

Impact Assessment of UNM Children Hospital



Assessment Period: Since inception (2021) to December 2024



Submitted to



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Abbreviations

BPL - Below Poverty Line

PMJAY - Pradhan Mantri Jan Arogya Yojana

NABH - National Accreditation Board for Hospitals and Healthcare Providers

NICU - Neonatal Intensive Care Unit

PICU - Pediatric Intensive Care Unit

OPD - Outpatient Department

IPD - Inpatient Department

PHC - Primary Health Centre

NFHS-5 - National Family Health Survey (5th Edition)

IMR - Infant Mortality Rate

U5MR - Under-Five Mortality Rate

SLE - Systemic Lupus Erythematosus

ED - Emergency Department

CME - Continuing Medical Education

HR - Human Resources

BMW - Biomedical Waste

GRN - Goods Receipt Note

CDC - Centers for Disease Control and Prevention

SOP - Standard Operating Procedure

OT - Operation Theatre

RDS - Respiratory Distress Syndrome

IV - Intravenous

NABL - National Accreditation Board for Testing and Calibration Laboratories

ABS - Ayushman Bharat Scheme

ECG - Electrocardiogram

MRI - Magnetic Resonance Imaging

CAGR – Compound Annual Growth Rate

1. Executive Summary

UNM Foundation is the Corporate Social Responsibility initiative of Torrent Group. As a part of its “REACH” (**Reach Each Child**) initiative under healthcare, UNM Children Hospital has been established. This document provides an impact assessment of the healthcare services delivered by UNM Children Hospital, Kamrej, Surat, from the start of its operations. The on-site evaluation took place between September 2024 and December 2024. The objective of this assessment has been to document the process and to conduct an impact assessment of the services provided by the hospital.

Established in 2020 and accredited by NABH, the hospital has emerged as a cornerstone for pediatric healthcare, catering primarily to economically disadvantaged populations. The UNM Children Hospital’s dedicated team of physicians, nurses, and other healthcare professionals consistently strive to set new benchmarks in clinical excellence and patient safety. The hospital provides much needed paediatric care especially for the underprivileged and has a positive socio-economic impact on the society at large.

Quantitative assessment indicates that the number of OPD (22-24 CAGR - ~20%) & overall IPD (22-24 CAGR - ~ 40%) patients have shown a continuous rising trend and so have the number of surgeries (22-24 CAGR - ~50%) being performed including their complexity. The decline in mortality counts during 2024 may reflect improvements in treatment protocols, staffing, or patient case management. Over the years, it has witnessed a steady increase in service utilisation, with over 1.5 lakh OPD visits and 3,863 total surgeries conducted till December 2024. The assessment highlights significant annual growth in outpatient visits, Neonatal Intensive Care Unit (NICU) and Pediatric Intensive Care Unit (PICU) admissions, and surgeries, reflecting the growing trust and reliance on the UNM Children Hospital services. Male patients accounted for a higher proportion of visits (57%) across all three years (2022-2024). The majority of patients fell in the 13-60 months age group, showcasing the UNM Children Hospital's essential role in addressing the health needs of young children.

Qualitative research highlights several strengths and challenges. The children’s families highlight the UNM Children Hospital's vital role in providing accessible and reliable healthcare, especially for rural and underserved communities. They appreciate the availability of 24/7 pediatric care and outpatient department (OPD) services, even on holidays, ensuring timely medical attention. Families expressed high satisfaction with the quality of care, valuing the expertise of doctors, prompt treatment, and specialized services for complex conditions. Medical staff emphasised the UNM Children Hospital's ability to manage complex pediatric cases, particularly in NICU and PICU, and adherence to high infection control standards.

UNM Children Hospital has provided the much-needed care for the children and helped to reduce financial burden on patients especially for underprivileged, allowing them to access potentially expensive medical treatments and procedures that they can't otherwise afford. The hospital prioritizes tribal and rural care, bridging gaps through outreach programs. The hospital contributes to the local economy through employment, purchases of goods and services, and its role as an anchor institution in the community.

While the UNM Children Hospital provides essential healthcare services, there are opportunities to enhance patient coordination, streamline specialist consultations, and improve awareness of financial aid programs to ensure timely care. Additionally, fostering greater staff engagement and retention will further strengthen service delivery. Addressing these areas through targeted community outreach, an optimized multi-consultation system, and continuous professional development initiatives will help enhance efficiency, patient experience, and overall healthcare outcomes.

