Navigating the road to implementation of a new fracture prevention program

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Disclosures

I am not an expert in implementation science!
How I got interested in fracture prevention
Fracture Liaison Services (FLS)

Identification
- > 50 years
- Low trauma fracture

Investigation
- Blood tests
- Bone density
- Assess risk of repeat fractures and falls

Initiate Treatment
- Education
- Osteoporosis medications
- Referrals

Dedicated FLS coordinator working with orthopedic staff

Communication throughout the process with the primary care providers.
Global Evidence 2018

Systematic review/Meta-analysis FLS

Re-fracture Rates

- Usual Care: 13.4%
- FLS: 6.40%
- ARR 5%

Mortality Rates

- Usual Care: 15.8%
- FLS: 10.4%
- ARR 3%

Wu CH, Tu ST, Chang YF et al, Bone 2018, 111:92-100
2015: First FLS in BC at Peace Arch Hospital
2018

- Implementation Science Team Grant Competition
Overarching Research Question

• “How can an evidence-based FLS model for secondary fracture prevention, implemented at one hospital in BC, be successfully scaled up to other sites within Fraser Health to inform spread across the province?”
Explore 3 key questions

1. What strategies work best to successfully implement FLS?

2. Why are these strategies successful?

3. How can strategies be adapted to suit different settings?
Frameworks

- CFIR (Consolidated Framework for Implementation Research)
- RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance)
Multiple Case Study

- Objective 1 and 2: FLS scale up and identify effective implementation strategies
- Mixed methods, incorporating all sources of data
Pre-Implementation Activities Chilliwack Hospital

**2021**

- **February**: Secure buy-in with leadership on site
- **April**: Site Implementation Team created
- **May-June**: Meetings with Manager & Director
- **June**: Connecting with Primary Care & Aboriginal Health
- **July**: FLS nurse hire
- **Aug-Nov**: Socialization of staff at site; Finalize FLS orientation plan
- **December**: FLS Start-up!

Key informant interviews, administrative data collection, patient journey mapping, team journaling

Research processes and data collection
Implementation

- **RE-AIM evaluation**
- **Reach** – who is our FLS reaching, who is it not and why?
- **Adoption** – how many orthopedic clinics, how many wards have adopted
- **Implementation** – fidelity to set guidelines, acceptability to patients and physicians/staff (surveys and interviews)
Post-implementation

• Focus on **Effectiveness**, key performance indicators for FLS and effectiveness of our implementation strategies
• **Maintenance** – What strategies will help us keep the program going?
Objective 2

• Identify effective implementation strategies
  – Cross case analysis of all of our data
    • Within each site
    • Across sites
Objective 3

Understanding long-term sustainability and impact of FLS at PAH

- **6m f/up**
  - adherence/persistence
  - QoL
  - Patient/provider experience

- **12m f/up**
  - adherence/persistence
  - QoL

- **18m f/up**
  - adherence/persistence
  - QoL

Economic analysis
Objective 4

• Create an implementation strategy to spread FLS in BC
• BC-FLS forum Oct 2022
• 4/5 health authorities represented
• 3 Ministry of Health, 3 health authority administrators
Key Learnings
Implementation Science Team Partners

HEALTH CARE

ACADEMIC

POLICY

PATIENT

FUNDING
The Research Team Leads

Sonia Singh  
Principal Investigator  
Clinician Researcher, FH

Tania Bubela  
Dean, Health Sciences,  
SFU

Larry Funnell  
Patient partner

Linda Dempster  
Executive sponsor,  
VP Patient Experience, FH
The Research Team

Researchers

Linda Li – Associate Professor (UBC), KT & Implementation Science Methods
Cluster Lead
Lupin Battersby PhD – KT Specialist, FH
David Whitehurst – Health Economist, SFU
Karen Palmar – Adjunct Professor, SFU
Samar Hejazi – Research Scientist, FH

Patient Partners

Irm Matthes – Patient Partner

Decision Makers

Stephen Smith - Director, Healthy Living and Health Promotion Branch BC Ministry of Health
Fabio Feldman – Director, Clinical Quality & Patient Safety, FH
Theresa O’Callaghan – Executive Director, Delta/White Rock/South Surrey Health Services, FH
Angela Tecson – Manager, Physician Quality Improvement, FH

Research Coordinators

Aven Sidhu & Monica Lee
Site Implementation Teams

• Take ownership of FLS implementation
• Staff took pride in the FLS
• Expressed excitement in being part of research
• Atmosphere of partnership/ support rather than our team telling them what to do
Need for clear messaging

What is FLS?

