ASSESSMENT OF A STANDARDIZED NURSING WARD INVENTORY SYSTEM: A QUALITY IMPROVEMENT INITIATIVE

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BACKGROUND/RATIONALE

- A persistent issue has been brought to light by recent observations at Rajasthan Hospital: the inability to reliably start IV cannulation within the desired benchmark of 30 minutes after entering the ward. Many wards suffer from stock-outs, replenishment delays, and unclear accountability in the chain of action—from pharmacy indent to bedside readiness—despite the existence of supply protocols.

- Efficient and timely clinical intervention is central to delivering quality patient care, particularly during the first critical moments after hospital admission. One of the most immediate and essential actions during this period is the initiation of intravenous (IV) cannulation, along with starting fluids and conducting preliminary investigations. Delays in this initial phase can compromise patient outcomes, disrupt clinical workflows, and lower overall care efficiency.

- By connecting ward inventory readiness with clinical response timelines—with a focus on cannulation delays—this Quality Improvement Project (QIP) aims to directly address these operational barriers.

AIM & OBJECTIVES

AIM

To develop and implement effective hospital ward inventory management system that guarantees the prompt delivery of necessary medical equipment and supplies, thereby eliminating treatment delays and improving patient care.

OBJECTIVES

- To assess the current inventory management practices in hospital wards as per requisition
- To ensure that every new admission in the hospital receives first step of treatment (cannulation, IV fluid start, preliminary investigations) within 30 minutes from arrival in the ward.
- To identify factors behind delay (if any) to implement the standard practice.

STANDARDS

- All wards to have 100% inventory as per decision made
- <30 minutes TAT to start IV / oral treatment and send out preliminary investigations
- 100% replenishment from pharmacy within 4 hours from 8am to 8pm and within 6 hours after that

METHODOLOGY

- **Study design**: Cross sectional study
- **Setting:** Mahavir Jaipuria Rajasthan Hospital, Jaipur
- **Study duration**: 10th April- 31st May 2025 - Audit Cycle 1
- **Sampling technique**: Simple random sampling
- **Sample size:** 100
- **Data collection tool:**

-Primary data by Audit tool checklist

-Secondary data by HIS for pharmacy indent and replenishment time

- **Study population:**

Patients admitted at the Mahavir Jaipuria Rajasthan Hospital, Jaipur (Rajasthan)

Inclusion Criteria: All new admissions of non-critical wards (B2, B5, C2, MDU A, B, C, E)

Exclusion Criteria: IPD patients (already admitted in wards), OPD patients, new admissions of critical wards, day care patients, chemo patients

ACTIVITY PLAN

Step	What	Why	How		When						Where
				Apr'25	1-15th may'25	15-31st may'25	1-15th jun'25	15th jun-30th jun'25	1st -15th july'25	15th -31st july'25	
1	Identify problem	Management focus	Audit findings	P							RHL
				C							
2	Target setting	Important direction	Data analysis		P						RHL
					C						
3	Activity planning	Process management	Process workflow		P						RHL
					C						
4	Analyzing factor	Root cause validation	Fish bone analysis		P						RHL
						C					
5	Implementation	Target achievement	Assessment & monitoring			P	P				RHL
6	Observational period							P	P		
7	Confirmation of effectiveness	For sustainability	Re- audit						P		RHL
									P		
8	Standardization and control	Avoid reoccurrence	Preventive action							P	RHL
										P	

*(P=PENDING, C=COMPLETE, RHL=RAJASTHAN HOSPITAL LIMITED)

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AUDIT TOOL

Pt. IPD no.	WARD	Pt. NAME	STAFF HANDOVER	TIME OF ADMISSION	TIME OF RRIVAL	START OF CANNULATION	INVESTIGATIONS DONE	TIME OF INVESTIGATIONS	DRIP START	PHARMACY INDENT	REPLENISHMENT TIME	DELAY >30 MIN. (YES/NO)	REASON FOR DELAY

