Council 2004, *Minimising the risk of falls and fall-related injuries: guidelines for the acute, sub-acute and residential care settings*, Department of Human Services, Melbourne. <http://www.health.vic.gov.au/qualitycouncil>

Summary of the evidence

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MOBILITY, VIGOUR AND SELF-CARE			
	Goals of management		
INTERVENTIONS	Maintain muscle strength	Maintain endurance	Maintain balance
Exercise interventions			
Incidental activity	±		
Expert opinion: Increasing the number and amount of incidental activities during the day can help maintain muscle mass, strength and mobility and reduce agitation in older people in residential care (32).			
Progressive resistance training (strength)	+		
Level 1 evidence: A systematic review identified that progressive resistance training appears to be an effective intervention to increase strength in older people and has a positive effect on some functional outcomes (33).			
Endurance training		+	
Level I evidence: A meta analysis identified that endurance training significantly increases functional capacity in the older community-dwelling person and that the increase is related to subject age, duration of exercise bouts, length of training regimen and pre-training maximum oxygen consumption (34). Further investigation is warranted regarding frequency, duration and intensity of training (34).			
Balance training			+
Level II evidence: To improve balance performance, exercise needs to have a balance component, not just strength training (35). Exercises need to be specific to the level of function, which is to be achieved. Balance exercises lead to improvements in static balance function, while gait exercises result in improved dynamic balance and gait functions (36). Sitting balance exercises are insufficient to effect dynamic balance (37).			
Tai chi			+
Level I evidence: Two systematic reviews identified evidence supporting the use of tai chi to improve balance and postural control (38, 39). Practicing tai chi for a period of 15 weeks has a positive effect on fear of falling and reduces risk of falling (38). A recent randomised controlled trial used tai chi in 311 frail, older residents of residential aged care settings and while it found that falls were not reduced, it identified a positive trend indicating further research is required in this area (40).			
Physiotherapy and occupational therapy	+	+	+
Level II evidence: Two randomised controlled trials identified that individualised programs, which often include strength, balance and functional retraining, have been shown to increase mobility and reduce the use of assistive devices in residential care settings (41, 42).			

MOBILITY, VIGOUR AND SELF-CARE			
	Goals of management		
INTERVENTIONS	Maintain muscle strength	Maintain endurance	Maintain balance
Walking aid			+
Level II evidence: Walking aids have been shown to reduce falls in those with intermediate levels of activity (43).			
Group exercises	+	+	+
Level II evidence: Two randomised controlled trials have demonstrated that group exercises that incorporate balance, strengthening, aerobic and functional activities have achieved improved mobility and function in older people in sub-acute hospital and residential care settings (44, 45).			
Exercise program via allied health assistant	+		
Level II evidence: A randomised controlled trial of 180 older general medical patients (aged 65 years or older) demonstrated improved functional outcomes and reduced length of stay for patients who participated in an exercise program while an inpatient (46).			
Nutrition			
Nutritional supplementation	+		
Level II evidence: Progressive resistance exercise training is required in addition to nutritional supplementation to produce a significant improvement in muscle strength and function in older people in long term care (47).			
Falls-specific interventions			
Multidisciplinary, multifactorial, health/ environmental risk factor screening and intervention	+	+	+
Level I evidence: A systematic review of 21 studies identifying effects designed to reduce falls in older people across the community, hospital and residential settings identified complex interventions as likely to be beneficial (48). These complex interventions varied in their details of the assessment, referral and treatment protocols; however, in most studies a nurse or other trained health professional made an initial assessment and the patients/ residents were provided with advice and referral to appropriate health providers (48). A systematic review of ten studies (three randomised controlled trials and seven prospective studies) involving risk assessment, an education or awareness program, equipment checks, labels or bracelets for high risk patients, and use of alarms, restraints or a tailored nursing care plan, demonstrated that particular interventions within a prevention program were equally effective at reducing falls in hospital (49). Poor sample size and study quality limited the power calculations (49). Level II evidence suggests that multifactorial interventions in residential settings should include staff education programs, gait training and advice on the appropriate use of assistive devices, and review and modification of medications, especially psychotropic medications (50). The evidence is insufficient to extrapolate findings to the acute sector (50). A randomised controlled trial demonstrated a reduction in falls in an intervention group, which included a multitargeted intervention, including a falls risk alert card, exercise, education and hip protectors (45).			
Supervision			±
Expert opinion: Always supervise the person when they are walking or making transfers if they require assistance, are acutely unwell (51) or have increased falls.			

