

1 BACKGROUND:

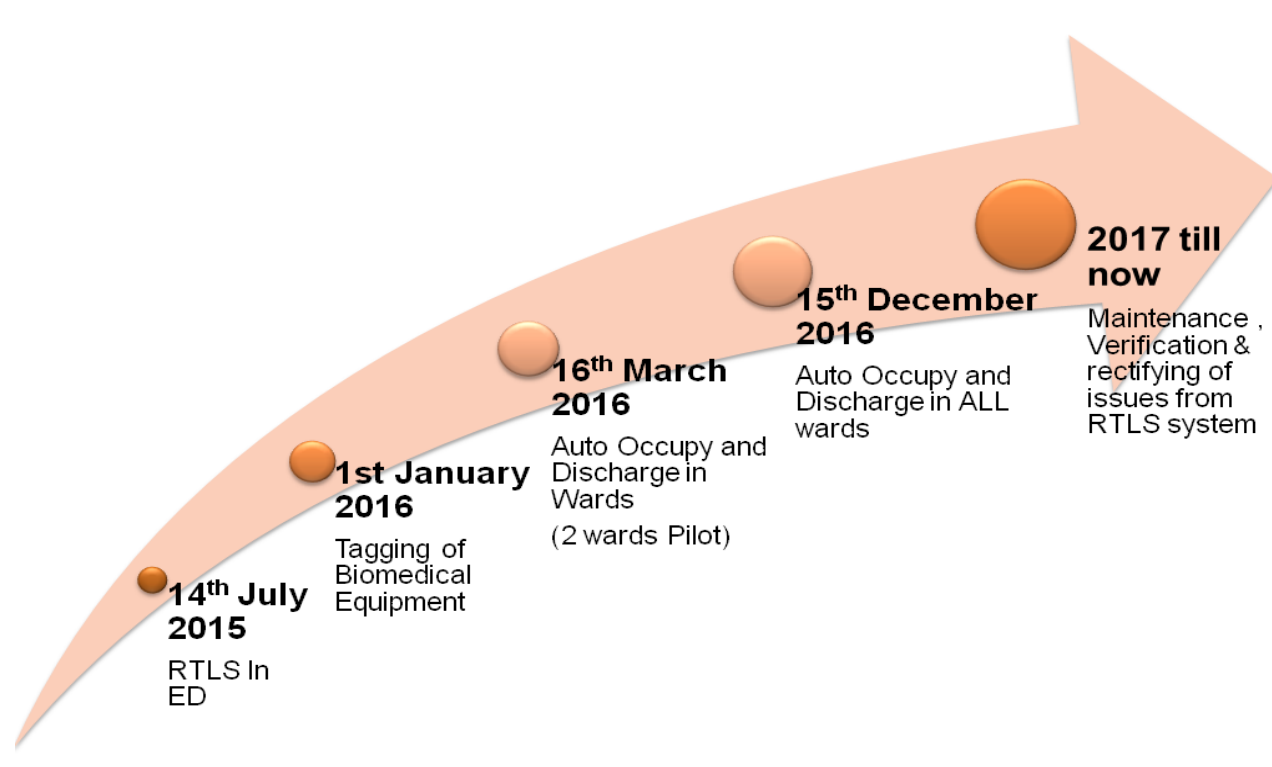
As the demand for healthcare increases, more spaces are carved out to accommodate patients, resulting in patient's movement and location getting more complex. Also, with increasing patient capacity, comes the mammoth task of managing clinical car equipment as well. Therefore, Patient Safety and clinical care is of concerned especially with multiple movements and location change of both medical equipment and patients. While CGH continues to expand (Integrated Building, New and coming Medical Center (in 2018) and remodeling of CGH Main building (in 2020)), there is a need for an IT enabling solution to solve future's problem.

