Define & Measure

Analyze

Improve

Control

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Project Charter



XYZ is a chronic care hospital with **downsizing**, **impatient census** and **tight budgets**. As patient sharpness increased, the need for a reliable transportation service also increased. The transportation process is unreliable, and patient-physician and staff dissatisfaction increasingly impacts the hospital's operation and reputation.



According to previous data, it has been found that the average trip time for 100 patient transportation is 46 min. This **Unreliable transportation** process leads to higher trip time and causes patient, staff, and physician dissatisfaction.



In-Scope: To **identify** the **root cause** leading to **delays** in the **transportation** of patients and ways to **eliminate** them.

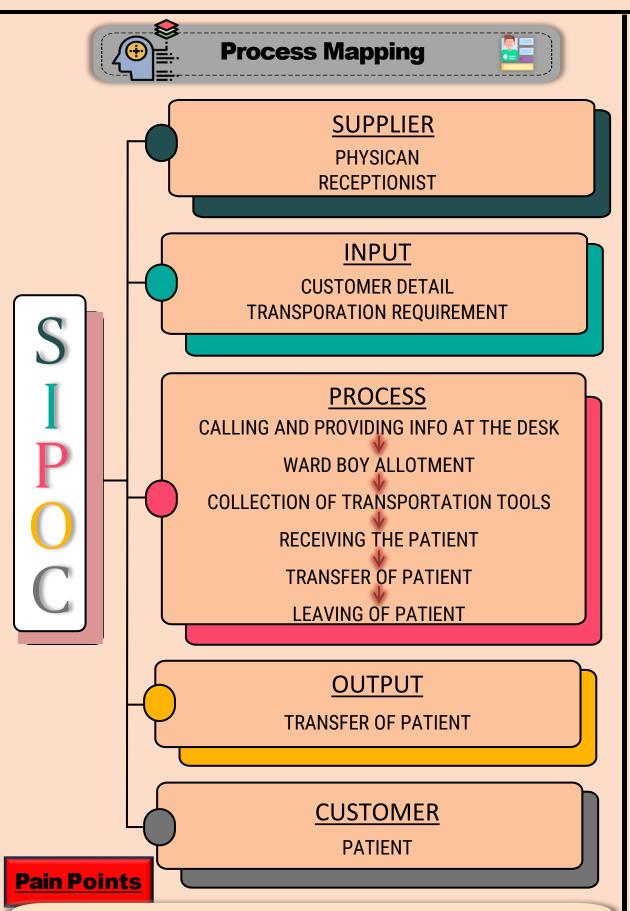
Out of scope: Non-transportation-related operations



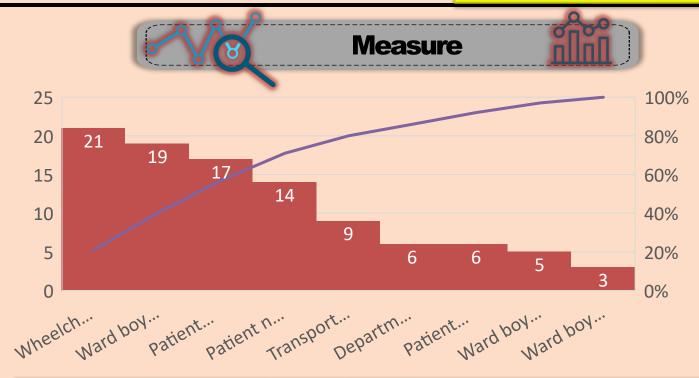
Significantly decrease the complaints about the hospital's patient transportation process by decreasing average trip time.

Critical-to-Quality (CTQ)

To **reduce** ↓ the average trip time from **46 min** to **28 min**.

