

PATIENT FLOW IN OUTPATIENT DEPARTMENT: TURN AROUND TIME STUDY

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Hospital and Health Management

by

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Under the Supervision and Guidance of

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GOVT. DISTRICT HOSPITAL RAJNANDGAON (C.G.)

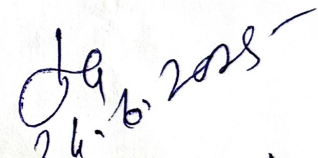
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Internship/Training Completion Certificate

This is certified that **Miss Amishi Singh** D/o Alok Singh Has completed successfully his 03 Month Master Of Business Administration in Hospital & Health Management Internship/training programme from 22.03.2025 To 21.06.2025 in this hospital. Her behavior and aptitude Good with patient and neighbours. Good wishes for bright future.


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CERTIFICATE

This is to certify that dissertation titled **“Patient flow in Outpatient Department: A Turn-around Time- Study”** is a record of the research work undertaken by **Amishi Singh** in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and ~~his~~ her approach to the research study has been sincere, scientific, and analytical.

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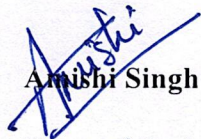
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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“Patient flow in Outpatient Department: A Turn-around Time- Study”** is the Bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.


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ABSTRACT

HM 28: Patient flow in Outpatient Department: A Turn-around Time- Study

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Keywords:

Outpatient department, turnaround time, IPHS

Introduction:

Outpatient departments (OPDs) in government hospitals are often overwhelmed with high patient volumes, leading to long wait times and inefficiencies. These issues reduce patient satisfaction and strain resources.

Objectives:

The objectives are threefold: (i) to review the Indian Public Health Standards related to managing services in 300 bedded government hospital; (ii) to assess the time taken by patients at each service point in the OPD, from registration to exit; (iii) to identify key delays in OPD processes using turn-around-time analysis comparing with standard time to be taken; and (iv) to suggest ways to increase operational efficiency and time management in OPD.

Methodology:

This study investigates time management for OPD services in a 300-bedded government hospital. Two hundred patients were observed at registration, consultation, diagnostics, and pharmacy using manual timing tools. The time taken for each major services was compared with standard time which was calculated as an average time of the 200 patients. Staff interviews and document reviews complemented the observations.

Results:

According to the turnaround-time analysis, 10% patients experienced delay in consultation services, followed by 57% of patients experienced delays in diagnostics and 83% of patients experienced delays in pharmacy services respectively. Staffing shortages, manual billing, inadequate triage, and ineffective queue management were all contributing factors.

Conclusion:

Despite efficient registration, delays in consultation, diagnostics and pharmacy highlight the need for better queue systems, staff allocation, and digital tools. Real-time monitoring, triaging, and improved communication are essential for timely service delivery. Strategic changes aligned with IPHS can enhance patient satisfaction and operational efficiency in public healthcare facilities.

Acknowledgement

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List of Abbreviations

AI	Artificial Intelligence
AIIMS	All India Institute of Medical Sciences
CHC	Community Health Centre
DH	District Hospital
EHR	Electronic Health Record
GOI	Government of India
HMIS	Hospital Management Information System
HR	Human Resources
ICT	Information and Communication Technology
IPHS	Indian Public Health Standards
IT	Information Technology
LT	Laboratory Technician
MCI	Medical Council of India
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
NHM	National Health Mission
OPD	Outpatient Department
PHC	Primary Health Centre
RTI	Right to Information
SOP	Standard Operating Procedure
TAT	Turnaround Time
WHO	World Health Organization

Introduction

Particularly in government-run district hospitals, outpatient departments (OPDs) are the easiest places for patients to enter the healthcare system. Without requiring hospitalization, they offer vital services like medical consultation, diagnosis, minor treatments, and referrals. OPDs are the cornerstone of secondary care delivery in India's public healthcare system and are crucial to preserving the efficacy and efficiency of medical facilities.

The OPD is one of the most important service areas in District and Sub-District Hospitals, per the Indian Public Health Standards (IPHS) 2022. To ensure efficiency, accessibility, and responsiveness to population needs, the IPHS requires a streamlined service flow from inquiry → registration → waiting → consultation → diagnostics → pharmacy → exit. Effective outpatient care is not only a functional necessity for a 300-bed district hospital, but it also influences overall hospital performance and public satisfaction. OPDs in government hospitals, particularly those serving sizable populations in underprivileged areas, struggle with overcrowding, delayed services, and inefficient administration. These elements lower the hospital's capacity to meet its service delivery standards under IPHS compliance, impair the quality of care, and exacerbate patient annoyance.