2. Background

Gujarat, while ranking third in economic growth and achieving significant poverty reduction, continues to face challenges in equitable development, particularly in health outcomes for children. The state's infant mortality rate (IMR) of 31 deaths per 1,000 live births and under-five mortality rate (U5MR) of 38 per 1,000 live births, as reported in NFHS-5, is slightly below the national average of 41.9.

However, neonatal mortality accounts for 63% of under-five deaths, highlighting the need for focused interventions. Persistent issues such as malnutrition, low immunisation coverage, declining sex ratios, and child marriage significantly hinder progress. These challenges are most prevalent in tribal, coastal, desert, and hilly regions, where poverty levels exceed the state average. The demographic profile of Gujarat, with 8.3% of its population aged 0-4 years, 8.3% aged 5-9 years, and 10.2% aged 10-19 years, further underscores the importance of strengthening child health services.

While the state has seen growth in public and private health facilities, the availability of specialised healthcare professionals remains a critical concern, particularly in rural areas. Rural Health Statistics indicate a widening gap between demand and supply for specialists such as surgeons, obstetricians, gynaecologists, physicians, and pediatricians. In 2005, only 92 out of 1,088 specialist positions were filled. By 2022, this gap had worsened, with only 127 specialists available against a demand of 1,376 leaving a shortfall of 1,249. This acute shortage of healthcare professionals affects the functionality and effectiveness of health facilities, particularly in underserved regions, emphasizing the urgent need for well-equipped and adequately staffed healthcare systems.

The UNM Children Hospital, established in Kamrej, Surat, in 2020, addresses some of these pressing healthcare challenges by providing secondary and tertiary care for children. This NABH-accredited, 150-bed facility offers free services to patients with BPL (Below Poverty Line) and PMJAY (Pradhan Mantri Jan Arogya Yojana) cards. It serves primarily patients from nearby villages while functioning as a referral hub for many UNM Foundation PHCs. With 150 beds, three operation theatres, a 20-bed NICU, and a 17-bed PICU, the hospital has conducted over 1.5 lakh OPDs and 1,762 total surgeries in 2024. Its operational facilities, including outpatient, inpatient, emergency, critical care, laboratory, radiology, operation theatre, and pharmacy services, adhering to NABH standards. The UNM Children Hospital has recently achieved NABL (National Accreditation Board for Testing and Calibration Laboratories) certification, recognising its commitment to maintaining high laboratory standards. A



Figure 1: UNM Hospital Reception

pneumatic tube system ensures efficient sample transport to the laboratory, reflecting the UNM Children Hospital commitment to excellence and quality care. The UNM Children Hospital reception is shown in the Figure 1 above.

3. Aims

The project aims to assess the impact of the healthcare services provided by the UNM Children Hospital, Kamrej, Surat.

4. Objectives

- To assess the quality of care provided to the children attending the UNM Children Hospital
- To assess the experience and satisfaction level of children and their families
- To analyse the type of services and health outcomes for the children receiving treatment from UNM Children Hospital.

5. Methodology

5.1 Study Approach

The study employed a mixed-methods approach to comprehensively assess the impact of healthcare services provided by the UNM Children Hospital. The assessment integrated quantitative analysis of secondary data with qualitative insights derived from in-depth interviews (both staff and patients' families) which is shown in the Figure 2 below. The mixed-methods design allowed for a holistic understanding of service delivery, patient outcomes, and satisfaction levels.



Figure 2: In-depth Interview with staff

5.2 Study Setting

The study was conducted at the UNM Children Hospital, Kamrej, Surat, a NABH-accredited, 150-bed facility established in 2020. The UNM Children Hospital provides secondary and tertiary care services to patients from 0-18 years, with a focus on community healthcare. The location of the UNM Children Hospital is shown in the Figure 3 below.



Figure 3: UNM Hospital Location

5.3 Data Collection and Data Analysis

The flowchart of the data collection is shown in figure 4 below.

