

ESTABLISHMENT OF A FRACTURE LIAISON SERVICE (FLS) AT SUNWAY MEDICAL CENTRE

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Objectives


Osteoporotic fragility fractures, particularly hip fractures, pose a growing health burden in Malaysia's aging population, leading to increased morbidity, mortality, and healthcare expenditure. Despite advancements in orthopaedic surgery, secondary prevention of future fractures has historically been inadequate.

The primary objective of this initiative was to establish a **structured, sustainable Fracture Liaison Service (FLS)** at Sunway Medical Centre to systematically:

- 1 **Identify** patients aged 55 years and above with hip fragility fractures
- 2 **Assess** osteoporosis risk factors and overall bone health
- 3 **Initiate** appropriate secondary fracture prevention strategies, including pharmacologic therapy and lifestyle modifications
- 4 **Align** local clinical practices with established **international guidelines** (e.g., IOF Best Practice Framework, Malaysian Osteoporosis Society CPGs)
- 5 **Support** national public health goals aimed at reducing fracture-related morbidity, mortality, and long-term healthcare costs.


Methods

A **multidisciplinary task force** was formed, recognizing that optimal management of fragility fractures extends beyond surgical fixation. This team included orthopaedic surgeons, geriatricians, emergency physicians, radiologists, pharmacists, physiotherapists, dietitians, and nursing staff. The following strategic steps were taken:




Needs Assessment

An internal review identified gaps in osteoporosis management post-hip fracture, highlighting the need for structured intervention pathways.




External Teaching

A FLS best practice workshop was attended by the multidisciplinary task force conducted by Dato' Dr Lee Joon Kiong who is the current president Fragility Fracture network of Malaysia.




Development of SOPs

Clear protocols were created for patient referral, assessment, follow-up, and treatment initiation, ensuring standardized care delivery.



Patient Identification


Orthopaedic doctors at the Emergency Department screened and referred all hip fracture patients aged ≥55 years to the FLS upon initial presentation.



Comprehensive Assessment


Referred patients underwent:

- Medical history and risk factor analysis (including medication review, lifestyle, previous fractures)
- Bone Mineral Density (BMD) testing via DXA scan
- Falls risk and frailty evaluation (e.g., gait assessment, vision screening)
- Comorbidity management, particularly cardiovascular, renal, and cognitive conditions




Early Surgical Management

A target of surgical intervention within **48 hours** was set, recognizing the strong evidence linking early surgery with improved outcomes.



Secondary Prevention Plan

Initiation of anti-osteoporotic treatment (bisphosphonates, denosumab, calcium, and vitamin D supplementation) where indicated, and advice on lifestyle modification (exercise, diet, smoking cessation).



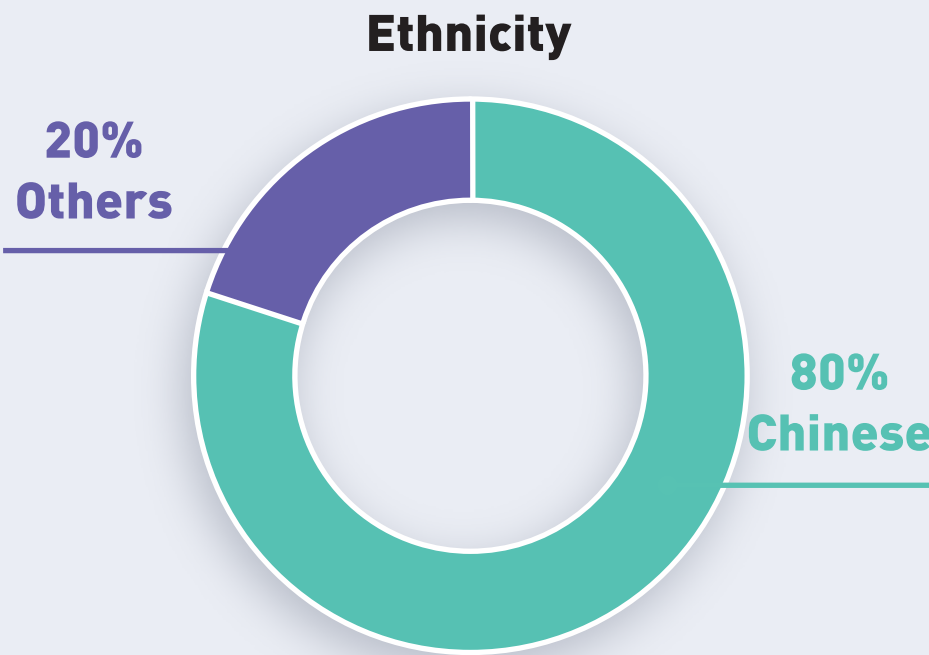
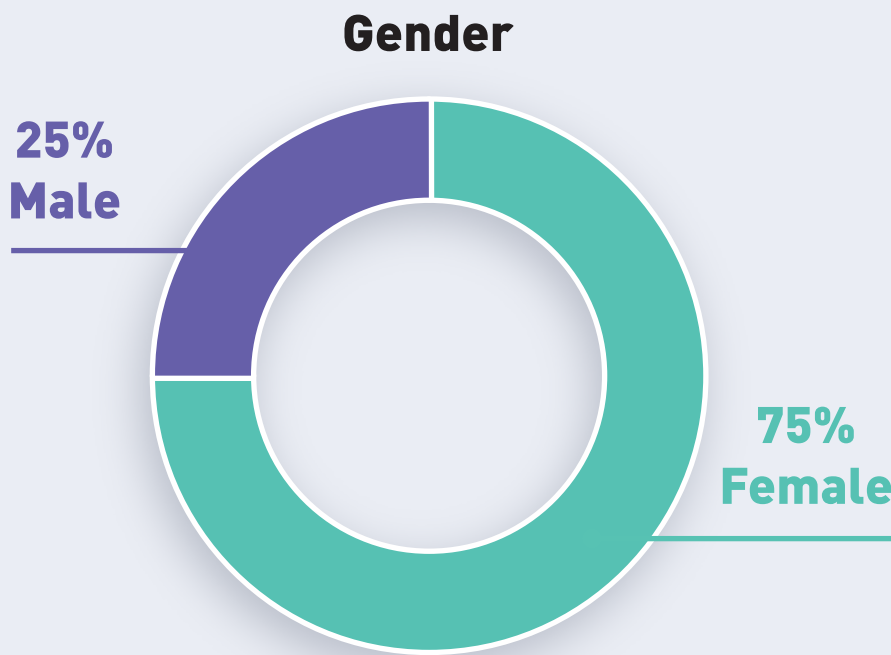
Data Collection and Monitoring