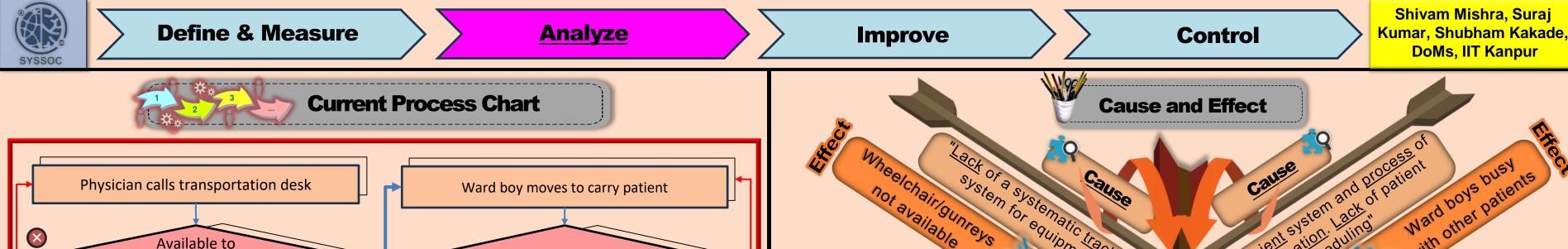


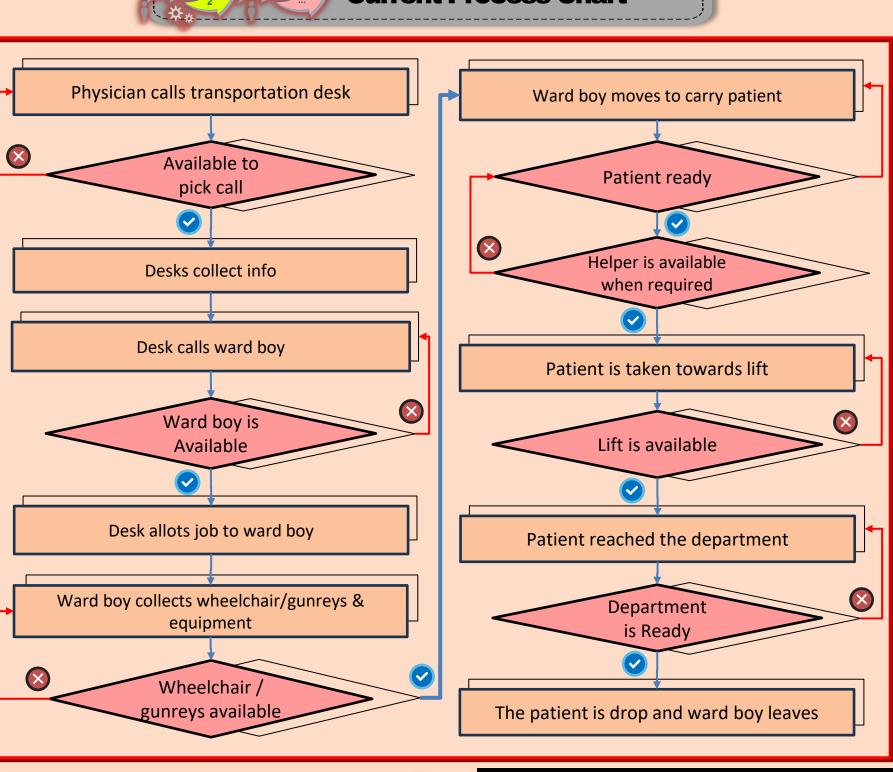
There are many roadblocks in the current transportation process and a high amount of manual dependency. Lack of clarity and uncertainties are involved in the process.