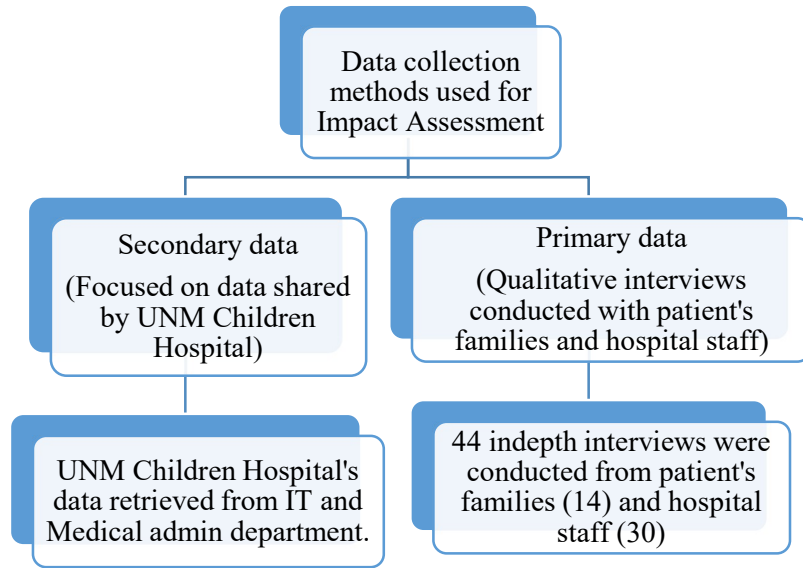


Figure 4: Data Collection Flowchart

Primary Data Collection and Analysis

In-depth interviews were conducted with the patients and their families to understand their overall experience, perceptions of care, quality and satisfaction of services. Clinical staff and non-clinical staff, including administrative staff and housekeeping staff interviews, focused on their experiences with service delivery, patient care, and operational challenges. Semi-structured interview guides were developed to facilitate the interviews. Verbal informed consent was secured from all patient's families before data collection. Confidentiality and anonymity were maintained by coding interview data and ensuring that personal identifiers were not included in the analysis. Interviews with patient's families explored themes like communication with healthcare providers, waiting times, accessibility of services, patient outcomes, and overall satisfaction. All interviews were conducted in a private and comfortable setting to ensure participant confidentiality. The local language was used during interviews for better communication. Audio recordings were made with parents/guardian's consent and later transcribed and translated into English. Qualitative data from the interviews were analysed using thematic analysis with inductive coding. Emergent themes were categorised into different domains to provide actionable insights. Data triangulation between patient and staff interviews validated findings.

Secondary Data Collection and Analysis

Data from the IT and medical admin department included the number of patients treated, their age, gender, type of services received, and health outcomes over the past year. Descriptive statistical analysis was conducted using software like Jamovi (version 2.3.28) to identify trends and patterns in healthcare service utilisation.

6. Results

6.1 Findings from the Secondary Data

6.1.1 Out Patient Department

A demographic breakdown of outpatient department (OPD) patients treated at the UNM Children Hospital over three years (2022–2024) is shown in the Table 1 below. It categorizes data by gender and age group, offering insights into trends and patterns in patient distribution. The waiting area of OPD is shown in Figure 5 below.

Table 1: Demography of OPD Patients

Variables	2022	2023	2024
Gender	n=35962 (%)	n=59371 (%)	n=62458 (%)
Female	15870 (44.12)	25378 (42.74)	26554 (42.51)
Male	20092 (55.87)	33992 (57.25)	35904 (57.49)
Age	n=35962 (%)	n=59371 (%)	n=62458 (%)
0-1 month	544 (1.51)	2057 (3.46)	4207 (6.74)
02-06 month	2250 (6.25)	5421 (9.13)	5266 (8.43)
07-12 month	4316 (12)	3129 (5.27)	9197 (14.73)
13-60 months	5 (0.01)	22030 (37.10)	16994 (27.15)
61- 120 months	20316 (56.49)	12144 (20.45)	15150 (24.26)
121- 216 months	8530 (23.71)	14589 (24.57)	11644 (18.64)

Key Highlights:

1. Gender Distribution:

- Male patients consistently represent a higher proportion (57%) across all three years compared to female patients (43%).

2. Age Group Trends:

- The majority of patients fall within the 13-60 months age group, making up 37% in 2023 and 27% in 2024.
- Other significant groups include children aged 61-120 months (20% in 2023, rising to 24% in 2024) and pre-adolescents aged 121-216 months (24% in 2023, 19% in 2024).
- The 0–1 month category shows a small but steady increase, from 3% in 2023 to 7% in 2024.