Continence 4

Summary and recommendations

CONTINENCE
Continence is the capacity to pass urine or faeces in socially and hygienically acceptable circumstances.
Urinary incontinence can be transient or established. Faecal incontinence frequently co-exists with urinary incontinence and might have a shared aetiology.
Thirty per cent of women and 20 per cent of men aged 60 years or more and 42 per cent of women and 44 per cent of men aged 75 years or more suffer urinary incontinence.
In the community-dwelling population aged over 65 years, faecal incontinence occurs at least once a week in 3.7 people of people, and the rate is substantially greater for residents of aged care homes (10.3 per cent).
Urinary and faecal incontinence can already be present on admission to acute and sub-acute care and, in association with other problems, such as cognitive impairment and mobility impairment, is a significant contributing factor to decisions for admission to residential aged care.

RECOMMENDATIONS
Assess older people on admission for the presence of established urinary and faecal incontinence
Assess risk for transient urinary and faecal incontinence.
Assess need for indwelling urinary catheter.
Maintain hydration.
Modify environmental factors.
Encourage mobilisation and activity.
Consider specialist assessment for guidance on interventions appropriate to person and setting, including: • behavioural interventions, such as toileting assistance or bladder training • physical interventions, such as pelvic floor muscle training • pharmacological interventions • surgical interventions or other devices.
Consider transitional care needs and community-based strategies.

Links to continence specific guidelines

These current guidelines exist:

- National Ageing Research Institute 2004, *Continence clinic service guidelines: service guidelines for Victorian continence clinic services*, NARI, Melbourne, Australia.
- Registered Nurses Association of Ontario 2003, *Promoting continence using prompted voiding,* RNAO, Toronto, Canada. <www.rnao.org/bestpractices/PDF/BPG_Continence.pdf>
- Royal Australian College of General Practice Western Australian Research Unit 2002, *Managing incontinence in general practice: clinic research guidelines,* (edited version), Commonwealth Department of Health and Ageing, Canberra, Australia.
- Rao, SC 2001, *Practice guidelines: diagnosis and management of faecal incontinence,* American College of Gastroenterology, Iowa, USA

Summary of the evidence

+ = demonstrated positive effect

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CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
URINARY INCONTINENCE			
Indwelling catheters			
Avoid indwelling catheters where possible			+
Level III-2 evidence: A causal relationship exists between indwelling catheters and urinary tract infection. Review indication for indwelling catheters daily (52).			
Use silver alloy indwelling catheters			+
Level I evidence: A systematic review suggests silver alloy coated indwelling catheters reduce the risk of urinary tract infection in the short term for hospitalised older people (53). Further economic evaluation is required to confirm that the reduction in infection compensates the cost of silver alloy catheters (53).			
Behavioural interventions			
Habit retraining	±		
Level I evidence: There is insufficient quality of evidence to provide a firm basis of evidence in residential aged care and home settings. There is often overlap between habit retraining and other toileting regimens (54, 55). There should be attempts to determine the micturition pattern for the individual, however, the individual does not have to be an active participant (56).			
Prompted voiding	+		
Level I evidence: Limited evidence from five randomised controlled trials suggests prompted voiding increases self-initiated voiding and reduces episodes of incontinence in the short term (56). It is used to teach people with or without cognitive impairment to initiate their own toileting and requires the participation of the individual (56). A prompted voiding schedule requires a three-day voiding record initially to determine the client's toileting needs (57).			
Timed toileting	±		
Level I evidence: A systematic review identified that data were limited and of insufficient quality to provide empirical support for or against the intervention of timed voiding, although timed voiding in combination with other interventions has been shown to reduce incontinence (56, 58).			

CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
Address constipation and faecal impaction	±	±	
Expert opinion: There is consensus that constipation directly affects continence (57). Refer to the Registered Nurses Association of Ontario nursing best practice guideline, Prevention of constipation in the older adult population <http://www.rnao.org.au>.			
Pelvic floor muscle training	+		
Level II evidence: One randomised controlled trial demonstrated a reduction in stress urinary incontinence by 48 per cent following six months of pelvic floor exercises without biofeedback (59). A systematic review identified that pelvic floor muscle training appeared to be an effective treatment for adult women with incontinence; however, methodological limitations existed (60). Pelvic floor muscle training in the older adult might not be as effective, depending on cognitive factors.			
Bladder training with biofeedback	+		
Level I evidence: Bladder training using biofeedback techniques reduced the urinary accidents for stress, urge and mixed incontinence significantly in three randomised controlled trials (59).			
Pharmacological interventions			
Anticholinergic drugs	+		
Level I evidence: Use of anticholinergic drugs in overactive bladder syndrome results in statistically significant improvement in symptoms. Dry mouth is a common side effect (61).			
Adrenergic drugs	±		
Level I evidence: Adrenergic drugs have a weak evidence base to support their use over placebo (62).			
Tricyclic antidepressant therapy	±		
Level II evidence: Few randomised controlled trials have been performed on tricyclic antidepressant therapy with small sample sizes. Effects have been found in nocturia in children and adult incontinence (63, 64).			
Surgical interventions for women			
Open retropubic colposuspension	+		
Level I evidence: A systematic review identified that open retropubic colposuspension is the most effective treatment modality for stress urinary incontinence, especially in the long term. Laparoscopic colposuspension should allow speedier recovery, but its relative safety and effectiveness is unknown (65).			

CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
Periurethral injection therapy for urinary incontinence in women	+		
Level I evidence: A systematic review suggests that periurethral injection of established manufactured bulking agents results in subjective and objective short term improvements of symptomatic female stress urinary incontinence. Further evidence of the patient benefits and cost effectiveness, as well as long term outcomes, is required (66).			
Tension-free vaginal taping	+		
Level II evidence: A randomised controlled trial demonstrated that at six months post-operatively, this procedure is as effective as colposuspension, although operative complications are more common with vaginal tape (67). Post-operative complications were more common with colposuspension (67).			
Other interventions			
Absorbent products	+	+	
Level I evidence: A systematic review identified that disposable products might be more effective than non-disposable products in decreasing the incidence of skin problems, and super-absorbent products might perform better than fluff pulp products; however, tentative conclusions can only be drawn due to poor quality studies (68).			
Weighted vaginal cones	±		
Level I evidence: A systematic review identified 15 studies that assessed weighted vaginal cones. It demonstrated there was some evidence that weighted vaginal cones are better than no active treatment in women with stress incontinence and might be of similar effectiveness to pelvic floor muscle training and electro-stimulation (69).			
Post-prostatectomy urinary incontinence interventions	+		
Level I evidence: A systematic review of ten trials identified that there might be some support for pelvic floor muscle training with biofeedback post radical prostatectomy in the early post-operative period (70).			
Oestrogens for urinary incontinence in women	+		
Level I evidence: A systematic review identified that oestrogen can improve or cure incontinence and the evidence suggests this is more likely with urge incontinence. Further research into oestrogen type, dose and route of administration needs to occur. Risk of endometrial and breast cancer after long term use suggests oestrogen treatment should be for limited periods, especially for women with an intact uterus (71).			

CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
FAECAL INCONTINENCE			
Behavioural interventions			
Dietary modification		±	
Expert opinion: Reducing caffeine or fibre in the diet might be a supportive measure for improving faecal incontinence symptoms where this is associated with loose or watery stools (72).			
Habit retraining	±	±	
Level III-1 evidence: There is insufficient quality of evidence to provide a firm basis of evidence in residential aged care settings (73).			
Prompted voiding	+	±	
Level III-2 evidence: Limited evidence from a study suggests that prompted voiding when combined with other protocols, such as fluid prompting and mobility can decrease the frequency of faecal incontinence and increase appropriate faecal voiding in a toilet (74).			
Timed toileting	±	±	
Expert opinion: Developing an individualised toileting regime and toileting the patients/residents according to the regime are of paramount importance for the treatment of faecal incontinence. Refer to the American College of Gastroenterology's *Practice guidelines: diagnosis and management of faecal incontinence* (72).			
Address constipation and faecal impaction	±	±	
Expert opinion: There is consensus that constipation directly affects continence (57). Refer to Registered Nurses Association of Ontario nursing best practice guideline, *Prevention of constipation in the older adult population* <http://www.rnao.org.au>. Level III-1 evidence: A randomised controlled trial demonstrated that treatment of constipated patients with faecal incontinence with laxative alone is unsatisfactory. Other contributing major risk factors such as mobility and cognitive impairment need to be considered (75).			
Environmental and lifestyle modification		±	
Expert opinion: Brisk physical activity after meals or on waking and vigorous exercise can enhance colonic motility (76-78).			
Biofeedback	+	+	
Level I evidence: A recent systematic review of 46 studies (with a total of 1,364 patients) demonstrated a reduction in symptoms of faecal incontinence by 49 per cent. Seventy-two per cent were cured or improved following biofeedback therapy (79).			

CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
Pelvic floor muscle training	±	±	
Level III-2 evidence: A comparative study with concurrent controls identified levator ani failure as the key factor in aetiology of the faecal incontinence. Pelvic floor muscle training appeared to be an effective treatment for adults with anal incontinence; however, methodological limitations existed (80).			
Pharmacological interventions			
Antidiarrheal drugs		±	
Level II evidence: Use of antidiarrheal drugs in treating chronic diarrhoea results in statistically significant improvement in symptoms of faecal incontinence; however, adverse effects should be considered (81, 82). Expert opinion: Non-specific antidiarrheal agents decrease intestinal motility and decrease stool frequency, hence reducing the faecal incontinence frequency. Modified stool consistency should also be considered because the formed stool is easier to control. Excessive use of the antidiarrheal, however, might precipitate constipation (83, 84).			
Laxatives		±	
Level III-2 evidence: A multicentred study of 22 facilities found that bulk laxatives (Fybogel, Regulan) and suppositories are superior to lactulose and are associated with the lowest rates of faecal incontinence (85). Expert opinion: Suppositories or enemas, though they might cause mild rectal discomfort, minimal bleeding and a burning sensation, tend to be commonly used and effective in treating selected people with incomplete rectal evacuation or those with post-defecation seepage (72, 83).			
Topical phenylephrine		±	
Expert opinion: This is not currently approved for the treatment of faecal incontinence (83).			
Tricyclic antidepressant therapy		+	
Level II evidence: An open-labelled study showed that amitriptyline (20 mg) for four weeks for idiopathic faecal incontinence was statistically significant in decreasing the incontinence score (86).			
Surgical interventions			
Sphincteroplasty		±	
Expert opinion: Sphincteroplasty is the appropriate first-line therapy for incontinence related to post-obstetric trauma; however, recent studies have shown this process is beneficial only in the short term (87).			

