



Malaysian Society of Geriatric Medicine

Position Statement on Falls and Fragility Fractures

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CONTENTS

Impact of Falls and Falls Related Injuries	3
Multifactorial Fall Risk Assessment and Intervention for Community Dwelling Older Person	4
Frailty and Sarcopenia	9
Strength and Balance Training	11
Medications and Falls	13
Home Safety and Hazard Management to Prevent Falls	15
Osteoporosis and Fracture Risk Assessment	16
Multidisciplinary Approach in Acute Hip Fracture- Pre, Peri and Postoperative Care	18
Closing the Care Gap - Fracture Liaison Service	20
References	21
Appendix	29

IMPACT OF FALLS AND FALLS RELATED INJURIES

Falls in an older person is a public health concern as it leads to severe morbidity and mortality. It affects 28-30% of community-dwelling older persons and 40-50% of those in long-term institutions (1-3). Local data from the Malaysian Elders Longitudinal Research Study (MELoR) reported that the prevalence of falls for urban community dwelling older persons aged 65 years and over was 23.5%. There was an increase in falls prevalence with older age (4). The prevention of falls is of major importance as 40% of older persons who had fallen once are likely to experience a fall again within a year (5).

Falls and falls-related injuries cause deleterious effects to the health and wellbeing of older persons. From the National Health and Morbidity Survey 2018, 40% of individuals who had a fall sought outpatient medical attention, with 45% resulting in minor injuries and 18% with severe injury (6). Another study from the University of Malaya showed that older persons who attended the emergency department after a fall had increased dependency in their activities of daily living and 21.7% mortality rate within 1 year of their initial presentation (7).

Approximately 10-15% of falls resulted in fractures (8). Hip fracture is the most debilitating fragility fracture and 95% of hip fractures were secondary to falls (9). The incidence of hip fracture in Malaysia for those aged over 50 years was 90 per 100,000 in 1996–1997 (10). The estimated in-patient treatment cost for hip fracture was 6000 USD for an average stay of 7 days (11). More than half of hip fracture patients were unable to regain their prefracture mobility status and 60% will have difficulties with at least one essential activity of daily living in the first postoperative year (12).

Psychological consequences such as fear associated with falls are just as detrimental for the older person in the long term. One of the major consequences of this fear is restriction of activities that leads to inactivity, deconditioning and loss of confidence. These further increased the risk of falling. Older persons with fear of falling report to have poorer quality of life which is independent of the fall events (13).

This position statement aims to address important issues surrounding falls and fragility fracture by providing recommendations from multidisciplinary experts in this field.

MULTIFACTORIAL FALL RISK ASSESSMENT AND INTERVENTION FOR COMMUNITY DWELLING OLDER PERSON

A multifactorial fall risk assessment denotes a comprehensive geriatric assessment of the older person's medical, cognitive, functional and social concerns. These assessments would allow selected interventions to be targeted at a person's specific risk factors to prevent future falls (14). The involvement of relevant professional disciplines such as physiotherapist, occupational therapist and pharmacist are needed to deliver appropriate assessment and intervention to reduce falls risk factors in older persons.

Recommendations on Assessment

1. All older persons aged 65 years and above, or their caregivers, should be asked at least once a year about falls, and difficulties in gait or balance (15).
2. A multifactorial fall risk assessment should be performed for community-dwelling older persons who:
 - Report recurrent (two or more) falls or 1 injurious falls event within a 12-month period.
 - Report difficulties with gait or balance.
 - Seek medical attention or present to the emergency department because of a fall.
3. A focused history on fall incidents and risk factors of falls should include the following:
 - Number of previous falls, information regarding the activity of the faller during the incident, prodromal symptoms (lightheadedness, imbalance, dizziness), where and when the falls occurred.
 - History of unexplained falls or transient loss of consciousness should prompt further assessment of cardiovascular disorders such as carotid sinus hypersensitivity, vasovagal syndrome and arrhythmias, and neurological disorders.
 - Assessment and identification of underlying chronic illnesses which increase falls risk i.e. age-related degenerative conditions such as Parkinson's disease,

chronic musculoskeletal pain, knee osteoarthritis, cognitive impairment, visual impairment, urinary incontinence, stroke, and diabetes mellitus.