Patient waiting time has a direct impact on patient satisfaction and are one of the primary measures of quality in the delivery of public health services. The IPHS guidelines stress the importance of effectively managing OPD services in relation to:

- Infrastructure (counters, signage, and waiting areas)
- Human resources (enough support personnel and medical officers)
- Time-efficiency (clear consultation pathways, electronic queue management, and digital registration)
- Mechanisms for observation and feedback.

Research Question:

How can operational efficiency and better time management be done in OPD of a 300 bedded government hospital?

Objectives:

The objectives of the study are

- a) To review the Indian Public Health Standards related to managing services in 300 bedded government hospital.
- b) To assess the time taken by patients at each service point in the OPD, from registration to exit.
- c) To identify key delays in OPD processes using turn-around-time analysis comparing with standard time to be taken.
- d) To suggest ways to increase operational efficiency and time management in OPD.

Literature Review

S No	Title & Year	Author(s)	Objectives	Methods	Findings
1	Reducing Outpatient Waiting Time: A Simulation Model (2002)	Wijewickrama & Takakuwa	To explore the use of simulation in minimizing OPD patient wait times and improving process efficiency.	Simulation modeling of OPD operations.	Simulation models effectively identified bottlenecks, reducing waiting time and improving appointment scheduling.
2	Outpatient Waiting Time: The Role of Queuing Theory (2006)	Al-Omari & Al-Omari	To apply queuing theory to understand and improve patient flow in OPDs.	Application of queuing theory and mathematical modeling.	Queuing theory helped optimize resource allocation and suggested optimal counter distribution to reduce wait time.
3	Patient Waiting Time in a Tertiary Hospital OPD: A Time Motion Study (2011)	Anand et al.	To measure patient waiting time and identify delays in OPD service delivery.	Time-motion study with observation and data recording.	Identified long waiting times especially before consultation; recommended improved queue systems and manpower planning.
4	Evaluation of OPD Services in Public Health Facilities (2013)	Gupta et al.	To assess service delivery challenges in OPDs of public health facilities.	Facility surveys, interviews, and observational study.	Found irregular staff availability and overcrowding as key issues; emphasized need for time-bound and accountable service delivery.

S No	Title & Year	Author(s)	Objectives	Methods	Findings
5	Study on Patient Flow and Time Management in OPD (2014)	M. Rajaram & B. Manjula	To analyze time spent by patients in each OPD service component and suggest improvements.	Time tracking of patient journey and service-wise time allocation.	Consultation and pharmacy processes were delayed due to paper-based prescriptions and manual file handling.
6	Assessment of OPD Waiting Time and Satisfaction (2016)	Abiola et al.	To assess patient satisfaction related to OPD waiting time.	Patient exit interviews and time tracking.	Dissatisfaction with wait time; proposed digital ticketing and a triage system to improve service speed.
7	Reducing OPD Overcrowding through Lean Principles (2017)	Chatterjee et al.	To apply lean methodology to reduce time wastage and OPD congestion.	Lean Six Sigma approach with process mapping and waste elimination.	Streamlined patient flow by eliminating non-value-adding steps; significantly reduced total service time.
8	Impact of E-Hospital System on Patient Waiting Time (2019)	Singh & Kumari	To evaluate the impact of hospital ERP systems on OPD efficiency.	Pre- and post-implementation analysis of patient records and wait times.	E-hospital systems improved documentation, appointment scheduling, and reduced delays.
9	Time Motion Study in a Government Hospital OPD (2021)	Sharma et al.	To identify time utilization patterns of patients in OPD settings.	Time-motion study and patient pathway tracking.	Found that 65% of total time was spent waiting; recommended structured appointment systems and better staff deployment.

S No	Title & Year	Author(s)	Objectives	Methods	Findings
10	A Study of Patient Satisfaction and Time Gaps in OPD (2023)	Verma & Deshmukh	To study patient satisfaction levels and identify gaps in service timelines.	Mixed-methods: quantitative satisfaction survey and qualitative feedback.	Delays were most common in diagnostics and pharmacy; suggested that automation and digitization improved overall service flow.

