

## **Project Title**

Sustaining the Use of Smart Portable Drain Carrier in CGH Inpatient Wards

## **Project Lead and Members**

- Ma Chongyan
- Lim Jia Yan
- Qin Jing
- Neo Soon Keow
- Tang Hongyan
- Geraldine Tung Jie Lin

## **Organisation(s) Involved**

Changi General Hospital

## **Healthcare Family Group Involved in this Project**

Nursing, Allied Health

## **Applicable Specialty or Discipline**

Physiotherapy

## **Aims**

The aims of this sustain project are:

- Ensure sustained practice to increase post op early mobilization.
- 50% reduction of time spend on tracing and transferring of the attachments.
- 50% improvement on patients and staff satisfaction.

## **Background**

See poster appended / below

## **Methods**

See poster appended / below

## **Results**

See poster appended / below

## **Conclusion**

See poster appended / below

## **Additional Information**

Singapore Healthcare Management (SHM) Conference 2021 – Merit Award (Patient Experience Category)

## **Project Category**

Care & Process Redesign, Time Saving, Patient Satisfaction, Workflow Redesign, Care Continuum, Inpatient Care

## **Keywords**

Patient Experience, Smart Portable Drain Carrier, Early Mobilization, Staff Satisfaction, Equipment Improvement, Post-operation

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**Singapore Healthcare Management 2021**

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**Changi General Hospital**  
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## Background

The Smart portable drain carrier was developed and implemented in Apr 2018 in selected CGH inpatient wards with the aim of promoting post-op early mobilization and reduce risk of drain/catheter associated infection and dislodgement especially targeting patients with multiple attachments. However, sustaining the practice faced its challenges.