- Comprehensive medication history should be obtained with specific focus on sedative hypnotics, antidepressants, psychotropic medications, and antihypertensive medications. Specific questions should be asked about the timing of medication administration.
 - Alcohol use should be determined.
 - Information on environmental hazards leading to falls should be obtained such as poor lighting, uneven or slippery floor surfaces, unstable furniture, poorly maintained walking aids and poor fitting footwear.
4. Physical examination of gait, balance and strength should be performed. An integrated approach of assessment, which includes postural stability assessment such as the Timed Up, and Go Test (TUG Test) (16).
 5. Neurological status examination should focus on lower extremity strength, sensory neuropathies and deformities of the feet such as bunions, calluses and arthritic deformities (17). Cognitive screening should also be performed for all older persons (18).
 6. Cardiovascular assessment of heart rate, rhythm, postural blood pressure and baseline electrocardiogram (ECG) is necessary. Orthostatic hypotension is defined as a drop in systolic blood pressure of 20mmHg or diastolic blood pressure of 10mmHg at 1 and 3 minutes after the patient repositions from supine to standing (19).
 7. Assessment for sensory impairment including visual acuity and hearing impairment screening should be performed.
 8. Functional assessment of the individual's activities of daily living, use of assistive devices, as well as assessment of the individual perceived functional ability and fear related to falling, are important.

Recommendations on Interventions

1. Older persons at risk of falls with gait, muscle strength or balance disorder should be engaged in exercise programmes which particularly target gait, strength and balance training (15).
2. Involvement of clinical pharmacist in medication review to identify fall risk increasing drugs (FRID) is recommended (20). Medication review should be conducted with the aim of deprescribing unnecessary medication to reduce inappropriate polypharmacy, and to minimize or withdraw psychoactive medications (antidepressants, antipsychotics, benzodiazepines), which are associated with increased risk of falls (20, 21).
3. Assessment of home hazards by trained occupational therapist should be offered to individuals at risk of falls to identify and mitigate environmental hazards.
4. Management of postural hypotension includes review of medication, adequate hydration, abdominal binders or compression stockings, lower limb exercise and education of physical manouevres to avoid symptoms. There is limited evidence for pharmacological treatment using vasopressors (eg fludrocortisone, midodrine and droxidopa), which should only be prescribed by specialists with great caution (22).
5. Cardiac pacing is recommended for treatment of bradyarrhythmias and can be considered in individuals with cardio-inhibitory carotid sinus hypersensitivity (CSH) with unexplained recurrent falls (23).
6. Vision assessment should be part of the multifactorial falls intervention. The use of multifocal lenses when walking, especially negotiating stairs is not recommended. Older persons are advised to use single lens glasses when doing outdoor activities. Cataract surgery for the first eye can be an effective falls prevention strategy (24).
7. Older persons are advised to wear well-fitted non-slip shoes indoors and outdoors with low heel height and high surface contact area. Although the local culture prefers walking bare-footed indoors, a proper pair of shoes provide better grip than bare feet and enhance walking stability. Anti-slip shoes instead of backless slippers are recommended for use in toilets and bathrooms (25, 26).

