Project Title

To improve early ambulation for post operation patient with chest tubes and drains

Project Lead and Members

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Organisation(s) Involved

National Heart Centre Singapore

Healthcare Family Group(s) Involved in this Project

Nursing

Aim(s)

- To improve early ambulation for post operation patient with chest tubes and drains
- To ensure patients' safety, enhance clinical outcomes with medical excellence and improve patient and staff satisfaction

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

- Include multidisciplinary team members are important. Feedbacks and recommendations from various stakeholders has added value to the implementation of the holder.
- Probably to include surgeons as a team member to provide their views and ideas
- The anticipated challenge probably will be wear and tear of the holders and change of consumables that cannot fit with the holder

Conclusion

- The implementation and innovation of just a holder has created a significant impact on patients, nurses, physiotherapists and surgeons' satisfactions' level and cost savings. Unexpectedly, a simple holder has brought significant changes to our organization. Any idea can turn out to be the greatest idea.
- The project demonstrates our Centre's core value by improving the efficiency in delivery of quality care to patients and the efficiency of staff through intra-department collaboration.

Additional Information

Best Team Award – Team in the Quality Improvement Category at Singapore Health Quality Service Awards (SHQSA) 2022

Departments from other institution such as SGH and SKH have expressed interest in the holder. The in charge of a ward have approached the team for better understand the functions and feasibility, departments have requested to loan the holder to trial in their department.

Project Category

Care & Process Redesign

Value Based Care, Productivity, Quality Improvement, Lean Methodology

Keywords

Design thinking, Cost Effectiveness

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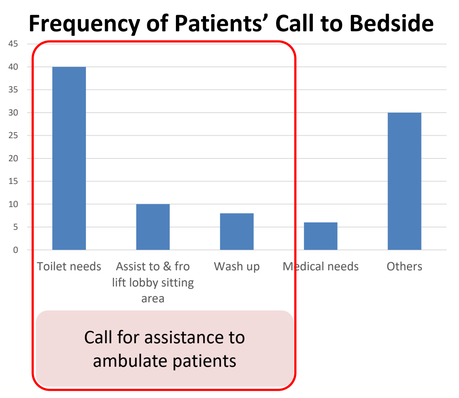
To Improve Early Ambulation For Post Operative Patients With Multiple Chest Tubes & Drains

BACKGROUND

Early ambulation improves clinical outcomes and prevent postoperative complications for patients after cardiothoracic surgery. However post-operative patients with cardiothoracic surgery often have multiple surgical drains and medical devices like chest tubes, urinary catheter and JP drain bottles, which limit their mobility and range of movement either during physiotherapy session or when patients attempt to ambulate independently. Presently, post operation patients can ambulate independently by POD5. Delay in postoperative ambulation was found to be led by time-consuming in handling multiple drains and devices, short of manpower and safety concerns.



*Data collected from 10 Post-operation patients per day

Old stand cannot hold certain types of chest drains due to design and irregular shape.

2.5kg chest drain weigh on 1 side leading to poor distribution of weight. Poor balance may cause the stand to topple.

Additional manpower required to hold multiple chest drains that cannot fit onto the holder.

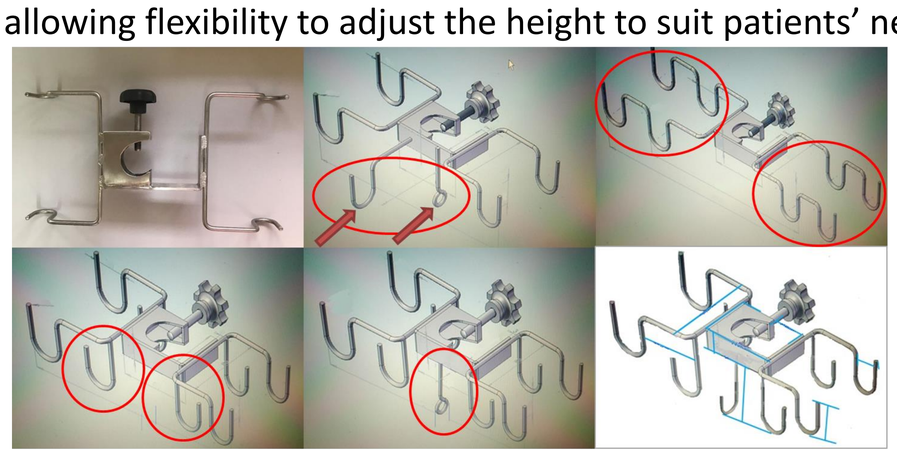
Target Setting

50% post operation patients can ambulate independently by POD3

SOLUTION

1. Replace the chest tube holder to allow for multiple chest drains of different variation and sizes

A new multi chest drain holder was designed and fabricated to securely support multiple variations of the chest drains weighing 2.5kg each. The team went through 6 versions of revisions before arriving at the final design. The "U" hooks allow the chest tubes to be hooked neatly and it is detachable allowing flexibility to adjust the height to suit patients' needs.