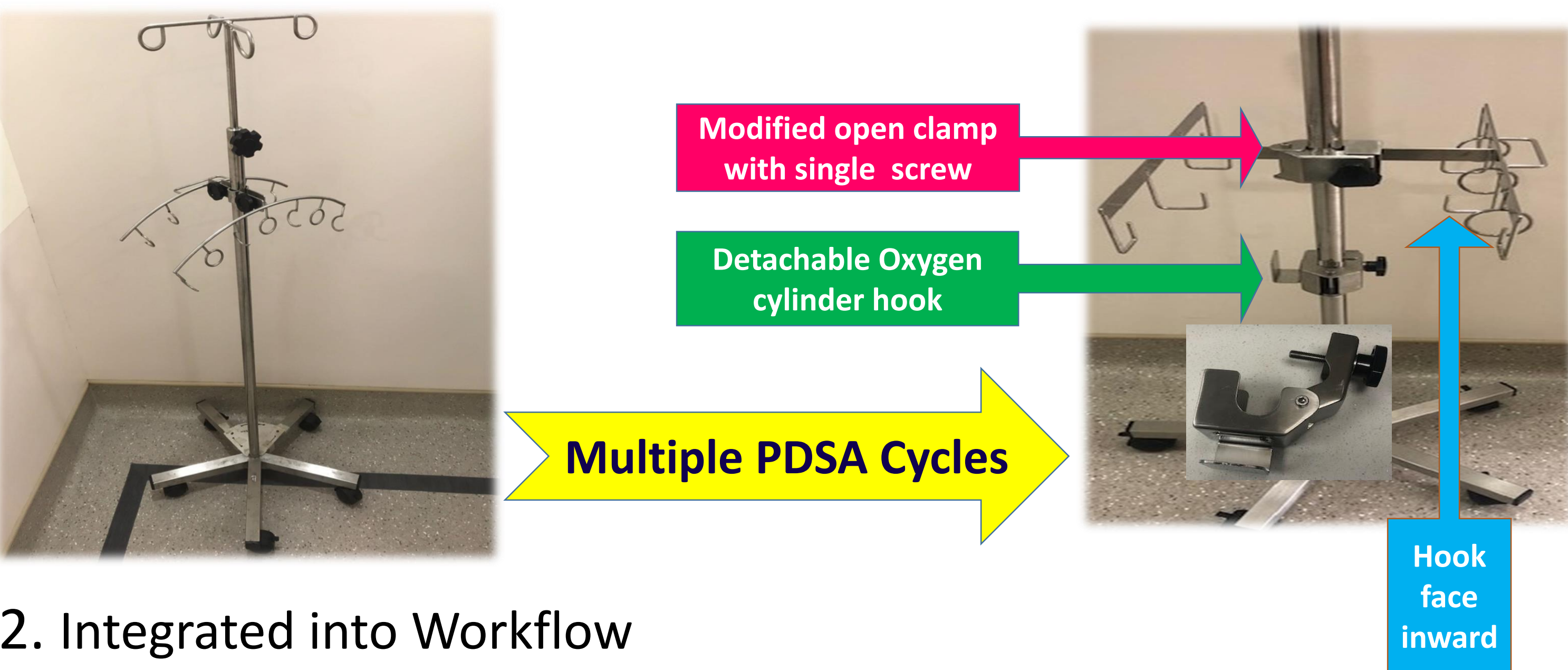


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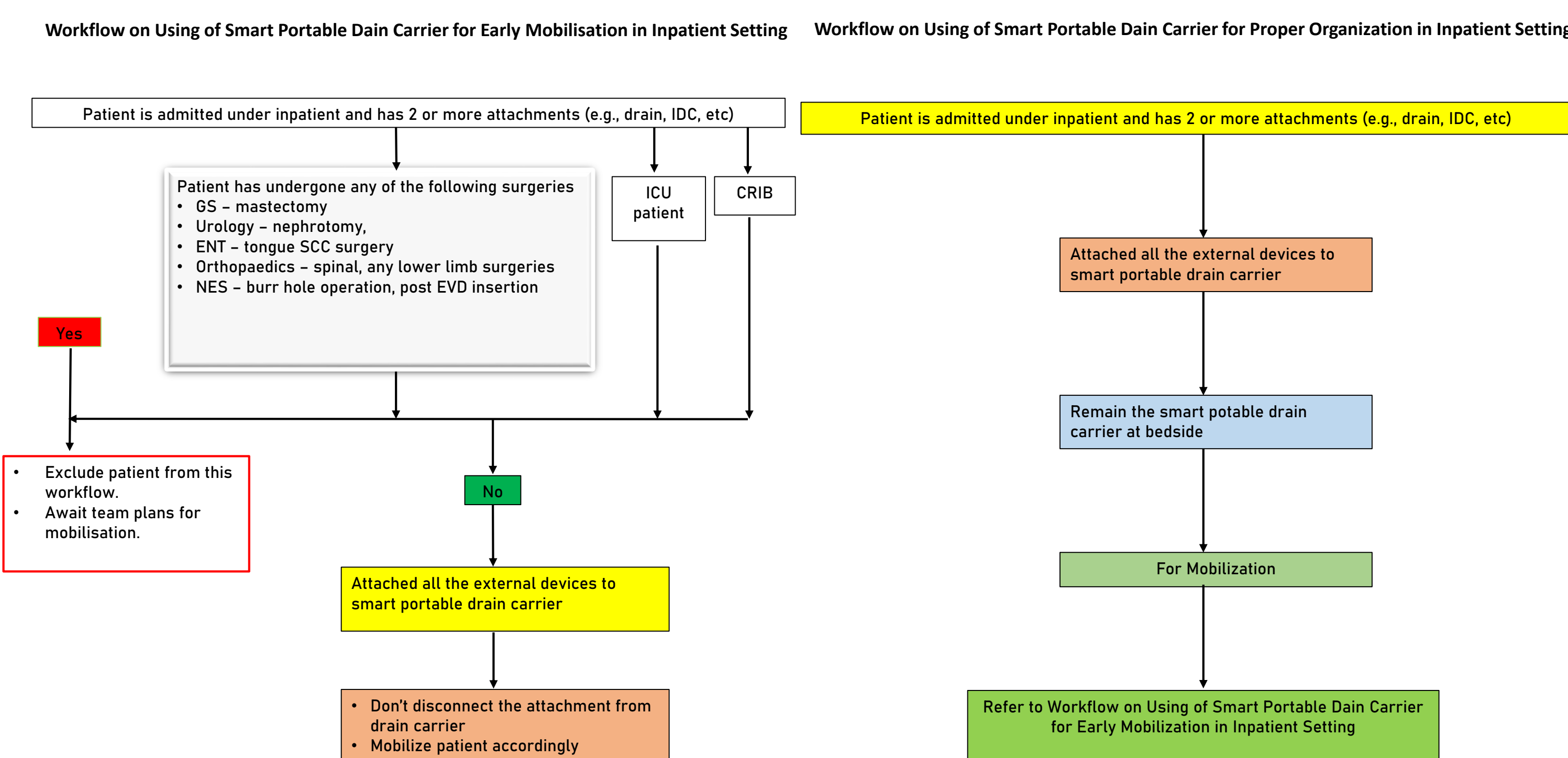
- Ensure sustained practice to increase post-op early mobilization
- 50% reduction of time spend on tracing and transferring of the attachments
- 50% improvement on patients and staff satisfaction.