8. Vitamin D supplementation of at least 800- 1000 units a day is recommended for individuals with risk of falls and vitamin D deficiency (27).
9. Available technology to detect a fall or to raise alarm immediately post-fall include fall monitors, pendant alarms, elder friendly mobile phones, walking sticks with built-in panic buttons etc, which can be employed to enhance independence and increase confidence.
10. Falls information and education should be provided to older persons and their caregivers for falls prevention as the perception of health risk supports health action.
11. Regular follow up (within 30-90 days) of at risk individuals is necessary to ensure patient adherence to interventions and address barriers that may be present. For high risk individuals with multiple health issues and falls risk factors, it is important to address each risk factor over a period of time to avoid overwhelming the patient.
12. Individuals with cognitive impairment may benefit from cognitive training which have been shown to improve gait and balance in emerging research studies (28).
13. In older persons with established dementia and wandering behavior, physical and chemical restraints may be counterproductive. Overzealous physical therapy may conversely increase falls risk, but maintenance of physical activity should be encouraged (28, 29). The risk of medication-related falls, hypotensive disorders and cardiac arrhythmias are frequent, with higher diagnostic yields when investigated and greater treatment benefits in individuals with dementia and unexplained falls (30, 31). In these circumstances, increased supervision is advocated.

Table 1: Assessment of Falls Risk Factors and Interventions to Reduce Identified Risk Factors

Assessment	Interventions
<p>Evaluate lower limb muscle strength, gait and balance <i>Timed Up & Go (high risk >13.5sec)</i></p>	<p>Poor gait, strength & balance</p> <ul style="list-style-type: none"> ● Refer for physical therapy ● Engagement in exercise programme
<p>Identify medications that increase fall risk</p>	<p>Medication(s) likely to increase fall risk</p> <ul style="list-style-type: none"> ● Optimise medications by stopping, switching or reducing dosage (especially for psychoactive medications)
<p>Ask about potential home hazards <i>(eg. slippery bathroom floor, loose rugs)</i></p>	<p>Home hazards likely</p> <ul style="list-style-type: none"> ● Refer to occupational therapist to evaluate home safety
<p>Measure positional blood pressure <i>(supine and standing blood pressure measurement)</i></p>	<p>Orthostatic hypotension observed</p> <ul style="list-style-type: none"> ● Review medications ● Encourage adequate hydration <p>Consider use of compression stockings, abdominal binders or physical manoeuvres</p>
<p>Check Visual acuity</p>	<p>Visual impairment observed</p> <ul style="list-style-type: none"> ● Refer ophthalmologist/ optometrist ● Avoid wearing multifocal glasses when walking, particularly stairs
<p>Assess feet and footwear</p>	<p>Feet or footwear issues identified</p> <ul style="list-style-type: none"> ● Appropriate treatment for foot problem identified ● Advise wearing well fitted shoes indoors and outdoors
<p>Assess vitamin D intake</p>	<p>Vitamin D deficiency observed or likely</p> <ul style="list-style-type: none"> ● Recommend daily vitamin D (800-1000units) supplement for individuals with proven vitamin D deficiency
<p>Previous history of falls OR fear of falling</p>	<p>Provide falls education and information to all patients</p> <ul style="list-style-type: none"> ● Regular follow up to ensure adherence to interventions

FRAILTY AND SARCOPENIA

Frailty, sarcopenia, falls and fractures are strongly correlated (32, 33). In order to prevent falls and fragility fracture, both frailty and sarcopenia needs to be identified as they might be reversible or attenuated by early intervention (34). We suggest incorporating frailty and sarcopenia screening in comprehensive falls assessment and intervention for older persons who present with fall and or fragility fracture.

Recommendations on Assessment and Intervention:

1. Frailty screening using the FRAIL scale (**F**atigue, **R**esistance, **A**mbulation, **I**llnesses, & **L**oss of Weight) is simple and can be rapidly administered by healthcare workers, patients or a relative (Table 2). The FRAIL scale can be repeated frequently and allows detection of frailty at an early stage (35).
2. The screening for sarcopenia should be performed concomitantly using SARC-F (**S**trength, **A**ssistance in walking, **R**ise from a chair, **C**limb stairs, and **F**alls), which is sensitive and can be administered rapidly (Table 3) (36).
3. Aerobic and resistance exercise is recommended (34, 37).
4. Identify and address the reversible causes of weight loss (38). Oral energy supplementation appears to produce small but consistent weight gain in older persons (39).
5. Older adults with sarcopenia should maintain protein intake range from 0.8g/kg BW/day to 1.2g/kg BW/day, and up to 1.5g/kg BW/day for those with malnutrition (40-42). Protein supplementation may further enhance the effect of resistance exercise increases muscle mass, improves grip strength, produces weight gain and reduces complications (43, 44).