2 AIM:

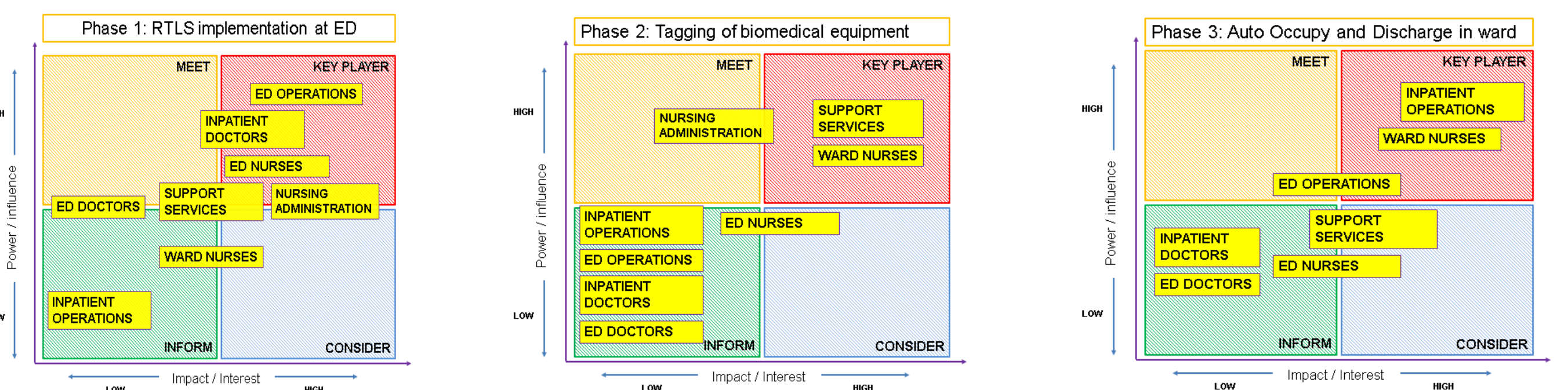


3 METHODOLOGY:

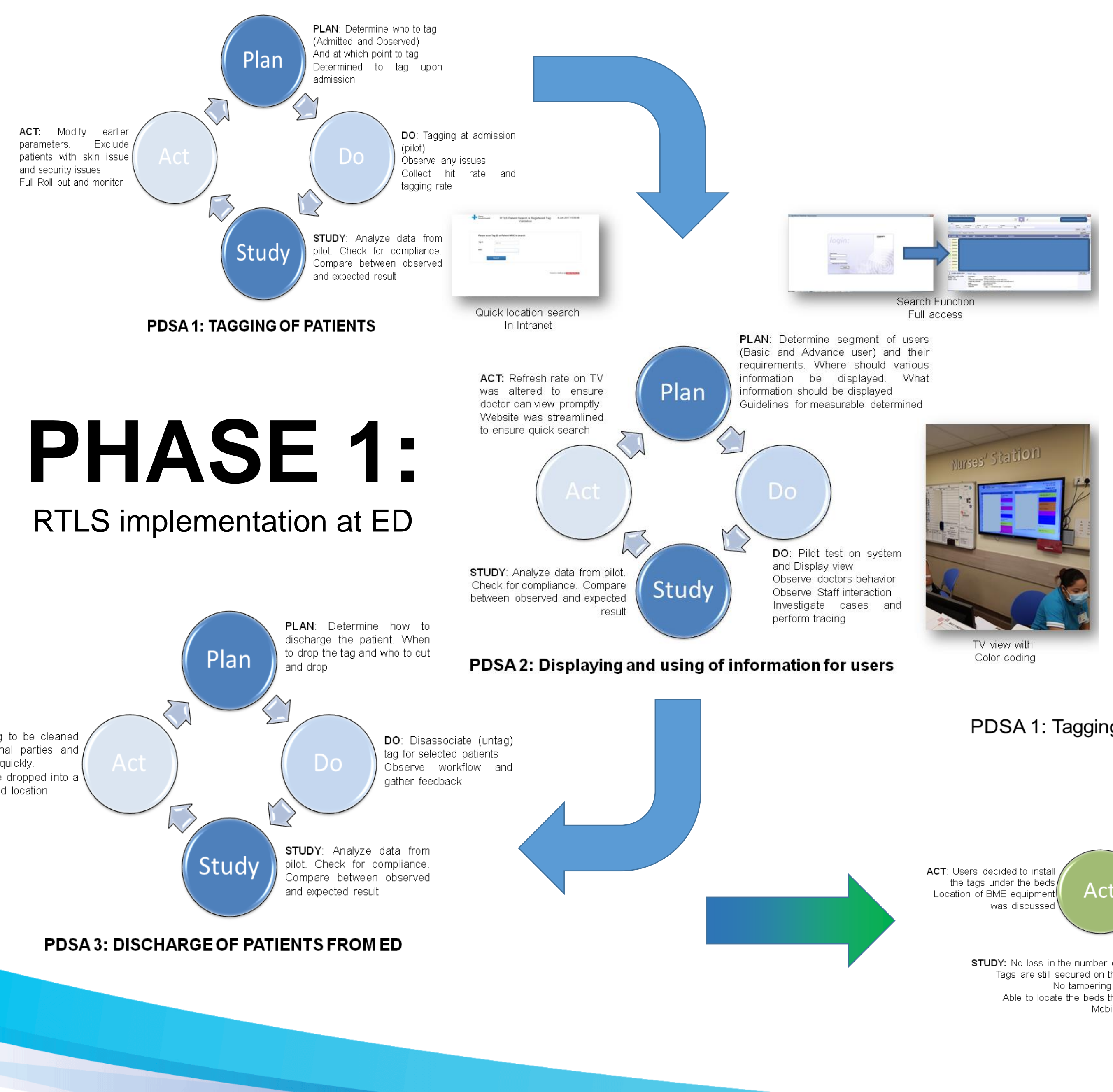
The entire project was broken down into three phases: RTLS in ED Phase; RTLS auto occupy and discharge in the wards; Tagging of biomedical equipment. Below indicates the rough timeline of each stage:



At each phase, a stakeholder analysis is done to ensure all affected parties are engaged or catered to. A leader for each phase (key player pool) is also selected. Below illustrates the stakeholder analysis



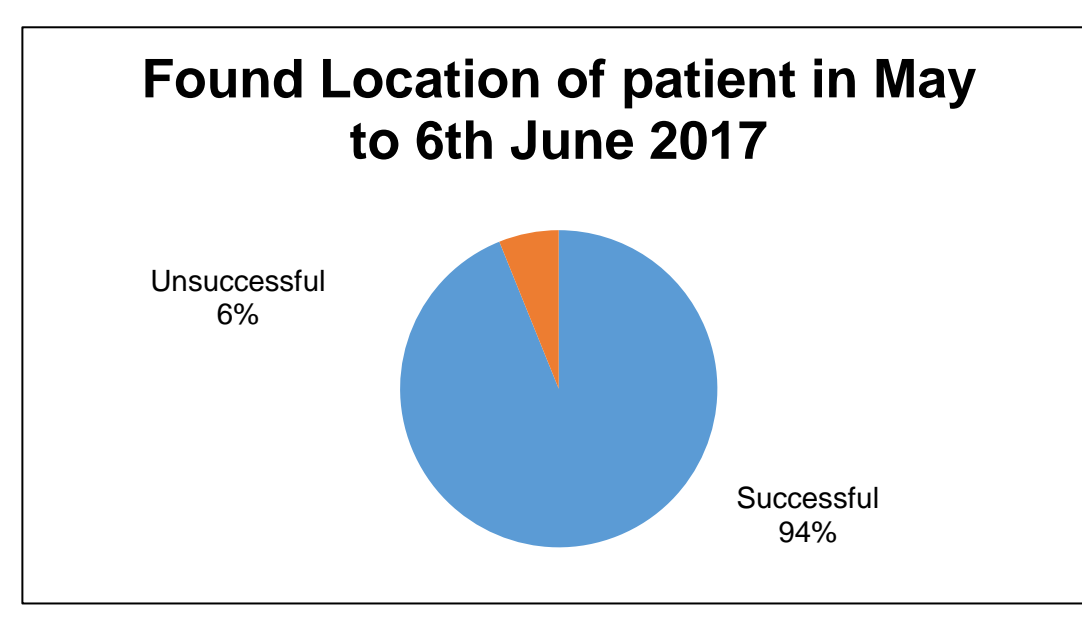
Within each phases, multiple PDSA cycle was created.