Metrics were prospectively collected over nine months, including patient demographics, fracture classification, surgical interventions, osteoporosis treatment initiation, and follow-up adherence.

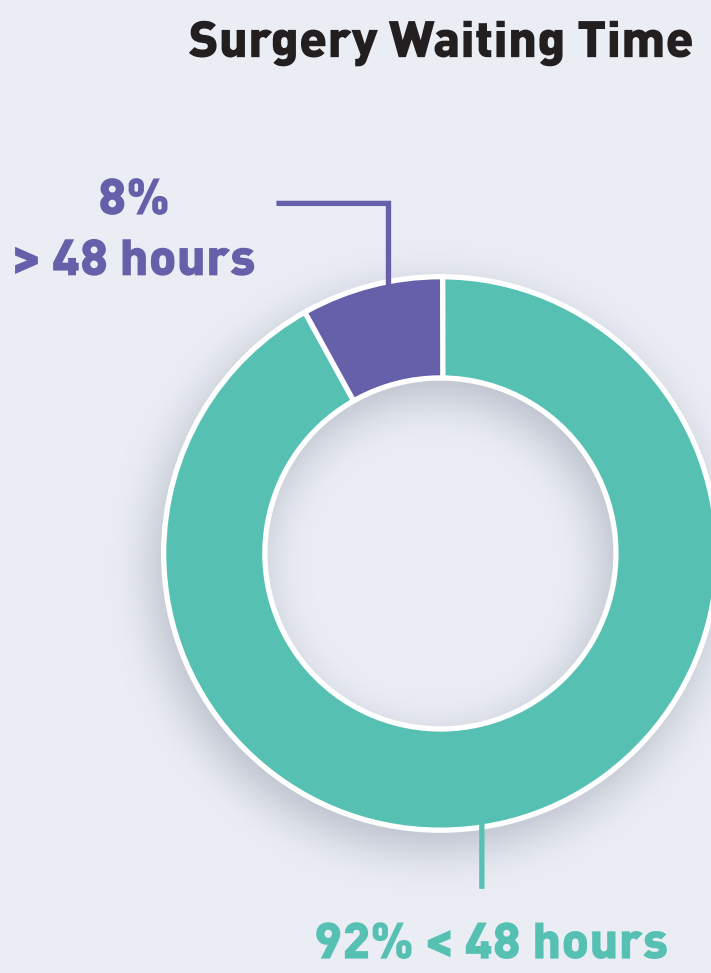
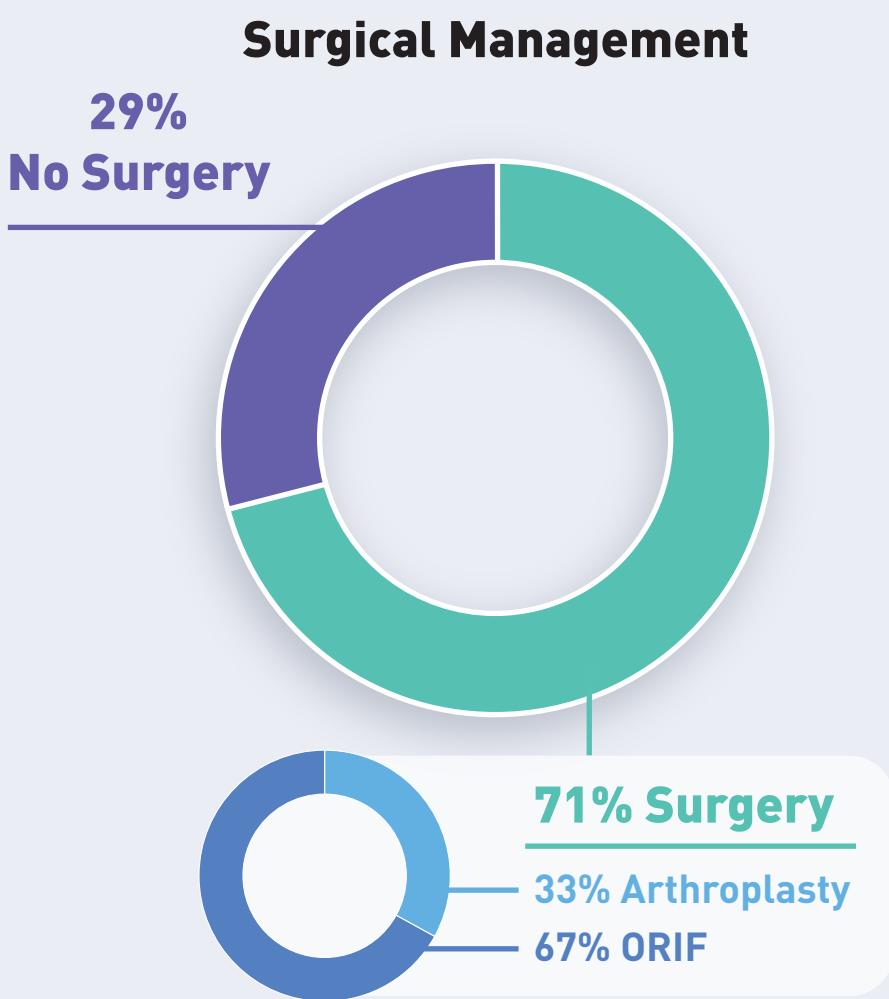
Results