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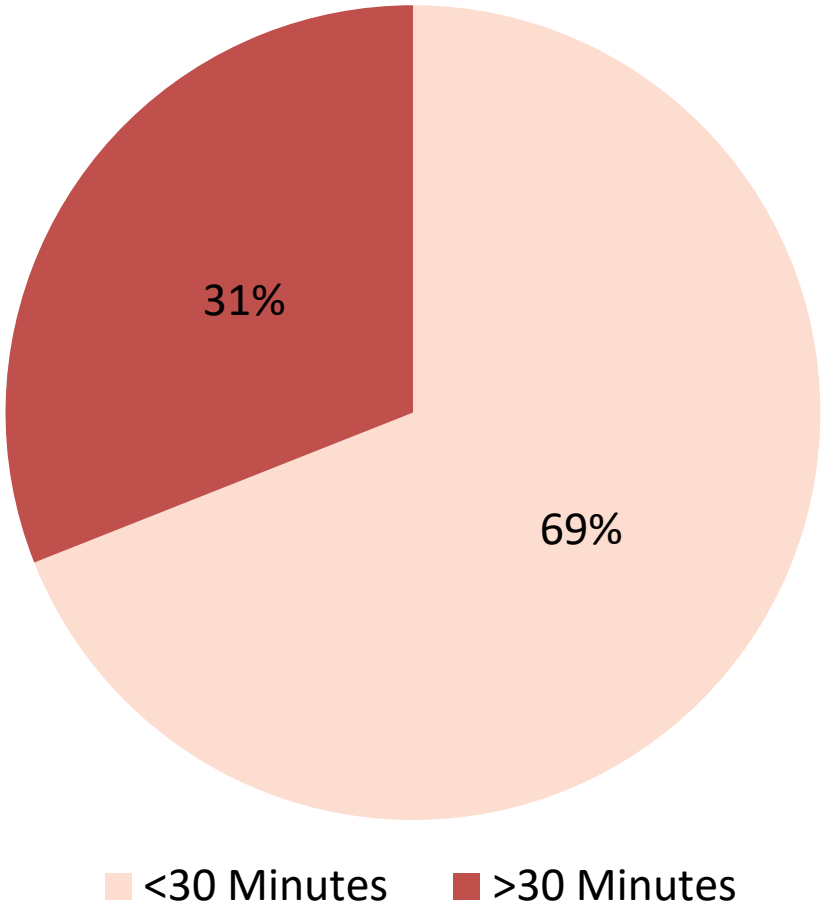
RESULTS AND OBSERVATIONS