2. Designated 5 legged drip stands for chest drains

To ensure stability of the stand and the ease of maneuver when loaded with the heavy chest drains, all the 4 legged stands were replaced with the 5 legged stands which are more sturdy and stable. The wheels are also polished and changed

3. Avoid ward busy time for physio workout

Time	Ward Routine
0730-0830	Breakfast
0730-0900	Medication round
0900-1130	FREE
1130-1230	Patients' Lunch
1300-1400	Physiotherapist Lunch
1400-1700	FREE

A study was done on the timing of Nursing activities. Physio therapy sessions are redesigned to be carried out during periods of time when there are no busy nursing activities. Ward areas will have more room for ambulating patients.

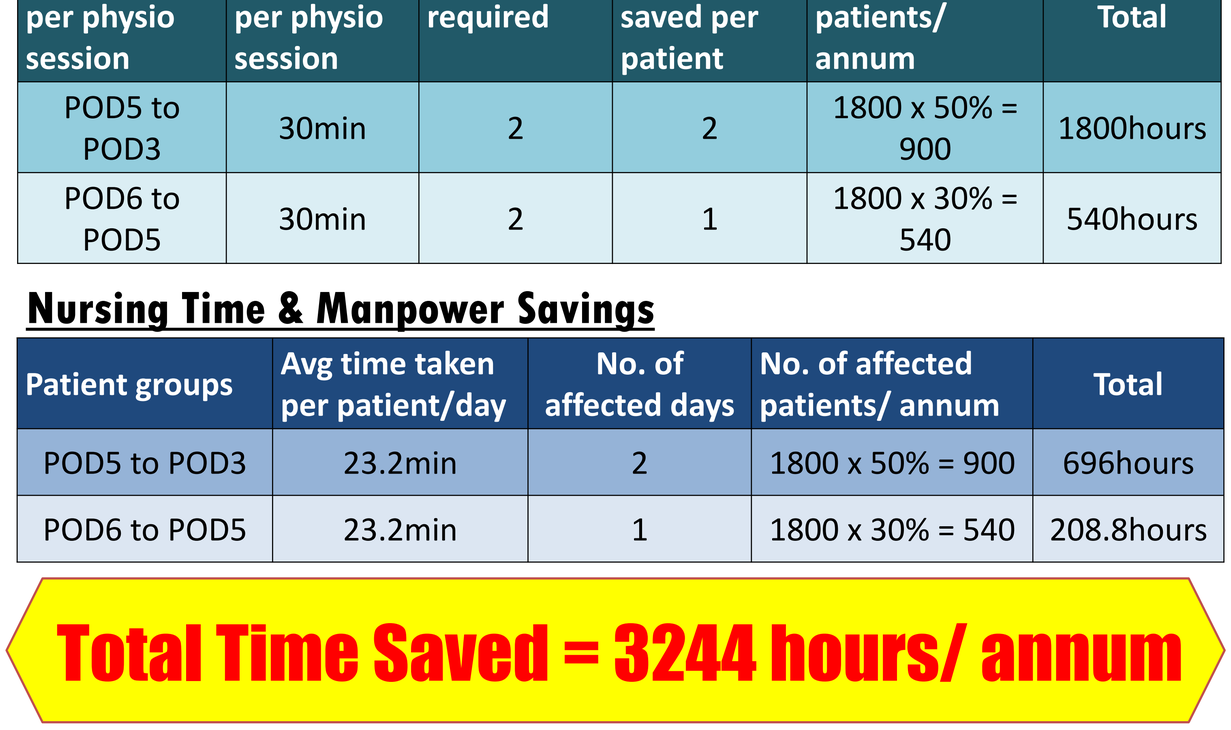
RESULTS

BEFORE

50% Post OP Patients can ambulate independently by POD5

AFTER

50% Post OP Patients can ambulate independently by POD3



The improvement in the early ambulation also led to patients **discharging early on POD6, 1 day earlier than previously on POD7.**

There is a spill over effect to another 30% of the remaining 50% of patients who ambulated 1 day early from POD6 to POD5. The improvement saved this group of patients 1 physiotherapy session as well.

Physio Time & Manpower Savings

Time taken per physio session	Time taken per physio session	No. of staff required	Sessions saved per patient	No. of affected patients/ annum	Total
POD5 to POD3	30min	2	2	1800 x 50% = 900	1800hours
POD6 to POD5	30min	2	1	1800 x 30% = 540	540hours

Nursing Time & Manpower Savings

Patient groups	Avg time taken per patient/day	No. of affected days	No. of affected patients/ annum	Total
POD5 to POD3	23.2min	2	1800 x 50% = 900	696hours
POD6 to POD5	23.2min	1	1800 x 30% = 540	208.8hours

Total Time Saved = 3244 hours/ annum

Patient Saving on Hospitalisation per Annum

50% of the 1800 annual surgery cases able to discharge 1 day earlier (from POD7 to POD6)

1800 x 50% = 900 Bed Days Saved/Annum

CONCLUSION

Improving the chest tube holder allowed better and easier ambulation for post operation patient with multiple chest drains. There is an improvement in staff morale and better team work for a holistic patient care. Patient experience was enhanced with improved their self-esteem and confidence in post operation self care. This results in speed recovery and work efficiency, thus achieving our philosophy of PATIENTS. AT THE HEART OF ALL WE DO.®

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