Figure 5: OPD waiting area

3. Yearly Observations:

- The total number of OPD visits saw a sharp rise from 35,962 in 2022 to 59,371 in 2023, reflecting a growing demand for pediatric services. The increase continued in 2024, reaching 62,458 indicating a stabilisation in growth.

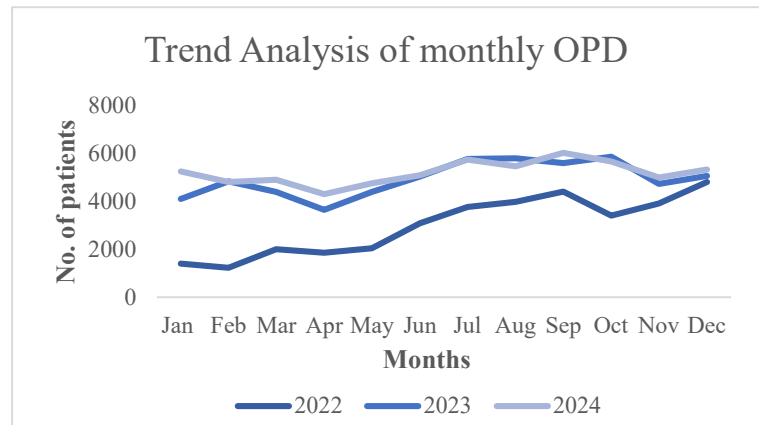


Figure 6: Trend analysis of OPD

Figure 6 provides insights into the Out Patient Flow over the past 3 years, from January 2022 to December 2024. This figure displays the monthly OPD visit trends for 2022, 2023, and 2024 at the UNM Children Hospital. The data shows significant variations in patient volumes, with notable seasonal and annual patterns:

1. Annual Growth:

- There is a consistent increase in total OPD visits from 2022 to 2024, reflecting a growing demand for outpatient services.
- The year 2024 shows the highest overall counts, with several months exceeding 5,000 visits.
- OPD recorded a steady increase of compounding average growth at **20.21%**.

2. Seasonal Trends:

- Peak OPD visits were observed in the early fall months (July to September)
- Lower patient counts were typical during the winter months (January and February in 2022), but this trend lessened in subsequent years.

6.1.2 In-patient Care Units

Neonatal ICU: The NICU wards of UNM Children Hospital are shown in Figure 7 below. The monthly counts of Neonatal Intensive Care Unit (NICU) patients at UNM Children Hospital for the years 2022, 2023, and 2024 are shown in Figure 8 below. The data showcases seasonal fluctuations and year-on-year growth in NICU admissions.

1. Annual Growth:

- NICU admissions have shown a significant increase over the years, with overall numbers rising consistently from 2022 to 2024.
- The highest overall patient count is observed in 2024, with several months recording more than 20 patients.
- NICU experienced compounding average growth at **29.7%**.



Figure 7: NICU

2. Seasonal Trends:

- Peak admissions typically occur in **September**, reaching a high of 25 patients in 2024, reflecting a consistent upward trend for this month across all three years.

