

## **Project Title**

Improvement Of Transport Monitor (MX450) Securement in The Intensive Care Unit (ICU)

## **Project Lead and Members**

Project Lead: SN Vikneswary Chandra Segran

Project Members: SSN Lim Jia Lin, SSN Trang Thi Thuy Linh, NC Loo Kai Chin

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group(s) Involved in this Project**

Nursing

## **Aims**

1. No incidence of transport monitor dropping.
2. Decrease time spent in finding for straps to secure monitor prior to transport.
3. Better securement of monitor during transport, therefore
  - Prevent potential injury to patients/ staffs,
  - Save cost on repairmen

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

Despite noticeable and positive improvements, this project warrants limitations such as short duration and low number of questionnaire responses; therefore, it might not represent ICU population infinitely. There is still room for further improvement. In the future, we would want to make it even more convenient for our nurses by exploring the possibility of designing straps to be part of the MX450 or universal straps that can be use for both bed types to tackle the reported issue “nurses tend to forget to return straps after use”. We will continue to monitor, provide reinforcement and education to the ground nurses on the importance of adhering to the workflow.

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign

Value Based Care (Operational Management – Inventory Management)

## **Keywords**

Transport, Monitor, MX450, ICU, HD, Strap

## **Name and Email of Project Contact Person(s)**

Name: SN Vikneswary Chandra Segran

Email: Vikneswary\_Chandra\_Segran@nuhs.edu.sg

# IMPROVEMENT OF TRANSPORT MONITOR (MX450) SECUREMENT IN THE INTENSIVE CARE UNIT (ICU)

SN VIKNESWARY CHANDRA SEGRAN, SSN LIM JIA LIN, SSN TRANG THI THUY LINH, NC LOO KAI CHIN

- SAFETY
- QUALITY
- PATIENT EXPERIENCE
- PRODUCTIVITY
- COST

## Define Problem, Set Aim

### Problem/Opportunity for Improvement

- Philips MX 450 is a monitor used during transport for ICU patients
- It is recommended by vendors to be secured with **2 straps** (1pair) on the shelf over foot of the bed.
- There are 2 types of bed straps: High Dependency (HD) straps and ICU straps that come with different lengths and securing techniques.
- There were a total of 4 monitor dropping incidences reported during transport in ICU for the past 1 year.
- 2 of which resulted in significant monitor damage and high repair cost.
- While the remaining 2 incidences did not require any repairment, they posed as a risk of injury to staffs and patients during transport.
- Identified factors includes:
  - Insufficient number of straps used (0 or only 1 strap)
  - Difficult access to straps prior to transport
  - Poorly maintained straps that no longer provide good grips.



Broken touch screen Repair cost: \$347.00  
Damaged touch screen and internal enclosure Repair cost: \$1,075.73