CONTINENCE			
	Goals of management		
INTERVENTIONS	Maintain urinary continence	Maintain faecal continence	Maintain appropriate use of an indwelling catheter
Dynamic graciloplasty		+	
Level I evidence: A systematic review suggested that dynamic graciloplasty was clearly effective at restoring continence in between 42 per cent and 85 per cent of patients. It was associated with a higher rate of complication and had a significant risk of re-operation. There is a requirement for further evidence of patient benefits and cost effectiveness, as well as long term outcome, particularly for elderly institutionalised people (88).			
Implant of an artificial bowel sphincter		±	
Level III-1 evidence: A prospective multicentred study demonstrated successful outcome results in 85 per cent of patients with a functioning device. Device related complication rates were very high and so was the rate of revisional replacement and retransplant (89).			
Sacral nerve stimulation		+	
Level II evidence: In one study that assessed the short-term effect, median incontinence frequency decreased (46). Larger, well designed controlled trials that include clinically important measures are required for conclusive recommendation (90).			
Other interventions			
Absorbent products	+	+	
Level I evidence: A systematic review identified that disposable products might be more effective than non-disposable products in decreasing the incidence of skin problems and super-absorbent products might perform better than fluff pulp products; however, tentative conclusions can only be drawn due to poor quality studies (68).			
Plugs, procon incontinence device, sphincter bulkers	±		
Expert opinion: Due to the lack of a proper controlled study or long term outcome study, there is no conclusive evidence to recommend use of devices such as anal plugs, procon incontinence devices or sphincter bulkers in treating faecal incontinence (84).			
Electrical stimulation		±	
Level I evidence: A systematic review reported there were insufficient data to draw a reliable conclusion about the effect of electrical stimulation in treating faecal incontinence (91).			

Nutrition 5

Summary and recommendations

NUTRITION
Malnutrition is a major cause of functional decline and increased morbidity and mortality in older people.
Malnutrition is common in the older person and can be broadly divided into inadequate macro nutrition (protein, energy malnutrition) and inadequate micro nutrition (vitamin deficiency).
Two important functions of adequate nutrition in the older person are the maintenance of muscle strength and of bone strength.
The prevalence of protein energy malnutrition ranges from 25–65 per cent of institutionalised older people without acute diseases.
Prevalence of malnutrition in hospitalised patients has been shown to be 36 per cent and has been associated with increased length of stay, increased infection rates and increased mortality.

RECOMMENDATIONS
Assess the nutritional status of older patients or residents, including vitamin D status
There is insufficient evidence for providing dietary advice alone in the management of illness related malnutrition. Consider nutritional interventions for those who are malnourished or at risk of malnourishment. These include: • increasing the nutrient density of food via supplementation of food, vitamins and drinks • making snacks available between meal times • offering fluids to people at regular intervals.
Ensure adequate intake of vitamin D. • All people over the age of 65 years should have a daily vitamin D intake of at least 400 IU a day. • Older people at higher risk of vitamin D insufficiency or deficiency (for example, those who are housebound or in residential care) should have a daily vitamin D intake of at least 800 IU a day. Patients/residents with documented vitamin D deficiency might require higher doses of vitamin D replacement. Consider specialist referral for guidance. • Oral vitamin D supplementation for older people should be given in association with calcium supplementation of at least 800 mg a day for men and 1000 mg a day for women.
Promote non-dietary interventions, which encourage independent eating. • Ensure appropriate set up of plate at meal time, with appropriate assistive devices. • Optimise the patient's or resident's position at meal times (for example, sitting out of bed).
Assess and treat co-morbidities that contribute to malnutrition risk: • depression • nausea and vomiting • dentition and oral hygiene problems.

Links to nutrition specific guidelines

No current guidelines addressing aspects of nutrition were identified and assessed. The recommendations are made based on current availability of literature (systematic reviews and randomised controlled trials).

Summary of the evidence

+ = demonstrated positive effect

- = demonstrated harmful effect

± = equivocal effect identified in the research, however recommended by expert opinion

