

Transforming to Proactive Preventive Maintenance with Digitalization

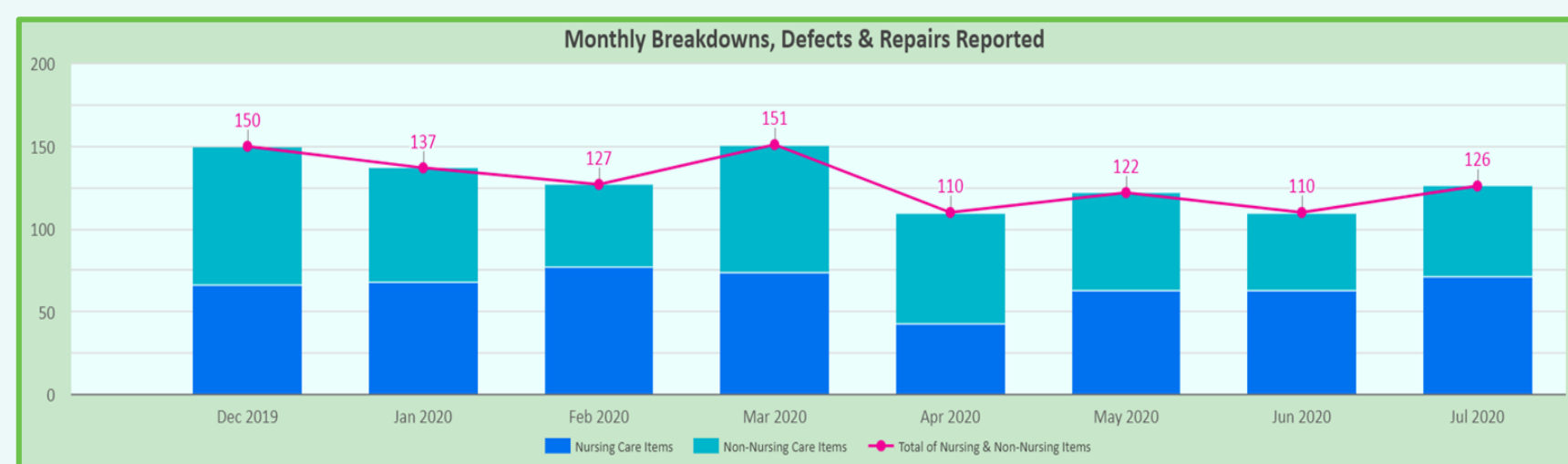
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Problem Statement

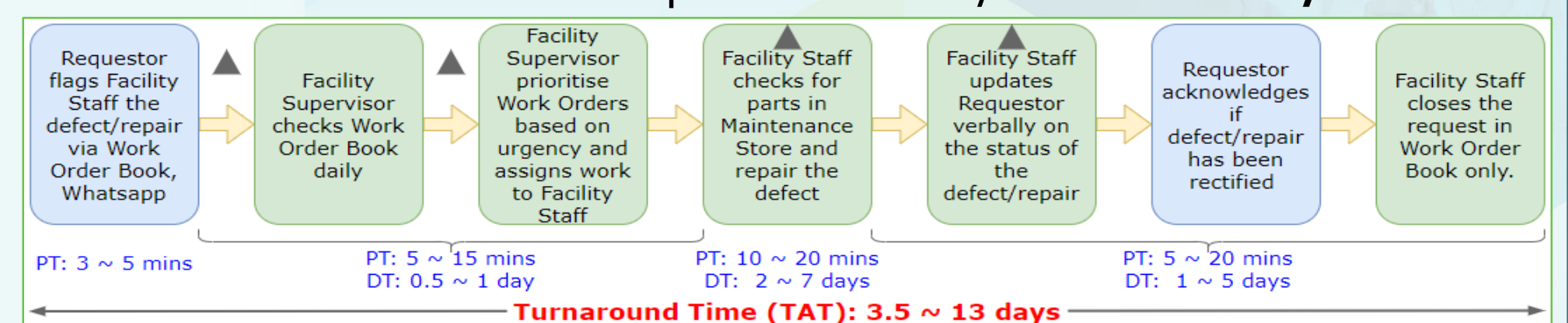
The upkeep of equipment used by staff/residents are of utmost importance to minimise disruption to its daily operations.

Data showed an average of **129 requests per month** for general equipment repair. If it takes 5 minutes to report a defect, this is equivalent to **11 hours every month**, excluding equipment downtime or time spent on searching for a replacement.