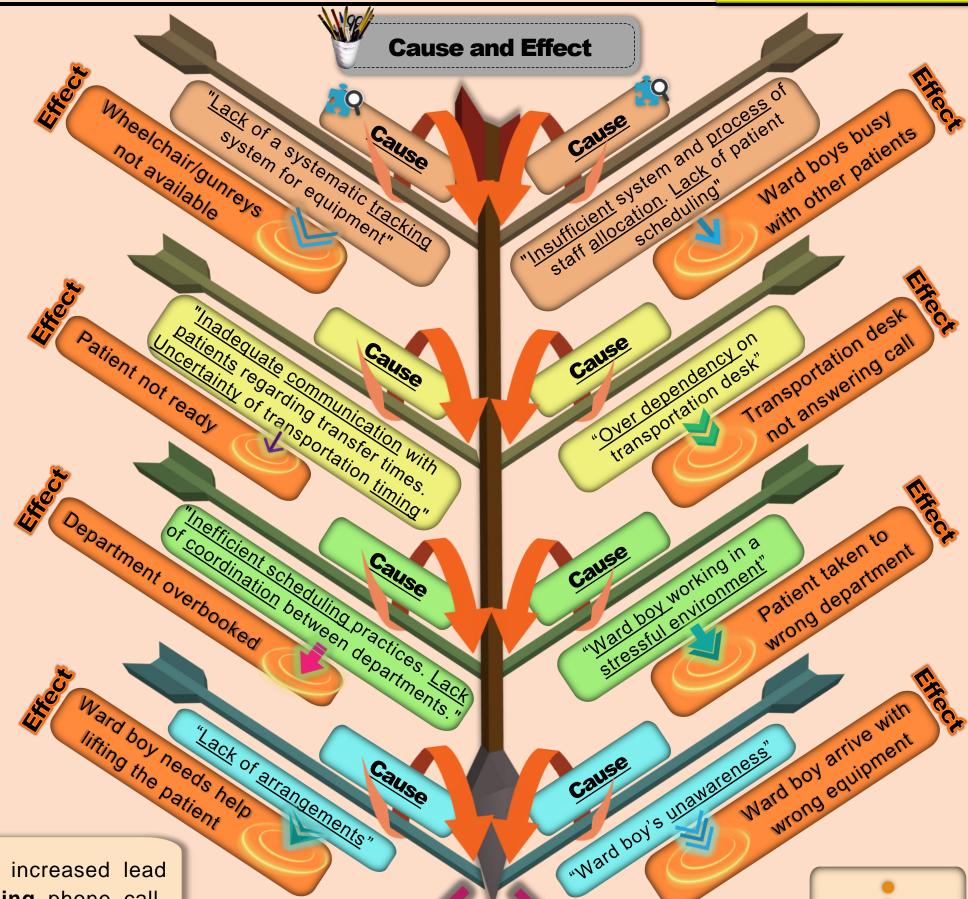


Reason	No of cases	X-Ray	Physiothe rapy	CT Scan	Audiology	Pathology	Sonograp hy	Angiograp hy
Wheelchair/ gunreys not available	21	6	4	5	0	3	3	0
Ward boys busy with other patients	19	7	2	0	1	5	3	1
Patient elevators occupied by others	17	5	0	4	1	5	0	2
Patient not ready	14	0	3	2	0	0	9	0
Transportation desk not answering call	9	3	2	1	0	2	1	0
Department overbooked	6	3	1	0	0	0	2	0
Patient taken to wrong department	6	0	0	0	6	0	0	0
Ward boy needs help in lifting patient	5	0	5	0	0	0	0	0
Ward boy arrive with wrong equipment	3	0	0	0	0	0	0	3

<u>Inferences</u>: Overall, there are <u>nine</u> significant **issues**, as mentioned above, affecting the current transfer process of patients. To **improve** trip time, a **method** must be developed to **tackle** all these issues.