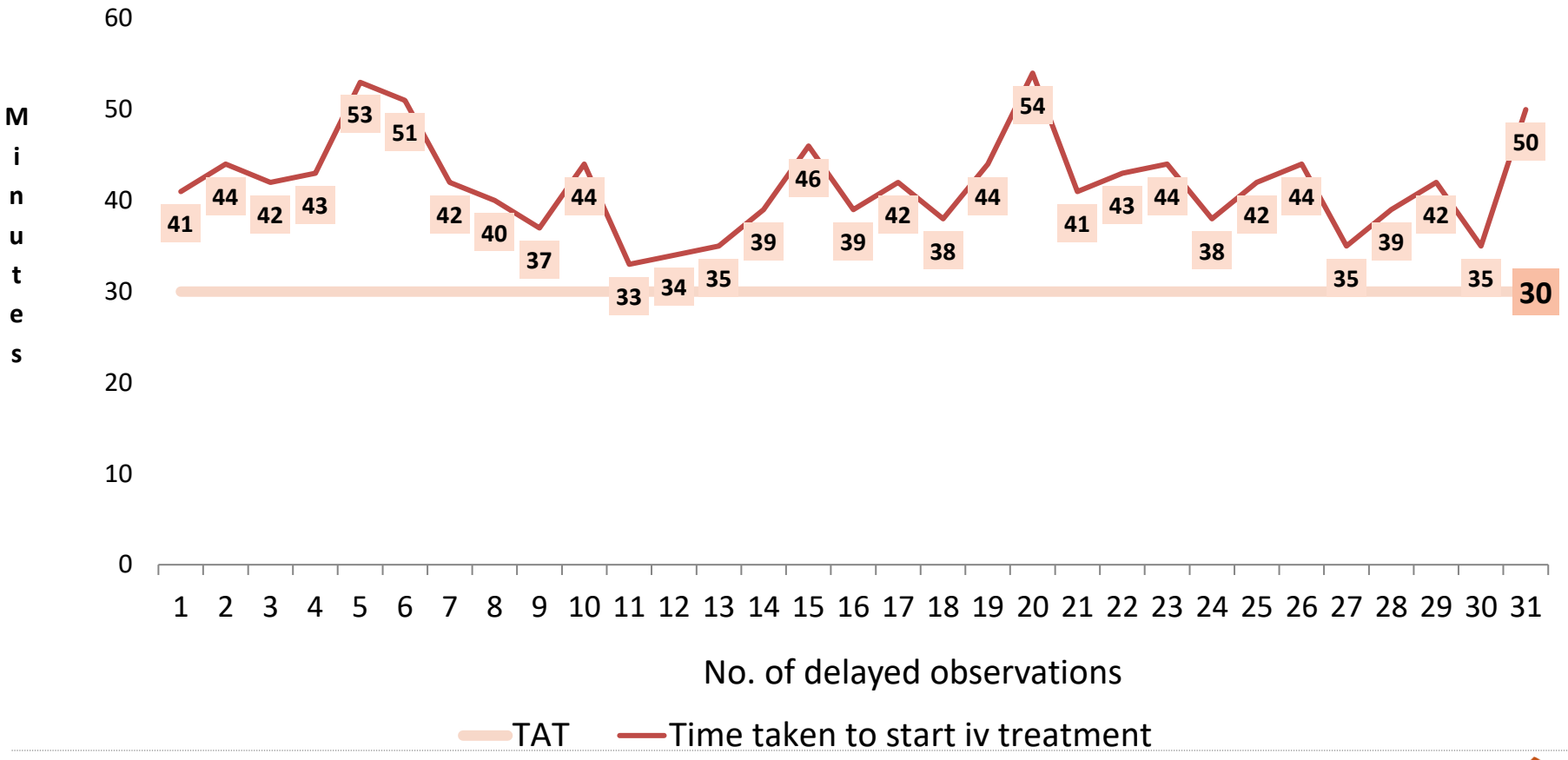
1. PERCENTAGE COMPLIANCE TO TAT



Out of 100 patients, the delay was observed in 31 patients.
The frequency of delay was observed in following wards

S.NO	WARD	NO OF DELAYS (%)
1	B2	17 (54.9%)
2	MDU E	5 (16.1%)
3	MDU B	5 (16.1%)
4	MDU C	4 (12.9%)