## Sustenance Strategies

1. PDSA Method with continuous improvement  
Series of modification to enhance the product design



2. Integrated into Workflow  
Ensure the users are familiar with the steps



3. Create Awareness and Promote Benefit  
Sharing session with doctors, nurses, physiotherapist
4. Clinical Key Performance Indicator (KPI) Monitoring  
Reflected on the effectiveness of the practice

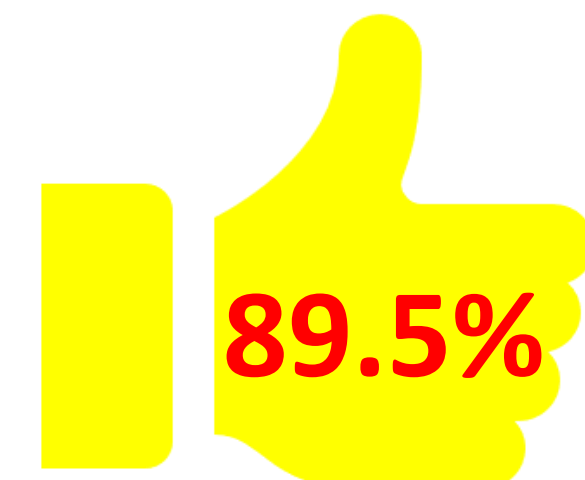
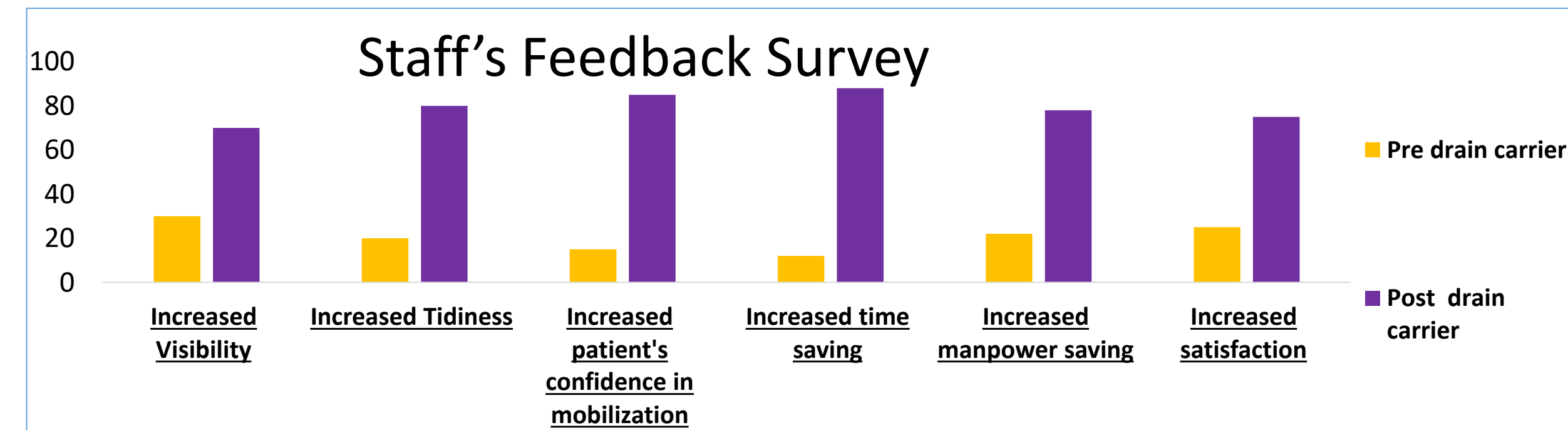
## Result

