

Adj Asst Prof James Wee Liang Hao¹

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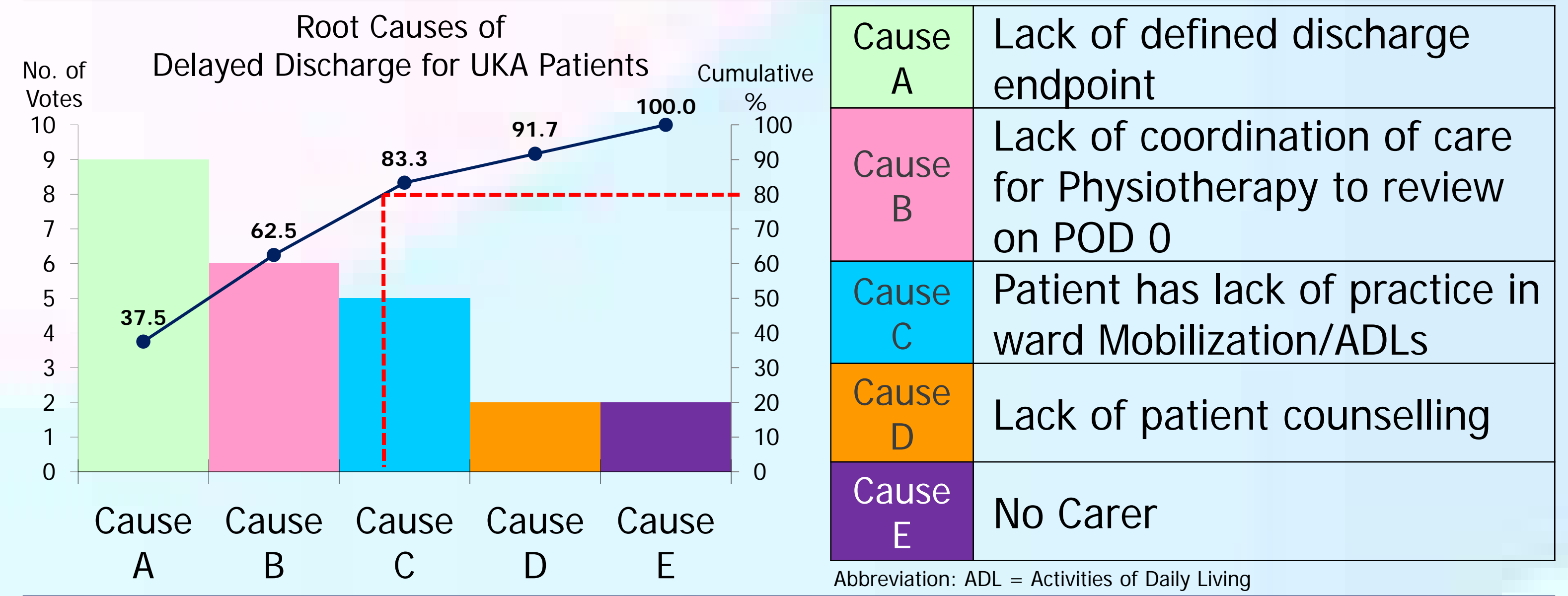
Mission Statement

Achieve a reduction in the average length of stay (ALOS) after uni-compartmental knee arthroplasty (UKA) in TTSH from 3.9 days to 2.5 days (stretch goals) <2.5 days) within 6 months

Team Members

	Name	Designation	Department
Team Leaders	Adj Asst Prof James Wee Liang Hao	Consultant	Orthopedic Surgery
	Ms Clara Wong Xiu Qing	Principal Physiotherapist	Physiotherapy
Team Members	Ms Yap Yan Mei	Senior Physiotherapist	Physiotherapy
	Dr Tan Tong Leng	Consultant	Orthopedic Surgery
	Dr Terence Quek Jinlin	Consultant	Anaesthesiology, Intensive Care & Pain Medicine
	Ms Adeline Tang Lai San	Nurse Manager	Day Surgery Ward
	Ms Wong Luak Pak Justina	Nurse Clinician	Nursing Specialty
	Mr David Zhang Jiancai	Principal Occupational Therapist	Occupational Therapy
	Ms Tok Xue Hui	Senior Occupational Therapist	Occupational Therapy
Sponsors	Adj A/Prof Lee Keng Thiam & Mr Christopher Ng Thong Lian		
Mentor	Adj A/Prof Tai Hwei Yee		

