

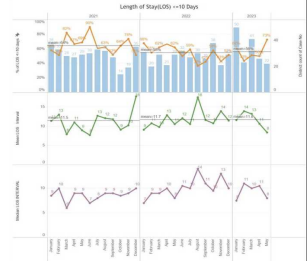
# Incredible Care QIX Award (Process Excellence)



Project Title 9 : Decreasing Length of Stay in OrthoGeriatric Patients (EQUIP)			
Department: Medicine/Orthopaedics		Period: July – November 2023	Facilitators/Author: Dr Francis Ho
Sponsors (HODs): Dr Diarmuid Murphy, A/Prof Reshma Merchant		Team Leader/s: Dr Beatrix Wong	
Team Members Wu Xueting, Fang Hai Ping, Chng Pei Pin Evelyn, Ong Siew Seang, Ho Ee Kian, Sally Chin, Joyce Yogeswari, St Luke's Hospital (Dr Marilou Ebreo Sevilla, Dr Judaline Alagon Robles)			

## A. Define the Problem (PLAN)

- Worldwide incidence of hip fracture 1.26million in 1990 projected to reach 6.3 million by 2050<sup>1,2</sup>
- Prolonged hospital stay is associated with increased 30-day mortality and increased cost<sup>3,4</sup>
- Hip fractures are costly and often associated with poor outcomes among older adults<sup>4</sup>
- Prolonged length of stay has direct impact on healthcare cost as well as increased rate of hospital-acquired infections<sup>5,6</sup>
- The mean length of stay in Singapore ranges from 10 to 19 days (for both surgically and conservatively managed patients)<sup>7,8,9,10</sup>



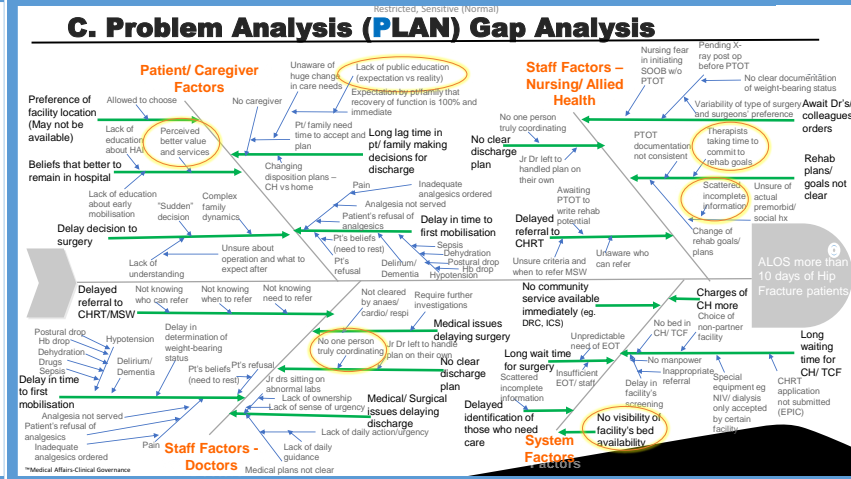
- The current mean length of stay in 2021 is **11.5 days**
- The current mean length of stay in 2022 in NUH is **11.7 days**
- The current average length of stay  $\leq 10$  days in NUH is **59.5%** over 2021 to 2022

## B. Goal (PLAN)

Set SMART goals | Specific, Measurable, Achievable, Relevant, Time-based |

- To increase the monthly mean percentage of patients with hip fracture in NUH  $\geq 65$  length of stay (LOS)  $\leq 10$  days from 59.5% (in 2021 and 2022) to 75% in 6 months.

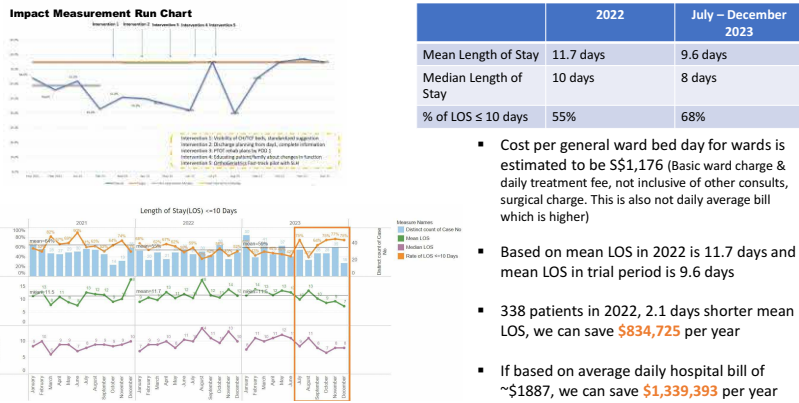
## C. Problem Analysis (PLAN) Gap Analysis