What is Implementation Science?

https://fls.osteoporosis.ca/close-the-gap/

https://stream.sfu.ca/Media/Play/d1095d8adb4a48eeb0de2202023584961d
Breaking the cycle of recurrent fracture: implementing the first fracture liaison service (FLS) in British Columbia, Canada

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Abstract
Fractures occurring with very little trauma are often caused by osteoporosis and can lead to disability. This study demonstrates that a coordinator working with an orthopaedic nurse can significantly increase the number of high-risk recipients receiving appropriate treatment during their first hospital stay to prevent future fractures from occurring.

Purpose
Well-implemented Fracture Liaison Service (FLS) programs increase appropriate investigations and treatment for osteoporosis after low trauma fractures. This research evaluates the effectiveness of the first FLS program in British Columbia (BC), Canada.

Method
A controlled before-after study was undertaken. The intervention was an FLS program implemented at an orthopaedic rehabilitation unit in Fraser Health Hospital in BC. Eligible patients were those over the age of 50 years with a previous fracture of the hip, pelvis, vertebrae, wrist or humerus. A non-trained FLS coordinator identified, investigated, and initiated treatment in patients based on their fracture history. The primary outcome was the proportion of all patients at high risk of fractures, who achieved at least one of the following outcomes: (1) referral to an orthopaedic consultant; (2) referral to an osteoporosis consultant or (3) referral for treatment change if they were already on an osteoporosis medication at the time of the fracture. Secondary outcomes include the rate of blood density testing, referrals to full prevention programs and changes in health-related quality of life over 5 months.

Result
A total of 189 patients participated in the study (85 in the usual care group; 104 in the FLS group). Average age was 76.1 years (median; range 62–95), and 68.4% of participants were female. In the FLS group, 17.8% of high-risk patients achieved the primary outcome compared with 22.3% in the usual care group.

Conclusion
The implementation of an FLS program improved investigation and treatment for osteoporosis after low trauma fractures.

Keywords
Fracture Liaison Service; Osteoporosis; Fracture prevention; Osteoadult

Introduction
Low trauma or fragility fractures occur spontaneously or following minor trauma such as coughing, sneezing or falling from standing height. These fractures are a consequence of osteoporosis and, if untreated, are associated with a tenfold increase in the risk of hip fractures in women. The impact of osteoporosis can be far-reaching, as its complications can lead to loss of independence and quality of life for those affected by these fractures. In Canada, osteoporosis is a highly prevalent condition, with an estimated prevalence of 17.4% in women aged 50 and older and 9.6% in men aged 50 and older. The condition affects approximately 1.2 million Canadians, with an estimated 200,000 fractures occurring each year, resulting in significant healthcare costs and personal suffering. It is estimated that 1 in 5 women and 1 in 40 men over the age of 50 will suffer a hip fracture, leading to significant pain, disability, and long-term implications on quality of life. The cost of these fractures to the healthcare system and society as a whole is substantial. The burden of osteoporosis-related fractures is expected to increase due to an aging population and the rise in metabolic diseases such as diabetes and obesity. Effective prevention and management strategies are crucial in reducing the burden of osteoporosis-related fractures and improving the quality of life for affected individuals.
Barriers

• Staff and administrative turnover was a major barrier at tertiary hospital

• Culture at hospital both a barrier and facilitator
  – Small hospitals have “can do” approach to challenges, everyone knows each other, team spirit
  – Larger hospitals, more complex systems, competing priorities, harder to bring together site implementation team
Opportunity to make tangible change in the health system
Thank you

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