Methodology

The study was conducted in Outpatient Department (OPD) of a 300 bedded government district hospital, Rajnandgoan, Chhattisgarh during March -June 2025.

The study is descriptive and quantitative in nature as time taken was studied for OPD patients.

The study respondents were patients who registered with the OPD of the hospital first time or follow up visits.

A total of 200 patients were observed over a period of 60-70 days. One observation each before and lunch was conducted. In case the patient got relieved early, in that case one more patient was covered.

Patients whosoever gave consent and has no issue, were observed by the Intern. The patient or the attendant who accompanies the patient was given a registration form to fill out with information such as Patient Name, Address, Aadhar number, and so on.

Data collection methods included:

- Review of relevant documents
- Patients' Observation
- For patients' observation a datasheet was developed for time duration recordings in the whole process.

Operational definitions:

Turn-around-Time:

Total time taken to complete a process, from the moment it's initiated to when it's finished is called turn-around-time

Standard Time:

Pre-determined or benchmarked time required to complete a specific task or process efficiently. Generally, it is established through literature review or expert consultation if not available for specific tasks. In the study the average time for each service was considered as the “standard time”.

Observed Time:

The actual time recorded for a patient to complete a specific service point.

Data analysis and management

The data analysis was done using descriptive measures like average, and percentages. In addition, a process flow map was also presented for the OPD services.

Formula used to calculate Turnaround Time:

1. Total OPD Turnaround Time

$TAT (Total) = \text{Time of Exit from OPD} - \text{Time of Registration}$

2. Registration TAT

$TAT (Registration) = \text{Time of Token Issued} - \text{Time of Arrival}$

3. Consultation TAT

$TAT (Consultation) = \text{Time of Exit from Doctor's Chamber} - \text{Time of Entry into Consultation}$

4. Diagnostics TAT

$TAT (Diagnostics) = \text{Time Report Received} - \text{Time Sent for Test}$

5. Pharmacy TAT

$TAT (Pharmacy) = \text{Time Medicine Dispensed} - \text{Time Reached Pharmacy Counter}$

Results

This section discusses about the results with reference to the objectives of the study.

Indian Public Health Standards related to managing OPD services in 300 bedded government hospital focus on the following:

- Adequate and clearly marked registration counters, waiting areas, and consultation rooms.
- Sufficient ventilation, seating arrangements, drinking water, and toilets to support high patient footfall.
- Dedicated waiting areas with per patient to prevent overcrowding.
- Staff shortages and lack of support systems led to long diagnostic delays, violating IPHS efficiency standards.
- The long overall waiting time indicates systemic inefficiencies in diagnostics and pharmacy.
- Physical infrastructure is present but lacks communication aids and directional clarity.
- Human resource gaps are a major cause of service delays.

The OPD processes:

The flowchart gives a thorough rundown of how the Outpatient Department (OPD) operates in a government hospital. When a patient first arrives at the OPD, they approach the reception desk for preliminary advice, marking the beginning of their journey. After that, they go to the registration desk and fill out their case and personal information. A token number is assigned upon registration, enabling systematic and sequential system navigation. Then, until their token number is called, patients proceed to the waiting area.

A clinical evaluation is conducted during the doctor's consultation, which comes next. The patient may be referred to a specialist (Spl) for additional assessment or for investigations (blood tests, X-rays, etc.) based on the consultation. A medical chit (prescription) is given out following the consultation. After that, the patient goes to the pharmacy, where a new token number is created to dispense medication. The patient picks up the prescription drugs from the pharmacy after a while of waiting. The patient's discharge from the hospital following the necessary care and treatment is the last phase in the OPD flow.

OPD PROCESS FLOW:

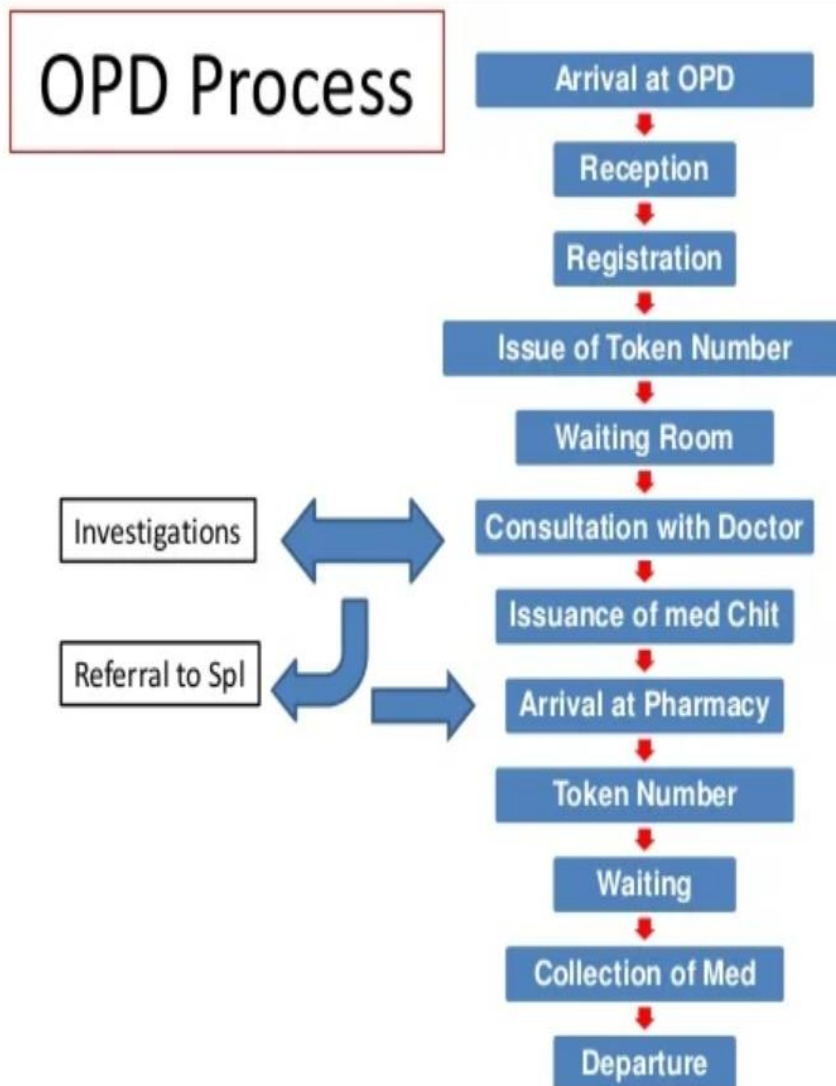


Fig 1: Flowchart for OPD Process at District Hospital

Turn around Time in the OPD Services

The standard time was calculated as the average time taken for each service, and the proportion of the patients by each of the OPD services were presented in Table 1. The results revealed were the most effective of the four main OPD service points, according to the study, with 100% of patients (n=200) finishing the procedure in the allotted one to three minutes as Ayushman Bharat Health Account identification number was mentioned and therefore, it did not take much time.

Although 10% of patients experienced delays, indicating a need for better consultation load distribution, consultation services were also comparatively efficient, with 90% of patients being seen within the allotted 10 minutes. On the other hand, there were notable delays in diagnostic services; only 32% of patients received diagnostics within or less than the average time, that is, 20 minutes, and 68% took longer time than the average. Only 17% of patients received their medications in 7 minutes, and 83% of patients waited longer than the average time, making pharmacy services the most delayed.

Table 1: Per cent Distribution of Patients by time taken by services

	OPD Services (time recorded in minutes)			
	Registration	Consultation	Diagnostic	Pharmacy
<i>n</i> =	200	200	140	180
Less than or within the standard time	200 (100%)	170 (85%)	34 (24%)	0
Average Time (minutes)	2	10 [10 (5 %)]	20 [10 (8%)]	7 [30 (17%)]
More than standard time	0	20 (10%)	96 (68%)	150 (83%)

It is assumed that the patients who have consumed lesser time than the standard average time, also did not get quality of services. In few cases, the medical doctors devoted more time, otherwise 10 minutes were given to the patients because of huge rush.

In case of diagnostics services, the average duration was 20 minutes but nearly one-fourth cases took less than 10 minutes. For 68% cases, it took more than average time and as high as 50 minutes.

Pharmacy services do not have much variation, not more than 10 minutes at all.

Reasons for Delays in OPD Processes:

According to the study, most patients stayed in the Outpatient Department (OPD) for two to three and a half hours, which is typical of the congestion patterns seen in government hospitals. But a sizable fraction of patients had turnaround times (TAT) that were noticeably longer, frequently lasting three hours or longer. Delays in receiving or processing lab test advice, lengthy wait times before consultation, pharmacy-related problems, and inefficient documentation were the main causes of these prolonged periods.