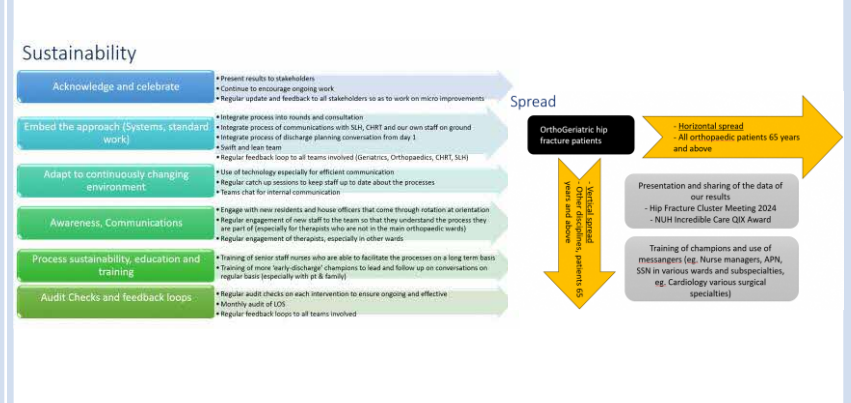
## D. Interventions & Action Plan (DO)

Root Cause	Intervention	People responsible	Date of implementation
No visibility of CH/TCF beds (to know which to offer patient)	1) Provide visibility to bed availability at community hospital 2) Provide standardised suggestion to patient/family regarding which CH across the team (medical/nursing/allied health)	APN Xueting, SSN Hai Ping, CHRT Ee Kian, Dr Beatrix Wong	March 2023, Week 3
No one truly coordinating (No clear discharge plan)	1) Discharge planning from Day 1 of OrthoGeriatric Assessment 2) Consolidated information in OrthoGeriatric Assessment by Day 3 of admission	APN Xueting, SSN Hai Ping, Dr Beatrix Wong	April 2023, Week 3
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Therapists taking time to commit to rehab plans/ goals	PTOT to provide and document rehab goals and potential and discharge destination by POD1	PT Evelyn, OT Siew Seang	May 2023, Week 3
Unaware of huge change in care needs (Causing long lag time in patient/family making decisions for discharge) Expectation by pt/family that recovery of function is 100% and immediate > lack of public education (expectation vs reality)	Educating patient/ family about potential change in functional status and need for longterm caregiver - Communications during Day 1 of OrthoGeriatric Assessment, follow up comms post op	APN Xueting, SSN Hai Ping, Dr Beatrix Wong	27 <sup>th</sup> June 2023
No manpower (resulting in delay in facility's screening and long wait time for CH/TCF)	OrthoGeriatrics Fast-track pilot with SLH	APN Xueting, SSN Hai Ping, Dr Beatrix Wong, SLH	3 <sup>rd</sup> July 2023

