

PREVENTION OF HIP FRACTURE AMONGST PEOPLE AGED 65 YEARS AND OVER

This guideline provides an evidence-based summary of the clinical aspects of hip fracture prevention and preventive strategies for those older people at high risk of hip fracture.

The consequences of hip fractures in older people create a significant and increasing burden of illness in the community, and can precipitate a dramatic decline in physical function. Twenty percent of older people who sustain a hip fracture die within a year. Two years after the fracture, survivors are more than four times more likely to have limited mobility than people of similar age without a fracture, and more than twice as likely to be functionally dependent.

Evidence shows that women are at greater risk of hip fracture than men, and this risk increases steadily and substantially with age. In addition to gender, other factors that increase the risk of hip fracture are:

- living in institutional care
- significant cognitive impairment
- certain medications (eg, anticonvulsants, corticosteroids)
- personal history and lifestyle factors
- certain medical conditions (eg, type 2 diabetes in women)
- low bone mineral density.

The guideline makes recommendations on risk assessment and effective preventive strategies for reducing hip fractures.

A second guideline has been developed for *Acute Management and Immediate Rehabilitation after Hip Fracture in People Aged 65 Years and Over* and is available from the New Zealand Guideline Group's website (www.nzgg.org.nz).

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RECOMMENDATIONS FOR RISK ASSESSMENT

INDIVIDUALS AT HIGH RISK OF HIP FRACTURE

Women and Men

- Women aged 80 years and over and men aged 85 years and over
- Women aged 70 years and over and men aged 75 years and over
 - living in institutional care, OR
 - with significant cognitive impairment.
- Women aged 70 years and over and men aged 75 years and over with one or more of the following conditions:
 - visual acuity 0.2 (6/30)
 - history of a fall with fracture in the previous year
 - history of frequent falling
 - type 2 diabetes (evidence available for women only)
 - if currently using any of the following medications:
 - anticonvulsant therapy
 - opioids (including propoxyphene containing pain medication)
 - corticosteroids (doses greater than prednisone 5mg per day or equivalent)
 - any psychotropic drug
 - type Ia antiarrhythmics.

Women

- Women aged 70 years and over with three or all of the following four personal history/lifestyle factors:
 - smoking history
 - personal history of any previous fracture
 - history of maternal hip fracture
 - low body mass index.
- Women aged 65 years and over are at high risk if their bone mineral density (BMD) is 2SD below normal for age (Z-score > -2.0), and 75 years and over if BMD is 1SD below normal for age (Z-score > -1.0). The decision on prevention/treatment should take into account Z-score AND other risk factors.

Men

- Men aged 75 years and over with any of the following personal history/lifestyle factors:
 - low body mass index
 - smoking history
 - history of fracture of spine, hip or wrist
 - history of stroke.
- Men aged 70 years and over are at high risk if their BMD is 2SD below normal for age (Z-score > -2.0), and 80 years and over if BMD is 1SD below normal for age (Z-score > -1.0). The decision on prevention/treatment should take into account Z-score AND other risk factors.

SCREENING

- The available evidence does not support the use of BMD measurement for population screening of asymptomatic individuals.
- At present, there is only limited evidence that the use of BMD measurement in selected individuals is effective in reducing the risk of future fractures.

RECOMMENDATIONS FOR PREVENTIVE STRATEGIES

PREVENTING FALLS

- A programme of muscle strengthening and balance training, individually prescribed by a trained health professional in a New Zealand primary health care setting, reduces the frequency of falls in high risk community-dwelling older people.
- Multidisciplinary, multifactorial health/environmental screening/intervention programmes reduce the frequency of falls in high risk community-dwelling older people.
- Assessment, advice, and facilitation of home environment modification, when conducted in an experimental situation by a trained occupational therapist, reduces the frequency of falls in high risk community-dwelling older people.

MEDICATION FOR BONE PROTECTION

- Daily supplementation with vitamin D₃ and calcium reduces the hip fracture rates amongst high risk older people in institutional care, or who have already sustained a hip fracture.
- Bisphosphonates (alendronate, risedronate) reduce hip and other fracture rates in community-dwelling older women under 80 years of age.
- Evidence for the effectiveness of hormone replacement therapy (HRT) in reducing hip fracture rates in women aged 65 years and over is conflicting. In view of more recent evidence on the risks of HRT, it is not recommended for first line prevention of hip fracture (refer to Appendix C in full guideline or HRT Update Summary at www.nzgg.org.nz).

HIP PROTECTORS

- Hip protectors appear to reduce the incidence of hip fractures in older people in institutional care provided that compliance/adherence is achieved.

CHOOSING A PREVENTION STRATEGY – CURRENT ESTIMATES OF COST-EFFECTIVENESS

- In frail older people in residential or nursing home care, calcium and vitamin D supplementation appears more cost-effective than the use of hip pads, although both approaches have similar efficacy.
- The cost-effectiveness of bisphosphonates compared with HRT is sensitive to compliance and the incidence of adverse events, and is unclear (refer to Appendix C in full guideline for current advice on HRT at www.nzgg.org.nz).
- The overall cost-effectiveness of fall prevention programmes, compared with other strategies used for hip fracture prevention, is not known.