Potential Solutions

The average Turnaround Time (TAT) from reporting till completion of repair is **8 days per defect**. Accumulated defects downtime: 129 requests x 8 days = **1064 days**.



Root causes for high number of repairs and the long TAT taken to complete the repair.

Problem/Effect	Root Causes	Category
High number of repairs reported monthly which results in manpower hours needed to report defects	Lack of proper tools for repair and maintenance.	Machine / Material
	Lack of essential spare parts for repairs.	Machine / Material
Long waiting time for defects to be repaired	Preferred to retrofit instead replacing with quality parts.	Man
	Working culture is to act upon request.	Man
Long waiting time for defects to be repaired	Lack of standardised check sheets for preventive maintenance.	Method
	Act on repairs when reported. No regular PM for general equipment.	Method
	Inefficient process to analyse the types of repair/defect report and track requests.	Method
Long waiting time for defects to be repaired	Inefficient storage planning which causes difficulty in inventory control.	Environment
	Inadequate work bench for repair works.	Environment

Solutions:

- Introduce Proactive Preventive Maintenance (PM).
- Standardised Work Order submission using QR code.
- Developed dashboard to provide 'live' updates on maintenance progress and analytics of work orders and defects.

Project Aim

1. Review the current maintenance approach so as to reduce equipment downtime as well as the time wasted in reporting a defect.
2. Standardize the defect reporting channels.
3. Adopt digitalization to monitor the types of defect and improve preventive maintenance.

Lessons Learnt

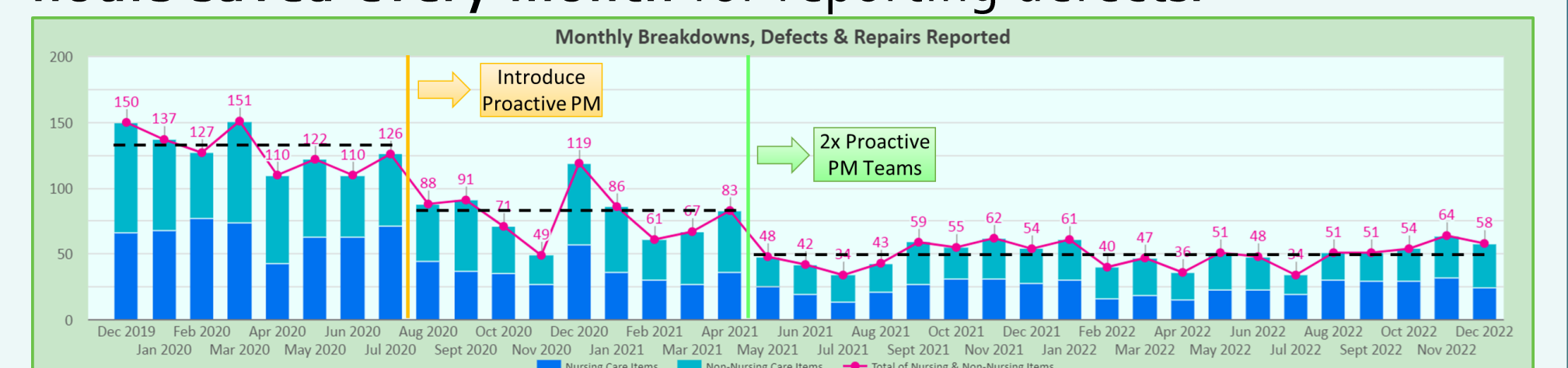
Transforming from a reactive working method to a proactive PM required change management.

Communication on the rationale for change, setting achievable targets and celebrating success were essentials to keep the momentum within the team.

The success of this proactive PM approach, coupled with dashboards and standardising the defects reporting using online Work Order Request form had provided a 'live' visualisation of the entire process through technology. This allowed the team to analyse the types of defect, predict the potential defects for a targeted PM as well as appreciate how their PM efforts were translated into quantitative outcome.

Outcomes & Impacts

Proactive PM was progressively implemented using tablets to tracking the progress and analyse the data. Between Jan ~ Dec'22, the repairs had reduced significantly by **61%** (average of 50 repairs per month). This is equivalent to **6.6 hours saved every month** for reporting defects.



With the reduction in monthly repairs, the TAT to complete a Work Order had reduced from average of 8 days to **5 days per defect**. Accumulated defects downtime reduced to **250 days** (50 requests x 5 days) per month, **77% reduction** in accumulated defects downtime.