Pareto Chart

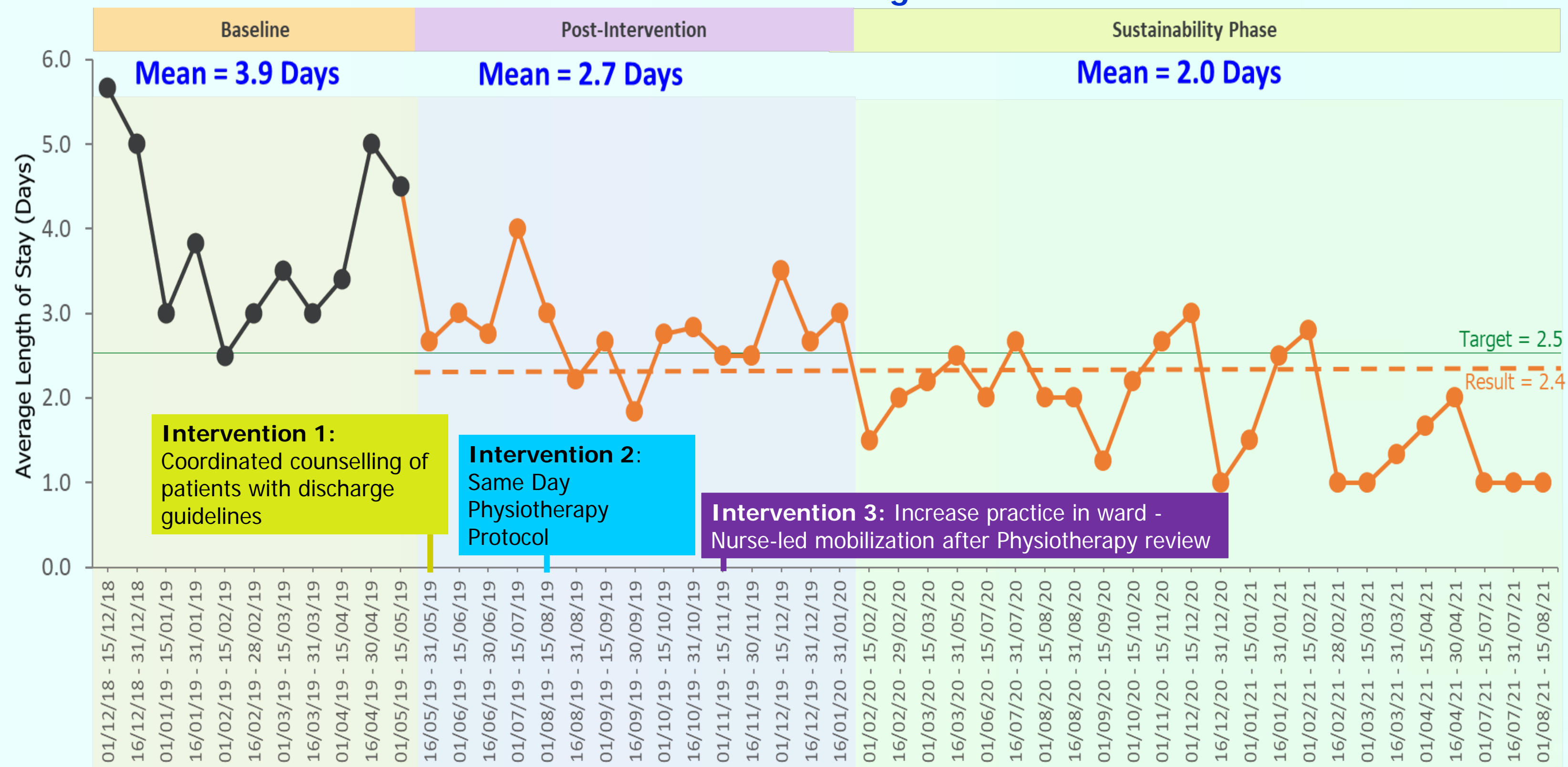


Implementation

Root Cause	Intervention	Implementation Date
Lack of defined discharge endpoint	Coordinated counselling of patients with discharge guidelines	16 May 2019
Lack of coordination of care for Physiotherapy to review on POD 0	Same Day Physiotherapy Protocol	1 Aug 2019
Patient has lack of practice in ward (Mobilization/ADLs)	Increase practice in ward - Nurse-led mobilization after Physiotherapy review	4 Nov 2019