NUTRITION			
	Goals of management		
INTERVENTIONS	Maintain micro nutrition	Maintain macro nutrition	Maintain hydration
Dietary interventions			
Increase the nutrient density of food.	±		
Expert opinion: Increase the protein content by adding milk powder, egg whites or tofu. Increase the fat content by adding butter, margarine or oil and sauces and gravy.			
Make snacks available between meal times.	±	±	
Expert opinion: Make snacks available between meal times and offer snacks as part of a defined between meal snack program which might increase the likelihood of individuals eating between meals.			
Consider giving daily multivitamin and mineral supplements.		±	
Expert opinion: Consider giving daily multivitamin and mineral supplement to people whose food consumption is marginal.			
Oral nutritional supplements	+	+	
Level I evidence: A systematic review of 31 trials identified that supplementation with oral nutritional supplements appeared to produce a small but consistent weight gain. There was a statistically significant effect on mortality and reduced length of stay (92).			
Dietary advice	±	±	
Level I evidence: There is insufficient evidence for providing dietary advice alone in the management of illness related malnutrition. Oral nutritional supplements or supplements in combination with dietary advice, rather than advice alone, might be more effective in enhancing weight gain (93).			
Vitamin D and Vitamin D analogues			
Supplementation of vitamin D3 and calcium	+		
Level I evidence: A systematic review demonstrated that vitamin D alone without calcium supplementation does not reduce incidence of hip fracture. Administering vitamin D3 with calcium co-supplementation to frail older people in sheltered accommodation does reduce hip fracture incidence (94). A meta analysis demonstrated that vitamin D reduced the risk of falls by 22 per cent (95).			

NUTRITION			
	Goals of management		
INTERVENTIONS	Maintain micro nutrition	Maintain macro nutrition	Maintain hydration
Supplementation of vitamin D3 and calcium	±	±	
Expert opinion: All people over the age of 65 years should have a daily vitamin D intake of at least 400 IU a day. Those older people at higher risk of vitamin D insufficiency or deficiency (for example, those who are housebound or in residential care) should have a daily vitamin D intake of 800 IU a day. Oral vitamin D supplementation for older people should be given in association with calcium supplementation of at least 800 mg a day for men and 1000 mg a day for women (96, 97).			
Non-dietary interventions			
Treat depression	±	±	±
Expert opinion: Appetite loss is a symptom of depression. By treating depression, appetite is stimulated.			
Manage nausea	±	±	±
Expert opinion: The presence of nausea or vomiting might indicate medication side effects or a gastrointestinal, hepatobiliary or renal disorder. All medications should be reassessed for continued indications, potential side effects and interactions that might affect nutritional status.			
Correct any dentition problems.	±	±	±
Expert opinion: The status of dentition should be considered in the assessment of older people in acute, sub-acute and residential aged care and corrected where possible.			
Exercise	+	+	
Level II evidence: Progressive resistance exercise training is required in addition to nutritional supplementation to produce a significant improvement in muscle strength and function in older people in long term care (47).			
Promote independent eating	±	±	±
Expert opinion: Provision of assistive devices, such as plate guard, built-up cutlery and beaker with fitted lid, will enhance the patient's or resident's ability to remain independent in eating and drinking.			
Positioning	±	±	±
Expert opinion: Sitting out of bed for meals will place the individual in a better position to reach meal items and to feed oneself successfully.			
Maintaining oral hydration			
Regular presentation of fluids to older person			+
Level II evidence: Regular presentation of fluids every one-and-a-half hours to bedridden residents of residential aged care facilities helps to maintain fluids (98).			

Skin integrity 6

Summary and recommendations

SKIN INTEGRITY
Many terms are used to describe skin breakdown, including pressure ulcers, pressure areas, pressure sores, bedsores, ischaemic ulcers and decubitus ulcers.
Pressure areas occur when the soft tissue is compressed between bony prominences and an external surface for a long time.
The intensity and duration of pressure is related to factors that impede mobility, activity and sensory perception.
Australian pressure ulcer prevalence rates range from 13–37 per cent. Incidence rates range between 5.4 per cent and 11 per cent.
International pressure ulcer prevention strategies have been shown to reduce pressure ulcer incidence by up to 30 per cent.
Maintaining skin integrity is important because pressure areas are associated with pain, reduced mobility, increased risk of in-hospital complications, and increased health care costs associated with prolonged length of stay.

