

# Navigating the road to implementation of a new fracture prevention program



Sonia Singh, MD, MHSc



What I Do Matters.

# Disclosures

I am not an expert in implementation science!



# How I got interested in fracture prevention



# Fracture Liaison Services (FLS)

Dedicated FLS coordinator working with orthopedic staff

## Identification

- > 50 years
- Low trauma fracture

## Investigation

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

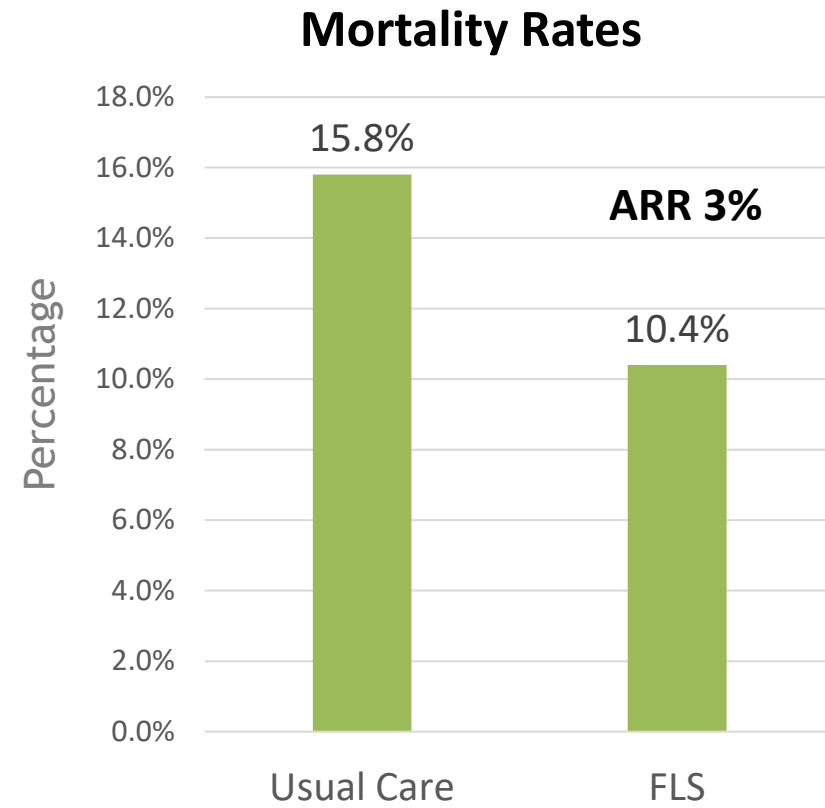
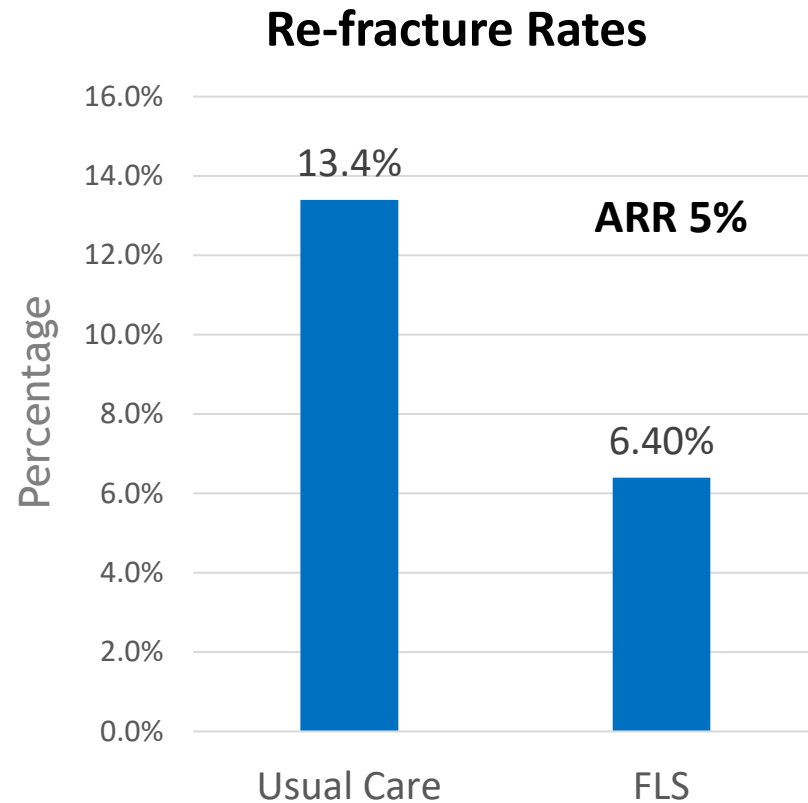
## Initiate Treatment

