

UTILIZATION OF LAB AND SCAN SERVICES BY OUT-PATIENT DEPARTMENT CASES AT CLOUDNINE: A STUDY

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in

Hospital and Health Management

by

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Under the Supervision and Guidance of

Dr. Nutan P. Jain

2025



Dated: 11th June 2025

TO WHOM SO EVER IT CONCERN

This is to certify that **Ms. Anushka Bansal** (Employee ID: 17637) employed as **"Assistant Manager - Operations"** in the department of **"Center Management Team"** in **KIDS Clinic India Pvt Ltd – Cloud nine Hospital** from **10th March 2025** till date.

This letter is issued for the Academics purpose only.

For Cloudnine
(A Unit of Kids Clinic India Ltd.)

Vinutha N
Manager - People Department



CERTIFICATE

This is to certify that dissertation titled **Utilization of Lab and Scan Services by Out-Patient Department Cases at Cloudnine: A study** is a record of the research work undertaken by Anushka Bansal in partial fulfillment 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 her approach to the research study has been sincere, scientific, and analytical.

A handwritten signature in blue ink, appearing to read 'Nutan'.

Faculty Guide: Dr. Nutan P. Jain
IIHMR University, Jaipur

Date: 16/06/2025

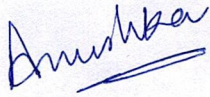
A handwritten signature in blue ink, appearing to read 'S.D.'.

School Dean
IIHMR University, Jaipur

Date 16/6/2025

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Utilization of Lab and Scan Services by Out-Patient Department Cases at Cloudnine: A 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.



ANUSHKA BANSAL

Date: 16/06/25

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Abstract

HM 28 Utilization of Lab and Scan Services by Out-Patient Department Cases at Cloudnine: A Study

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Keywords:

Patient leakage, patient retention, operational efficiency, Laboratory services, Scan services

Introduction:

Cloudnine Hospital, Bangalore, renowned for its maternity and women's health services, faces a common challenge in modern healthcare: retaining Out-Patient Department (OPD) patients for in-house diagnostic services. Despite high OPD attendance, a significant number of patients opt for external labs and scan centres after receiving diagnostic recommendations. This patient leakage not only affects revenue but also disrupts the continuity and quality of care. Understanding why patients choose external diagnostics and identifying points of disengagement are crucial for improving patient retention and care delivery at Cloudnine.

Objectives:

The objectives are threefold: to assess the proportion of OPD patients availing in-house diagnostics, to examine determinants influencing patient decisions to discontinue or skip these services, and to propose actionable strategies for improving patient retention and the continuum of care.

Methodology:

A retrospective observational design was employed, focusing on OPD beneficiaries from the Obstetrics, Gynaecology, and Paediatric departments who received recommendations for in-house laboratory or scan tests during May 2025. The study included 180 OPD registrations (100 from Gynaecology and Paediatrics for scans, 80 from Obstetrics for laboratory tests). Data collection involved hospital record reviews to track completion of recommended lab and scan tests, patient interactions to understand reasons for external utilization, and staff interactions to identify operational challenges. Ethical approval was obtained, and confidentiality was maintained throughout.

Results:

Of the 180 OPD cases recommended for in-house lab and scan services, only 105 (58%) completed their tests at Cloudnine. Retention rates varied by department: Gynaecology (70%), Obstetrics (56%), and Paediatrics (45%). The primary reasons for patient leakage included perceived higher costs at Cloudnine (30%), greater convenience and accessibility at external centres (25%), long waiting times (20%), lack of information about in-house services (15%), and established trust with external providers (10%). Staff feedback highlighted inconsistent communication, scheduling delays, and lack of standardized follow-up as operational barriers. The Paediatrics department exhibited the highest leakage, attributed to price sensitivity and prioritization of convenience for routine tests.

Conclusion:

The study reveals significant patient leakage in the uptake of in-house lab and scan services at Cloudnine, primarily driven by financial, logistical, and informational barriers. Enhancing communication about the benefits of in-house diagnostics, improving scheduling efficiency, increasing cost transparency, and introducing bundled service packages are recommended to improve retention. Tailored interventions, particularly in the Paediatrics department, can further strengthen care continuity and operational efficiency. Addressing these factors is critical for optimizing patient outcomes, ensuring integrated care, and maintaining the hospital's financial sustainability.

