Fracture Prevention for Long-Term Care Residents

Fracture Risk Assessment on Admission

- Prior hip fracture?
- Prior vertebral fracture?
- More than one prior fracture?*
- Recently used glucocorticoid and one prior fracture?
- Assessed as HIGH Risk for fracture and receiving fracture treatment PRIOR to admission?
- Vertebral fracture present? (if chest x-ray ordered, screen for vertebral fractures)
- Readmission from hospital post-fracture (*exclude hands/feet/ankle)

If YES to any of the above, resident is considered HIGH RISK

RECOMMEND:
- Dietary Calcium 1200mg/day
- Calcium supplements ≤500mg/day if dietary calcium not met
- Vitamin D supplements (800-2000 UNITS/day)
- Hip protectors for those who are mobile

SUGGEST:
- Exercise program ONLY when part of multifactorial fracture and fall prevention program

Fracture and Fall Prevention Strategies for All Residents

RECOMMEND:
- Dietary Calcium 1200mg/day
- Calcium supplements ≤500mg/day if dietary calcium not met
- Vitamin D (≥800-2000 UNITS/day)
- Incorporate multifactorial fall prevention strategies:
  - Hip protectors for those who are mobile
  - Exercise (balance, strength and functional training)
  - Medication reviews (Beer's criteria or STOPP/START criteria)
  - Assessment of environmental hazards
  - Use of assistive devices
  - Management of urinary incontinence

SUGGEST:
- Teriparatide (20mcg subcut daily)

Is resident life span >1 year?

YES

If resident has a fracture, reassess

NO

Pharmacological therapy not appropriate

Is CrCl ≥30ml/min?

YES

For residents with CrCl 15-35ml/min

RECOMMEND:
- Denosumab* (60mg subcut twice yearly)
- Bisphosphonate therapies are not recommended
- Clinical monitoring of calcium levels is recommended because of higher risk of hypocalcemia
- Consider referral to specialist

SUGGEST:
- Teriparatide (20mcg subcut daily)

NO

Does the resident have dysphagia?

YES

RECOMMEND:
- Denosumab* (60mg subcut twice yearly)
- Zoledronic Acid (5mg IV yearly)

SUGGEST:
- Teriparatide (20mcg subcut daily)

NO

Adapted from Papaioannou A, et al. CMAJ 2015;187(15), with permission.
# Summary of Recommendations

## For ALL Elderly Residents in LTC

<table>
<thead>
<tr>
<th>STRONG RECOMMENDATIONS</th>
<th>CONDITIONAL RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Dietary interventions to increase food intake of calcium</td>
<td>- Multifacorial interventions that are individually tailored to reduce the risk of falls and fractures</td>
</tr>
<tr>
<td></td>
<td>The Recommended Daily Allowance for calcium is 1200mg</td>
</tr>
</tbody>
</table>

## For Elderly LTC Residents at HIGH RISK of FRACTURE

<table>
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<tr>
<th>STRONG RECOMMENDATIONS</th>
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<tr>
<td>- Calcium supplementation up to 500mg daily if they cannot consume 1200mg of calcium through diet</td>
<td>- Multifacorial interventions that are individually tailored to reduce the risk of falls and fractures</td>
</tr>
<tr>
<td>- Vitamin D supplements of at least 800 UNITS daily</td>
<td></td>
</tr>
<tr>
<td>- Hip protectors for those who are mobile</td>
<td><strong>BALANCE, STRENGTH AND FUNCTIONAL TRAINING EXERCISES</strong> be provided only when part of a multifacorial intervention to prevent falls and fractures</td>
</tr>
</tbody>
</table>

**USE ONE OF THE FOLLOWING:**

- Alendronate (weekly)
- Risedronate (weekly or monthly)
- Denosumab for those who have difficulty taking oral medications
- Zoledronic Acid for those who have difficulty taking oral medications

These recommendations apply to the elderly with life expectancy greater than one year. Alendronate and Risedronate are not recommended for elderly with severe renal insufficiency (CrCl <35ml/min or <30ml/min respectively). Zoledronic Acid should not be administered in people with severe renal impairment (CrCl <30ml/min). Exercise caution for people who receive other medications that could affect renal function. Creatinine should be monitored before and periodically after treatment.

## For Elderly LTC Residents NOT at High Risk of FRACTURE:

<table>
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<tr>
<th>CONDITIONAL RECOMMENDATIONS</th>
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<tbody>
<tr>
<td>Fracture prevention strategies depending upon resources and resident’s (or their carer’s) values and preferences:</td>
</tr>
<tr>
<td>- Calcium supplementation up to 500mg daily, for those who cannot meet Recommended Dietary Allowance for calcium through food</td>
</tr>
<tr>
<td>- Vitamin D supplementation to meet the Recommended Dietary Allowance, 800 – 2000 UNITS/day</td>
</tr>
<tr>
<td>- Balance, strength and functional training exercises to prevent falls</td>
</tr>
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<td>- Hip protectors for those who are mobile</td>
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## Interpretation of Strong and Conditional Fracture Prevention Recommendations

<table>
<thead>
<tr>
<th>IMPLICATIONS</th>
<th>STRONG RECOMMENDATION (’RECOMMEND’)</th>
<th>CONDITIONAL RECOMMENDATION (’SUGGEST’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR PATIENTS</td>
<td>Most individuals in this situation would want the recommended course of action, and only a small proportion would not</td>
<td>The majority of individuals in this situation would want the suggested course of action, but many would not</td>
</tr>
<tr>
<td>FOR CLINICIANS</td>
<td>Most individuals should receive the intervention</td>
<td>Clinicians recognize that different choices will be appropriate for each individual and that clinicians must help each individual arrive at a management decision consistent with his or her values and preferences</td>
</tr>
</tbody>
</table>

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