## E. Benefits / Results (CHECK)



## F. Strategy for Spreading/ Sustaining (ACT)



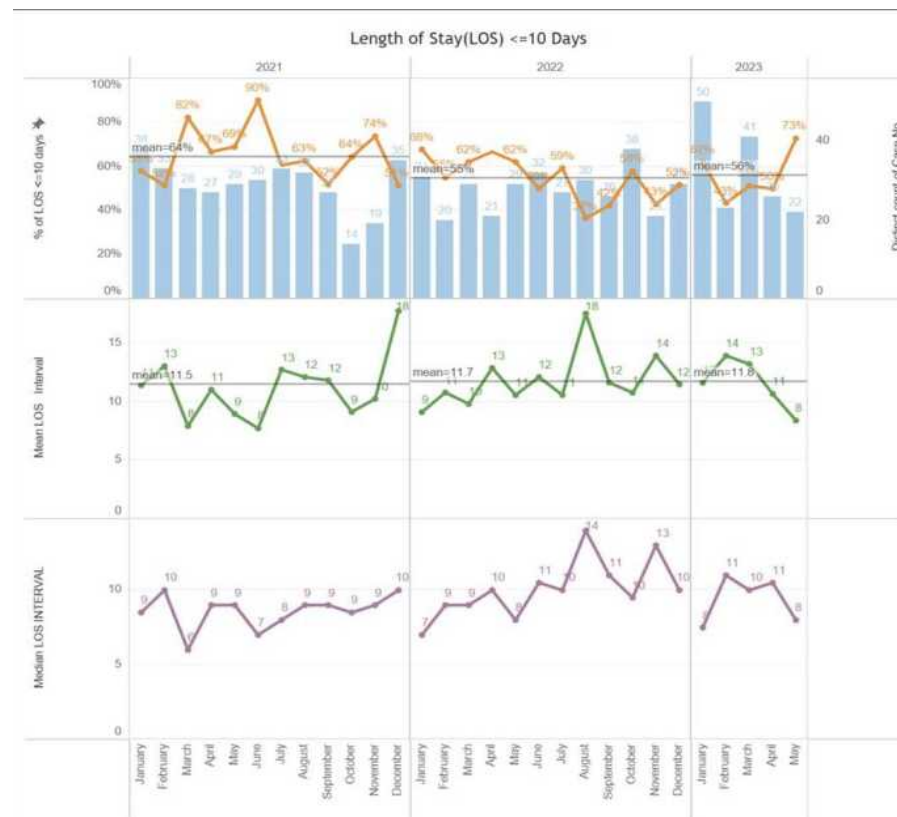
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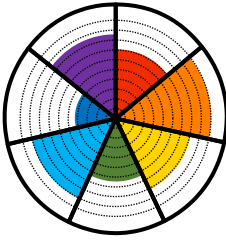
