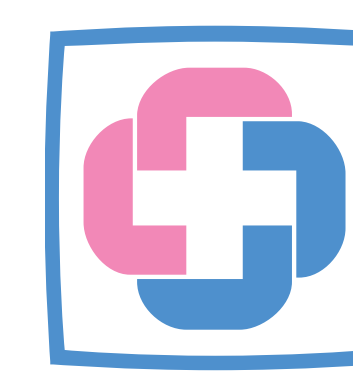




Singapore Healthcare
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Maximise utilization of resources and streamline the preparation of IV medication trolley set up



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1. Mission Statement

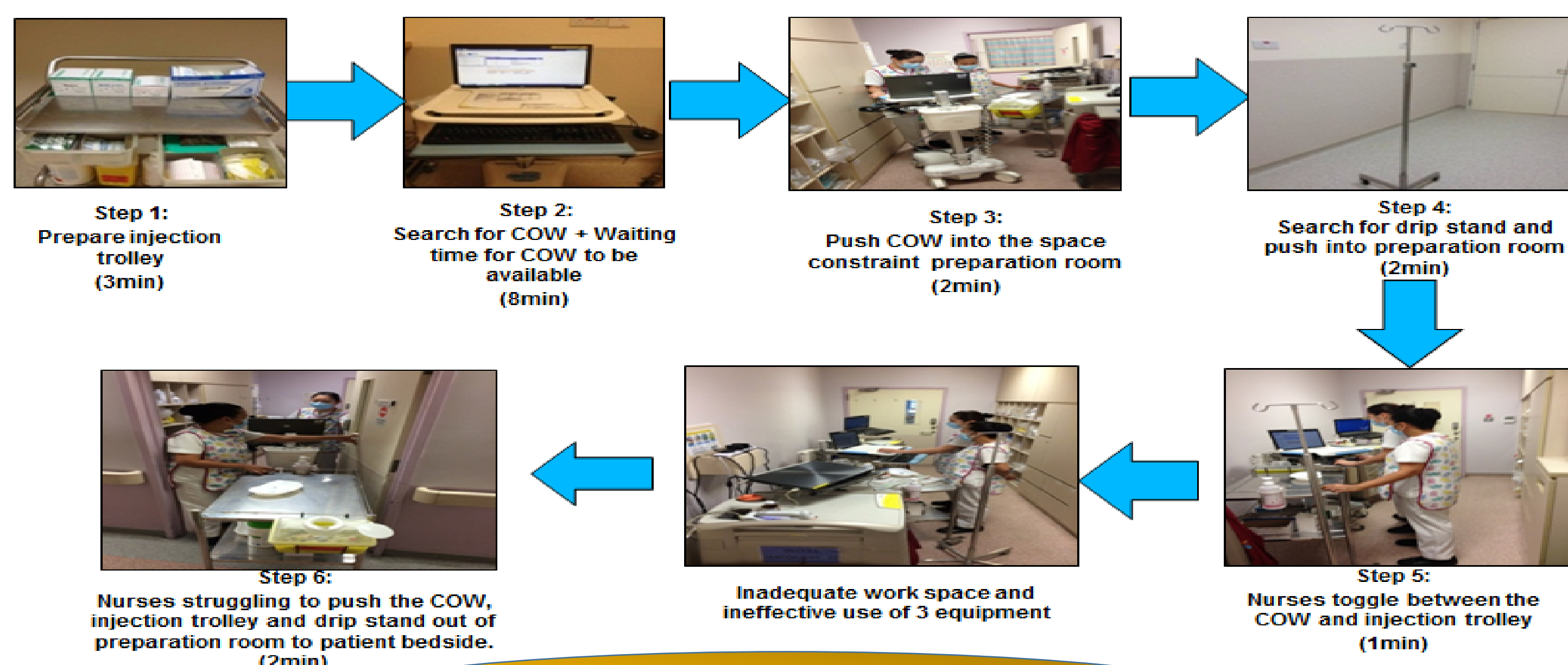
To reduce time wasted in the setting up of the intravenous injection trolley process by 50 % in 4 months.

2. Background

Over the past few decades, nurses have been using the “square-trolley” as an injection trolley for intravenous (IV) medication administration. However, the use of the “square-trolley” as an injection trolley has its own limitation with the implementation of Closed Loop Medication Management system. Nurses shared that setting up of the “square trolley” is a tedious process as it requires them to look for IV drip stand and Computer on Wheels (COW). They often have to go round the ward to search for a COW and then struggle to push it into the space constraint preparation room. This results in nurses’ unnecessary walking and time wastage. This whole process took 18 minutes of the nurses’ time.