Elevators

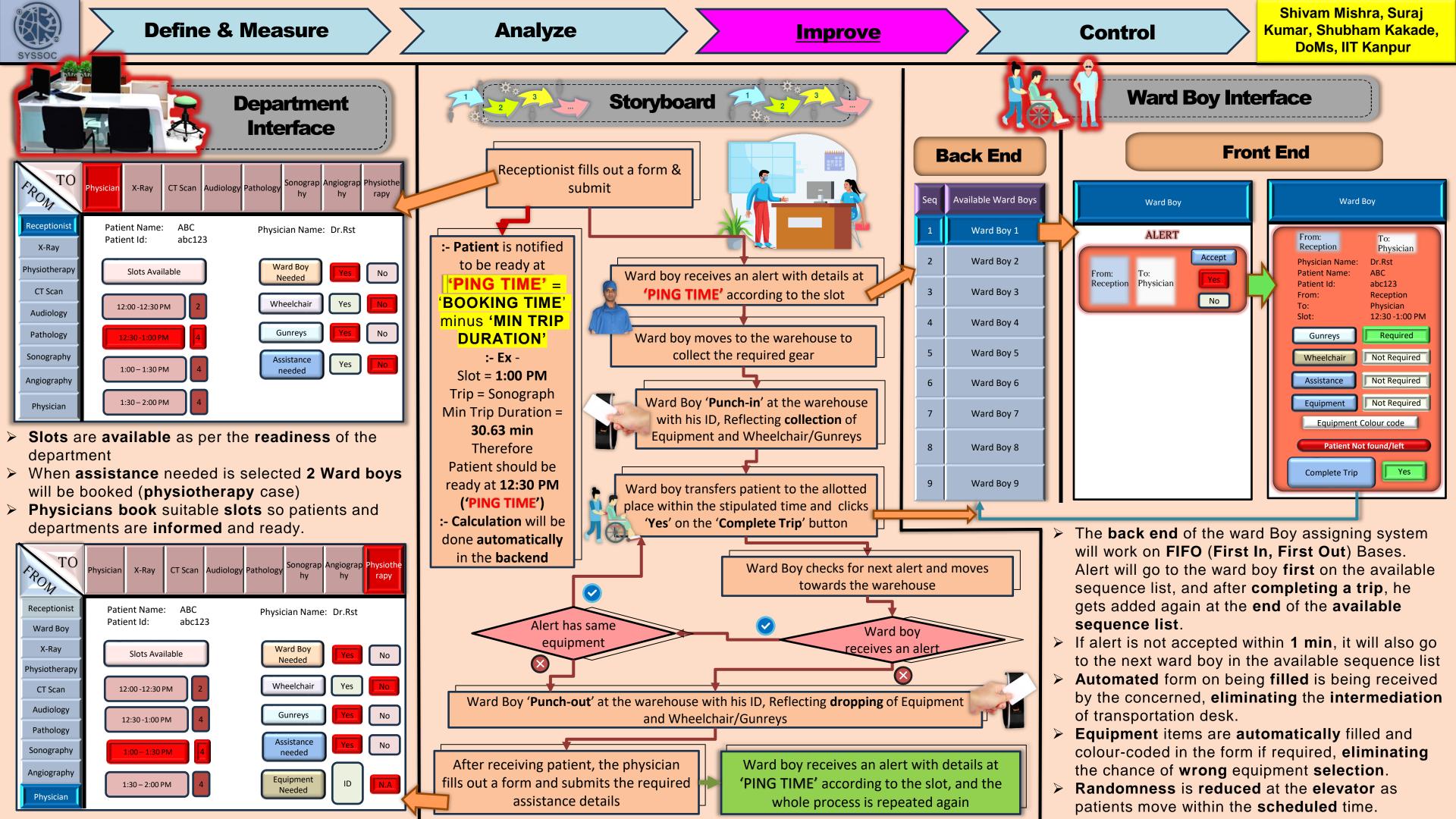
Overburden

Patient elevators

occupied by others

Indicates various hurdles causing delays in the patient transfer process as the activity is getting struck due to multiple reasons explained by the cause & effect diagram on the right.

To **mitigate** these **causes** leading to increased lead time, we suggest **replacing** the **existing** phone call-based booking **system with** a **digital platform** allowing provision for scheduling addressing all these issues.