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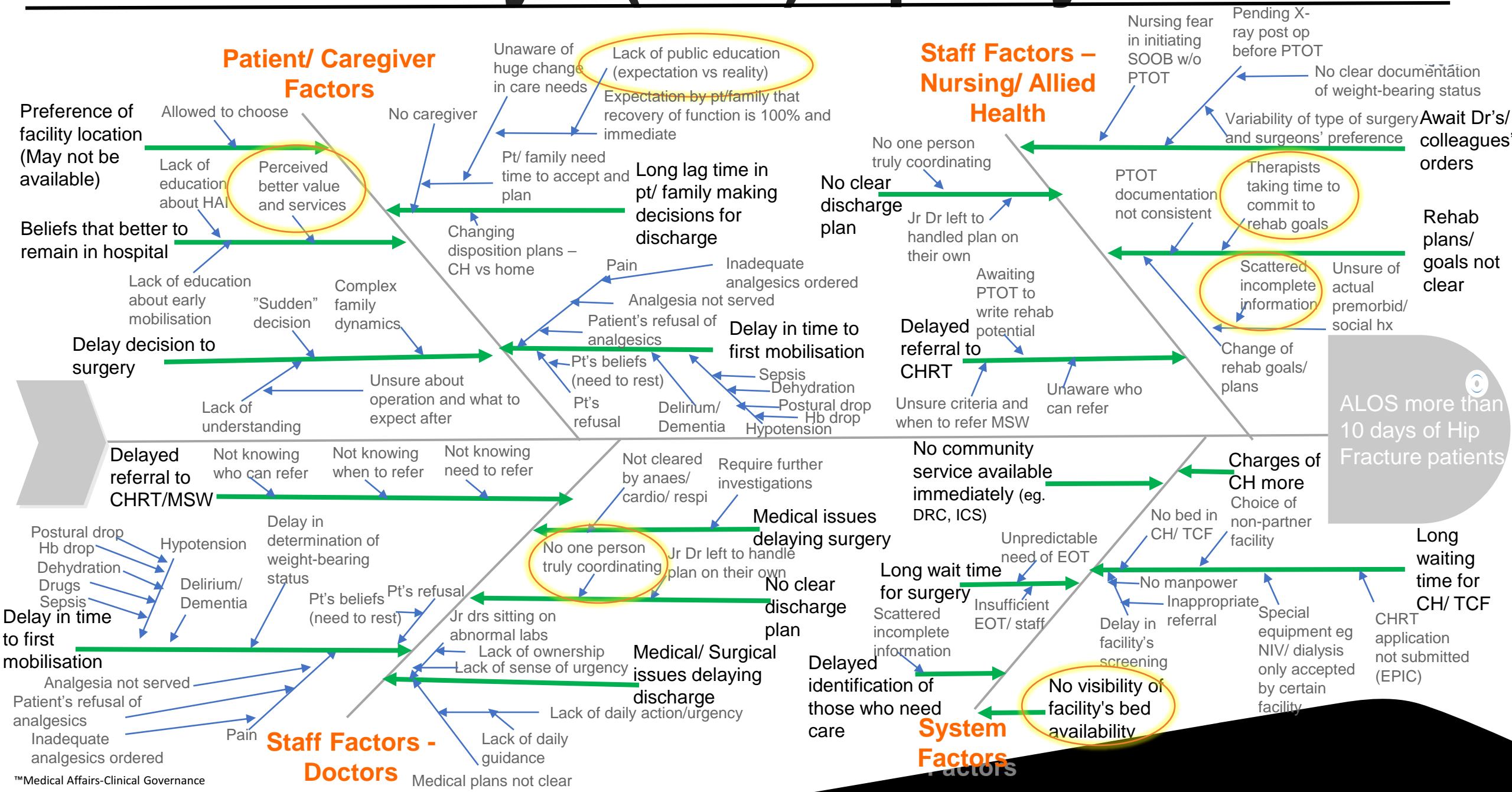
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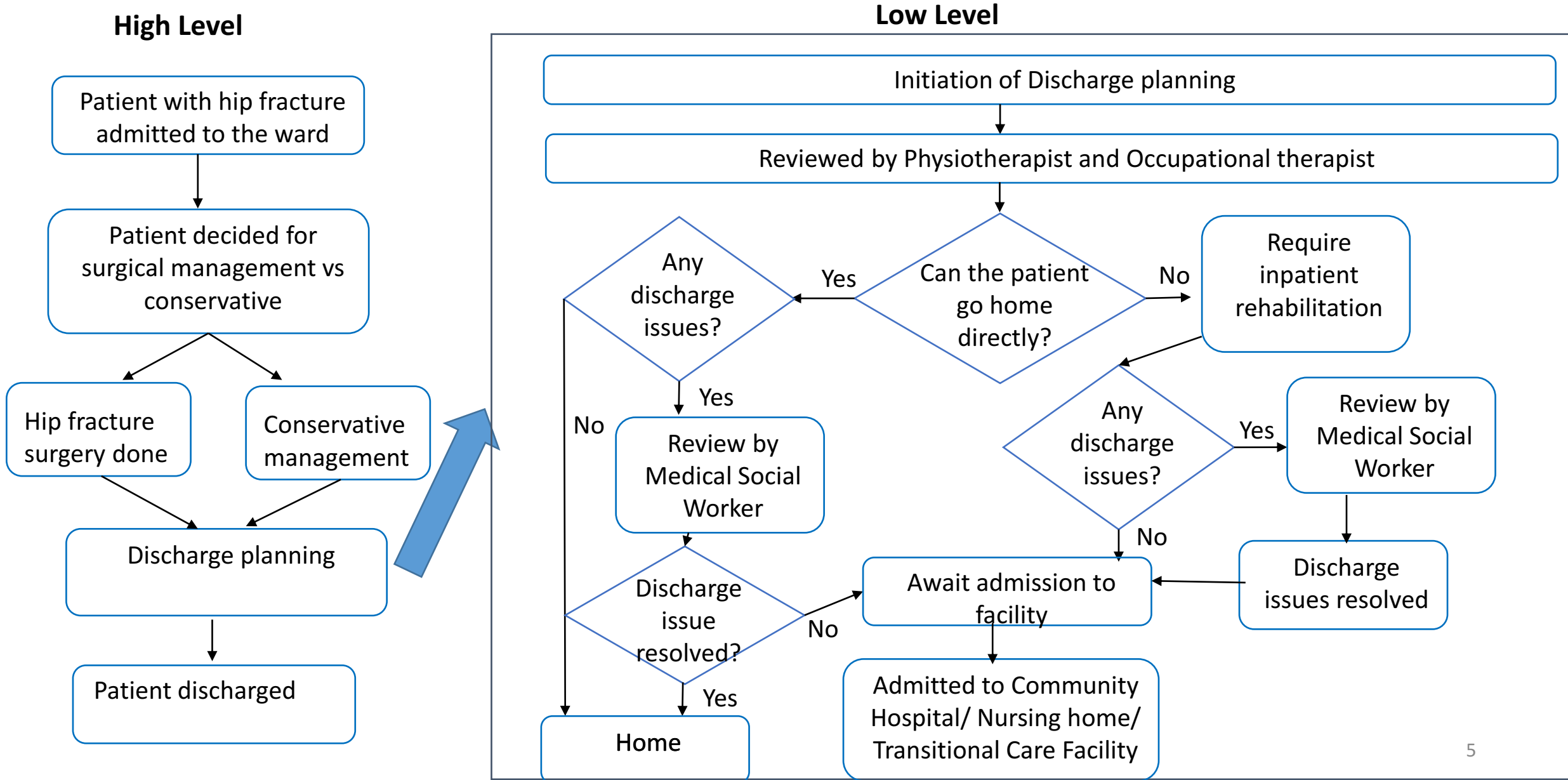
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Restricted, Sensitive (Normal)