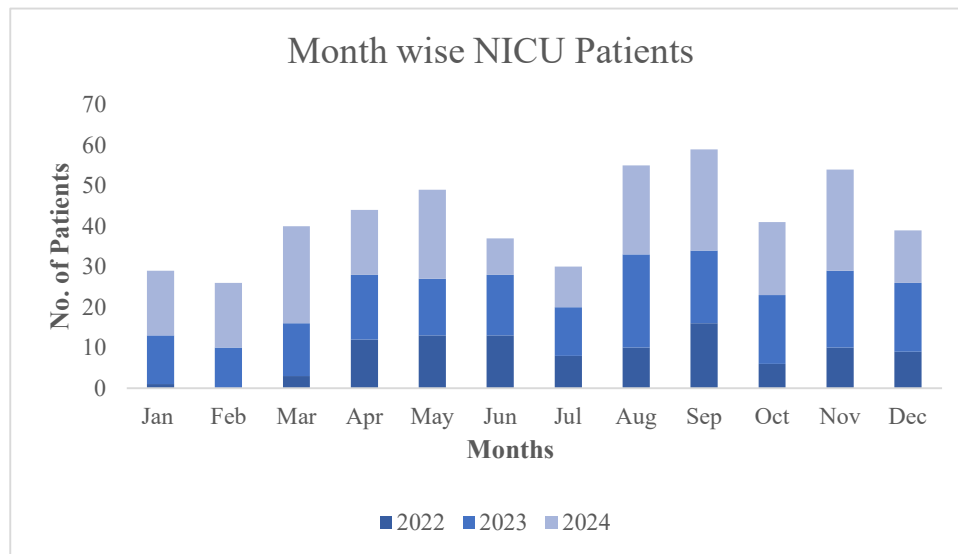


Figure 8: Month-wise NICU Patients

Pediatric ICU: The infrastructure of the PICU is shown in the Figure 9 below. The monthly counts of Pediatric Intensive Care Unit (PICU) patients at UNM Children Hospital for the years 2022, 2023, and 2024 is shown in the Figure 10 below. The data reveals significant growth in patient numbers, with distinct seasonal trends and an overall upward trajectory in demand for PICU services.



Figure 9: PICU

1. Annual Growth:

- There has been a noticeable increase in PICU admissions over the years, with 2024 registering the highest counts across most months.
- The increase from 2022 to 2024 is particularly significant in **July, August, and September**, reflecting peak demand.
- The PICU showed the most significant upward trend with a **66.7% CAGR**.

2. Seasonal Trends:

- September consistently records the highest admissions, peaking at 39 patients in 2024, up from 12 in 2022.
- Late summer and early fall months (July to September) show sustained high patient counts, suggesting a seasonal pattern likely influenced by regional health trends or environmental factors.
- Lower patient counts were observed during early months (January to March in 2022), though these numbers increase sharply in subsequent years.

3. Key Insights:

- The upward trend reflects the growing reliance on PICU services, potentially due to increased pediatric cases, better referral systems, or expanded capacity at the hospital.
- Seasonal peaks in mid to late summer could point to specific health challenges affecting children during this period, such as respiratory infections or other seasonal illnesses.
- The consistently high numbers in 2024 suggest a need for sustained resource allocation, especially during peak months, to maintain service quality and patient outcomes.

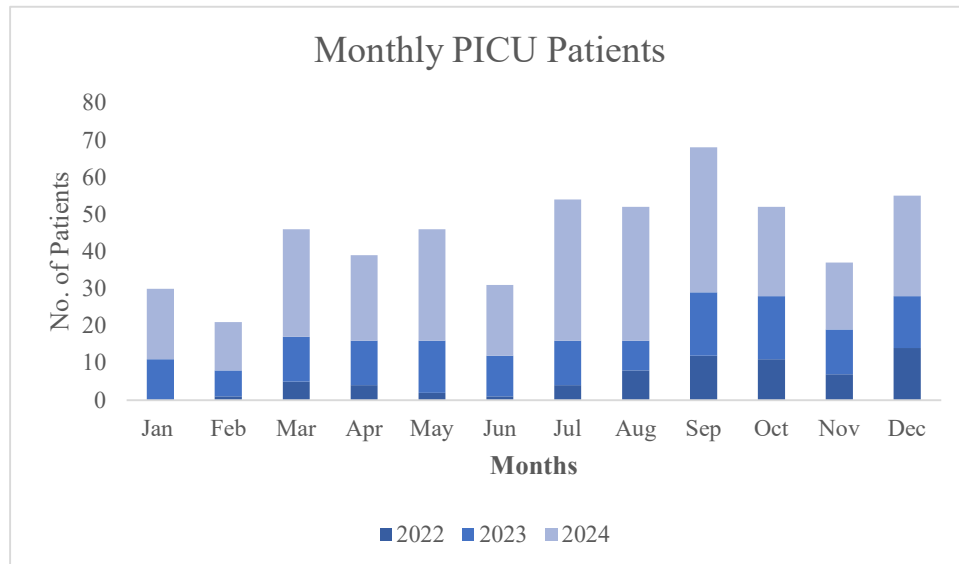


Figure 10: Monthly PICU patients

6.1.3 Surgery

An analysis of the demographic characteristics of patients undergoing surgery at UNM Children Hospital across three years (2021–2024) is shown in the Table 2 below. The data is categorized by gender and age group, highlighting patterns in surgical care.