Table 2: FRAIL scale

Fatigue	Are you fatigued?
Resistance	Are you unable to climb a flight of stairs?
Aerobic	Are you unable to walk a block?
Illness	Do you have more than 5 illnesses?
Lost of weight	Have you lost more than 5% weight in 6 months?

*Pre-frail = 1 or 2 positive answers,
Frail = 3 or more positive answers*

Table 3: SARC-F*

Component	Question	Scoring
Strength	Any difficulties in lifting and carrying 10 pounds?	None (0) Some (1) A lot, or unable (2)
Assistance in walking	Any difficulties walking across a room?	None (0) Some (1) A lot, or unable (2)
Rise from a chair	Any difficulties transferring from a chair or bed?	None (0) Some (1) A lot, use aids, or unable (2)
Climb stairs	Any difficulties climbing a flight of 10 stairs?	None (0) Some (1) A lot, or unable (2)
Falls	How many times have you fallen in the past year?	None (0) 1-3 falls (1) >3 falls (2)

**A total score of 4 and above indicates sarcopenia*

STRENGTH AND BALANCE TRAINING

One of the important risk factors associated with falls in older person is declined physical performance, namely muscle strength and balance (45). Hence, muscle strengthening and balance training are key components in the falls prevention programme to reduce risk of fragility fractures and sarcopenia in older persons (Table 4).

Recommendations

1. All community dwelling older persons as well as those who are at risk of falls should be offered exercise programmes which include progressive, challenging and regular exercises designed to improve balance, muscle strength and protective responses in case of destabilization (46-48).
2. At least 3 hours of exercise per week of progressive moderate to high intensity weight bearing exercise is recommended.
3. Exercise programmes could be delivered as group (such as Tai Chi) or home based setting (such as Otago exercise programme) depending on individual preference and availability resources (49-51).
4. In older persons with a history of osteoporosis or previous fragility fracture, supervised individualised tailored exercises by physiotherapist is recommended depending on their physical, bone health and comorbid status (52).
5. All older persons should be advised to maintain ongoing participation in exercise for life or benefits will be lost.

Table 4: General Principles for Effective Exercise Prescription Among Older Persons

Exercise components	Older persons	Older persons with osteopenia	Older persons with osteoporosis
Aim	Prevention of osteoporosis and falls	Maintain or improve bone mass, muscle strength and balance	Improve bone mass, muscle strength and balance
Frequency	At least 2 times per week	At least 2 times per week	At least 2 times per week
Intensity / load% 1RM (repetition maximum)	80 to 100% of 1 repetition maximum (RM)	80 to 100% of 1 repetition maximum (RM)	40 to 85% of 1 repetition maximum (RM)
Time	At least 45 Minutes	At least 45 Minutes	At least 30 Minutes
	Ideal : extended (6-12 months)	Ideal : extended (6-12 months)	Ideal : extended (6-12 months)
Type	<p>Progressive, multidirectional moderate to high weight bearing impact exercises (>4 x body weight as tolerable, e.g sports such as double tennis, golf, lawn ball, star jumps)</p> <p>Example ; Group/individual exercise session: Warm up and Flexibility – 5-10 minutes Progressive Resistance Training – 20 minutes (2-3 sets of 8-20 repetitions, number of muscle groups 8-10) Progressive Balance & Coordination Exercise – 15-20 minutes Cool down exercises - 5-10 minutes</p>	<p>Progressive, multidirectional moderate to high weight bearing impact exercises (>2 x body weight as tolerable, e.g running, jogging, skipping, jumping, vigorous stamping)</p> <p>Example; Group/individual exercise session Warm up and Flexibility – 5-10 minutes Progressive Resistance Training – 20 minutes (2-3 sets of 8-20 repetitions, number of muscle groups 8-10) Progressive Balance & Coordination Exercise – 15-20 minutes Cool down exercises - 5-10 minutes</p>	<p>Progressive, multidirectional low to moderate weight bearing impact exercises (2-3 x body weight as tolerable, e.g marching, walking, stamping), within limits of pain, develop adequate strength training before progression to impact exercises, individually tailored and supervised by physiotherapist</p>
Advice	Continue aerobic, functional and physical activities e.g. Tai Chi, gardening, walking, swimming, dancing	Continue aerobic, functional and physical activities e.g. Tai Chi, gardening, walking, swimming, dancing	Continue aerobic functional and physical activities e.g. Tai Chi, gardening, walking, swimming, dancing

