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A Study on Patient Waiting Time and Workflow Efficiency in the Gastroenterology Department of Tata Medical Centre, Kolkata

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Abstract : This study evaluates patient waiting time and workflow efficiency in the Gastroenterology Department of Tata Medical Centre (TMC), Kolkata, a major oncology institution in Eastern India. A six-month mixed-method approach was used that included observations, time studies, staff interviews, and patient feedback. The study examined operational performance and identified factors that influence waiting time. Results show that the department manages 10 to 15 procedures per day with only two procedure rooms and two specialists. This leads to average waiting times between 30 and 60 minutes. Most patients considered the waiting time acceptable, although delays were more frequent during mid-week peak periods. The main causes of bottlenecks were limited infrastructure, overlapping schedules, and the complex nature of oncology cases. The study concludes that the department operates efficiently within existing constraints. However, adding more procedure rooms, improving scheduling, increasing staffing, and implementing a digital queue management system can reduce delays and enhance patient satisfaction. The findings provide useful baseline information for future quality improvement and workflow optimization in gastroenterology services within oncology settings.

IndexTerms - Patient Waiting Time; Workflow Efficiency; Gastroenterology Services; Oncology Procedures; Endoscopy Unit Management; Hospital Operations; Patient Satisfaction; Healthcare Scheduling; Resource Constraints; Tata Medical Centre.

I. Introduction

Healthcare in India has witnessed tremendous growth in the past few decades, with specialized institutions emerging to address complex medical challenges such as cancer. Among these, the Tata Medical Centre (TMC), Kolkata, stands as a premier comprehensive cancer care and research facility in Eastern India. Established with a vision to deliver world-class cancer treatment, the hospital combines clinical excellence, advanced research, and compassionate care.

The Department of Gastroenterology at TMC plays a vital role in the diagnosis and management of gastrointestinal (GI) cancers and disorders. It provides both diagnostic and therapeutic endoscopic services through skilled specialists and modern technology.

II. Interdisciplinary Collaboration

The Gastroenterology Department at TMC follows a strong multidisciplinary model. It collaborates routinely with Surgical Oncology, Medical Oncology, Radiology, Pathology, and Anesthesiology. This approach ensures that each patient receives comprehensive evaluation, proper staging, and evidence-based treatment planning.

Regular multidisciplinary board meetings help integrate diagnostic findings with therapeutic decisions. Such discussions improve coordination, reduce clinical risks, and support personalized cancer management.

III. Challenges In Gastroenterology Oncology

Despite technological advancements, several challenges remain:

- Late detection of GI cancers due to limited awareness and screening
- Restricted access to advanced diagnostic tools in rural regions
- High treatment costs, which can increase financial burden

• Need for continuous training of clinicians to handle complex cases

TMC tackles several of these issues through community outreach, subsidized services, and capacity-building initiatives.

IV. Hospital Workflow And Patient Waiting Time

Patient waiting time is a crucial indicator of hospital efficiency and patient satisfaction. Excessive waiting can cause frustration, procedural delays, and even clinical deterioration.

Previous studies highlight the importance of efficient workflow:

• Singh and Thomas (2018): Reported waiting times of 45 minutes to 3 hours in tertiary hospitals, depending on patient load.

• Chakraborty et al. (2020): Identified factors like anesthetist availability, equipment turnover, and reporting delays as major contributors.

• Mishra et al. (2022): Suggested improved scheduling systems can reduce wait time.

At TMC, although the patient volume is high, structured scheduling, triaging, and electronic health records help maintain relatively low waiting times compared to many public hospitals.

V. Research Gaps Identified

From the literature review, the following gaps were noted:

1. Limited studies on waiting time patterns in oncology-focused GI units.
2. Lack of standardized workflow guidelines in high-volume tertiary hospitals.
3. Insufficient data on patient satisfaction specific to GI services in Eastern India.
4. Need for integrated datasets linking GI procedures to overall cancer outcomes.

These gaps support the need for a detailed study on workflow efficiency and waiting time in TMC's Gastroenterology Department.

VI. Hypothesis

Efficient workflow management, adequate staffing, and technological support in the Gastroenterology Department significantly reduce patient waiting time for procedures and improve overall patient satisfaction and service quality.

1. ***Expected Outcomes***

The study aims to:

• Evaluate operational performance
• Determine average waiting time for procedures
• Explore the relationship between scheduling, workflow, and patient satisfaction
• Provide practical, evidence-based recommendations
• Offer baseline data for future quality improvement initiatives

2. ***Study Duration***

January 2025 to June 2025 (six months).

3. ***Study Population***

• Patients undergoing endoscopy, colonoscopy, ERCP, and similar procedures
• Medical and nursing staff involved in GI services
• Administrative personnel managing appointments

A total of 150 patients and 25 staff members were included.

4. ***Sampling Technique***

A purposive sampling technique was used to ensure selection of cases relevant to the study.

VII. Data Collection Methods

1. ***Primary Data***

• Observation of patient movement and departmental workflow
• Interviews with doctors, nurses, and technicians
• Patient feedback via structured questionnaires
• Time study of waiting duration from registration to procedure start

2. ***Secondary Data***

• Hospital records and electronic databases
• Annual departmental reports
• Published research papers and government health reports

VIII. Tools And Techniques Of Data Analysis

Both quantitative and qualitative methods were used:

• Mean, median, and frequency distribution for numerical data
• Thematic analysis for interview and observation findings
• Comparison of waiting time across procedure types and days

Software used: MS Excel and SPSS.