Results

Average Length of Stay after Uni-compartmental Knee Arthroplasty Surgery
Period: Dec 2018 to Aug 2021



Date	2018	2019	2020	2021
No of UKA	3	4	3	2
Median	3.0	2.0	2.0	2.0

Cost Savings

Comparing Pre & Post	Period 1	Period 2 & 3
Average Cost	\$17,470.94	\$15,327.55
Average Cost Saved Per Patient	\$2,143.39	
Annualized Total Bill Size for All Patients	\$1,372,262.77	\$995,917.01
Annualized Savings in Total Bill Size	\$376,345.76	
Period 2 & 3	DSW (n=53)	Other Wards (n=58)
Average Cost	\$14,563.45	\$16,025.78
Average Cost Saved Per Patient if admitted to Day Surgery Ward (DSW)	\$1,462.33	
Annualized Total Bill Size for All Patients	\$451,822.09	\$544,094.93
Annualized Savings in Total Bill Size	\$92,272.84	

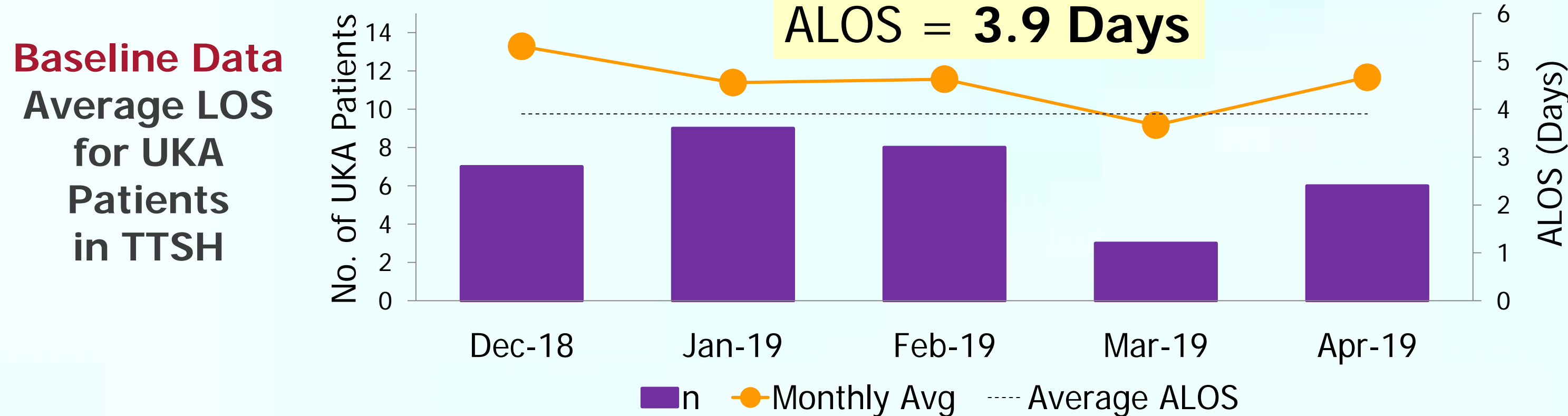
Problems Encountered

- Year-end holiday months pose an ongoing challenge
- Patients eligible for DSW and had their operation on Friday were unable to admit to DSW as DSW closes on Sunday

Strategies to Sustain

- Get buy-in from surgeons, nurses & allied health professionals through regular sharing and updates.
- Continue to identify patients suitable for DSW stays
- Increase capacity in DSW to accommodate more patients

Evidence for a Problem Worth Solving



Oxford University Hospital's Experience ¹ :	Danish Experience ² :
1. Accelerated recovery protocol for Oxford UKA patients implemented. ALOS decreased from 4.3 days to 1.5 days	1. 35 consecutive fast-track Oxford UKA patients
2. 27% cost savings	2. ALOS of 2.2 days
3. Significant reduction in bed occupancy	