RECOMMENDATIONS
Perform a pressure ulcer risk assessment on patients/residents on admission
Perform a daily skin integrity assessment on older patients/residents at risk of pressure ulcers.
Optimise skin hygiene. • Keep skin clean and free from all potentially irritating substances or those that affect skin pH. • Use topical moisturiser. • Avoid high skin temperature by avoiding skin contact with plastic surfaces. • Prevent or minimise effects of incontinence.
Maintain adequate hydration and nutrition.
Maintain mobility.
Review mechanical loading and support surface measures. Ensure patients/residents do not remain in one position for longer than two hours. Avoid prolonged sitting in a chair or wheelchair. • Consider use of high specification foam mattresses. • Reduce heel pressure by using pillows or foam under the whole length of the lower leg. Do not use air filled vinyl boots to reduce heel pressure. • Consider using pressure relieving overlays on operating tables and in the post-operative period. • Consider using high technology and other devices in very high risk people or those who have failed with other conservative measures.

Links to skin integrity specific guidelines

- Australian Wound Management Association 2003, *Clinical practice guidelines for the prediction and prevention of pressure ulcers,* AWMA, Perth. <http://www.awma.com.au>
- National Institute for Clinical Excellence 2003, *Pressure ulcer prevention: pressure ulcer risk assessment and prevention, including the use of pressure-relieving devices (beds, mattresses and overlays) for the prevention of pressure ulcers in primary and secondary care*, NICE, London. <http://www.nice.org.uk/pdf/PRD_Fullguideline.pdf>
- Rycroft-Malone, J & McInness, E 2000, *Pressure ulcer risk assessment and prevention. Technical report,* Royal College of Nursing, London.

Summary of the evidence

+ = demonstrated positive effect

– = demonstrated harmful effect

± = equivocal effect identified in the research, however recommended by expert opinion

SKIN INTEGRITY			
	Goals of management		
INTERVENTIONS	Reduce excessive pressure	Maintain mobility	Maintain nutrition
General skin care measures			
Daily skin inspection	±		
Expert opinion: Individuals at risk of developing pressure ulcers should have a comprehensive skin inspection at least daily for signs of impaired skin integrity (99).			
Skin hygiene	±		
Expert opinion: The skin should be kept clean and free from all potentially irritating substances and those that substantially alters skin pH. Dry flaky skin should be treated with a topical moisturiser. Avoid high skin temperatures by avoiding skin contact with plastic surfaces covering mattresses and pillows and ensure turning schedules do not exceed two hours for people on basic mattresses (99).			
Nutrition			+
Level II evidence: Maintain adequate nutrition. Nutritional supplementation should be considered where nutritional deficits compromise skin integrity. A systematic review by Langer et al. (2004) identified one study (Bourdel 2000) which was sufficiently large and methodologically rigorous to demonstrate that nutritional supplements reduced the number of new pressure ulcers (100). Where appropriate, refer to a dietitian.			
Mobilisation and activity		+	
Level III-2 evidence: A prospective cohort study of hospitalised patients older than 55 years of age demonstrated that immobilised patients had a greater risk of developing a pressure ulcer (101, 102).			
Management of continence	±		
Expert opinion: Avoid skin contact with urine or faeces and employ interventions to promote continence, such as continence training or continence aids (99).			
Mechanical loading and support surface measures			
Positioning	±		
Expert opinion: The most frequently recommended turning schedule is two hourly. Skin inspection with each turn is recommended to determine whether more frequent turning is required (99).			

SKIN INTEGRITY			
	Goals of management		
INTERVENTIONS	Reduce excessive pressure	Maintain mobility	Maintain nutrition
Sitting	±		
Expert opinion: Avoid prolonged uninterrupted sitting in a chair or wheelchair. Repositioning or shifting of pressure points should occur as frequently as every 15 minutes to hourly depending on the tissue tolerance to pressure (99). Even with appropriate pressure relief, it might be necessary to restrict sitting time to less than two hours in people at elevated risk of skin breakdown (103).			