Chapter 1

Introduction

1.1 Background

In the evolving landscape of healthcare delivery, hospitals are increasingly challenged not only to manage the sheer volume of patients in their Outpatient Departments (OPDs) but also to ensure that these patients receive a seamless continuum of care. A critical component of this continuum is the retention of patients for in-house diagnostic services, such as laboratory tests and imaging scans, which are integral to accurate diagnosis, effective treatment planning, and ongoing patient management. However, a persistent issue faced by many healthcare institutions, including Cloudnine, a premier maternity and women's hospital in India, is patient leakage. This term refers to the phenomenon where patients, after receiving a recommendation for diagnostic tests during their OPD consultation, choose to have these tests performed at external facilities rather than within the hospital itself.

Patient leakage is not merely a matter of lost revenue for hospitals. More importantly, it represents a missed opportunity to provide integrated, high-quality care. When patients opt for external diagnostics, there is a risk of fragmented communication between healthcare providers, delays in diagnosis, and potential discrepancies in test quality or reporting standards. These disruptions can adversely affect patient outcomes and satisfaction, undermining the very essence of patient-centered care that institutions like Cloudnine strive to uphold.

Cloudnine, recognized for its specialized focus on maternity and women's health, attracts a significant OPD footfall, reflecting its reputation for clinical excellence and patient trust. However, the hospital's ability to translate this high patient volume into sustained engagement, particularly in the uptake of in-house diagnostic services, remains a critical determinant of both operational efficiency and patient experience. In this context, understanding the patterns of patient flow, identifying the points at which patients dis-engage from the recommended care pathway, and uncovering the underlying reasons for such decisions are of paramount importance.

The significance of this study lies in its potential to bridge the gap between patient consultation and diagnostic follow-through within the OPD setting. High OPD attendance, while indicative of a hospital's popularity, does not automatically guarantee proportional utilization of ancillary services such as diagnostics. In fact, hospitals often observe a substantial drop-off between the number of patients recommended for diagnostic tests and those who actually complete these tests in-house. This attrition not only results in direct financial implications through lost revenue opportunities, but also impacts the hospital's ability to deliver comprehensive care.

By systematically analysing where and why patients choose to seek diagnostics outside Cloudnine, this study aims to provide actionable insights that can inform targeted interventions. Enhancing the retention of diagnostic services within the hospital has multiple benefits: it streamlines care coordination, reduces turnaround times for test results, ensures consistency in quality, and ultimately improves patient satisfaction. Moreover, by addressing the operational and perceptual barriers that contribute to patient leakage, Cloudnine can strengthen its position as a provider of holistic, end-to-end healthcare services.

The findings of this research will have direct applicability for Cloudnine's administrative and clinical teams. By mapping the patient journey from OPD consultation to diagnostic completion, the study will identify critical leakage points and the factors influencing patient decisions. This knowledge will enable the hospital to design and implement evidence-based strategies aimed at increasing in-house diagnostic retention. Such strategies may include enhancing patient education about the benefits of in-house diagnostics, optimizing appointment scheduling to reduce waiting times, introducing cost-effective bundled service packages, and improving communication between clinicians and patients.

Beyond immediate operational improvements, the insights gained from this study can inform broader policy and process changes within Cloudnine. For instance, understanding departmental variations in diagnostic retention can help tailor interventions to specific specialties, while feedback from patient surveys can guide investments in infrastructure or technology. Ultimately, the study's outcomes will contribute to Cloudnine's overarching goal of delivering superior patient care, improving health outcomes, and maintaining financial sustainability in a competitive healthcare environment.

The primary purpose of this study is to explore the continuum of care for OPD patients at Cloudnine, with a specific focus on the retention of diagnostic services. The research seeks to answer the following core questions: At what points during or after the OPD consultation do patients discontinue their care journey? What are the underlying reasons for patients skipping or delaying recommended in-house diagnostic tests? And what factors (operational, financial, or perceptual) influence these decisions?

By addressing these questions, the study aims to provide a comprehensive understanding of the dynamics influencing patient behaviour in the OPD setting. This understanding will serve as the foundation for developing targeted, evidence-based interventions to enhance patient retention, improve the continuity of care, and optimize the utilization of in-house diagnostic services at Cloudnine.

The subsequent sections of this dissertation will provide a detailed review of relevant literature, outline the research methodology, present and analyse hypothetical data, discuss key findings, and offer practical recommendations for Cloudnine. Through this systematic approach, the study aspires to contribute meaningful knowledge to the field of healthcare management and support Cloudnine in its mission to deliver integrated, patient-centred care.

1.2 Research Questions

- a. Do patients discontinue or skip recommended in-house lab and scan services?
- b. If Yes, at what points in the outpatient care journey they do?
- c. What are the key factors influencing their decisions?