- Education
- Osteoporosis medications
- Referrals

Communication throughout the process with the primary care providers.

# Global Evidence 2018

## Systematic review/Meta-analysis FLS



# 2015: First FLS in BC at Peace Arch Hospital



# 2018

- Implementation Science Team Grant Competition



Michael Smith

**Health  
Research BC**



# 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?"*



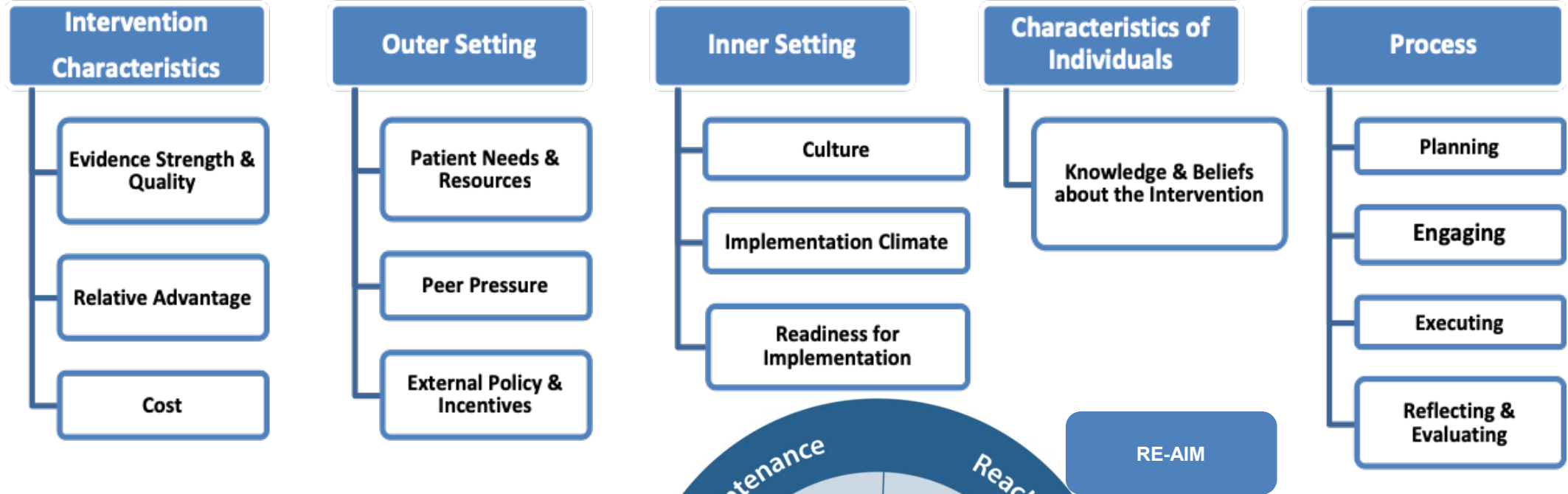
# Explore 3 key questions

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)