3. Evidence for there being a problem worth solving

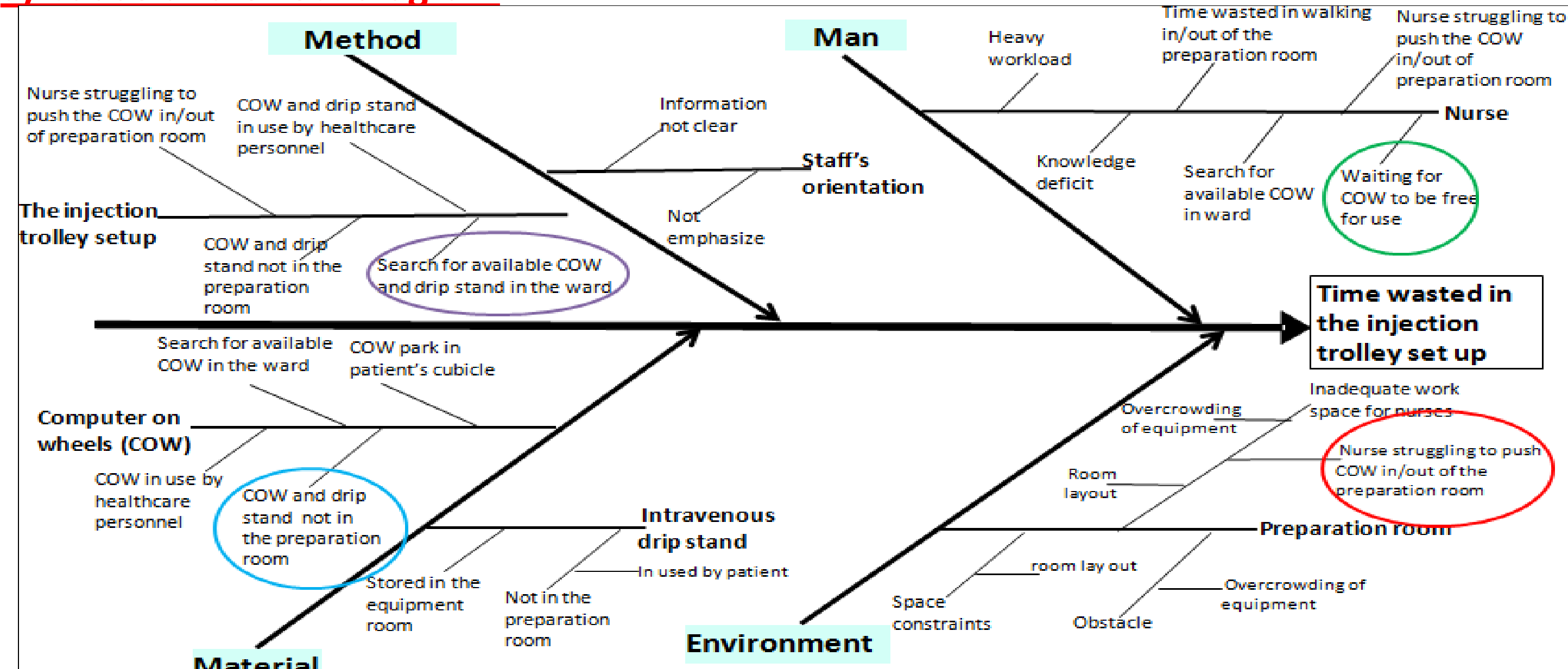
The Injection trolley set up process



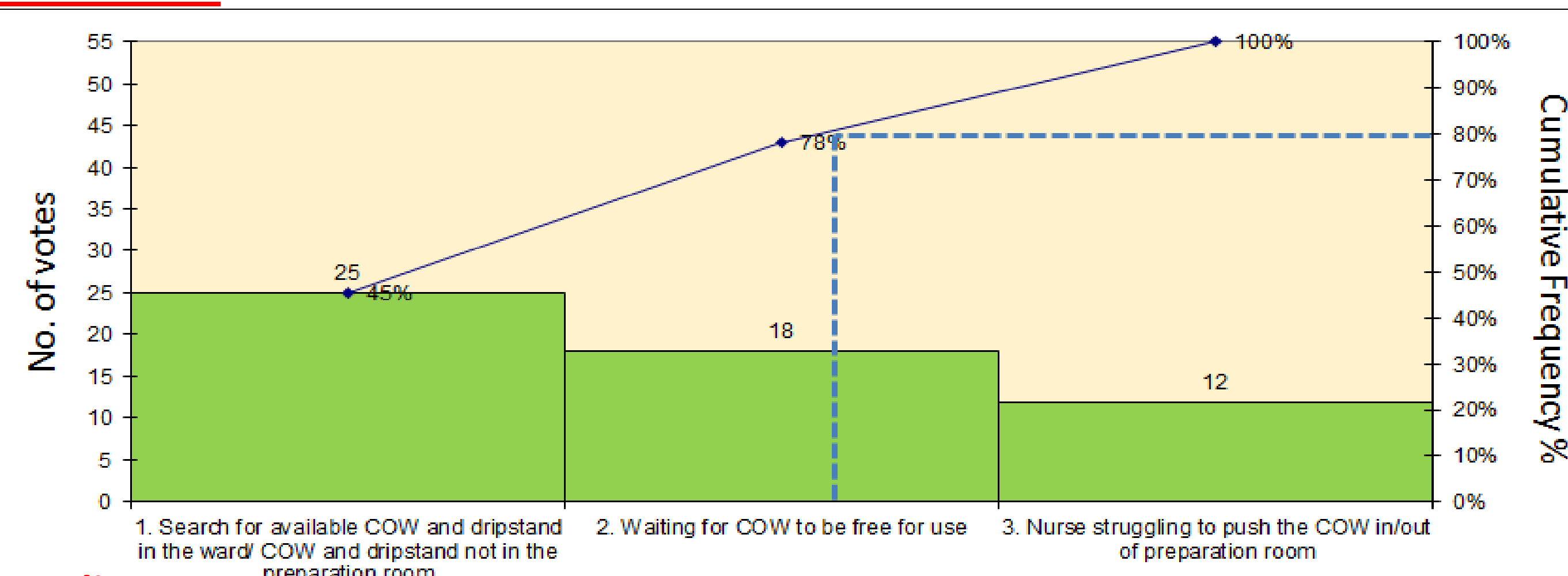
4. Methodology

Clinical Process Improvement Project (CPIP) methodology was used in this study. The team reviewed the current injection trolley set up process, brainstormed and identified the root causes. Pareto voting was conducted to determine the key root causes. Selection Matrix is used to choose the most suitable solutions to address the common root causes.