Based on the observations as the intern remained with the patient throughout the process, and informal discussions with the patients/ attendants the reasons for delay (more time taken).

Delay in Consultation process

The observations include that there was no one staff to guide the patients and therefore, the patients were not able to identify where the consulting medical doctor sits. All the patients do not recognize by face and not educated enough to read the name of the doctor. Even if they reach at the right place i.e. the chamber of the consulting doctor, it took longer time for the patients. The triage were available but not by speciality or consulting doctors, and therefore, patients roam around.

On the other hand, medical doctors are supposed to reach the hospital at 10 am. However, generally it takes long time to be available in their respective chambers as they have to take round of IPD and some other concerns need to be fulfilled.

Consultation	Diagnostics	Pharmacy
Long queue (unstructured) of patients due to late coming of medical officers	Patient load because inadequate staff like one LT has to assist for X ray, sonography, etc	Drug stock issues
Lack of triage by speciality	No priority setting of patients as per their urgent requirements	Queue mismanagement

		Manual billing and dispensing
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Delay in Diagnostic Services

Diagnostic services are provided by technical staff. It was observed that there was lack of staff in the district hospital.

It was also observed that some patients were restless because of their health conditions, and may be taken or priority. However, according to the number only they were entertained. In such cases, they rest at some place and again coming from that area to the lab or X ray took time.

Delay in Pharmacy Services

There were a total of four pharmacists. Many a times the stocks are not available and it is not communicated directly, the attendants may wait for the response.

For sure, there was no one to manage the queue. In such case, usually the pharmacists take time with haphazard way of queuing.

The major reason was manually working of the pharmacists, and they take more time in billing.

However, some patients had a shorter TAT of about 1.5 to 2 hours, indicating that faster and more effective service delivery is feasible in some circumstances, such as early morning visits, a lighter patient load, and a more efficient workflow. These results demonstrate the variation in patient experiences and stress how crucial it is to increase process effectiveness to reduce delays.

Suggestions for Time management

- Introduction of triage system in the hospital is a quality improvement action. It can be more explicit to provide quick and easy access to the patients to contact the relevant unit.
- Adequate human resources for health is mandatory to manage the time and help the patients by providing prompt services.

- To prioritize the critical patients for diagnostic services as per their conditions may help them effective time management.
- Some staff may be dedicated for supervising the queuing system in peak hours.

Discussion

The study results are consistent with several national and worldwide studies. Wijewickrama & Takakuwa (2002), for example, showed how simulation models can be used to detect and minimize OPD bottlenecks, which is like the delays in pharmacy and diagnostics. In a similar vein, Al-Omari & Al-Omari (2006) emphasized the application of queuing theory to enhance patient flow, which may be a solution to the queue mismanagement identified. A time-motion study by Anand et al. (2011) revealed lengthy wait times prior to consultation, which is in line with the 15% consultation delay noted. Overcrowding and a lack of staff were identified by Gupta et al. (2013) as major problems in public OPDs, and these problems were also present in the current study, particularly in the diagnostic department where one LT oversaw several duties.

According to Singh & Kumari (2019), e-hospital systems greatly decreased waiting times and enhanced documentation when it came to technological interventions. Delays were caused by the hospital's lack of these digital systems, especially in the pharmacy.

Finally, Verma & Deshmukh (2023) noted the longest delays in pharmacy and diagnostics, which is consistent with the findings of this study. They made recommendations for digitization and automation, which are undoubtedly useful for enhancing services.

Conclusion

The Indian Public Health Standards (IPHS), a quality guidelines which prioritize prompt service delivery, sufficient staffing, digital systems, and patient-centric care, offer a clear framework for managing outpatient department (OPD) services in a 300-bed government hospital.

Most of the registration and consultation procedures ran smoothly, but there were notable delays in the pharmacy and diagnostic services. Prolonged patient turnaround time (TAT) resulted from these areas' failure to meet quality standards.

According to the turnaround-time analysis, 83% of patients experienced delays in pharmacy services and followed by delays in diagnostics (68%) followed by 105 in consultation services. Staffing shortages, manual billing, inadequate triage, and ineffective queue management were all contributing factors.

The study suggests implementing triage systems, availability of adequate diagnostic personnel, and implementing queuing system under supervision of some staff members.

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