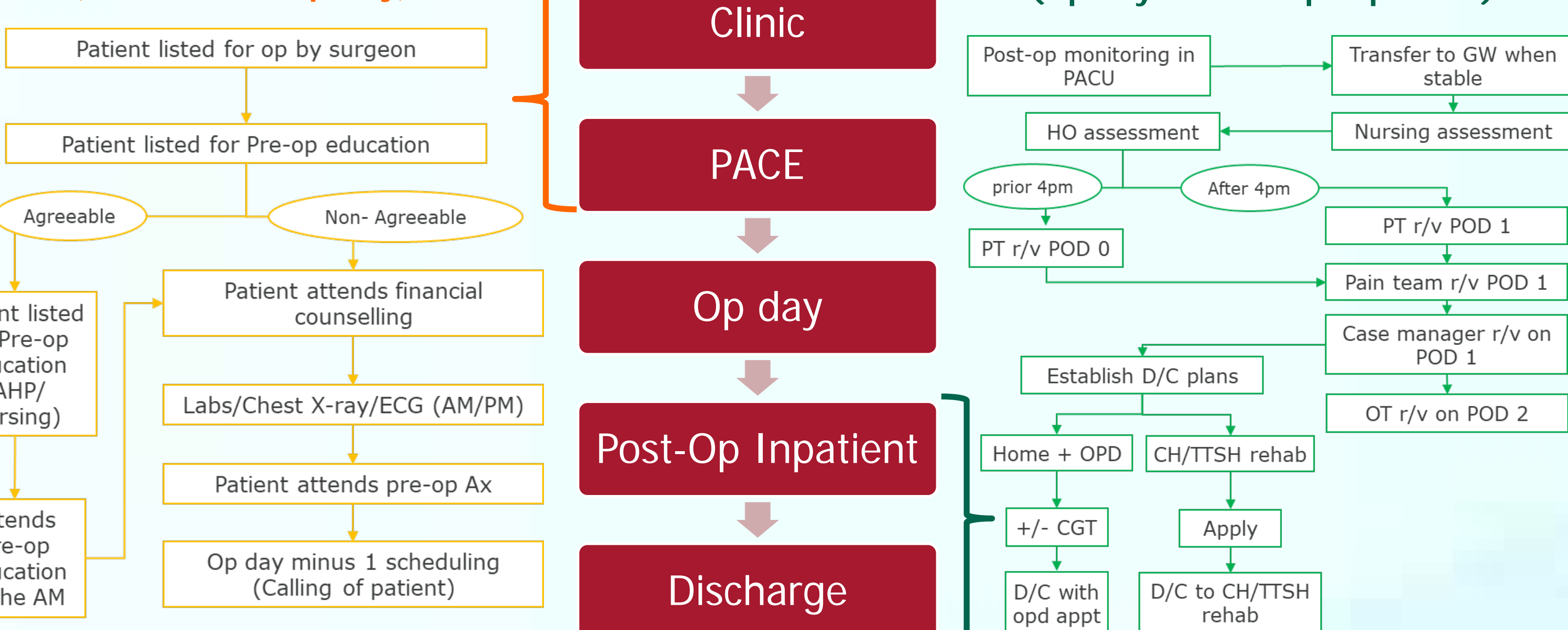
¹ Reilly KA, Beard DJ, Barker KL, Dodd CA, Price AJ, Murray DW. Efficacy of an accelerated recovery protocol for Oxford unicompartmental knee arthroplasty--a randomised controlled trial. *Knee*. 2005 Oct;12(5):351-7.
² Munk S, Dalsgaard J, Bjerggaard K, Andersen I, Hansen TB, Kehlet H. Early recovery after fast-track Oxford unicompartmental knee arthroplasty. *Acta Orthopaedica* 2012;83(1):41-45.

Flow Chart of Process

MICRO FLOWCHART (Clinic to Pre-Op Day)

MACRO FLOWCHART

MICRO FLOWCHART (Op day to Post-op Inpatient)



Abbreviations:
Op = Operation | PACE = Pre-operative Anaesthesia Counselling & Evaluation | AHP = Allied Health Professional | Pre-op = Pre-operation | Post-op = Post-operation | Ax = Assessment | PACU = Post-Anaesthesia Care Unit | HO = House Officer | POD = Postoperative | PT = Physiotherapist | r/v = Review | GW = General Ward | OT = Operating Theatre | D/C = Discharge | AM = Before Noon | PM = After Noon | OPD = Outpatient Department Treatment | appt = appointment | CH = Community Hospital | CGT = Caregiver Training | ECG = Electrocardiogram

Cause and Effect Diagram