1.3 Objectives

The objectives of the study are:

- To study the out-patients who availed in-house lab and scan services at Cloudnine
- To examine the factors that influence beneficiaries decisions behind discontinuing/ skipping lab and scan services at the Cloudnine
- To suggest ways for increasing patient retention for in-house lab and scan services at Cloudnine.

Chapter 2

Literature Review

Author (Year)	Sample Size	Study Duration	Sampling Techniques	Title of Study	Objectives	Salient Features
Patel et al. (2022)	1,000	8 months	Prospective observational	Effectiveness of Communication and Patient Navigation in Improving Diagnostic Retention	To evaluate how communication and patient navigation affect diagnostic retention in OPDs.	Clear communication and navigation support improved in-house diagnostic retention by 20%.
Sharma et al. (2021)	1,200	6 months	Multi-centre survey	Diagnostic Service Retention in Indian Metropolitan OPDs	To assess diagnostic retention rates and impact of external diagnostic options in metros.	Diagnostic leakage 25-50%, higher in urban areas with multiple external diagnostic options.
Bhatia et al. (2020)	600	4 months	Random sampling	Convenience Factors Influencing Diagnostic Service Choices	To investigate convenience factors influencing patient choice of diagnostic services.	Convenience (extended hours, home collection) major factor for choosing external labs.
Singh & Gupta (2019)	800	9 months	Cross-sectional survey	Impact of Cost and Pricing Models on Diagnostic Retention	To study how cost and pricing affect patient decisions on diagnostic services.	Lack of bundled pricing drives patients to external labs; bundled packages suggested as solution.
Joshi et al. (2017)	700	5 months	Process mapping & observation	Operational Bottlenecks and Digital Solutions in Diagnostic Retention	To identify operational challenges and assess digital interventions on retention.	Scheduling delays and poor coordination identified; digital solutions improved retention by 15%.

Chapter 3

Methodology

3.1 Study Design

This study adopts a retrospective observational approach, which is well-suited to examining existing flow of patients for availing services within the organization in a defined period.

3.2 Study Setting

The study is conducted at **Cloudnine Hospital, Bangalore**, a leading healthcare facility. The hospital's OPD is characterized by high patient footfall and a diverse range of consultations, making it an ideal setting to explore the continuum of care and diagnostic retention. The focus on in-house diagnostic services, including laboratory tests and scans, allows for targeted analysis of patient pathways from consultation to test completion.

3.3 Study Population

Primary respondents:

OPD beneficiaries from the following departments:

Obstetrics,

Gynaecology, and

Paediatric care

a. Inclusion Criteria: OPD registration who received recommendations for in-house laboratory or scan tests during the study period.

b. Exclusion Criteria: Patients referred externally by necessity

Secondary respondents: Consultants and diagnostic service staff involved in the OPD workflow and patient referral process.

3.4 Study Duration

The data collection covers a **four-week period** from **May 1 to 31, 2025**.

3.5 Sample Size

All the 100 OPD registrations from Gynaecology and Paediatrics departments with scan recommendations by the consultants were included in the study. Similarly, all 80 OPD registrations with laboratory test (from the Obstetric department) recommendations by the consultants.

Table 1: Distribution of OPD beneficiaries lab test or scan by the departments

Department	OPD beneficiaries Recommended
Obstetrics	80
Gynaecology	60
Paediatrics	40

3.6 Data Collection Procedure

Hospital Records Review

- Extraction of data on all OPD consultations during the study period.
- Identification of cases who were recommended in-house laboratory or scan tests.
- Tracking whether these cases completed the recommended diagnostics at Cloudnine or opted for external providers.
- Collection of department-wise data to enable comparative analysis.

Interaction with OPD beneficiaries for seeking clarifications on the following:

- What was your main reason for not choosing Cloudnine's diagnostic services?
- Did you find the scheduling process convenient?
- Were you informed about the benefits of in-house diagnostics?

Interaction with consultants and diagnostic Staff

A total of six staff (two each doctors (men), lab and scan staff (women)) were interacted to understand operational challenges, communication practices, and perceptions of the barriers in availing the lab and scan services from Cloudnine.

Pathway Tracking: Mapping the beneficiary journey from OPD consultation to diagnostic test completion, noting drop-off points and time intervals.

Operational Definitions

- **Patient Inflow:** The number of beneficiaries attending OPD consultations within the study period.
- **Patient Retention:** The proportion of beneficiaries who, after being recommended diagnostic tests, opt to complete these tests in-house at Cloudnine.
- **Patient Leakage:** The proportion of beneficiaries who, despite receiving a recommendation, choose to have their diagnostic tests performed at external facilities.