2. TIME TAKEN TO START IV TREATMENT (> 30 MINUTES TAT)



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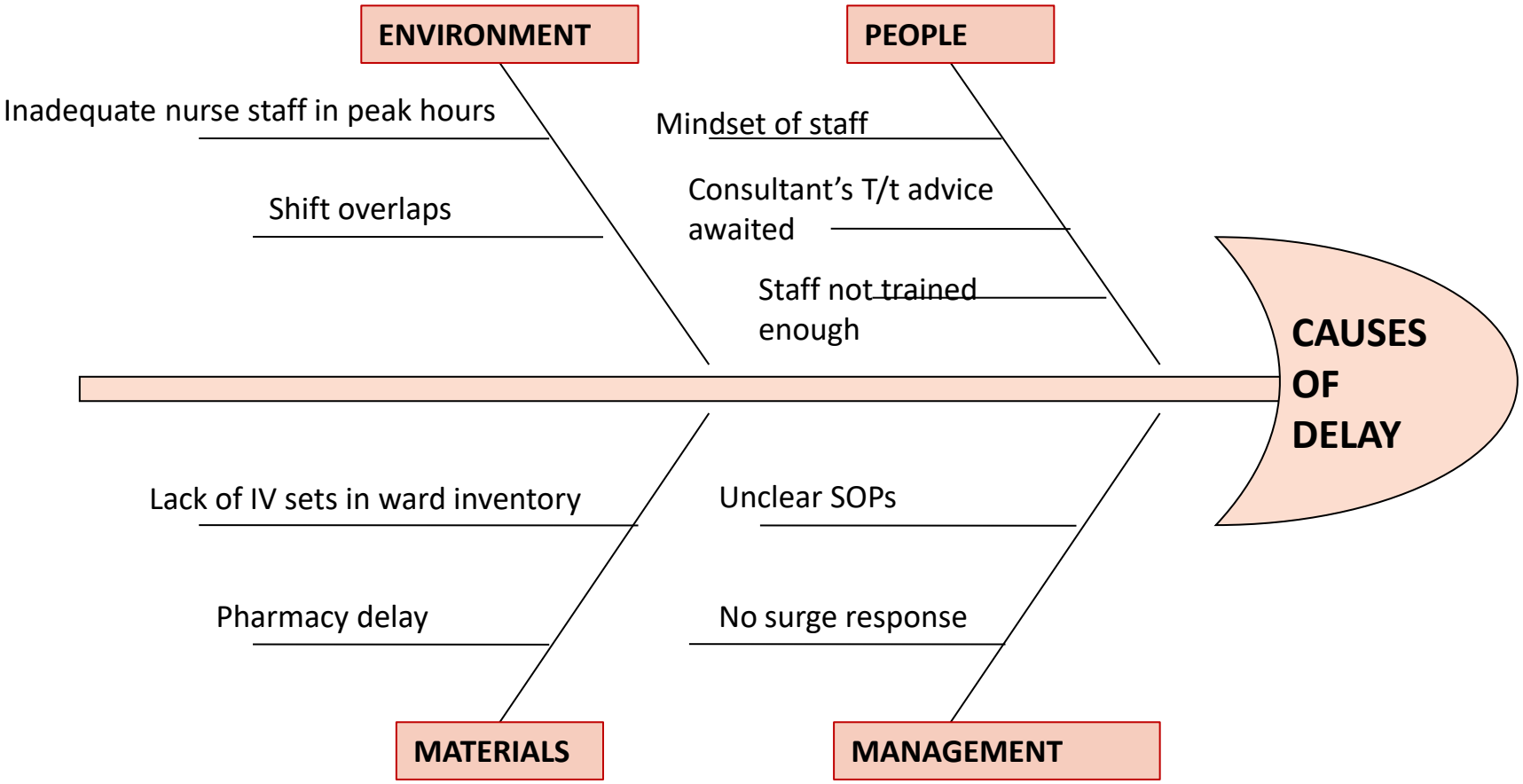
ANALYSIS