**adapted from Beck et al. 2016 (53), Paracini et al. 2018 (52) and Senderovich et al. 2017 (54)*

MEDICATIONS AND FALLS

Polypharmacy defined as the intake of 5 or more medications is an independent risk factor of falls (55). The prevalence of polypharmacy in community dwelling older person was reported as 45.9% in the MELoR study (56). Older person with polypharmacy is more vulnerable to adverse drug events that may worsen cognition, increase fall related incidences and hospitalisation. In fact, 19.6% of adverse drug reports received by MADRAC in 2017 were due to adverse drug events in the older person (57).

Recent studies have shown that exposure to specific drug classes have also been shown to increase fall risk. The use of Fall-Risk Increasing Drugs (FRIDs) may trigger instability through multiple pathways and cascades (20). Most of these drugs are also listed as potentially inappropriate medications (PIMs) for the older person. Local study has shown that community dwelling older persons who use Fall-Risk Increasing Drugs (FRIDs) were 2.8 times more likely to fall (OR 2.9, 95%CI,1.9-4.5, $p \leq 0.001$) (58).

Recommendations

1. Clinical pharmacist must be involved in fall prevention strategies by screening for fall risk, review and optimise medication, minimise polypharmacy and adverse events (59, 60).
2. Pharmacists and healthcare providers must be aware and screen for the use of potentially inappropriate medication which includes fall risk increasing drugs (FRIDs).

Medications that increase risk of falls are:

- Opioid
- Antipsychotics
- Anxiolytics
- Antidepressants
- Antiepileptics
- Hypnotics and Sedatives
- Anticholinergics

Medications that worsen or cause orthostatism are:

- Vasodilators used in cardiac diseases
- Antihypertensives
 - Diuretics

- Beta blocking agents
 - Calcium channel blockers
 - Renin-angiotensin system inhibitors
 - Alpha-adrenoreceptor antagonists
 - Dopaminergic agents
 - Antipsychotics (except lithium)
 - Antidepressants
3. The clinical pharmacist in collaboration with the physician should review if FRIDs can be stopped, switched or reduced as a key component of multifactorial intervention to prevent falls in older person (61, 62) (Appendix1).
 4. Any action plans to deprescribe should be thoroughly documented and conveyed to relevant healthcare professionals. Education should also be provided to the older person and caregivers about medication changes.

HOME SAFETY AND HAZARD MANAGEMENT TO PREVENT FALLS

In Malaysia, over two thirds of falls among community-dwelling older persons commonly occur within the home or surrounding grounds (63, 64). Therefore, home hazards are considered a pertinent extrinsic risk factor of fall in older persons. Factors associated with increased home hazards among community dwelling older persons in Malaysia include those with lower education attainment, Chinese ethnicity, greater number of home occupants, traditional housing, lower monthly expenditure, poor vision and younger age (63).