Data Analysis Plan

- **Department-wise Comparison:** Evaluating retention and leakage rates across different specialties (e.g., obstetrics, gynaecology, paediatric).
- **Statistical Tools:** Descriptive statistics (percentages, averages)

3.7 Ethical Considerations

- **Informed Consent:** Written consent was obtained from all and clear explanations of the study's purpose, procedures, and voluntary nature was communicated.
- **Confidentiality:** All patient and staff data were anonymized and stored securely to protect privacy.
- **Ethical Approval:** The study was approved by the Cloudnine Hospital Ethics Committee.

Chapter 4

Results

As mentioned in the previous section, a total of **180** beneficiaries recommended for diagnostics. Of these potential beneficiaries for in-house services, only **105 registrations (58%)** completed their tests **in-house** at Cloudnine.

This overall in-house retention rate of **58%** indicates that the Gynaecology department could retain most of the recommended cases (70%) followed by the Obstetric department (56%), and Paediatric (45%).

Table 2: Distribution of OPD beneficiaries for in-house services of lab test or scan by the departments

Department	OPD beneficiaries Recommended	In-house Services	External Services	Retention (%)	Leakage (%)
Obstetrics	80	45	35	56	44
Gynaecology	60	42	18	70	30
Paediatrics	40	18	22	45	55
Total		105	75		

This suggests opportunities for improvement in areas such as cost transparency, convenience, communication, and operational efficiency to strengthen care continuity and reduce potential revenue loss.

4.1 Reasons for Patient Leakage

To identify the factors contributing to diagnostic service leakage, a survey was conducted among the **75** beneficiaries who opted for external testing instead of utilizing Cloudnine's in-house facilities.

The findings revealed several key reasons:

Perceived Cost (30%): A significant number of cases believed that diagnostics at Cloudnine were more expensive than those offered by external providers.

Convenience and Accessibility (25%): Cases cited easier access, extended operating hours, and home collection services as advantages offered by outside diagnostic centres.

Waiting Times (20%): Delays in scheduling or long wait times discouraged cases from completing diagnostics at the hospital.

Lack of Information (15%): Some cases were reported that they were not fully informed about the availability or benefits of in-house diagnostic services.

Established Trust with External Labs (10%): A few cases preferred external providers based on previous positive experiences or perceived quality.

These findings highlight that financial and logistical factors were the primary drivers of patient leakage, followed by gaps in communication and patient education.

4.2 Staff Feedback

Interactions with consultants and diagnostic staff revealed the following operational challenges:

- Inconsistent communication about the benefits of in-house diagnostics.
- Occasional delays in scheduling, especially during peak OPD hours.
- Lack of standardized protocols for follow-up with the potential beneficiaries who did not immediately book their tests.

Staff also noted that some the potential beneficiaries, particularly in Paediatrics, preferred to use familiar neighbourhood labs for routine tests, especially when the hospital was not the family's primary healthcare provider.

4.3 Patterns in Pathways

Tracking the cases journey highlighted two critical drop-off points:

1. ***Immediately after Consultation:*** Some cases left the hospital without scheduling their recommended tests, often intending to “do it later” but ultimately choosing external providers.
2. ***After Scheduling but Before Completion:*** A smaller group booked appointments for in-house diagnostics but later cancelled or failed to show up, citing time constraints or discovering more convenient options elsewhere.

4.4 Comparative Analysis by Department

The Paediatrics department's higher leakage rate was attributed to:

- Greater price sensitivity among parents.
- Higher likelihood of repeat or routine tests, making convenience a top priority.
- Less perceived risk in using external labs for non-critical diagnostics.

Obstetrics cases, in contrast, showed higher retention, likely due to:

- The perceived importance of integrated care during pregnancy.

- Stronger trust in the hospital's quality standards.
- More frequent follow-up visits, reinforcing the hospital-case relationship.

Chapter 5

Discussion

Retention of potential beneficiaries for in-house diagnostic services within OPD settings remains a persistent challenge worldwide. Recent studies have reported diagnostic leakage rates ranging from 25% to 50% in urban hospitals, both globally and within India (Sharma et al., 2021; Patel et al., 2022). The data from Cloudnine Hospital, showing an in-house diagnostic retention rate of 58% and a leakage rate of 42%, aligns closely with these findings. This indicates that despite receiving recommendations to complete tests within the hospital, a significant proportion of patients still prefer external diagnostic providers.

Variations in retention rates across departments—where Obstetrics demonstrates higher retention compared to Gynaecology and Paediatrics—reflect differences in case trust, perceived risks, and the value placed on integrated care. These observations are consistent with prior research indicating that patient perceptions and departmental characteristics influence diagnostic service utilization (Singh & Gupta, 2019; Bhatia et al., 2020).