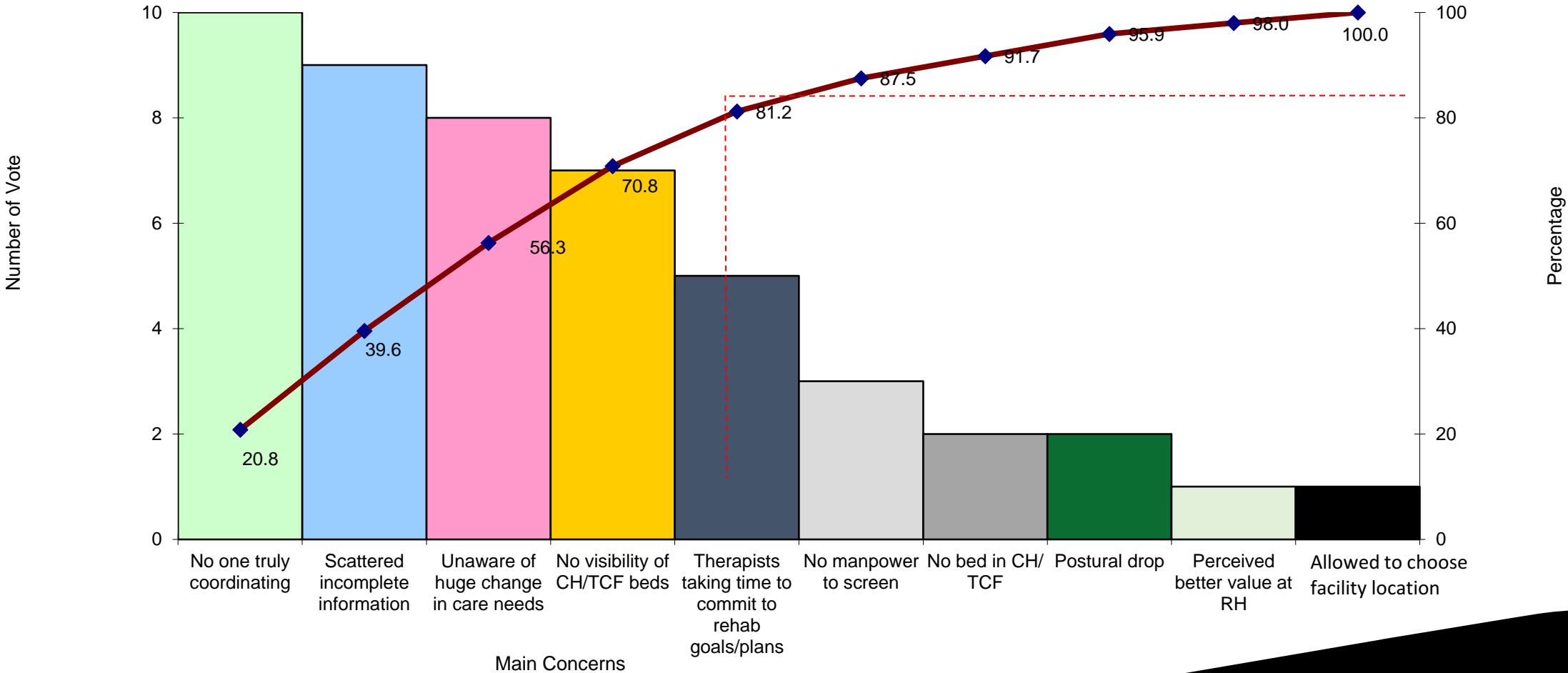


™Medical Affairs-Clinical Governance

# C. Problem Analysis (PLAN) Value Stream Map



# Pareto Chart

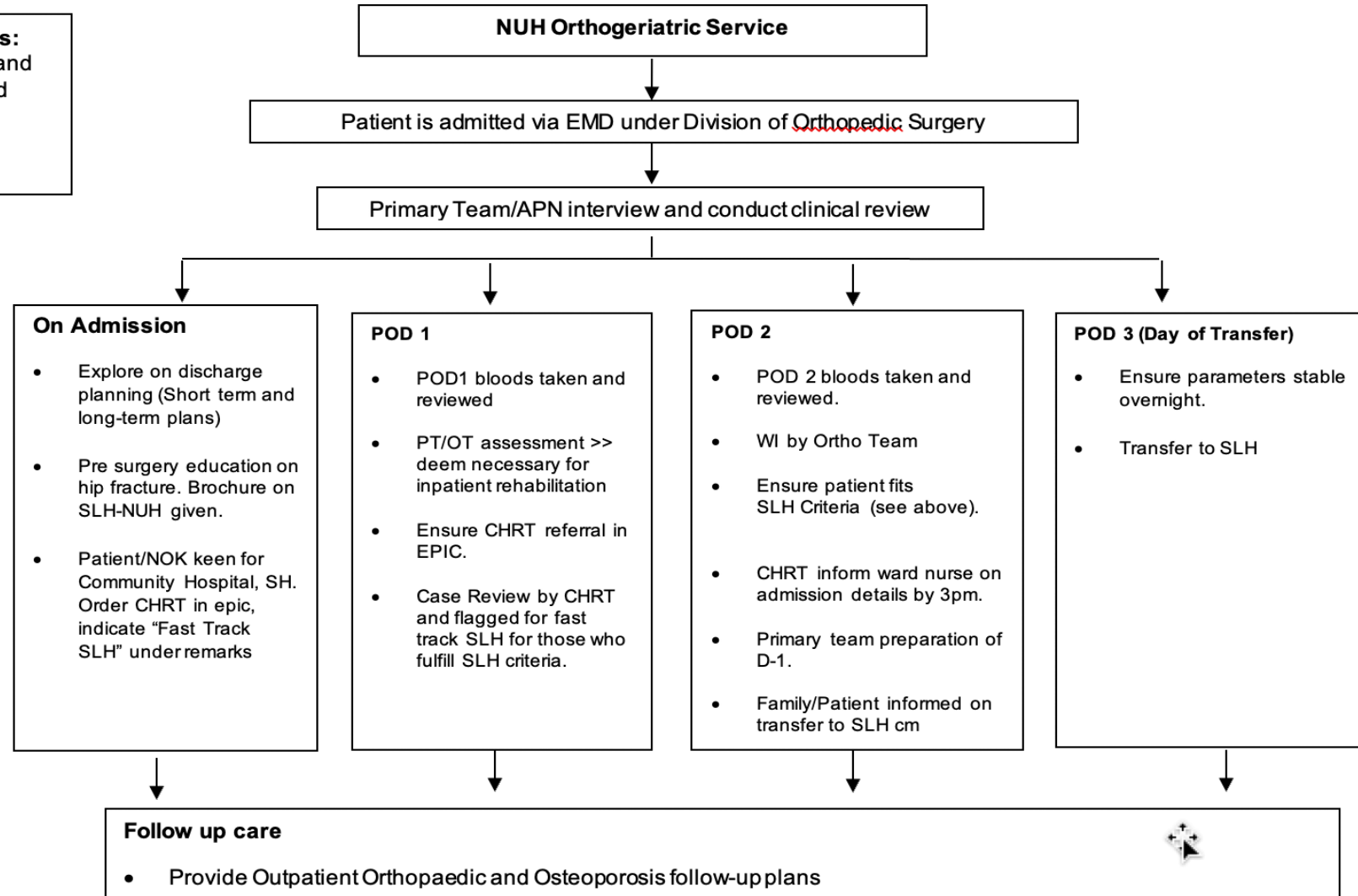


# D. Interventions & Action Plan (DO)

Root Cause	Intervention	People responsible	Date of implementation
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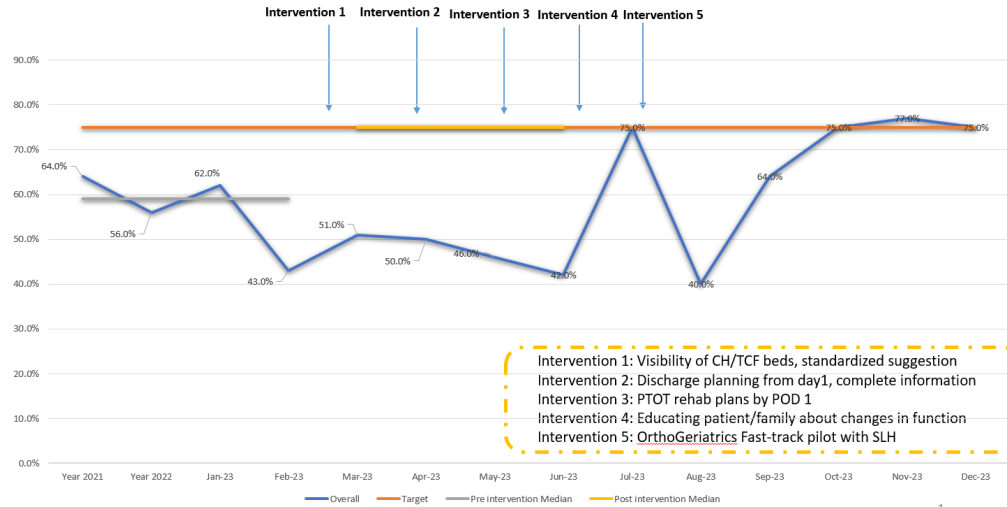
## FAST-TRACK REHABILITATION TO SLH POST-FRAGILITY FRACTURE

**Eligibility of patients:**  
Adult aged 65years and above who sustained fragility hip fracture requiring inpatient rehabilitation



# E. Benefits / Results (CHECK)

## Impact Measurement Run Chart



	2022	July – December 2023
Mean Length of Stay	11.7 days	9.6 days
Median Length of Stay	10 days	8 days
% of LOS ≤ 10 days	55%	68%

- Cost per general ward bed day for wards is estimated to be \$1,176 (Basic ward charge & daily treatment fee, not inclusive of other consults, surgical charge. This is also not daily average bill which is higher)

### Length of Stay(LOS) <=10 Days



- Based on mean LOS in 2022 is 11.7 days and mean LOS in trial period is 9.6 days
- 338 patients in 2022, 2.1 days shorter mean LOS, we can save **\$834,725** per year
- If based on average daily hospital bill of ~\$1887, we can save **\$1,339,393** per year

# OrthoGeri Fast-track pilot with SLH

- 3 July 2023 - 30 November 2023
- **127** hip fracture patients screened
- **49 patients (38.5%)** taken on fast-track pathway
  - Taken to SLH on **average POD 5.3**, mean **LOS 7.2 days**, median **LOS 7 days**
- Average age of patients taken on Fast Track: 81.7 years
- Average age of all patients July to Nov 2023: 81.3 years
- Includes patients with dementia, delirium

# OrthoGeri Fast-track pilot with SLH

- **16 transferred on > POD 5 (32.7% of those taken by Fast Track)**
  - Initially wanted other CH (eg. JCH, SKCH etc), need time to change their mind
  - Initially verbalized some ?suicidal ideations, psych review
  - No bed available at SLH
