

Step by step guide to setting up a Fracture Liaison Service

This Appendix provides guidance on the practical steps required to establish a Fracture Liaison Service (FLS) in an individual health care institution. This is based on experience from effective and sustainable FLS from elsewhere. The topics to be covered include:

- Preparatory work prior to FLS becoming operational
- Practical approaches to case-finding fracture patients
- Issues to consider when FLS is operational

Strategies to start and expand the scope of FLS are presented in Appendix G and management protocols developed by Osteoporosis Canada for patients with hip fractures, non-hip non-spine fractures, and spine fractures (from incidental findings on X-rays) are provided in Appendix I.

Preparatory work prior to FLS becoming operational

A number of critical factors are common to the establishment of effective and sustainable FLS within individual institutions. These include:

- Establishment of a multi-disciplinary FLS project team from the outset which would likely include:
 - Lead Osteoporosis Clinician
 - Orthopaedic Surgeon with an interest in surgery of hip and other fragility fractures
 - Radiology/Nuclear Medicine specialist responsible for BMD testing
 - Relevant specialist nurses, physiotherapists and Allied Healthcare Professionals
 - Representative from hospital pharmacy
 - Representative of local primary care
 - Representative from hospital management responsible for new service delivery
- Local access to bone mineral density (BMD) testing
- Identification of resources to fund appointment of dedicated personnel – usually a nurse practitioner (NP) or registered nurse (RN) – to lead delivery of the FLS, as a component of a fully costed FLS business plan (n.b. generic template provided in Appendix E)
- Protected time and/or funding for input from the

Lead Osteoporosis Clinician for the hospital

- Development of existing IT systems or establishment of a customized FLS database to underpin communication with patients and healthcare professionals
- Communication with local primary care providers about the new FLS. Seek input from that group where warranted.
- Where available, establish referral mechanisms to local falls prevention clinics
- Establish a mechanism to monitor adherence to management recommendations issued to the PCP by the FLS

The Plan-Do-Study-Act (PDSA) method has been widely used by groups that have established successful and sustainable FLS in the United Kingdom¹ and the United States of America². PDSA methodology in the context of FLS development would include the following steps:

Plan

- Conduct a baseline audit to establish the existing care gap for patients presenting to the institution:
 - Number of patients ≥ 50 years of age attending with fragility fracture(s)
 - Proportion of patients ≥ 50 years of age receiving post-fracture osteoporosis care (BMD testing and osteoporosis medications)
 - Review any data from previous local audits of fragility fracture care
- Design a prototype FLS service model to eliminate the management gap:
 - Write aims and objectives
 - Identify how you will capture fragility fracture patients
 - Write case-finding protocols for the appropriate setting, e.g. inpatient ward, fracture clinic, diagnostic imaging, etc.
- Ensure management protocols are approved by appropriate bodies (e.g. Medical Advisory Council, College of Nursing, etc., where appropriate) before FLS clinics are initiated
- Discuss all documentation and communication

- mechanisms with relevant stakeholders
- Engage hospital management and/or healthcare commissioners to fund pilot phase

Do

- Implement a prototype service model
- Collect audit data throughout pilot phase

Study

- Analyse improvement in provision of care from audit
- Refine prototype service model to further improve performance

Act

- Implement changes and monitor performance improvement
- Repeat PDSA cycle through continuous ongoing audit and review

Practical approaches to case-finding fracture patients

Fracture patients managed in the inpatient setting

Case-finding systems for patients admitted to hospital that have been employed by FLS include:

- Regular visits by the Fracture Liaison Nurse (FLN) to the orthopaedic wards with orthopaedic ward staff maintaining a list of fracture admissions in between FLN visits¹
- Attendance by the FLN at daily Trauma team meetings³
- IT systems such as the Emergency Department weekly fracture report at the Royal Newcastle Centre and John Hunter Hospital in New South Wales⁴, Kaiser Permanente's HealthConnect⁵ or FITOS⁶ (Fracture Identification Tool for Orthopedic Surgeons, RioMed Limited)⁶

Fracture patients managed in the outpatient setting

Case-finding systems for fracture patients managed as outpatients by FLS include:

- Routine attendance by the FLN to fracture clinics^{1, 7}
- 'Link-nurses' – Creation by fracture clinic nurses of a daily register of new fracture patients¹
- IT systems such as the Emergency Department weekly fracture report at the Royal Newcastle Centre and John Hunter Hospital in New South Wales⁴, Kaiser Permanente's HealthConnect⁵ or FITOS⁶ (Fracture Identification Tool for Orthopedic Surgeons, RioMed Limited)⁶

Case-finding of patients with vertebral fractures

The majority of patients who suffer a non-vertebral fracture present to urgent care services. However, the majority of vertebral fractures are asymptomatic and do not come to clinical attention, or when they do, they are not recognised and acted upon in terms of osteoporosis assessment and treatment⁸⁻¹⁰. This is important because vertebral fractures – including those that do not cause acute symptoms – are associated with a 2- to 5-fold increase in future fracture risk and a range of other adverse effects including physical deformity, height loss, chronic pain, reduced quality of life and increased morbidity and mortality¹¹⁻¹³. Innovative approaches to improve case-finding of vertebral fractures are considered in Appendix G and a recent review on FLS¹⁴. Optimal case-finding of patients with vertebral fractures will, in most institutions, require standardization of vertebral fracture reporting by radiologists.

Issues to consider when FLS is operational

The following issues merit ongoing attention when the FLS becomes operational. Continuous audit and review provides a mechanism for iterative PDSA cycles to be conducted, which has been a central component of the ongoing development and expansion of the highly successful Glasgow FLS^{1, 15} in Scotland, UK over the last 15 years.

Fracture patient case-finding:

- Streamlining the process of case-finding fracture patients in both the inpatient and outpatient settings,



and pro-active approaches to improve case-finding of undiagnosed/unrecognised vertebral fracture patients undergoing imaging in the hospital for reasons other than osteoporosis or fracture management

Communication with patients

- Evaluation of effectiveness of delivery of information regarding lifestyle advice and modifications
- Evaluation of optimal terms to communicate BMD testing results and fracture risk assessment
- Evaluation of delivery of treatment recommendations to patients - both verbal and written

Communication with other clinical specialities

- Ongoing evaluation of interaction with staff on wards that receive fracture patients and staff in fracture clinics
- Regular review of appropriate referral pathways to:
 - Metabolic bone clinic and/or local osteoporosis specialists
 - Bone densitometry
 - Local falls clinics, where available
- Ongoing evaluation of response to letters sent to colleagues in:
 - Metabolic Bone Clinic
 - Local falls clinics, where available
 - Orthopaedic surgeons

Communication with local primary care

- Ongoing evaluation of response to letters sent to PCPs including information on:
 - Assessment
 - Fracture type
 - Risk factors
 - Blood test results

- Diagnostic imaging results
- Suitable treatment recommendations
- Suggest follow-up assessment at 3 months following initiation of treatment to assess compliance with therapy, administration technique and occurrence of side effects
- Subsequent follow-up would be conducted on a 1-2 yearly basis depending on resources available locally to assess progress and encourage compliance

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