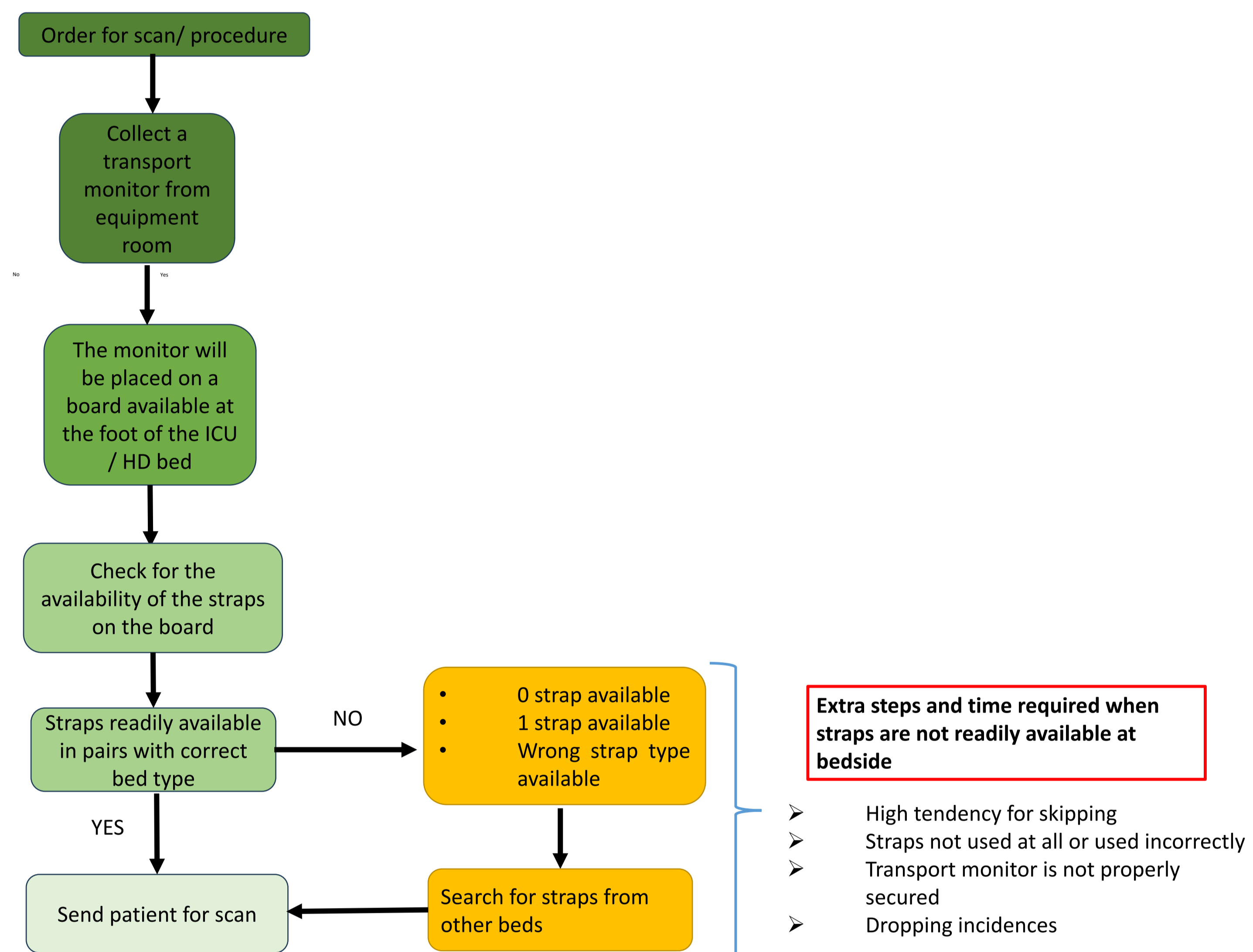
Poor securement of transport monitors

### Aim:

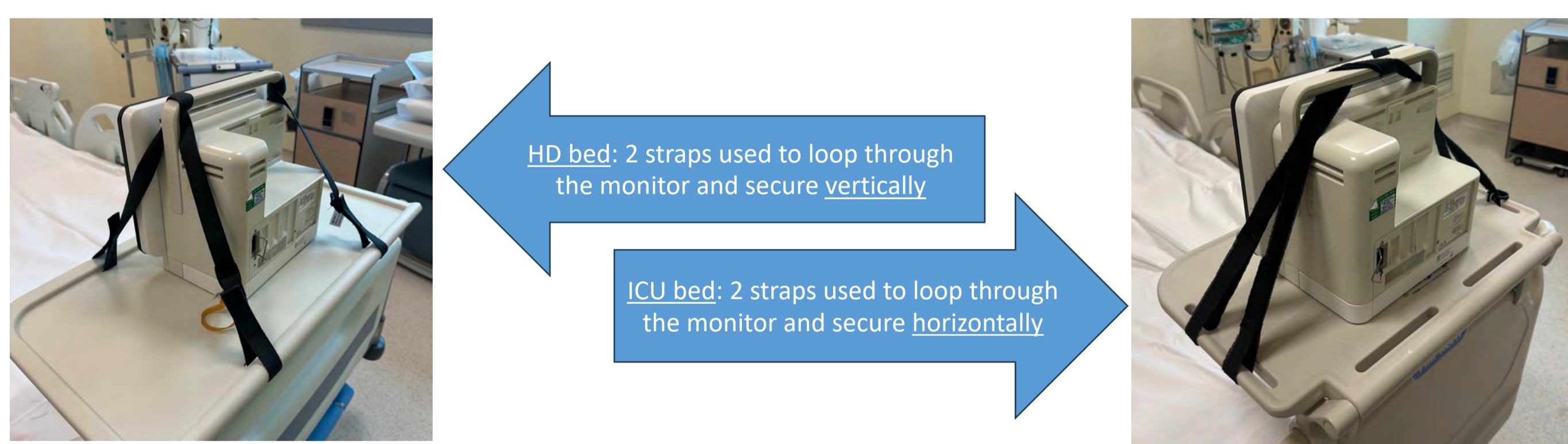
- No incidence of transport monitor dropping
- Decrease time spent in finding for straps to secure monitor prior to transport
- Better securement of monitor during transport, therefore
  - Prevent potential injury to patients/ staffs
  - Save cost on repairment