  - Initially had raised inflammatory markers which required further imaging
  - Lack of long term caregiver
  - Has dementia/delirium, initially resisting therapy
- **3 patients readmitted (6.1% of those taken by Fast Track)**
  - 1 patient came back 8 days later for GI bleed secondary to duodenal ulcers (repeat Hb on day of discharge to SLH was stable)
  - 1 patient came back 3 days later for PE, no DVT found
  - 1 patient transferred to NTFGH 7 days later for acute decompensated heart failure precipitated by pneumonia

# F. Strategy for Spreading/ Sustaining (ACT)

## Sustainability

### Acknowledge and celebrate

- Present results to stakeholders
- Continue to encourage ongoing work
- Regular update and feedback to all stakeholders so as to work on micro improvements

### Embed the approach (Systems, standard work)

- Integrate process into rounds and consultation
- Integrate process of communications with SLH, CHRT and our own staff on ground
- Integrate process of discharge planning conversation from day 1
- Swift and lean team
- Regular feedback loop to all teams involved (Geriatrics, Orthopaedics, CHRT, SLH)

### Adapt to continuously changing environment

- Use of technology especially for efficient communication
- Regular catch up sessions to keep staff up to date about the processes
- Teams chat for internal communication

### Awareness, Communications

- Engage with new residents and house officers that come through rotation at orientation
- Regular engagement of new staff to the team so that they understand the process they are part of (especially for therapists who are not in the main orthopaedic wards)
- Regular engagement of therapists, especially in other wards

### Process sustainability, education and training

- Training of senior staff nurses who are able to facilitate the processes on a long term basis
- Training of more 'early-discharge' champions to lead and follow up on conversations on regular basis (especially with pt & family)