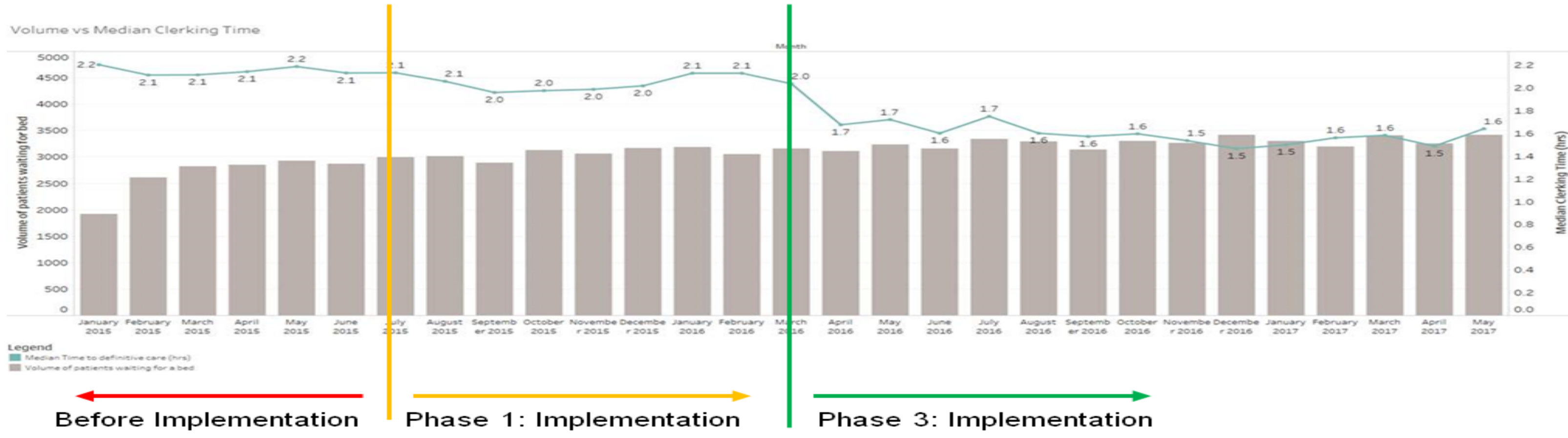
4 MEASUREMENTS

STRUCTURAL	PROCESS	OUTCOME
1. 90% tagging of admitted patients and biomedical equipment for the past 6 months	4. Reduction of average time taken to locate patient by at least 50% in a day after implementation for 6 months	6. Shorter time taken to clerk patients
2. Accurately pinpoint patient's location 80% of the time for the past 6 months	5. Reduction of time taken to locate equipment by at least 50% in a day after implementation for 6 months	7. Reduction in time needed to complete one cycle of preventive maintenance for biomedical equipment
3. Team who needs the information to have access to the patient's location within 30 seconds of needing the information		

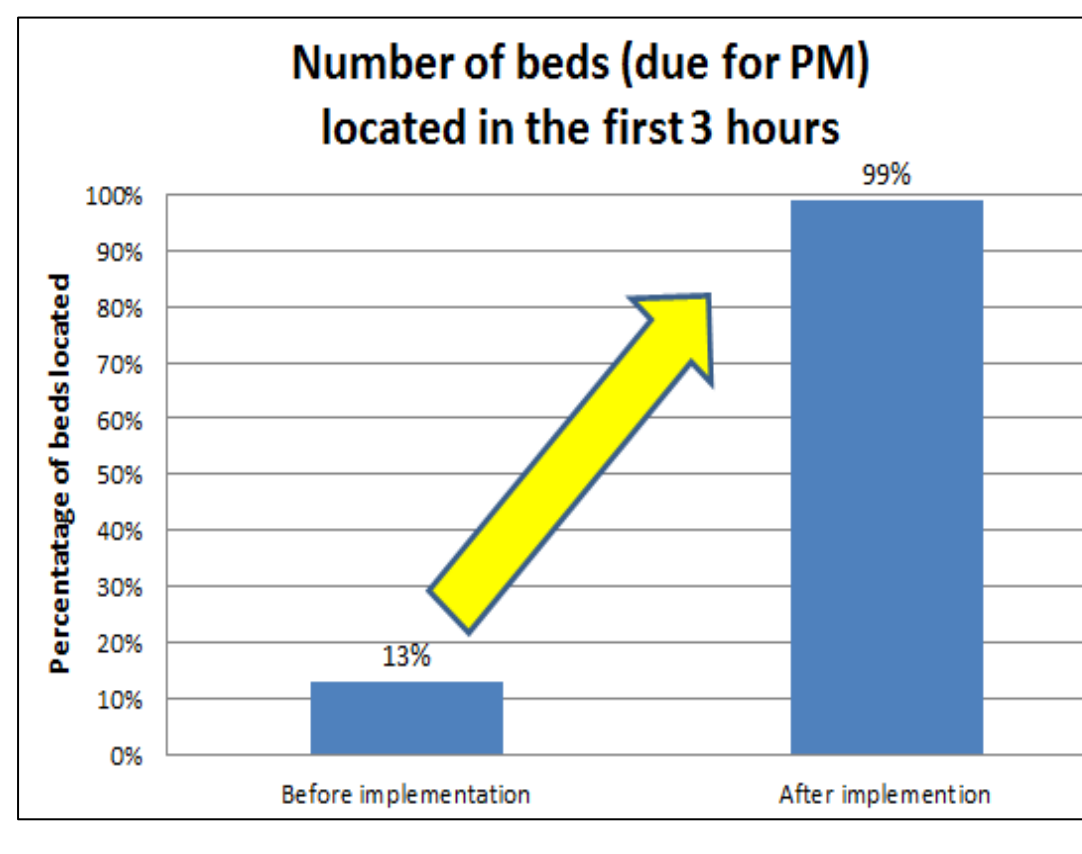
Most of the measurements were met. Below are some specific results worth noting