Table 2: Demographic characteristics of surgery patients

Demography	2021	2022	2023	2024
Gender	n=13 (%)	n=520 (%)	n=1568 (%)	n=1762 (%)
Male	9 (69.23)	373 (71.73)	1055 (67.28)	1234 (70.09)
Female	4 (30.76)	147 (28.26)	513 (32.71)	527 (29.91)
Age	n=13 (%)	n=520 (%)	n= 1568 (%)	n=1762 (%)
0-12 months	1 (7.69)	122 (23.46)	395 (25.19)	374 (21.23)
13- 60 months	6 (46.15)	173 (33.27)	431 (27.48)	465 (26.39)
61-120 months	2 (15.38)	126 (24.23)	408 (26.02)	485 (27.53)
121-216 months	3 (23.07)	99 (19.04)	334 (21.30)	438 (24.86)

Key Highlights:

1. Gender Distribution:

- Male patients consistently outnumber female patients, accounting for 67%-72% of surgical cases across the years.
- Female patients represent 28%-33% of the surgical population.

2. Age Group Trends:

- The majority of surgeries were performed on children aged 13-60 months, comprising 46% in 2021, 33% in 2022, 27% in 2023 and 26% in 2024.
- Other significant age groups include children aged 61-120 months and pre-adolescents aged 121-216 months, each accounting for approximately 15%-28% of surgeries by 2024.

3. Yearly Observations:

- The total number of surgeries increased dramatically from 13 in 2021, 520 in 2022 to 1,568 in 2023 and 1762 in 2024.
- Surgical services grew at a robust 50.3% CAGR

The top number of surgeries performed across various departments at UNM Children Hospital from 2021 to 2024 is shown in the Figure 11 below. The data highlights trends in surgical volume and departmental activity, revealing notable growth and expansion of services over the years.

Key Insights:

1. Overall Growth:

- There has been a substantial increase in total surgeries from 2021 (13 surgeries) to 2024 (1,762 surgeries). This reflects a remarkable expansion in the UNM Children Hospital's surgical capacity and patient load.

2. Departmental Highlights:

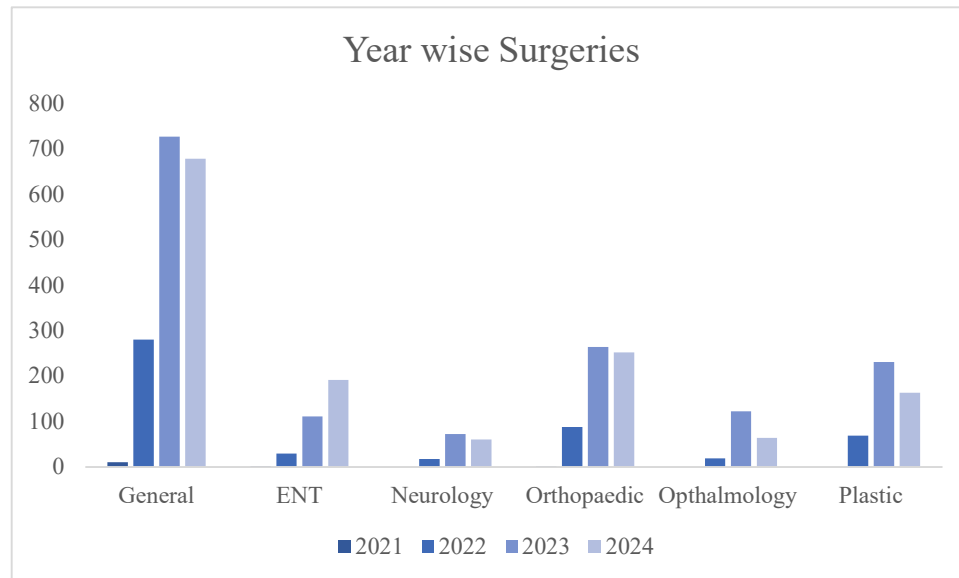
- **General Surgery:** Maintains the highest volume each year, growing from 12 surgeries in 2021 to 802 in 2024 (Jan-Dec), indicating its critical role in the hospital's services.
- **Orthopaedic:** Significant growth from no surgery in 2021 to 293 surgeries in 2024, showcasing rapid expansion in this department.
- **Plastic Surgery:** A notable rise from no surgeries in 2021 to 197 in 2024, indicating the development of specialised surgical services.
- **ENT (Ear, Nose, and Throat):** Displays consistent growth, with surgeries increasing from 1 in 2021 to 233 in 2024.
- **Dental and Neurology:** While relatively smaller in volume, both departments show steady contributions, particularly in 2023 and 2024.