### Audit Checks and feedback loops

- Regular audit checks on each intervention to ensure ongoing and effective
- Monthly audit of LOS
- Regular feedback loops to all teams involved

## Spread

OrthoGeriatric hip fracture patients

- Vertical spread  
- Other disciplines, patients 65 years and above

- Horizontal spread  
- All orthopaedic patients 65 years and above

Presentation and sharing of the data of our results  
- Hip Fracture Cluster Meeting 2024  
- NUH Incredible Care QIX Award

Training of champions and use of messengers (eg. Nurse managers, APN, SSN in various wards and subspecialties, eg. Cardiology various surgical specialties)

# Appendix

Function (based on 2 weeks ago)	Independent(I)/Assisted (A)/Dependent (D)											
Dressing/Grooming	I											
Eating	I											
Ambulation	Home: I      Community: I											
Toileting	I											
Transfers	I											
Hygiene	I											
Bladder continent: Yes/	Bowel continent: Yes											
Shopping	A - accompanied by helper											
Housekeeping	D no need to do											
Accounting	I											
Food preparation	Not cooking											
Telephone	Use mainline											
Taking meds	A- takes on her own, packed by helper											
Transport	Accompanied											
<p>STML: Yes            If Yes, duration: <u>6 months</u>      AMT score: <u>9/10</u> (on 14/3/23)</p> <p>Forgetful, repeat and ask the same questions over again            Usually Can read newspaper, online tablet, play with dog            Apraxia/Agnosia/Aphasia- nil            Executive dysfunction- still manages money            Behavioural issues: nil            Sleep-Wake reversal: nil            Visual/Auditory hallucinations: nil            No low mood</p> <p>Noted acute confusion on 15/3/23            AMT 0/10 &gt;&gt; not orientated to time place and person</p>												
<b>4AT scoring</b>												
Admission	POD 1	POD 2	POD 3	POD 4								
0	4	4										
<p><b>Mood (PHQ-2) Score:</b> _____</p> <p>Over the last 2 weeks, how often have you been bothered by the following problems?</p> <p>1. Little interest or pleasure in doing things (<i>circle</i>)</p> <table border="1"> <tr> <td>Not at all 0</td> <td>Several days 1</td> <td>&gt; half the days 2</td> <td>Nearly every day 3</td> </tr> </table> <p>2. Feeling down, depressed or hopeless (<i>circle</i>)</p> <table border="1"> <tr> <td>Not at all 0</td> <td>Several days 1</td> <td>&gt; half the days 2</td> <td>Nearly every day 3</td> </tr> </table>					Not at all 0	Several days 1	> half the days 2	Nearly every day 3	Not at all 0	Several days 1	> half the days 2	Nearly every day 3
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<b>Clinical examination findings</b>												
Postural Bp-pending												
Mental state		Confused										
Nutritional state		2										
Heart		s1s2 no murmur										

Discharge Planning	
Discharge Destination:	Community Hospital/
Long term plans:	Home with helper
MSW referral:	NA
Caregiver Training Needed:	NA
Equipment needed prior to d/c	Walking frame Commode chair Need home modification

# Appendix

## Available CH Beds

	Total	Male	Female
A Class	1	1	
B Class	1	1	0
C Class	15	6	9
Dementia Beds	2	0	2
Palliative Beds	1	1	0

Iso		1
A		3
B1	Male	3
	Female	3
Sub	Male	0
	Female	0
MRSA	Male	8
	Female	4

## EPIC SMART Phrase for Patient/ Family Counselling guide on Hip Fracture Management and Discharge Planning”

### Why do I need surgery?

The goal of treatment for hip fracture is to regain as much function as possible. In order to do so a hip surgery would be necessary. Surgery helps to align the bones, so they heal properly.

### What happens after surgery?

Operation Day- X-ray to assess the implant alignment, resume diet however may have nausea/vomiting as it is a post anesthesia effect

POD 1- blood test, start SOOB and aim to start walking a few steps with walking frame

POD 2 onwards- continue with walking with walking frame

Estimated length of stay: 3-5 days

### Pain Management

The goal of pain management is to reduce pain so that you/loved one can do physical therapy to achieve as much independence as possible. Pain medication will be served prior to therapy, and it will be served round the clock for at least the 1<sup>st</sup> week of surgery .

### After Discharge

What happens when you leave the hospital?

You/Loved one can leave the hospital when your doctor determines that you are medically stable. Discharge destinations depend on therapist assessment, if the therapist deems necessary for further rehabilitation, you/loved ones will be transferred to a rehabilitation hospital such as St Luke's hospital.

