

SYNOPSIS

Dissertation Topic:

“Interdepartmental Referral Conversions: A Trend and Variance Analysis in Diagnostic and Pharmacy Services in a Tertiary Care Hospital.”

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Interdepartmental Referral Conversions: A Trend and Variance Analysis in Diagnostic and Pharmacy Services in a Tertiary Care Hospital.

INTRODUCTION:

In the dynamic environment of a multidisciplinary hospital, smooth interdepartmental coordination is essential for ensuring seamless patient care. A critical component of this coordination is the system of interdepartmental referrals, commonly facilitated through drop-down menus within digital Hospital Information Systems (HIS). These referrals play a pivotal role in connecting outpatient consultations to essential support services such as Laboratory, Radiology, and Pharmacy. Timely and accurate referrals are not only key to diagnostic accuracy and continuity of treatment but also serve as indicators of operational efficiency and service responsiveness.

Despite the widespread adoption of digital systems across tertiary hospitals in India, the process of converting referrals into completed services continues to face significant challenges. Issues such as inadequate tracking mechanisms, lack of accountability, and departmental data silos often result in missed or delayed conversions. While many studies have examined departmental workflows or clinical outcomes in isolation, there remains a notable gap in research exploring interdepartmental referral efficiency across multiple diagnostic and support services.

This study addresses that gap by undertaking a comparative analysis of referral and conversion patterns among the Laboratory, Radiology, and Pharmacy departments. By evaluating the efficiency of these departments in converting referrals from OPD into actionable services, this research seeks to uncover trends, assess departmental responsiveness, and highlight areas where bottlenecks exist.

The primary objective is to analyze the patterns of interdepartmental referrals (commonly known as "drop-downs"), measure conversion rates, and examine the variance between initiated and completed services. Through this evaluation, the study aims to generate data-driven insights that can inform practical strategies for enhancing interdepartmental coordination, optimizing referral workflows, and ultimately improving patient experience and outcomes in a tertiary care hospital setting.

About Max Super Speciality Hospital, Shalimar Bagh

Max Super Speciality Hospital, Shalimar Bagh, part of the Max Healthcare network, is a NABH and NABL accredited tertiary care center in Northwest Delhi. It offers a comprehensive range of services across 35+ specialties, supported by advanced diagnostics and patient-focused infrastructure. The hospital's integrated service model and reliance on digital referrals make it an ideal site for studying interdepartmental conversion efficiency and systemic responsiveness.

REVIEW OF LITERATURE:

Author(s) & Year	Location	Sample Size	Sampling Technique	What They Found
Nakayuki et al. (2021)	LMICs (Systematic Review)	38 studies	Literature Review	Identified lack of referral tracking, poor SOPs, and communication as major challenges in health referral systems.
Zuckerman et al. (2013)	United States	2,692 patients	Cross-sectional survey	Found major barriers to specialty referral completion included lack of communication and follow-up.
Desalegn et al. (2013)	Ethiopia	250 physicians	Cross-sectional study	Showed that lab test referral inaccuracy was due to unclear protocols and lack of physician training.
Pradhan et al. (2021)	India	Conceptual	Qualitative policy review	Discussed how AI-enabled referrals and telehealth can reduce service fragmentation in diagnostics and pharmacy.
Jayadeepa et al. (2021)	Tripura, India	500+ scans	Retrospective observational	Teleradiology improved radiology service accessibility and reporting timelines in remote hospitals.

RESEARCH QUESTION:

How effective and consistent are interdepartmental referral conversions from OPD to Laboratory, Radiology, and Pharmacy services in ensuring service utilization within a tertiary care hospital

OBJECTIVES:

1. To quantify the number of OPD consultations and corresponding referrals (dropdowns) to Laboratory, Radiology, and Pharmacy.
2. To calculate the monthly referral conversion rate for each department.
3. To identify interdepartmental variance in conversions and track monthly performance fluctuations.
4. To identify departments with consistently high or low average referrals to Laboratory, Radiology, and Pharmacy services.

HYPOTHESIS:

H₀ (Null Hypothesis): There is no significant difference in the average number of referrals and conversions among Laboratory, Radiology, and Pharmacy departments.

H₁ (Alternative Hypothesis): There is a significant difference in the average number of referrals and conversions among Laboratory, Radiology, and Pharmacy departments.

MATERIAL AND METHODS:

STUDY DESIGN:

Retrospective observational study based on secondary data

SETTING:

Max Super Speciality Hospital, Shalimar Bagh (NABH and NABL accredited tertiary care hospital in Northwest Delhi).

STUDY POPULATION:

Inclusion Criteria: All OPD patients with a recorded referral and follow-up conversion status on EP (Electronic Prescription) - Cash / Corporate, TPA, International.

Exclusion Criteria: Patients with missing or incomplete referral or conversion data- EWS, PSU Patients.

STUDY TOOLS:

Hospital Information System (HIS) reports- DRISHTI, Excel sheets; Excel for analysis

DURATION OF STUDY: 3 months (January – March 2025)

SAMPLE SIZE:

Data from 27 departments with over 2000+ consultation entries across 3 services

SAMPLING TECHNIQUE:

Total enumeration sampling of all eligible records from the hospital database

DATA COLLECTION PROCEDURE:

Average monthly consultations, drop-down referrals, and conversions were extracted department-wise and compiled from HIS records.

OPERATIONAL DEFINITIONS:

- Drop Down Advised: Referrals from OPD to a support service
- Conversion: Cases where the patient availed the referred service
- Conversion Rate: Ratio of converted referrals to total referrals advised
- Variance: Change in monthly conversion count compared to previous month

DATA ANALYSIS PLAN:

- Software: Microsoft Excel – V Look up
- Descriptive statistics (mean, percentage, totals)
and bar charts for department wise trends and comparisons
 - Variance = Conversion Month2 – Conversion Month1
 - Conversion Rate = Converted Cases / Drop Down Advised

ETHICAL CONSIDERATIONS

No direct patient interaction: retrospective, anonymized data was used. Data security and confidentiality ensured by using encrypted files. Institutional permission for data access was obtained.

IMPLICATIONS OF RESEARCH

This study can guide hospital management in identifying underperforming departments, optimizing referral processes, and improving service utilization via better interdepartmental integration.

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