Transforming to Proactive Preventive Maintenance with Digitalisation
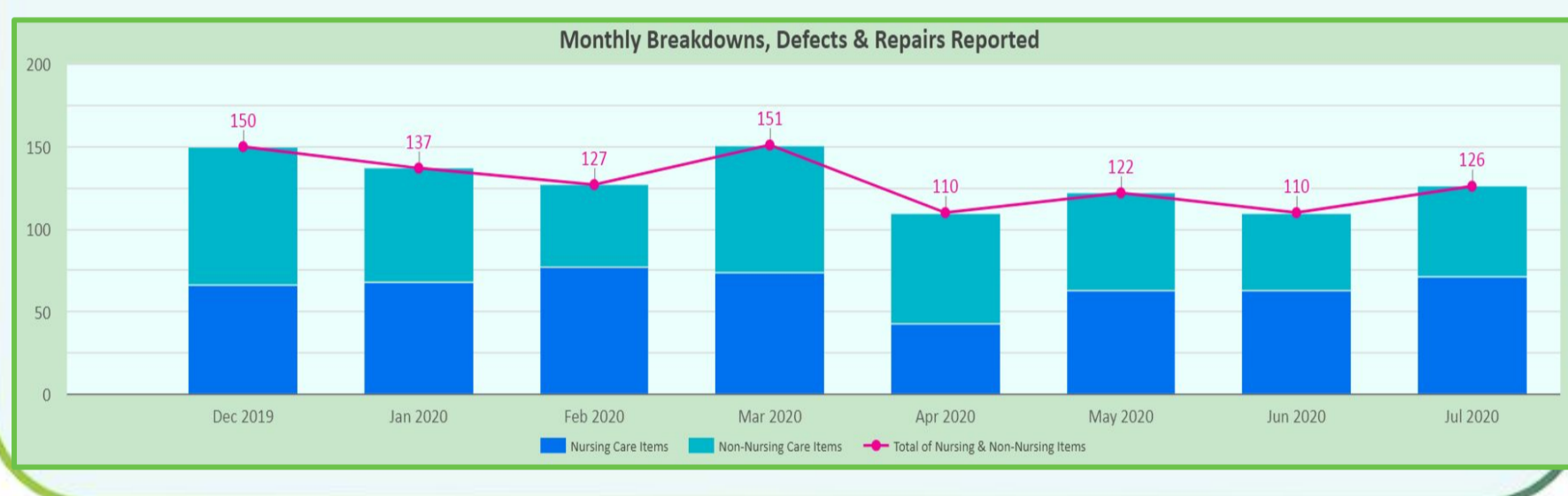
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Problem Statement

Upkeep of equipment in a nursing home is important to minimise disruption to 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.

Project Aim

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

Lessons Learnt

Transforming to a proactive PM required a change management process. Communication on the rationale for change, setting achievable targets and celebrating success were essential to motivate the team.

The successful proactive PM approach, coupled with dashboards and standardised reporting using an online Work Order Request form, provided a 'live' visualisation of the entire process. This allowed the team to better analyse the types of defects and predict potential defects as well as appreciate their PM efforts as they were translated into quantitative visualisations.

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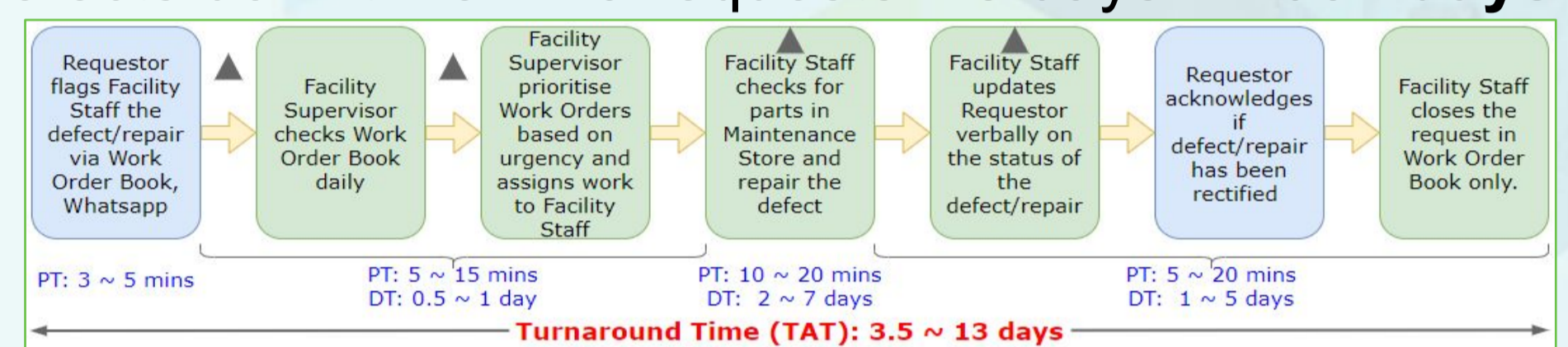
Root causes for high number of repairs and the long TAT taken to complete the repair:

Problem/Effect	Root Causes	
• High number of repairs reported monthly which results in manpower hours needed to report defects	• Lack of proper tools for repair and maintenance. • Lack of essential spare parts for repairs.	Machine / Material
	• Preferred to retrofit instead replacing with quality parts. • Working culture is to act upon request.	Man
	• Lack of standardised check sheets for preventive maintenance. • Act on repairs when reported. No regular PM for general equipment. • 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. • Inadequate work bench for repair works.	Environment

Solutions:
- Introduce Proactive Preventive Maintenance (PM).
- Standardised Work Order submissions.
- Developed dashboard to provide 'live' updates on maintenance progress and analytics of work orders.

Outcomes & Impacts

Proactive PM was progressively implemented using tablets to track the progress and analyse the data. Between Jan - Dec'22, the repairs reduced significantly by **61%** (average of **50 repairs per month**). This is equivalent to **6.6 hours saved every month** for reporting defects.
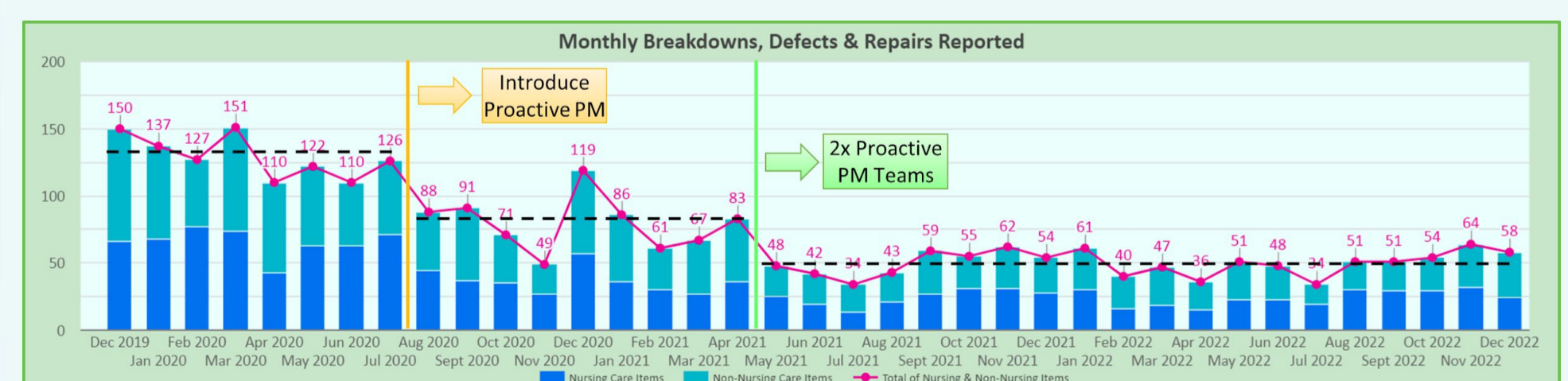
With the reduction in monthly repairs, the TAT to complete a Work Order had reduced from average of 8 days to **5 days per defect**. Accumulated defects downtime reduced to **250 days** (50 requests x 5 days) per month, **77% reduction** in accumulated defects downtime.