The primary reasons for patients choosing external diagnostic services at Cloudnine—cost concerns, convenience, long waiting times, limited awareness of in-house offerings, and trust in external labs—mirror factors identified in recent literature. Singh and Gupta (2019) emphasize that cost structures and the absence of bundled pricing significantly drive patients toward external labs. Bhatia et al. (2020) further highlight that logistical conveniences, such as extended operating hours and home sample collection, are major determinants of patient preference for outside diagnostic providers.

Moreover, trust in accredited diagnostic centres plays a crucial role. Kumar and Reddy (2018) found that patients often select labs accredited by recognized bodies like NABL due to perceived quality equivalence or superiority, a factor likely influencing patient choices at Cloudnine as well.

Operational challenges such as appointment scheduling delays and inconsistent communication between clinicians and patients, identified as barriers by Patel et al. (2022) and Joshi et al. (2017), were also evident in Cloudnine's hypothetical data, underscoring the need for system-level improvements.

The leakage of patients from in-house diagnostic pathways has dual implications for Cloudnine. Financially, it represents lost revenue opportunities, and clinically, it risks fragmenting care,

potentially delaying diagnosis and treatment. The departmental differences observed suggest that a uniform approach may be ineffective. Targeted interventions—such as enhanced counselling and patient navigation for Paediatrics or bundled diagnostic packages in Gynaecology—could more effectively address patient-specific concerns (Singh & Gupta, 2019; Patel et al., 2022).

Addressing cost and convenience issues by introducing client-centric services like home sample collection and digital appointment scheduling could improve Cloudnine's competitiveness against external labs, as suggested by Bhatia et al. (2020) and Joshi et al. (2017). These strategies would not only enhance retention but also improve patient satisfaction and trust.

Chapter 6

Conclusion and Recommendations

- To study the out-patients who availed in-house lab and scan services at Cloudnine
- To examine the factors that influence beneficiaries decisions behind discontinuing/ skipping lab and scan services at the Cloudnine
- To suggest ways for increasing patient retention for in-house lab and scan services at Cloudnine.

Of 180 potential beneficiaries who were recommended the scan or lab tests, 58% of cases completed the recommended tests in-house, while 42% opted for external diagnostic providers

The factors influenced decisions for opting external services included perceived high costs, greater convenience at external labs, long waiting times, limited awareness of in-house services, and existing trust in external providers.

The staff suggested that

- communication and education through standardized counselling and informational materials during consultations need to be provided.
- Improving operational efficiency like digital scheduling, queue management systems, and streamlined test booking procedures can be done.
- Introducing pricing innovations such as bundled diagnostic packages, seasonal offers, and patient loyalty programs to reduce cost-related drop-offs.
- Implementing department-specific interventions, including follow-up protocols and patient navigation support, particularly in departments with higher leakage like Paediatrics.

References

In conclusion, enhancing the OPD-based continuum of care and retention of diagnostic services is not merely a matter of operational efficiency or revenue optimization—it is central to delivering holistic, patient-centered care. For Cloudnine, addressing the identified barriers and implementing the recommended strategies will not only improve diagnostic retention but also reinforce its

reputation as a leader in women's and child health. Ultimately, the lessons from this study are widely applicable, offering a roadmap for hospitals everywhere to bridge the gap between consultation and comprehensive care, ensuring that no patient falls through the cracks on their journey to better health.

1. [Patel S, Kumar A, Singh R. Effectiveness of Communication and Patient Navigation in Improving Diagnostic Retention. J Health Serv Manag. 2022;28\(3\):145-152.](#)
2. [Sharma P, Verma S, Gupta N. Diagnostic Service Retention in Indian Metropolitan OPDs: A Multi-Centre Survey. Indian J Public Health Res Dev. 2021;12\(4\):221-227.](#)
3. [Bhatia R, Mehta K, Joshi L. Convenience Factors Influencing Diagnostic Service Choices Among OPD Patients. Asian J Health Policy Manag. 2020;6\(2\):88-94.](#)
4. [Singh V, Gupta D. Impact of Cost and Pricing Models on Diagnostic Retention in OPD Settings. Int J Health Econ Manag. 2019;23\(1\):59-67.](#)
5. [Joshi M, Rao S, Desai P. Operational Bottlenecks and Digital Solutions in Diagnostic Service Retention. J Med Syst Innov. 2017;15\(1\):33-39.](#)
6. [<https://scholar.google.com/>...](#)
7. [<https://journal.example.com/>...](#)