ISHIKAWA DIAGRAM



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VALUE STREAM MAPPING

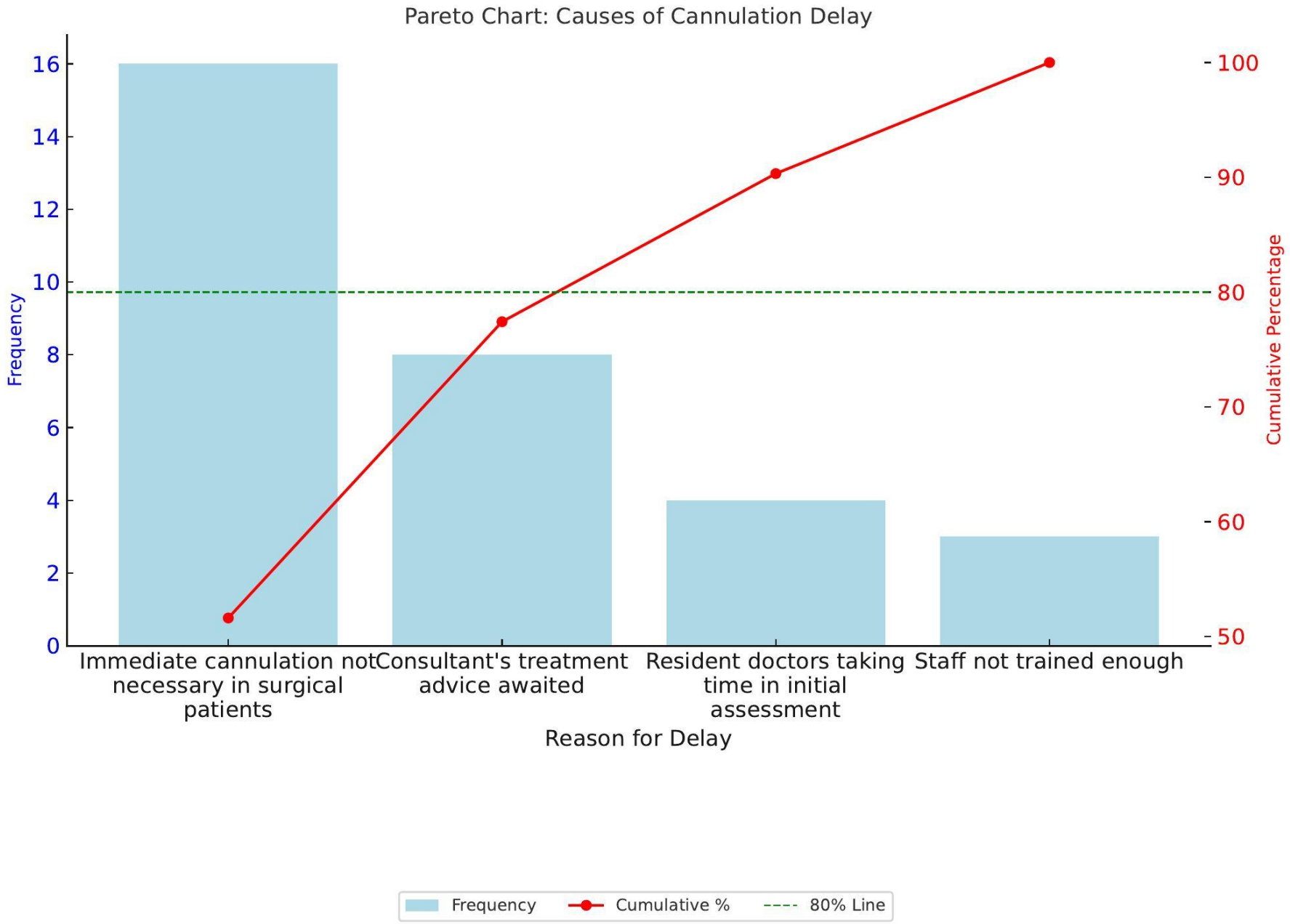
Process identification: Delay (>30 min TAT) to start iv treatment

Objectives: Increase the Compliance to start iv treatment for new admission within TAT