Over the study period:

- 1 **43 patients** were successfully enrolled, showcasing feasibility despite the complexity of patient profiles.
- 2 **Demographic Breakdown**
 - Mean age: **81 years**, underscoring the advanced age and frailty of the cohort.
 - **75%** were female, consistent with the higher osteoporosis burden among women.
 - **80%** were of Chinese ethnicity, reflecting local demographic patterns.



- 3 **Surgical Management**
 - **71%** underwent surgery; among them, **67%** received Open Reduction and Internal Fixation (ORIF), and the remainder underwent arthroplasty (hemiarthroplasty or total hip arthroplasty).
 - Impressively, **92%** of surgical patients achieved surgery within the **48-hour** benchmark, reflecting operational efficiency and multidisciplinary collaboration.



- 4 **Osteoporosis Management**
 - **57%** underwent BMD testing — an area identified for further improvement.
 - **87%** were initiated on pharmacologic osteoporosis therapy (bisphosphonates or denosumab) and/or supplementation (calcium and vitamin D), showing a major advance compared to historical treatment rates (<30% internationally without FLS).
- 5 **Early Impact**
 - Standardized, patient-centered care delivery was achieved.
 - Significant groundwork laid for future data analysis on re-fracture rates, mortality, functional recovery, and treatment adherence.

Conclusion

The **implementation of an FLS at Sunway Medical Centre** has proven highly effective in **transforming the care pathway** for elderly patients with fragility fractures. Key achievements include:

- Early and systematic identification of at-risk patients;
 - Timely surgical intervention within evidence-based timeframes;
 - Significant improvement in the initiation of secondary preventive therapies;
 - Strong interdisciplinary collaboration fostering sustainable healthcare delivery models.
- Lessons learned** include the need for:
- Continuous education of healthcare providers and patients to improve BMD testing rates;
 - Development of streamlined follow-up processes to enhance long-term adherence to osteoporosis treatments;
 - Institutional commitment and resource allocation to support FLS expansion (e.g., dedicated coordinators, patient education programs).

Possible future directions involve scaling the service across other fracture types (e.g., vertebral, wrist, humeral fractures), integrating digital health tools for remote monitoring, and longitudinal research to assess outcomes like re-fracture rates, quality of life, and cost-effectiveness.