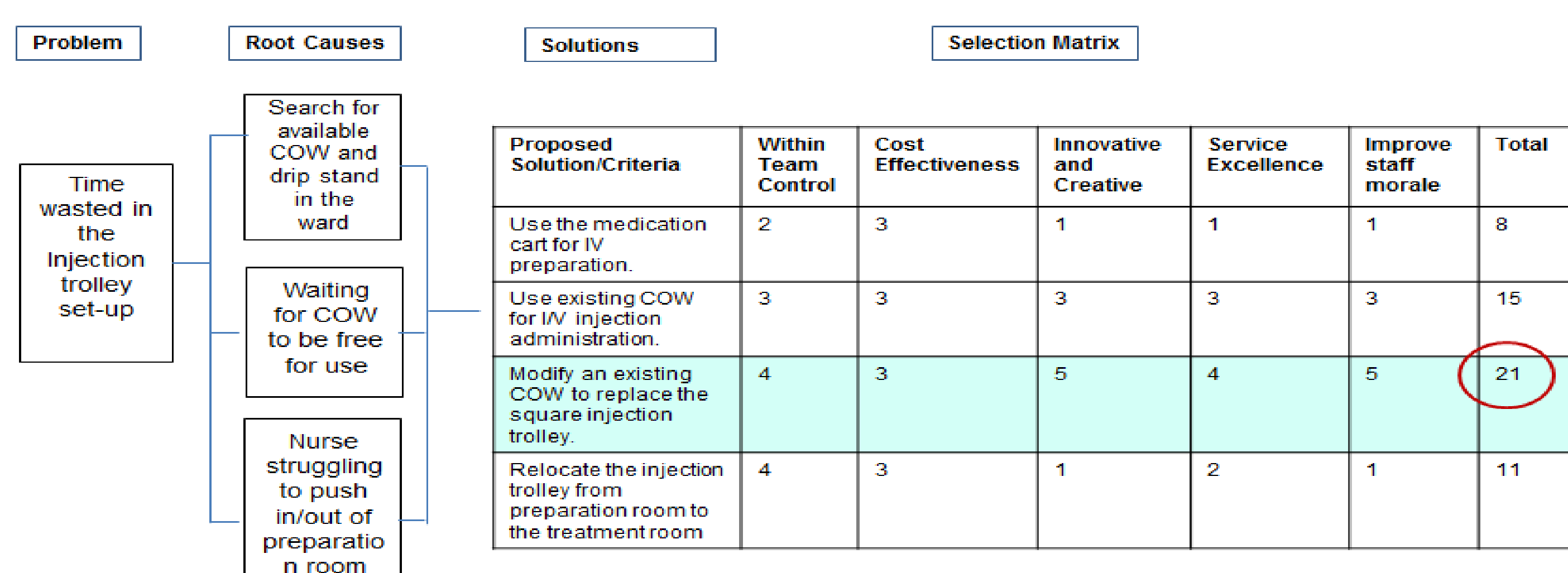
a) Cause and effect diagram



b) Pareto Chart

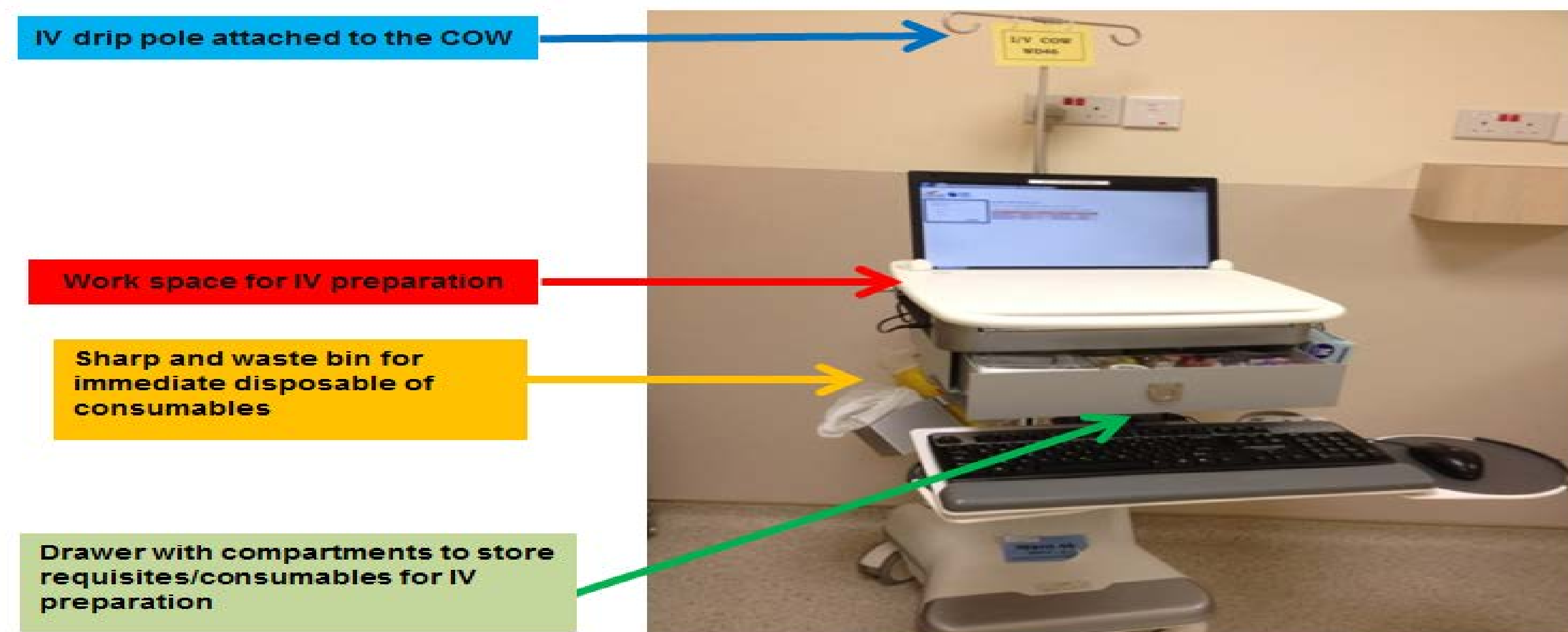


c) Tree diagram

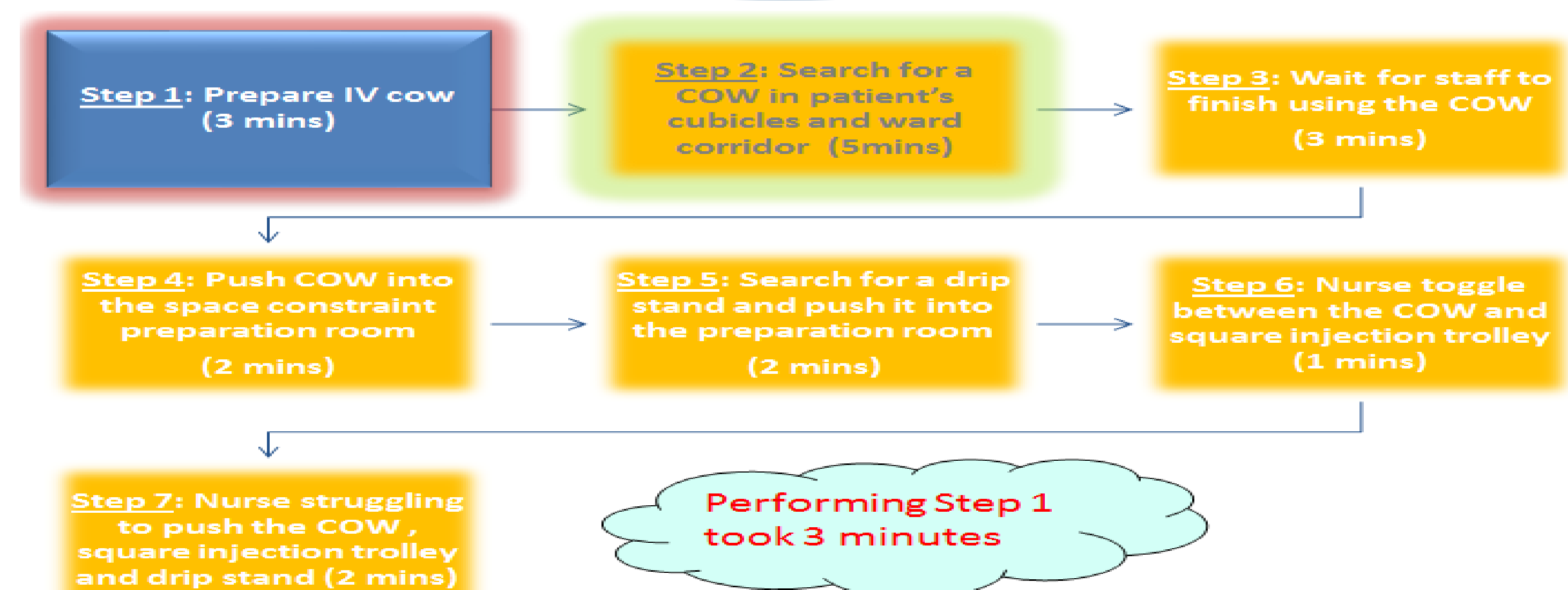


5. Intervention

To modify an existing COW to replace the square injection trolley.



6. Revised workflow



7. Results

a) Enhance efficiency and time saving

Injection trolley set up process by nurse	Before implementation Time taken (min)	After implementation Time taken (min)
1. Prepare injection trolley	3	3
2. Search for COW in patient cubicles and ward corridor	5	0
3. Waiting time for COW to be available	3	0
4. Push COW into the space constraint preparation room	2	0
5. Search for I/V drip stand and push it into the preparation room	2	0
6. Nurse toggle between the COW and square injection trolley	1	0
7. Nurse struggling to push the COW, square injection trolley and drip stand out of the preparation room.	2	0