1. We were able to pinpoint the exact location of the patient 94% of the time (on average) (left pie chart)
2. The average time taken to check patient's location had reduced from an average of 5 mins to less than 10 seconds per patient. This was verified through systems and word of mouth testimonials.
3. Shorter time taken to clerk patients: (below chart)



The above chart indicated a reduction of median clerking time from 2.2 Hours in to 1.5 Hours after Phase 3 implementation.



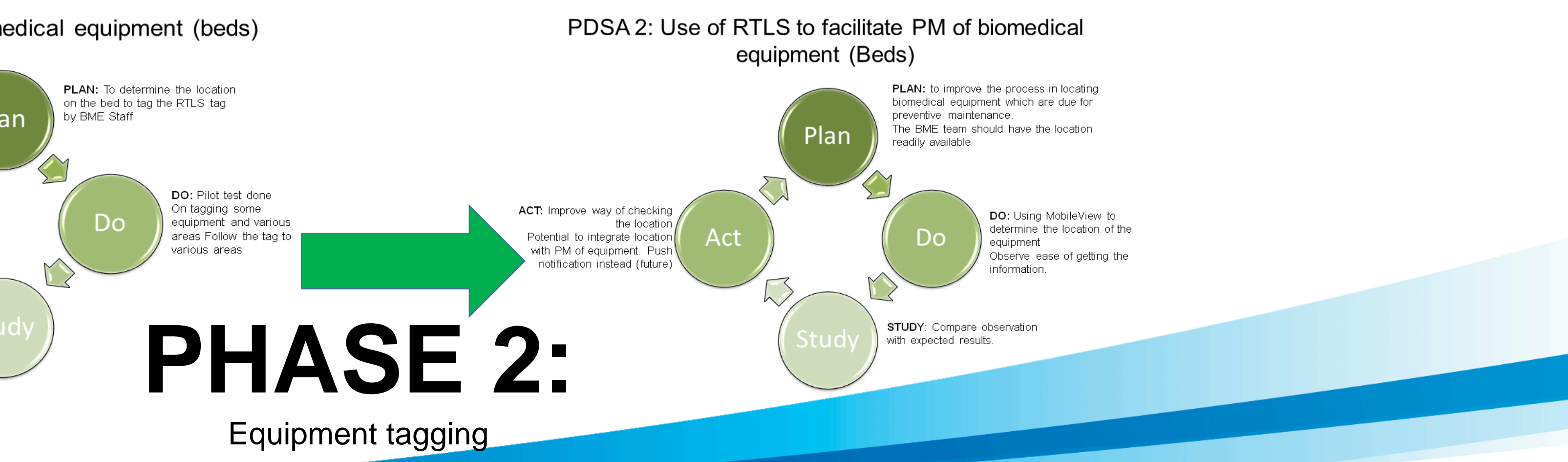
4. The time taken to locate the corrective beds within 3 hours had improved greatly, thereby reducing the time needed to complete one cycle of preventive maintenance for biomedical equipment. (left Bar Chart)

PATIENT SAFETY MET

5 CONCLUSION:

RTLS is still being used throughout CGH today and had indeed saved a lot of time for clinicians and administrative staff. With this, patient Safety goals were met and this has also allowed our clinicians more time to be with patients. The use of RTLS to track equipment is also unprecedented in a 1000+ bed hospital in Singapore.

Currently, RTLS had functioned well as one of our systems backbone towards indirect patient care. The system was also well received and adored by our staff. What seems remarkable is the potential at which RTLS can bring. It can do so much more to an already powerful system adopted within the healthcare setting.



PHASE 2: Equipment tagging