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INFLUENCE STRATEGY	Issue Concern	Identify Wins	Strategy
Physician	Training and Familiarity	Improved Communication, Time saving, Independence from desk	Demonstrate
Ward Boy	Training and Adaptation	Less randomness, Tangible output, Available time	Data
Inventory manager	System Integration	Improved Inventory Control, Reduced Losses and Misplacements	Data
Patient	Communication and Expectations	Receive timely access to necessary treatments and services	Demonstrate

PROCESS CONTROL MANAGEMENT SYSTEM

DOCUMENTATION	MONITOR	RING	RESPONSE PLAN			
The plan for doing the work	Checking the work		The response to special causes			
Deployment flowchart	Key process and output measures	Method for recording data	Containment	Procedure for process adjustment	Procedure for process improvement	
 Develop the scheduling module with features like slot allocation, equipment mapping, and automated forms. Implement the tracking mechanism for live monitoring of patient transfers. Conduct testing to ensure functionality, usability, and reliability. Train users on the new system. 	 Average Trip Time Response Time Equipment Availability Staff Utilization Error Rate Patient Satisfaction Physician Satisfaction Staff Satisfaction 	 APIs (Application Programming Interfaces) or data integration platforms 	 Technical Issues with the Digital Platform. Inadequate Training and Familiarity with the Digital Platform. Data Security Breaches. Lack of Backup Equipment or Resources. Staff Resistance or Reluctance to Change. 	 Redundant systems or backup. Resort back to the manual system until process improvement is finished. User-friendly manuals or guides for reference. A response plan in place to mitigate the impact of any breaches. 	 Have IT support system to address the glitch. Comprehensive training sessions for all staff members. Data encryption, firewalls, and access controls to protect sensitive data Establish relationships with alternative suppliers or facilities Open dialogue and engagement. Highlight the benefits of the digital platform, such as improved efficiency, accuracy, and patient care. 	



CONCLUSION

- > To resolve the given issue of patient transportation, we have applied the DMAIC Lean Six Sigma approach to achieve our desired result.
- > The improvement measures aim to address existing patient transportation challenges and ensure the improvement plan's successful implementation. By leveraging technology, process optimisation, and continuous improvement, the plan seeks to achieve significant efficiency gains and improve overall patient satisfaction.
- > By adopting this new process using a digital platform to schedule transfers, maintain live tracking, map wheelchairs/ Gurney, keep records, and plan activities, we can eliminate all nine causes of delayed transportation.
- > By reducing all causes we can run the process at the minimum time in which the procedure was executed as it is feasible to run and the efficiency of the process can be improved by 42% as per below table.

Critical Benefits of the new process can be as follows:

Tangible Benefits:

- **Reduced Trip Time**: By using the above digitised and improved process, we can minimise trip time.
- **Cost Savings**: Removing the phone call-based system and reducing trip time will lessen the person-hours required, further saving costs.
- **Improved Resource Allocation**: By colour coding of equipment and proper mapping of wheelchair and ward boy.

Intangible Benefits:

- Improved Staff Morale: Reducing inefficiencies will improve morale among hospital staff
- Enhanced Reputation: Efficient and patient-centred care will strengthen reputation.
- Enhanced Patient Experience: Reducing delays in patient transportation, overall quality of care

Department	No. of Visits	Average Trip time (/min) Min trip time (/min		Old total time (/min)	New total time (/min)	
X-Ray	24	45.40	15.05	1089.69	361.25	
Physiotherapy	17	45.06	25.17	765.99	427.89	
CT Scan	12	42.83	29.48	513.95	353.76	
Audiology	8	46.41	40.47	371.25	323.78	
Pathology	15	47.30	35.11	709.53	526.61	
Sonography	18	50.18	30.63	903.24	551.29	
Angiography	6	42.96	18.18	257.76	109.10	
TOTAL	100	45.73	27.73	4611.39	2653.67	
	42%					