Quality Standards for Fracture Liaison Services in Canada

Background:
There is a huge care gap for Canadians who break a bone due to osteoporosis: 80% never receive appropriate osteoporosis care, leaving them at substantial risk for further costly, debilitating and often life-threatening fractures. World-class Fracture Liaison Service (FLS) models close this post-fracture care gap, by cost-effectively\(^1\) reducing mortality and the risk of further fractures.

Quality Standards for FLS:
1. **Dedicated Staff:** Dedicated FLS staff (RN or NP) is an absolute requirement to provide the essential components of an effective FLS. As a rule of thumb, at least one FLS coordinator is needed for every 800 fracture patients to be assessed annually\(^2\).
2. **Identification of fragility fractures:** The FLS will capture all fragility fractures\(^3\) of the hip, clinical spine\(^4\), wrist and humerus in individuals aged 50 and over who present to the health care institution.
3. **Investigations:** The FLS will determine fracture risk by CAROC\(^5\) or FRAX\(^6\) requiring, where warranted, Bone Mineral Density (BMD) testing\(^7\), X-rays of the spine\(^8\), laboratory investigations\(^9\) and falls risk assessment.
4. **Initiation of treatment:** The FLS will recommend first-line osteoporosis medication\(^10\) for all high risk patients, adequate vitamin D supplementation, access to education about osteoporosis\(^11\) and, where warranted, referral to a falls prevention program.
5. **Communication with Primary Care Providers:** The FLS will provide a detailed management plan to the patient’s primary care provider, including documentation of all investigations and all treatments initiated and/or recommended.
6. **Monitoring of the patients:** The FLS will monitor high risk patients for adherence to first-line osteoporosis medication.
7. **Monitoring of the FLS’ effectiveness:** The FLS will monitor its ability to close the post-fracture care gap by measuring the proportion of high risk patients (as per CAROC\(^6\) or FRAX\(^7\)) who are initiated on osteoporosis medication\(^10\).

The Quality Standards are in compliance with the 2010 Osteoporosis Canada Guidelines and the International Osteoporosis Foundation Capture the Fracture Best Practice Framework for FLS. To date (November 25, 2014), the Quality Standards have been endorsed by the Canadian Orthopaedic Association, the Canadian Orthopaedic Nurses Association, Bone and Joint Canada and the Canadian Rheumatology Association.

Every Canadian who suffers a fragility fracture has a right to effective Fracture Liaison Services.
**NOTES:**

1. FLS has been proven to be highly cost-effective with the potential of saving $413 million in acute care costs in Canada by 2023 from averted hip fractures alone.

2. For institutions without access to complete fracture data, the total annual number of fractures can be estimated by multiplying that institution’s annual hip fracture count by a factor of 6.5. For example, if an institution sees 125 hip fractures annually, the annual total fracture count would be approximately 812, necessitating approximately one FLS coordinator (1 full time FLS coordinator per 800 fracture cases to be assessed).

3. As per 2010 Osteoporosis Guidelines, fractures of the hands, feet, ankles and skull are not usually deemed to be due to osteoporosis. Major osteoporotic fractures as defined by the World Health Organization include hip, spine, wrist and shoulder. These 4 fracture types have the strongest association with an increased risk of future fractures. An FLS could choose to include other fracture types (e.g. pelvis).

4. Where possible, the FLS can also identify asymptomatic/radiographic vertebral fracture by screening diagnostic imaging reports.


7. As per 2010 OC Guidelines, patients over age 50 who suffer a fragility fracture of the spine or hip or who have suffered more than one fragility fracture event are deemed to be at high risk of repeat fractures, irrespective of BMD results. High risk patients should be initiated on osteoporosis treatment as an urgent matter; BMD testing is not needed to make that treatment decision. BMD may still be recommended where it may be used in monitoring the effectiveness of the patient’s osteoporosis treatment.

8. Lateral X-rays of the thoracic and lumbar spine are needed to obtain a baseline documentation of any prevalent vertebral fractures as two out of three vertebral fractures never present clinically (i.e. are asymptomatic).

9. As per 2010 Osteoporosis Canada Guidelines, the following lab investigations are recommended to rule out secondary causes of osteoporosis: calcium corrected for albumin, complete blood count (CBC), creatinine or eGFR, alkaline phosphatase, thyroid stimulating hormone (TSH). A serum protein electrophoresis is recommended for patients with vertebral fractures. A 25-hydroxyvitamin D level should be measured after 3-4 months of adequate supplementation and should not be repeated if an optimal level ≥ 75 nmol/L is achieved.

10. First line osteoporosis medications are proven to reduce the risk of fractures.

### First Line Therapies with Evidence for Fracture Prevention in Postmenopausal Women*

<table>
<thead>
<tr>
<th>Type of Fracture</th>
<th>Antiresorptive Therapy</th>
<th>Bone Formation Therapy</th>
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<tbody>
<tr>
<td></td>
<td>Bisphosphonates</td>
<td></td>
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<tr>
<td></td>
<td>Alendronate</td>
<td>Risedronate</td>
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<tr>
<td></td>
<td>Zoledronic Acid</td>
<td>Denosumab</td>
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<td></td>
<td></td>
<td>Raloxifene</td>
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<td></td>
<td></td>
<td>Estrogen**</td>
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<tr>
<td></td>
<td></td>
<td>(Hormone Therapy)</td>
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<tr>
<td>Vertebal</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hip</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Non-vertebral†</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>

† In Clinical trials, non-vertebral fractures are a composite endpoint including hip, femur, pelvis, tibia, humerus, radius, and clavicle.

* For postmenopausal women, ✓ indicates first line therapies and Grade A recommendation. For men requiring treatment, alendronate, risedronate, and zoledronic acid can be used as first line therapies for prevention of fractures (Grade D).

**Hormone therapy (estrogen) can be used as first line therapy in women with menopausal symptoms.


11. Osteoporosis education should include a review of relevant lifestyle management issues, e.g., nutrition, exercise regimen, alcohol intake, smoking cessation, etc.

[www.osteoporosis.ca](http://www.osteoporosis.ca)