## Analyze Problem

### What is your process before interventions?

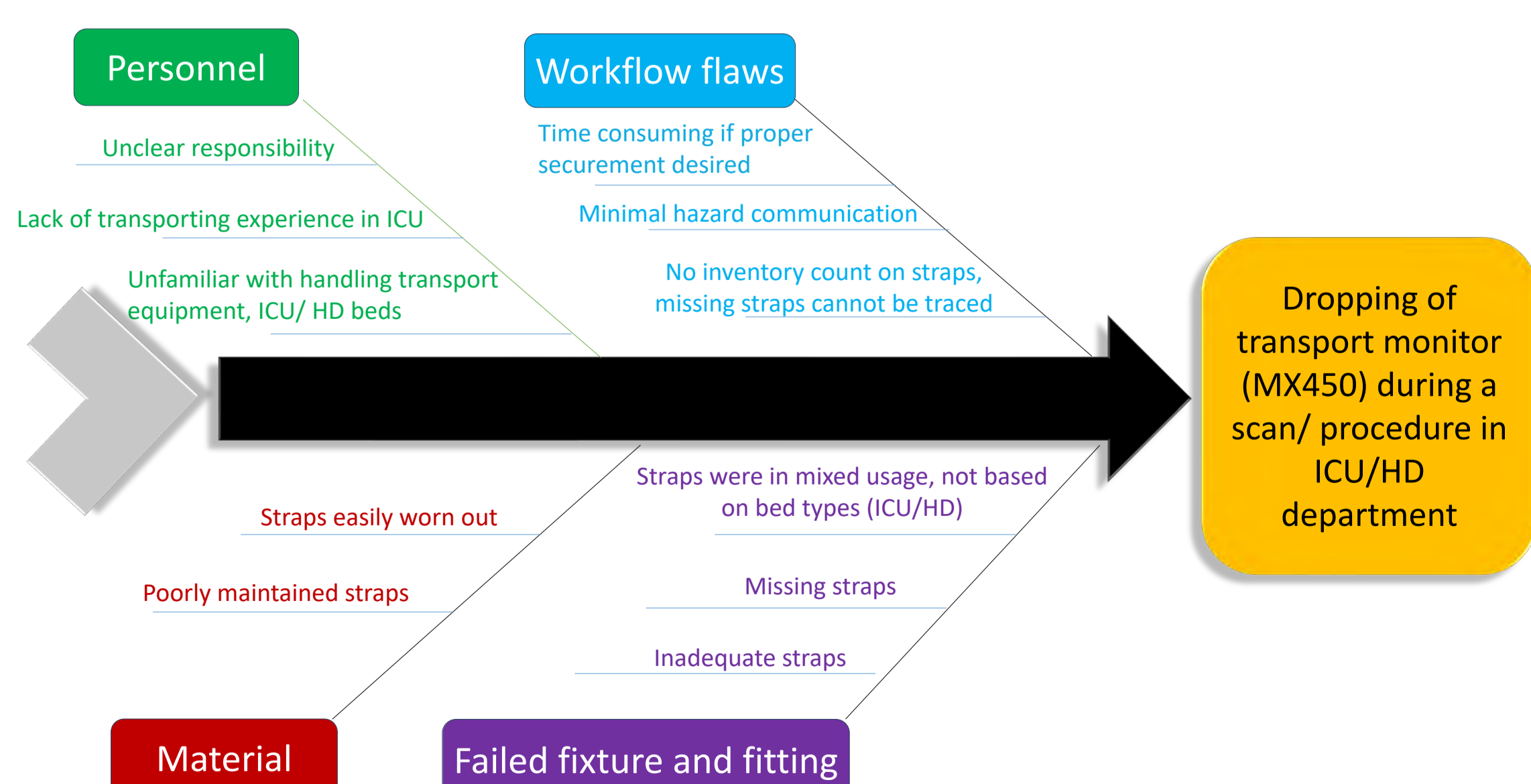


### Proper way of securing transport monitor suggested by