Mapping the Process: Through Process Workflow

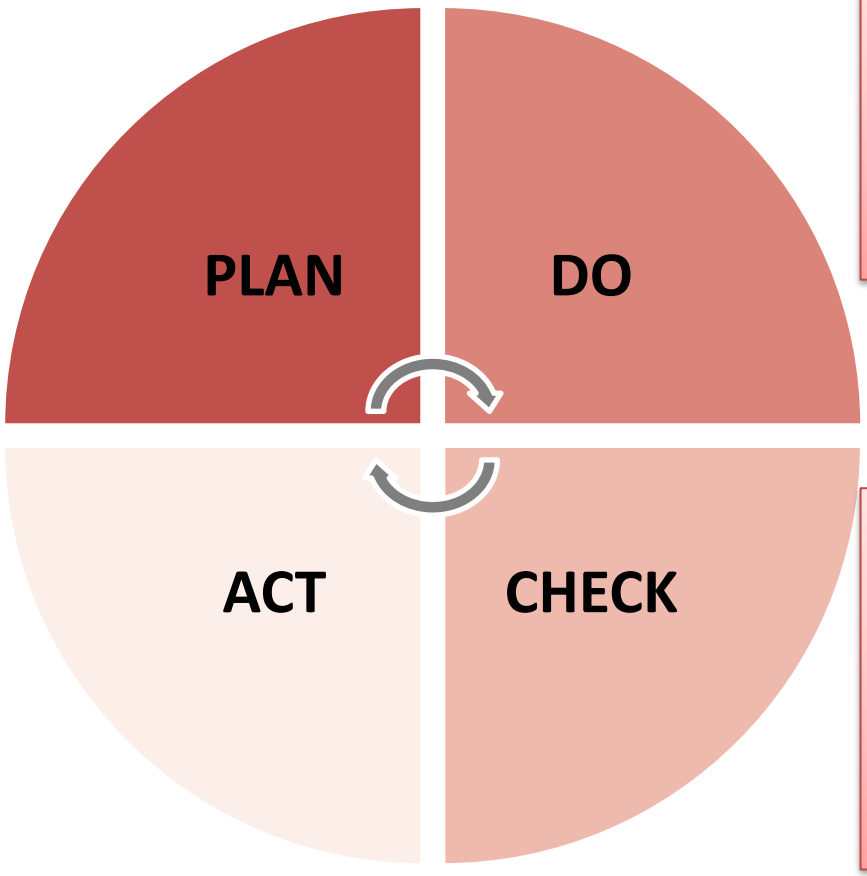
Waste Identification: Initial assessment time doctors was reduced to 15minutes

Action Plan and Implementation: Intervention Conducted and the project is continued



PDCA CYCLE

- Rapid nursing assignment upon patient arrival
- Keep pre-assembled tray for immediate use.
- Educate doctors and nurses about 30minutes benchmark



- Audit cycle -2 as per checklist to monitor TAT
- Staff orientation sessions on new protocol to be conducted

- Include cannulation time in nursing audits
- Schedule reviews to sustain compliance
- Feedback interviews of staff
- Re-visit root causes and consider alternate workflows, if unsuccessful

- Measure percentage of patients within benchmark (daily log)
- Track reasons for any delays
- Compare data for Audit 1 and Audit 2 cycle

LEARNING POINTS

1.Inventory is not just logistics—it's clinical readiness: Ward-level stock impacts the timing and efficiency of clinical actions such as IV cannulation.

2.Delays are often multifactorial: Beyond material shortages, delays arise due to unclear roles, poor coordination, and limited staff training.

3.Root cause analysis adds clarity: Tools like Pareto charts and Fishbone diagrams are effective in pinpointing systemic issues.

4.Small workflow changes yield big outcomes: Simple changes—like pre-assembled IV kits or rapid nurse assignment—can significantly reduce treatment delays.

5.Continuous audits and feedback loops matter: A single audit is insufficient. Monitoring cycles and staff feedback are essential for sustaining improvements.

CONCLUSION

The assessment and standardization of nursing ward inventory systems can play a transformative role in improving early clinical interventions. Hospitals may greatly cut down on delays in cannulation and related treatment stages by making sure that necessary supplies are available, assigning roles, and optimizing workflows.

The implementation of organized techniques like audit cycles, root cause analysis, and PDCA planning not only increases operational efficiency but also raises the standard of patient care, as this quality improvement project shows.
The model is scalable and may serve as a framework for other hospitals aiming to optimize time-sensitive clinical processes.

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