# CONSOLIDATED FRAMEWORK FOR IMPLEMENTATION SCIENCE



# Multiple Case Study

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



Tertiary Care



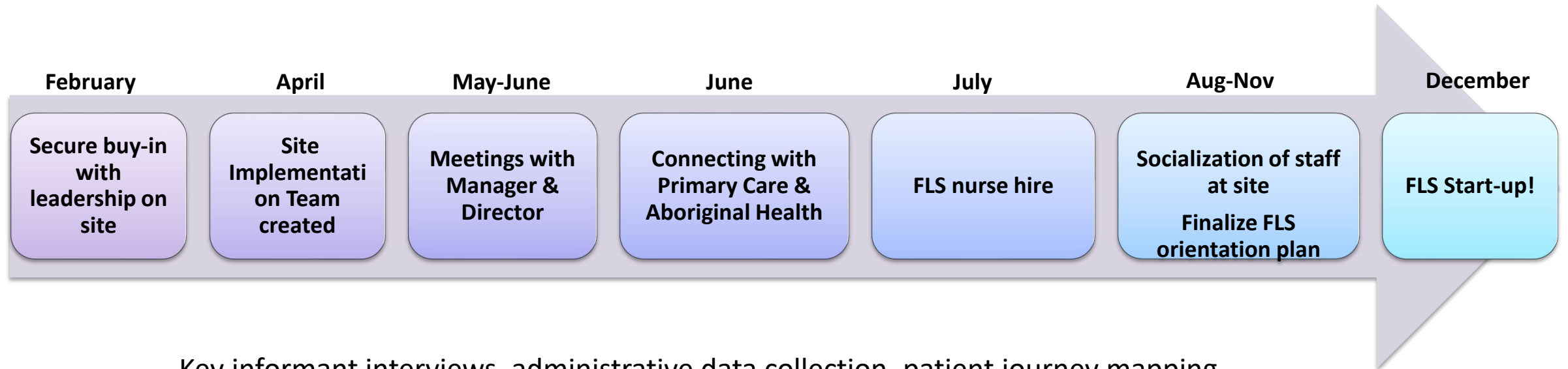
Rural community



Suburban community

# Pre-Implementation Activities Chilliwack Hospital

**2021**



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



# 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?

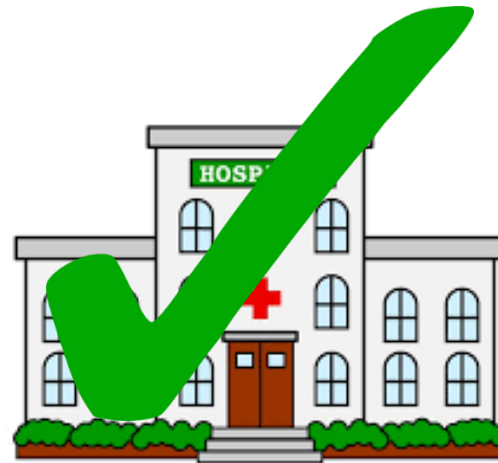


# Objective 2

- Identify effective implementation strategies
  - Cross case analysis of all of our data
    - Within each site
    - Across sites