vendors



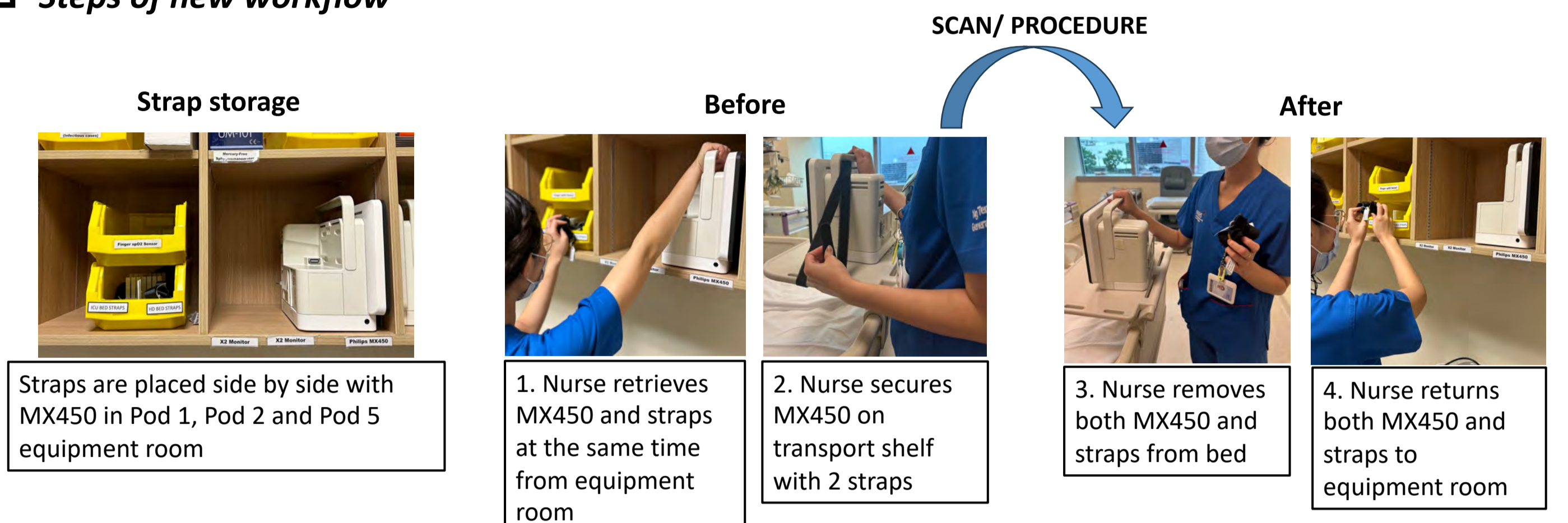
It is not suggested to use only 1 strap to secure MX450 as it is not strong enough to stabilize and bear the monitor weight