Recommendations

1. Older persons who have fallen or are at risk of falls should be offered occupational therapist led home hazards assessment which address home hazard assessment, modification and evaluation of how the individual carries out functional activities and interact within that environment (65).
2. The Home Falls and Accidents Screening Tool (HOME FAST) is recommended as a home hazard screening and assessment tool. It has been validated to identify hazards in Malaysian homes (66, 67).
3. Suggestions on home modification following home hazard assessment should take into account (i) consent, discussion and agreement from the older person, (ii) financial capacity, (iii) sentimental and cultural value, and (iv) house possession and ownership (68, 69).
4. A follow-up session via at least telephone contact four weeks after the initial home visit should be conducted (70). If the above is not feasible, evaluation attempts through interview, photograph or video observation can be conducted (71).
5. Older persons with fear of falling, having experienced previous falls or not, should be provided with home hazards management. Existence of home hazards is found to be associated with fear of falling and home modification is effective to manage the fear (67, 72).

OSTEOPOROSIS AND FRACTURE RISK ASSESSMENT

Osteoporosis is a common chronic disease, recognised as a silent killer among an ageing population with increasing incidence worldwide (73, 74). It does not present dramatically and remains unrecognised until fragility fracture has occurred or when screening is done. Therefore it is important to identify older persons at risk of osteoporosis complications and prevent future fractures for those who already suffered a fragility fracture.

Recommendations

1. Bone mineral density (BMD) assessment by dual X-ray absorptiometry (**DXA**) scanning is considered the standard measure for diagnosis of osteoporosis and assessment of fracture risk (75, 76).
2. The Fracture Risk Assessment Tool (FRAX) is recommended as a risk assessment tool which combines BMD and 7 clinical risk factors in predicting future fracture. Malaysia does not have population specific FRAX algorithm, hence it is recommended to adopt ethnic specific algorithm (e.g. Singaporean Chinese, Hong Kong Chinese, Singaporean Malay, Singaporean Indian) until local data is made available (77).
3. FRAX can be calculated without BMD testing. If BMD was available with T score < -2.5, it is not necessary to calculate FRAX as the individual meets the diagnostic criteria of osteoporosis.
4. It is important to understand that FRAX does not accommodate other risk factors for fragility fractures such as falls, sarcopenia and nutritional deficiencies. Therefore, FRAX should not replace clinical judgement and decision to treat should be tailored individually.
5. The management of osteoporosis should include advice on adequate nutrition intake (including sufficient protein) as well as balanced diet rich in calcium and vitamin D (78), fall prevention by regular weight bearing and muscle strengthening exercise, sunlight exposure, avoidance of smoking and excessive alcohol (79, 80).
6. Pharmacological treatment of osteoporosis for the older person, even in the oldest old (≥ 80 years old) is efficacious in reducing fracture risk. The choice of treatment will depend on individual patient preference and circumstances such as

the ability to maintain upright posture after taking oral preparation of bisphosphonates, ability to understand complex instruction (memory impairment), renal impairment and presence of polypharmacy. Infrequent oral dosing and parenteral preparations may help to improve adherence and acceptance of treatment in older persons.

7. It may be appropriate to withdraw bisphosphonates in older persons with limited life expectancy or individuals in palliative care setting considering the fact that the benefit of fracture prevention may still persist for three to five years after discontinuation of therapy. It is important to note that other osteoporosis therapies such as denosumab or teriparatide do not have persistence of anti-fracture efficacy after discontinuation of treatment.

MULTIDISCIPLINARY APPROACH IN ACUTE HIP FRACTURE- PERI AND POSTOPERATIVE CARE

Hip fracture in the older person is the commonest fragility fracture leading to admission to an orthopaedic trauma ward. Mortality associated with hip fractures is reported to be between 20% to 35% (81, 82). Hip fracture has a detrimental impact in an older person's quality of life and psychological status with recovery determined by suitable and appropriate rehabilitation and care (83, 84). These interventional strategies and monitoring are crucial especially in the first 6 months post-discharge from the hospital (85).