Tertiary Care



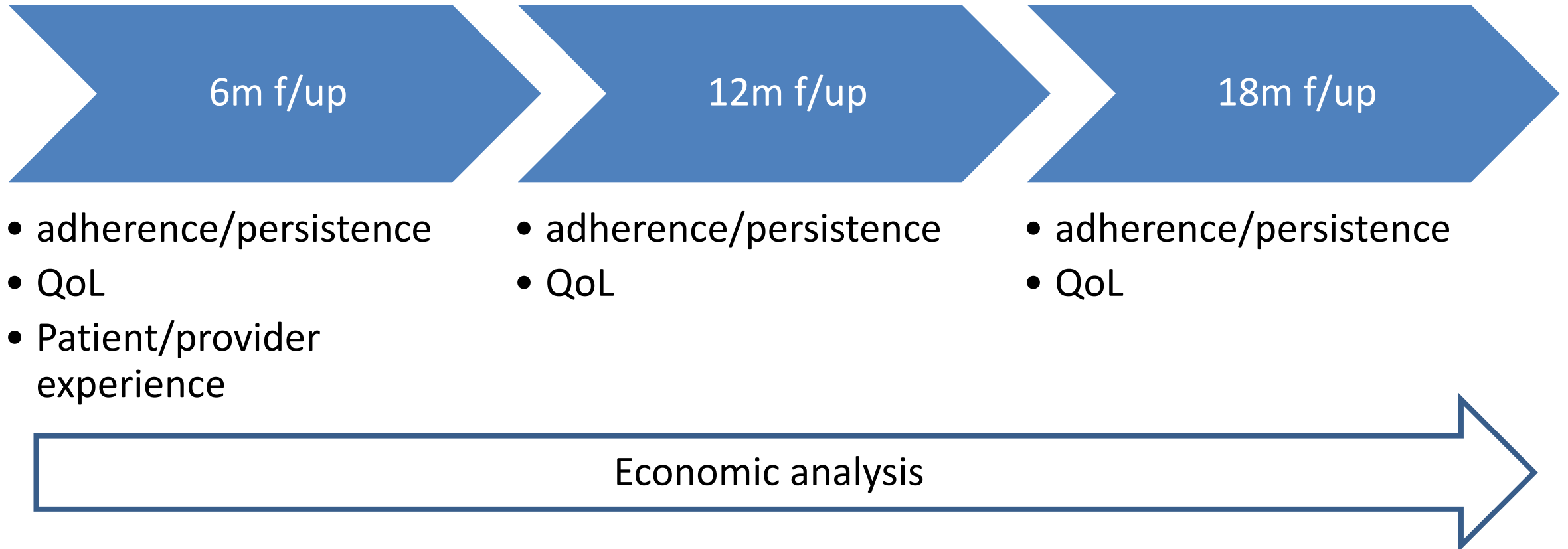
Rural community



Suburban community

# Objective 3

Understanding long-term sustainability and impact of FLS at PAH



# 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*



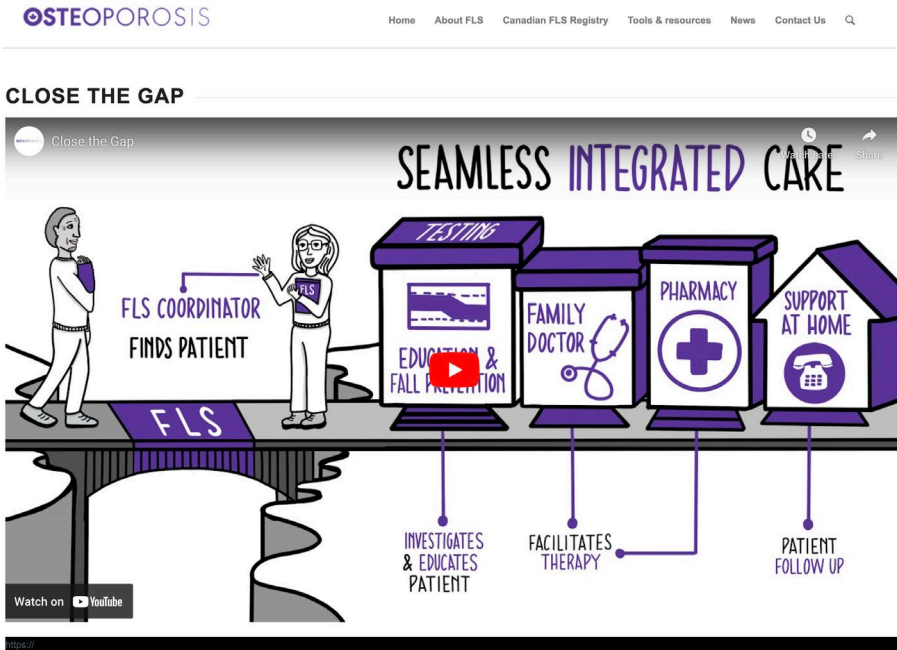


# Site Implementation Teams

- 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

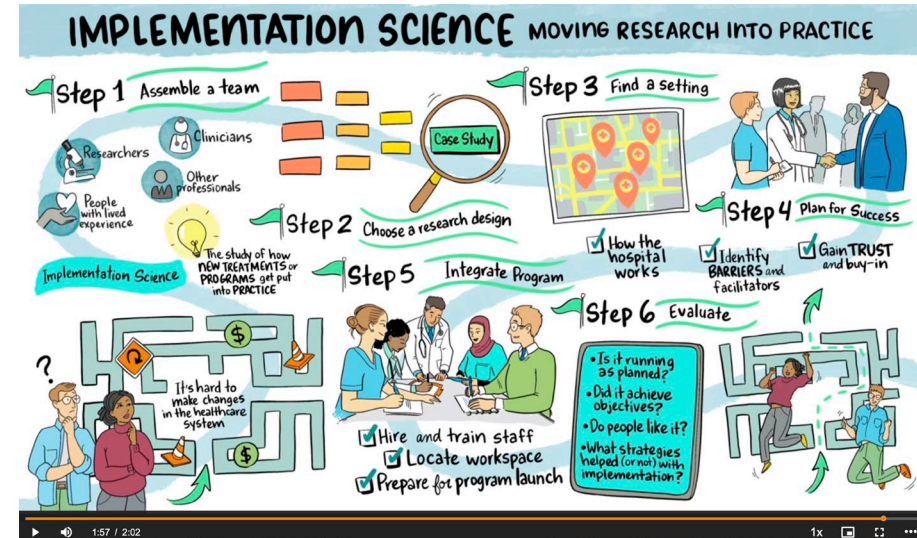
# Need for clear messaging

## What is FLS?



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

## What is Implementation Science?



<https://stream.sfu.ca/Media/Play/d1095d8adb4a48eeb0de2202023584961d>

# Local Research & FLS Toolkit

Archives of Osteoporosis (2019) 14: 116  
<https://doi.org/10.1007/s11657-019-0662-6>

ORIGINAL ARTICLE



## Breaking the cycle of recurrent fracture: implementing the first fracture liaison service (FLS) in British Columbia, Canada

Sonia Singh<sup>1,2,3</sup> · David GT Whitehurst<sup>2,4</sup> · Larry Funnell<sup>5</sup> · Vicky Scott<sup>3</sup> · Valerie MacDonald<sup>1</sup> · Pet-Ming Leung<sup>1</sup> · Kathleen Friesen<sup>1</sup> · Fabio Feldman<sup>1,6</sup>

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### Abstract

**Summary** 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 team can significantly increase the number of individuals receiving appropriate treatments during their after-fracture care to prevent future fractures from occurring.

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

**Methods** A controlled before-and-after study was conducted. The intervention was an FLS program implemented at an orthopaedic outpatient clinic at Peace Arch Hospital in BC. Eligible patients were those over the age of 50 years with a low trauma fracture of the hip, pelvis, vertebra, wrist or humerus. A nurse practitioner FLS coordinator identified, investigated and initiated treatment in patients based on their future