GUIDELINE DEVELOPMENT TEAM

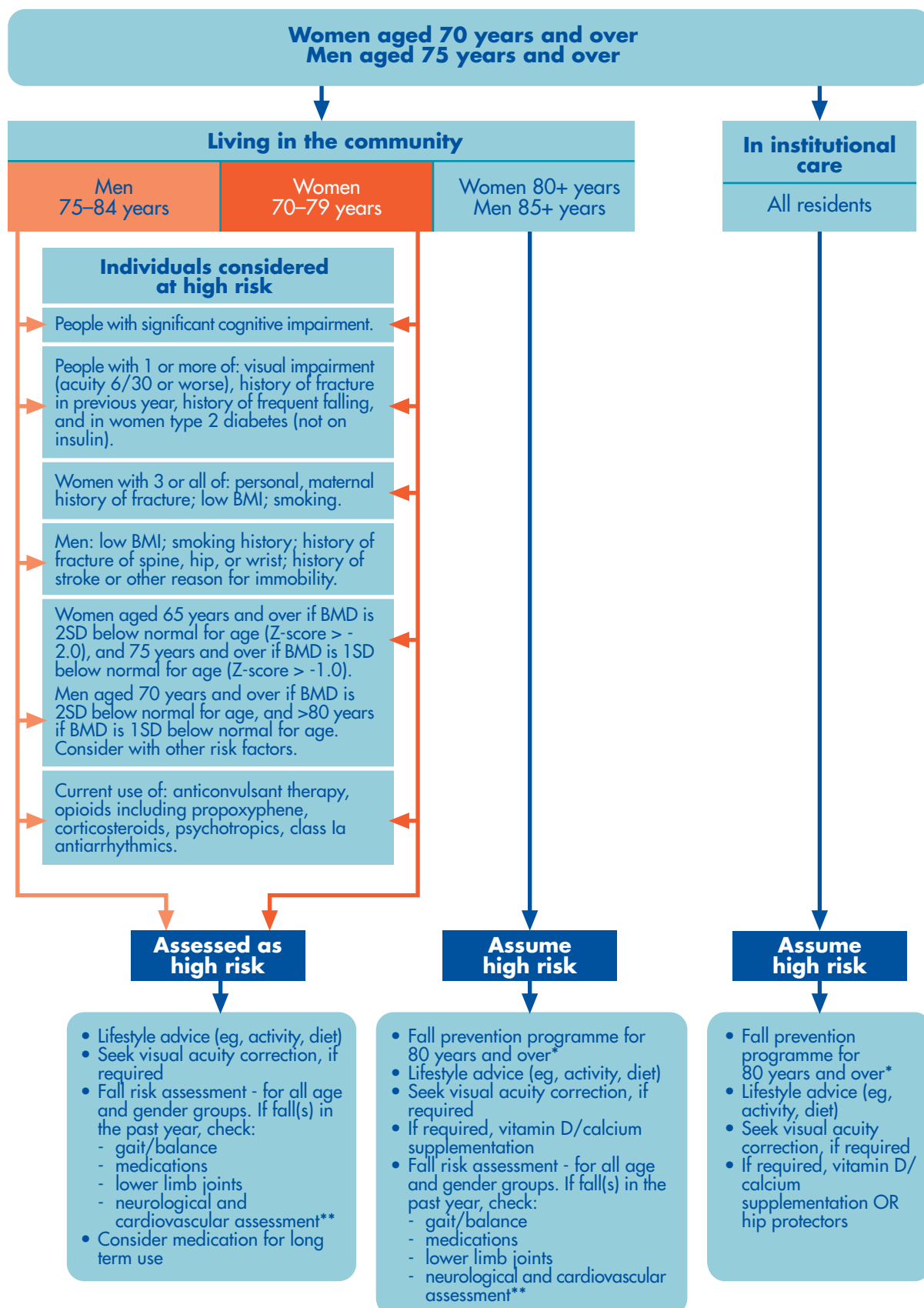
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An electronic copy of the full guideline is available for download from www.nzgg.org.nz or a printed copy is available from info@nzgg.org.nz, phone 64-4-471 4180 or Box 10-665, Wellington, New Zealand.

RISK ASSESSMENT & PREVENTIVE STRATEGIES FOR HIP FRACTURE IN OLDER PEOPLE

SUMMARY ALGORITHM



Footnotes

* From Figure 1, p666: American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention. Guideline for the prevention of falls in older persons. Journal of the American Geriatrics Society 2001; 49: 664-672.

** Gillespie LD, Gillespie WJ, Robertson MC, Lamb SE, Cumming RG, Rowe BH. Interventions for preventing falls in elderly people (Cochrane Review). In: The Cochrane Library, Issue 3, 2001. Oxford: Update Software.