Studies have found that older persons with enhanced orthogeriatric care had lower complications, reduced length of stay and institutional placements (86-88). A multidisciplinary approach in providing comprehensive care from the acute presentation to perioperative care and subsequent follow-ups, including transition from hospital to care in the community is necessary in this group of vulnerable individuals.

Recommendations for Peri-operative Care

1. All patients presenting to the emergency department with suspected hip fracture should receive timely established radiological diagnosis of fracture. (89-91).
2. Offer immediate and adequate analgesia to all patients with suspected hip fracture, including older persons with cognitive impairment. Ensure analgesia is sufficient to allow movements necessary for investigations (as indicated by the ability to tolerate passive external rotation of the leg) and nursing care. We recommend the use of multimodal analgesia to reduce dose-dependent opioid-related side effects (89-91).
3. Patients should be screened for delirium and should receive interventions to prevent and manage delirium if present (see MSGM position statement on Delirium) (92). The 4AT has been validated and shown effective to detect delirium in the local setting (93).
4. The routine use of traction is not recommended prior to surgery for hip fracture (89, 94).

5. Early and appropriate surgery for hip fractures should be performed as early as medically feasible. Early definitive fixation surgery is the most effective form of pain relief, which potentially allows prompt rehabilitation process and reduces in-patient complications from immobility (89-91).
6. Early referral to the physiotherapist is recommended. Chest physiotherapy, incentive spirometry and 2 hourly postural change should be initiated early (95).
7. Venous thromboembolism prophylactic therapy should be started in all patients and continued until mobility is obtained. In patients where pharmacological therapy is contraindicated, mechanical devices should be used.

Recommendations for Post-operative Care and Rehabilitation

1. Early mobilisation within 24 hours postoperatively is encouraged, starting with muscle strengthening exercises and the use of a walking frame if tolerable. Wheelchair ambulation is recommended for patients who are unable to walk with a walking frame.
2. Patients are encouraged to eat an appropriate diet that entails high protein and high energy containing nourishing food and beverages.
3. Where safe and appropriate, family members or caregivers should be encouraged to assist with daily mobilisation.
4. Patients should receive assessments by multidisciplinary allied health team identified according to their specific needs:
 - Dietician input on nutritional requirements
 - Occupational therapist input to promote independence and assessment on home safety prior to discharge
 - Physiotherapist input to provide rehabilitation support with gait and balance re-education and exercise regime
 - Pharmacist input on medication review and reconciliation
5. Rehabilitation post hip fracture should continue for the duration of 12-20 weeks in the outpatient setting. Patients should be advised to continue progressive home exercise programme in the community.

CLOSING THE CARE GAP - FRACTURE LIAISON SERVICE

The trajectory of osteoporosis demonstrates that a fragility fracture is an independent predictor of future fracture (96). Fracture Liaison Service (FLS) is a coordinated programme which serves to ensure that fragility fracture sufferers receive appropriate assessment and management of osteoporosis and falls risk therefore to prevent subsequent fracture (97-101).

Recommendations for a comprehensive FLS include the following:

1. An effective FLS service operates by identifying patients presenting with fragility fracture, providing timely evaluation of their bone health, falls and fracture risk and initiating appropriate treatments with the aim of preventing further fractures (93, 102).
2. FLS service should initiate timely follow up contact with patients to ensure that recommended interventions were commenced. Referral to family physician/general practitioner for further follow up may be done if it is more convenient for patients and caregivers. This will improve the compliance and adherence of long-term treatment for osteoporosis (93, 102).
3. A comprehensive FLS service will include the concerted efforts from the primary physician/surgeon in charge, the team members which include the emergency medicine physician, dietician, rehabilitation physician and therapists, family physician/general practitioner, patients, caregivers and FLS coordinator.

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APPENDIX

Algorithm for Management of Falls Risk Increasing Drugs (FRIDs)