Data collected by three different methods on 200 patients and 100 health care workers during period from Jan 2019 to Sep 2020:

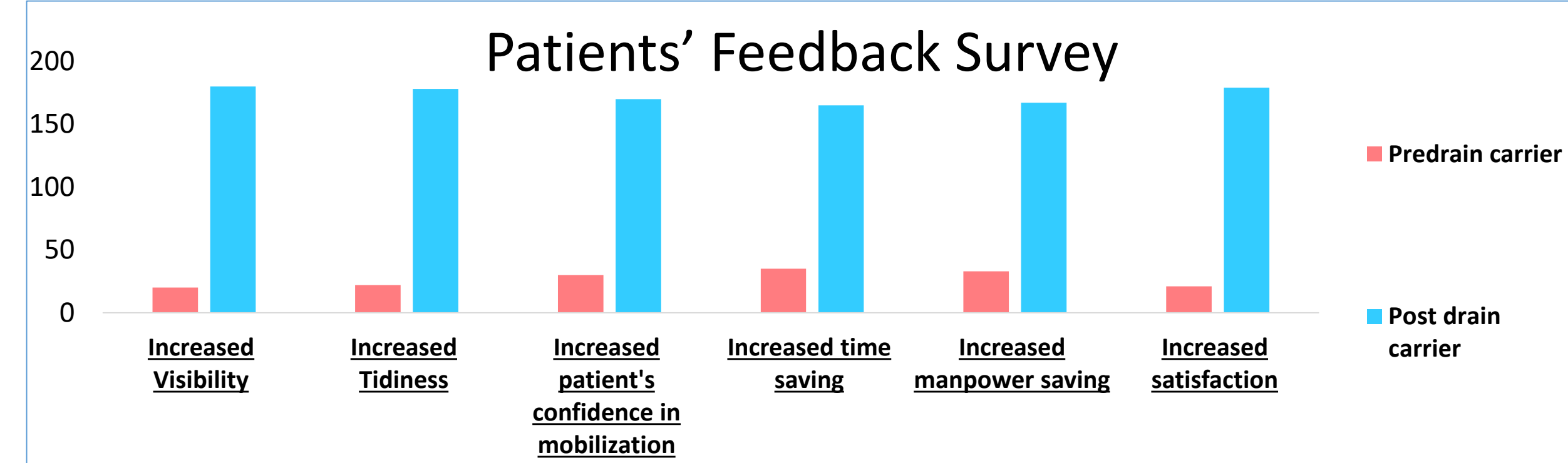
### Staff and Patient Feedback Survey



Staff's Satisfaction Rate



Patients' Satisfaction Rate



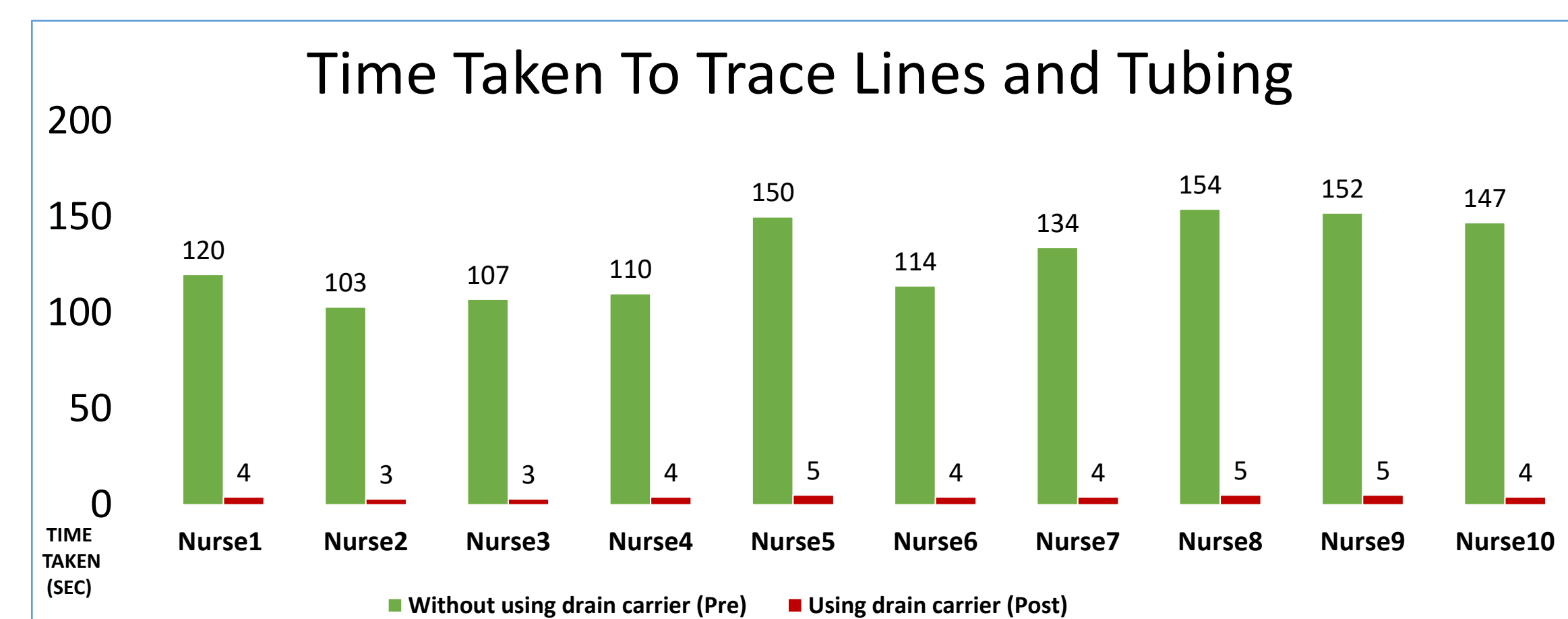
### Time & Motion Study

Two studies were performed to compare the time savings of managing attachments between traditional method versus using smart portable drain carrier.

**Study 1:** Time used to trace the lines and tubing for patient with 4 infusion medications, 1 IA line, 1 CVC line, 1 IDC, and 2 drains.

Calculation Formula:

$$\frac{120+103...+14}{4+3...+4}$$



**Study 2:** Patient transfers from bed to chair and vice versa

Calculation Formula:

$$\frac{920-230}{920}$$

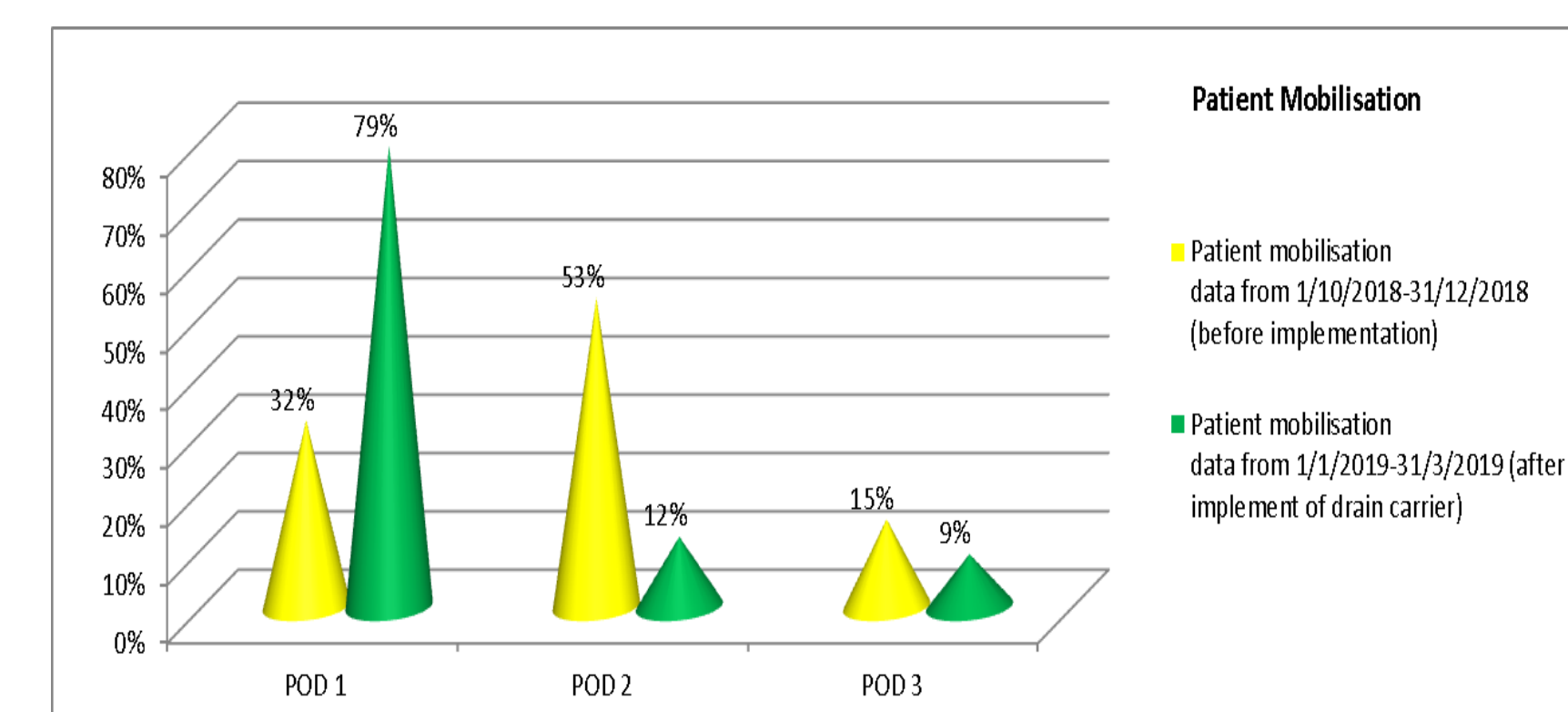


	Without using drain carrier		Using drain carrier	
	Time taken	Manpower	Time taken	Manpower
Prepare pt to sit up	90 sec	PT + Nurse	10 sec	PT
Sit up in bed & shift to edge	60 sec	PT + Assistant	30 sec	PT
Transfer from bed to chair	90 sec	PT + Assistant	30 sec	PT
Post transfer organising	120 sec	PT + Nurse	20 sec	PT
Prepare pt for transfer back	90 sec	PT + Nurse	10 sec	PT
Transfer from Chair to bed	90 sec	PT + Assistant	30 sec	PT
Post transfer organising	360 sec	PT + Assistant	100 sec	PT + Assistant
<b>Total time taken</b>	<b>920 sec</b>		<b>230 sec</b>	

### Early Mobilization Logbook

Data of pre and post implementation of drain carrier for patient's mobilization status was collected over 3 months by using early mobilization logbook

- Patient's mobilization rate on POD 1 increased by 47% (=79%-32%) with using drain carrier
- 0 cases of attachment dislodgement
- 0 cases of attachment infection



## Conclusion

There was no dislodgement reported and demonstrated a significant increase in cases for early mobilization. Based on motion analysis report, there was time savings in terms of the work processes aiding in improving productivity and cost savings. We look forward to share our products with other acute hospitals in Singapore and worldwide.