fracture risk. The primary outcome was the percentage of all patients at high-risk to refracture, who achieved at least one of the following outcomes: (1) started on osteoporosis medication, (2) referred to an osteoporosis consultant or (3) assessed for treatment change if they were already on osteoporosis medication at the time of the fracture. Secondary outcomes included the rate of bone density testing, referral to fall prevention programs and change in health-related quality of life over 6 months.

**Results** A total of 195 patients participated in the study (65 in the usual care group, 130 in the FLS group). Average age was 70.5 years (standard deviation 11.5), and 84% of participants were female. In the FLS group, 77.8% of high-risk patients achieved the primary outcome compared with 22.9% in the usual care group.

**Conclusion** In BC, the implementation of an FLS program improved investigation and treatment for osteoporosis after low trauma fracture.

**Keywords** Fracture Liaison Service · Osteoporosis · Fracture prevention · Older adult

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### 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 left unrecognized and untreated, can lead to a cascade of progressively more debilitating fractures over a lifetime [1]. The direct and indirect costs of osteoporosis in Canada have been estimated at \$2.3 billion (CAD) in 2010 [2]. About 30,000 hip fractures occur each year in Canada [3], with devastating consequences to patients' quality of life. After a hip fracture, approximately 15–25% of patients require nursing home care, 28% of women and 37% of men die within 1 year of their hip fracture, and 40% are unable to walk



# 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

# Implementation Science



Opportunity to make tangible change in the health system

# Thank you



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