

2026

CASE STUDY · OPERATIONS MANAGEMENT

Cutting Patient Waiting Time at a City Hospital Outpatient Department

*Applying process mapping and digital token systems in a busy
OPD*

ORGANISATION	SECTOR	PREPARED BY
Shanti City Hospital (fictional)	Healthcare	Case writer: Your Name

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At a Glance

Organisation	Shanti City Hospital (fictional)
Sector	Healthcare
Location	Nagpur
Challenge	Average OPD waits of over two hours
Solution	Process redesign, staggered appointments and a digital token system
Timeframe	6 months

**–55%**

Average waiting time (sample)

+22%

Patients seen per day

6 mo

Project duration

Organisation and outcomes are illustrative; figures are sample data for teaching and templating purposes.

Background

Shanti City Hospital is a 250-bed multi-specialty hospital whose outpatient department sees a large number of patients every day. Most arrive in the morning, creating long queues at registration, billing and consultation rooms.

Patient complaints about waiting time had become the most common feedback, and doctors were frustrated by unpredictable workloads.

The Challenge

Management wanted to reduce waiting time without hiring many more staff or expanding the building.

- Morning peak with most patients arriving between 9 and 11 AM
- Separate queues for registration, billing and consultation
- Paper files moved by hand between counters
- No visibility of waiting time for patients

Patients were spending more time in queues than with their doctors.

— Medical Superintendent (fictional)

Objectives

1. Reduce average waiting time by half.
2. Spread patient arrivals across the day.
3. Improve patient and staff satisfaction.

Approach

A small team of administrators, nurses and an industrial engineering intern mapped the patient journey and tested improvements in two departments before scaling.

Phase 1: Map the process

The team timed each step for 300 patients and drew a value-stream map. Most time was spent waiting between steps rather than in service.

- Time study
- Value-stream map
- Bottleneck analysis

Phase 2: Redesign

Registration and billing were combined at a single counter, and appointment slots were staggered in 15-minute intervals.

- Single-window registration
- Staggered appointments
- Pre-registration by phone

Phase 3: Digitise

A token display system and SMS updates told patients their expected time, so they could wait comfortably or step out.

- Token display screens
- SMS notifications
- Electronic files

Implementation Timeline

Period	Milestone	Notes
Month 1	Process mapping	Two pilot departments
Month 2–3	Redesign pilot	Single window and slots
Month 4	Token system installed	Staff training
Month 5–6	Scale-up	All OPD departments

Results

Waiting time fell sharply, and the department handled more patients with the same staff.

Metric	Before	After
Average waiting time (min)	128	58
Patients seen per day	640	780
Patient satisfaction (1–5)	2.9	4.1
Doctor idle time (min/day)	45	18

Exhibit 1: Key metrics before and after (sample data)

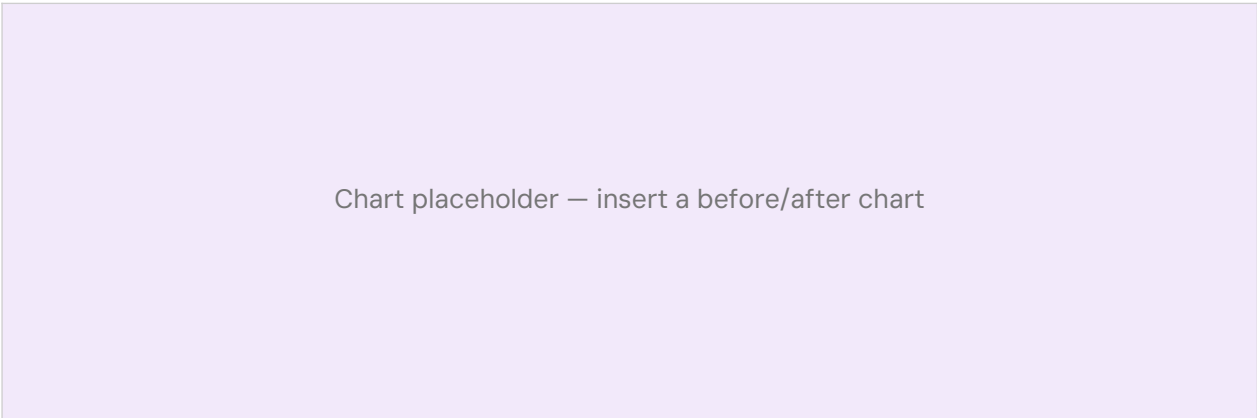


Exhibit 2: Trend over the implementation period (sample data)

Lessons Learned

- Measure first.** Time studies revealed that waiting, not service, was the main problem.
- Pilot, then scale.** Testing in two departments built staff confidence.
- Communicate with patients.** Knowing their expected time reduced frustration even before waits fell.

Analysis

What worked - Combining counters - SMS updates	What was difficult - Patients unfamiliar with appointments - Initial staff resistance
Opportunities	Risks to sustain

- Online pre-registration
- Pharmacy integration

- Peak seasons
- Maintaining discipline in slots

Discussion Questions

Use these questions for classroom discussion or self-study.

- Where did most of the waiting time come from, and why?
- How did staggered appointments change the arrival pattern?
- What would you do if patients ignored appointment slots?
- How could the same approach be applied to a diagnostic laboratory?

Teaching Note

The case is suitable for operations management and healthcare administration courses. Students can be asked to draw the before and after process maps and to calculate utilisation of each counter.

Appendix: Additional Exhibits

Step	Before	After
Registration	25	8
Billing	20	0 (merged)
Waiting for doctor	70	40
Consultation	12	12

Exhibit 3: Time spent at each step (minutes) (sample data)

Hour	Before	After
9–10 AM	38%	18%
10–11 AM	30%	20%
11 AM–1 PM	20%	32%
After 1 PM	12%	30%

Exhibit 4: Arrivals by hour (% of patients) (sample data)

Conclusion

The hospital improved patient experience significantly through simple process changes supported by modest technology.