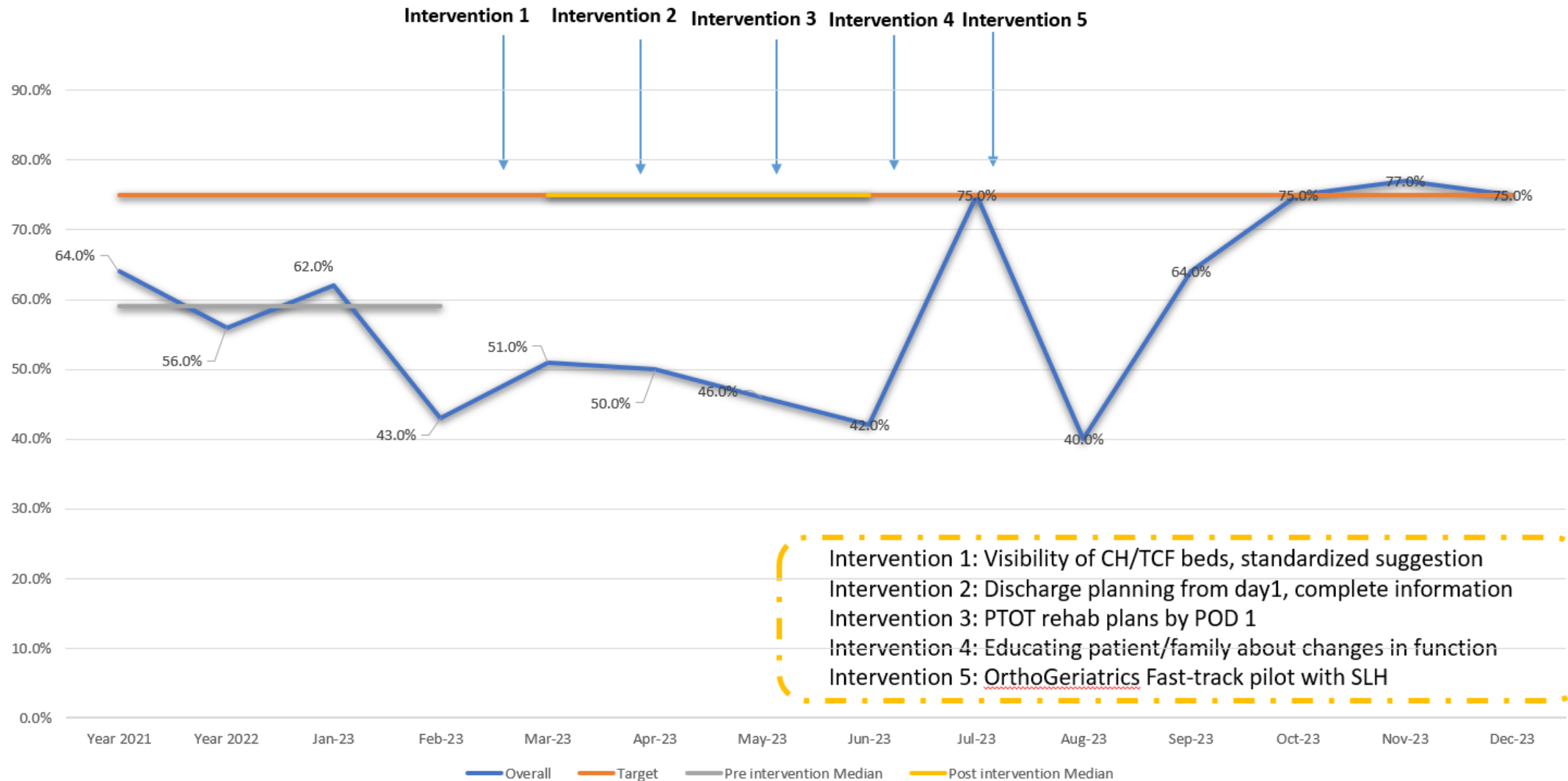
If you /Loved one can move around well enough to return home, you may need someone to stay with you/loved one to help as you/loved one recover.

### Your Long-term recovery:

With proper rehabilitation, some people are able to return to pre-injury levels of activity and independence while others require supervision/assistance in their basic care needs. Hip fractures usually take three to six months to heal, but it may take up to a year depending on each individual.



# Appendix - Impact Measurement Run Chart



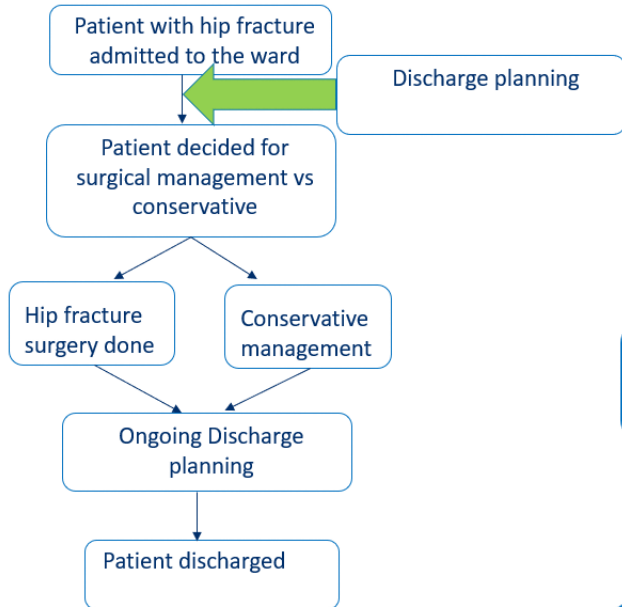
# Appendix

## Length of Stay(LOS) <=10 Days



# Appendix

## Mapping of Improved Process High Level



## Mapping of Improved Process

### Low Level – Discharge planning