Ethical Considerations

- Data anonymization
- Verbal informed consent
- Non-interference with patient care
- Institutional approval obtained before the study

Limitations

- Findings limited to a single department
- Waiting time varies due to case complexity
- Time constraints limited sample size
- Observer bias may influence some interpretations

IX. Results & Observations

This section presents the key findings from workflow observation, time study, and staff/patient input.

1. ***Departmental Overview***
   - Operates 6 days a week (Monday–Saturday).
   - Two procedure rooms support diagnostic and therapeutic endoscopy.
   - Staff includes two specialists, trained nurses, and technicians.
   - Saturday has reduced working hours, lowering procedure volume.

2. ***Number Of Procedures Per Day***

Day	Avg. Procedures	Remarks
Monday	12–15	Normal load
Tuesday	10–12	Moderate
Wednesday	13–15	Peak
Thursday	10–12	Moderate
Friday	11–13	Moderate
Saturday	6–8	Half day

3. ***Observation***

   Most days handle 10–15 procedures. Mid-week shows peak volume due to higher referrals and complex cases.

4. ***Average Patient Waiting Time***

Procedure	Min	Max	Average
Endoscopy	30 min	1 hr	45 min
Colonoscopy	35 min	1 hr	50 min
ERCP/EUS	40 min	1 hr	55 min

   Waiting time ranged between 30 minutes to 1 hour, considered reasonable for a high-volume oncology centre.

5. ***Factors Affecting Waiting Time***
   - Limited procedure rooms (only two available)
   - Insufficient specialists, with only two gastroenterologists
   - High patient volume due to cancer referrals
   - Overlapping schedules during peak hours
   - Delay in preparation or anesthesia availability

X. Patient Feedback And Satisfaction

- 70%: Waiting time “acceptable”.
- 20%: “Long but manageable”.
- 10%: Dissatisfied due to delays.

Patients appreciated staff professionalism and communication but expressed concern regarding waiting on busier days.

1. ***Observational Findings***
   - Workflow is organized but limited by infrastructure
   - Waiting increases sharply on Wednesdays and Fridays
   - Two rooms create a bottleneck during simultaneous procedures
   - Better coordination among support staff helps reduce delays
2. ***Summary Of Key Results***

Parameter	Observation
Procedure Rooms	2
Gastroenterologists	2
Average Procedures/day	10-15
Average Waiting Time	30-60 minutes
Main Constraints	Limited rooms & manpower
Patient Satisfaction	70% positive

XI. Inference

The department operates efficiently despite limited space and staffing. However, sustained patient inflow and increasing complexity require expansion of infrastructure and staff. Addressing these constraints will improve both waiting time and patient experience.

XII. Discussion

1. ***Efficiency***
   The department demonstrates commendable efficiency, handling up to 15 procedures per day with limited resources.
2. ***Waiting Time Issues***
   Key reasons:
   - Only two endoscopy suites.
   - Limited specialists.
   - High number of complex oncology cases.
3. ***Staffing Limitations***
   Dependence on two specialists increases workload pressure and reduces scheduling flexibility.
4. ***Scheduling Gaps***
   Some appointments overlap due to inadequate spacing and insufficient pre-procedure guidance.
5. ***Infrastructure Constraints***
   The existing setup cannot fully meet rising demand, indicating the need for expansion.

XIII. Recommendations

1. ***"May I Help You" Desk***
   A help desk can improve patient guidance, reduce confusion, and enhance communication.
2. ***Addition of Procedure Rooms***
   Increasing to three or four rooms will significantly reduce waiting time and accommodate more cases.
3. ***Recruitment of More Specialists***
   Hiring additional gastroenterologists will reduce dependency on two consultants and improve service continuity.
4. ***Improve Appointment Scheduling***
   Reception staff should space appointments adequately and provide clear preparation instructions.
5. ***Digital Queue and Scheduling System***
   A digital system can automate reminders, reduce overlaps, and improve real-time monitoring.
6. ***Cross-Training Staff***
   This will minimize delays caused by unavailability of specific personnel.
7. ***Strengthen Patient Counselling***
   Provide clear instructions, leaflets, or video-based education for better compliance.
8. ***Regular Performance Monitoring***
   Tracking KPIs like waiting time, case volume, and satisfaction will support continuous improvement.

XIV. Anticipated Benefits

Implementing these recommendations will:

- Reduce waiting time
- Improve patient satisfaction
- Increase procedural capacity

- Enhance staff coordination
- Decrease cancellations due to poor preparation
- Strengthen departmental reputation

XV. Conclusion & Future Scope

The study highlights that the Gastroenterology Department of TMC provides high-quality cancer care but faces operational challenges due to limited rooms and manpower. With appropriate investments in infrastructure, scheduling, and workforce, the hospital can further improve efficiency and patient experience.

Future Scope

- Assessing impact of digital queue systems
- Evaluating changes after adding new procedure rooms
- Studying long-term KPI trends
- Comparing performance before and after implementing help desk services

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