Total time taken (mins)	18	3

Total time Save post implementation = 15 minutes = 83.3%

b) Improve patient safety during IV medication preparation

Before implementation (problems)	After implementation (results)
<ul style="list-style-type: none">Potential risk for medication error as nurses do not need to toggle between the square injection trolley and COW during IV preparation.Ineffective use of multiple equipment (COW, square injection trolley and IV Drip stand)Tedious process of 7 steps in the injection trolley set upDecrease staff work satisfaction due to time wasted in unnecessary walking to search for COW and IV drip standStaff struggle to push the COW into the space constraint preparation room in which the medication is preparedInadequate work space in the preparation room as it was cluttered with many other equipment	<ul style="list-style-type: none">Enhances patient safety in injection preparation as nurses do not need to toggle between the square injection trolley and COW during IV preparation.Improve the effective use of equipment from three to one, used of COW onlyReduce the injection trolley set up process from 7 steps to 1 step, thus resulting in time savingAchieve a significant time saving of 15 minutes (83.3%)Improves staff satisfaction at work as they do not need to walk unnecessary to search for COW and IV drip stand.Staff shared that it is easy to maneuver the IV injection COW in and out of the preparation room.Maximises the space usage in the preparation room with the removal of unnecessary equipment

c) Effective utilization of resources



8. Conclusions

This study enhances efficient use of time, resources and patient safety during IV medication preparation in all paediatric wards.