### What are the possible root causes?



## Plan & Implementation

### Steps of new workflow

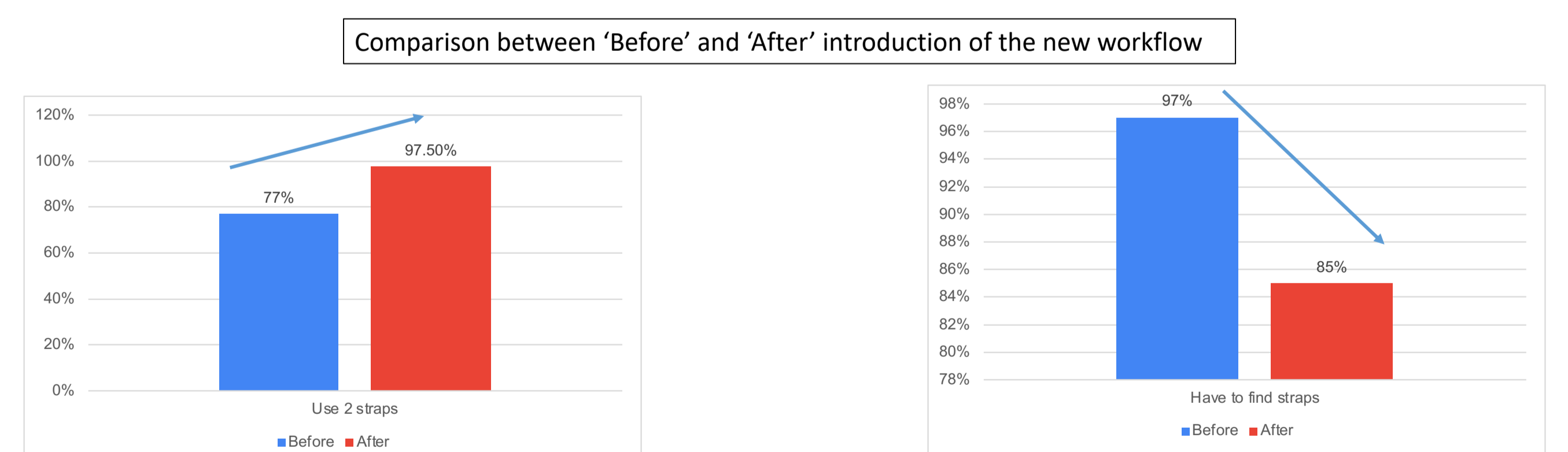


No extra step/ time required to look for a complete pair of straps as they are placed next to MX450

CYCLE	PLAN & DO	STUDY	ACT
1 Assessment (9/4/2023)	- Assess the availability and integrity of existing straps in POD 1, POD 2 and POD 5	- All beds are equipped with either wrong/ incomplete/ no bed straps	- Inventory count show insufficient straps to safely secured equipment in all beds
2 Staff awareness assessment pre-implementation (10/4/23 – 18/4/23)	- A brief questionnaire was disseminated to explore ICU nurses' view, experiences and understanding about transport monitor securement	- Total 39 responses - 77% (n=30) use 2 straps to secure monitor during transport - Majority 97% (n=38) reported bed straps as the leading issue for transport securement - Only 1 response reported "never" have to find for strap prior to transport, the remaining responses showed the need for strap search with varied frequencies: "always", "occasionally" or "always" - 100% (n=39) expressed the need for transport securement improvement	- Collected results show: - Nurses understand the importance of proper monitor securement - Few nurses are still securing monitor with only 1 strap which is a contributing factor to the risk of monitor dropping - Extra step is often required in order to complete a pair of straps - Questionnaire results were analysed took into consideration for the upcoming implementation.
3 Implementation (19/4/23)	- Straps were collected from beds - Straps were paired up, labelled and separated into ICU and HD - Straps are kept next to the monitor	- New workflow was implemented and introduced via Tiger Text group and Roll call.	- Monitor changes and collect feedback
4 Monitoring (19/04/23 – 19/07/23)	- Auditing and reinforcement of new practice	- Team members perform audit and reinforcement were done on the ground	- Reinforcement was done on the ground by team members to timely return strap after use and to use correct type of straps
5 Evaluation (20/07/23 – 01/08/23)	- Questionnaire to review the effectiveness after 3 months	- Total 41 responses - 97.5% (n = 40) used 2 straps during transport for the past 3 months - 85% (n=35) reported that they encounter NO trouble in finding bed straps - However, majority, 80% (n=33) feel there is still a need for an improvement in transport monitor securement. - Popular reason stated was "Forgetting to return straps which can make straps unavailable for the next usage"	- Higher number of nurses use 2 straps during transport which guarantee better securement - Majority of nurses did not have to look for straps prior to transport - Time was saved - Nil any incidence of monitor dropping reported - Possible injury to staffs and patients were prevented - Possible repair cost was saved

## Results

### No monitor dropping incidences reported within 3 month



Increased number of nurses secure monitor with 2 straps after 3 months  
✓ Better securement achieved

Decrease number of nurses have to find straps after 3 months  
✓ Decrease time spent

## Spread Changes, Learning Points

- Despite noticeable and positive improvements, this project warrants limitations such as short duration and low number of questionnaire responses; therefore, it might not represent ICU population infinitely.
- There is still room for further improvement.
- In the future, we would want to make it even more convenient for our nurses by exploring the possibility of designing straps to be part of the MX450 or universal straps that can be use for both bed types to tackle the reported issue "nurses tend to forget to return straps after use".
- We will continue to monitor, provide reinforcement and education to the ground nurses on the importance of adhering to the workflow.