3. Emerging Specialties:

- **Nephrology and Urology:** Both fields have started contributing significantly since 2023, suggesting the initiation or enhancement of these specialised services.

4. Insights on Growth:

- The sharp increase from 2022 onwards suggests major developments, such as improved facilities, recruitment of specialised surgeons, or increased community outreach leading to higher referrals.
- UNM Children Hospital also performs life-changing surgeries, including spine, orthopaedic,

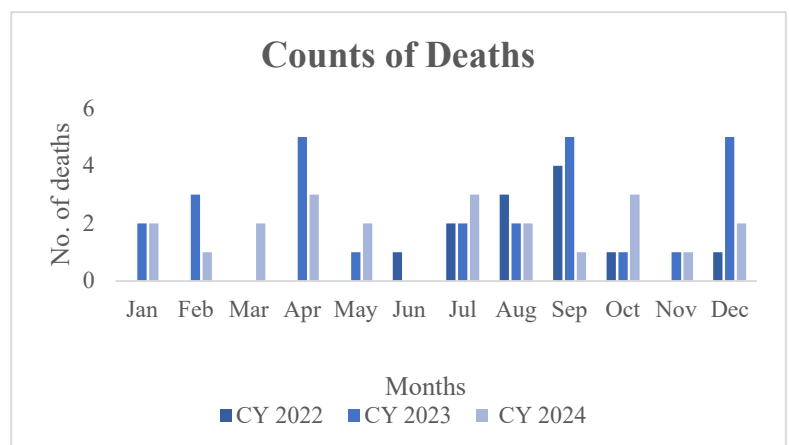


plastic and reconstructive, and gastrointestinal tract.

Figure 11: Top Surgeries Performed from 2021 to 2024

6.1.4 Death Record

The monthly counts of deaths recorded at UNM Children Hospital for the calendar years 2022, 2023, and 2024 are shown in Figure 12. The data highlights fluctuations across months and years, offering insights into patterns that may inform quality improvement initiatives and clinical care strategies.



1. Annual Trends:

- The total death counts remain relatively low across all years, indicating the UNM Children Hospital's focus on high-quality pediatric care.
- **2023 has the highest recorded total deaths**, while 2024 shows a slight reduction, suggesting improved outcomes or case management.

2. Monthly Variations:

- Death counts vary significantly across months, with notable peaks in **April, December, and September**, depending on the year.

- **December** stands out with the highest single month count in 2023 (5 deaths), while in 2024, April, July, and October show elevated counts.

3. Seasonal Insights:

- **Spring and late summer months (April and September)** tend to have higher counts, which could correlate with seasonal illnesses or other environmental factors.
- **June consistently shows lower counts**, with no deaths recorded in 2023 and 2024, possibly indicating fewer severe cases during this period.

Declines in death counts during 2024 may reflect improvements in treatment protocols, staffing, or patient case management.

6.2 Roles and Responsibilities of the UNM Children Hospital Staff

The roles and responsibilities of the UNM Children Hospital are shown in Table 3 below.

Table 3: Roles and Responsibilities of the UNM staff

Cadre	Name	Roles and responsibilities
Doctor	Pediatric surgeon	<ul style="list-style-type: none"> ▪ Performs clinical duties, consultations at OPD, IPD rounds, and surgeries
	Paediatrician	<ul style="list-style-type: none"> ▪ Manages OPD and IPD rounds, focusing solely on clinical duties without additional administrative responsibilities.
	Medical officer	<ul style="list-style-type: none"> ▪ In charge of IPD/ED, conducts regular rounds, and reports emergencies to senior consultants. ▪ Writes discharge summaries and manages patients in IPD and ED. ▪ Serves as a bridge between surgical doctors or in-house surgeons for clinical care. ▪ Works with flexible hours, including day and shift scheduling, with two rounds per day.
	Intensive care paediatrician	<ul style="list-style-type: none"> ▪ Oversees NICU and PICU, managing patients in these critical care units during shift changes.
	Senior paediatrician/assistant general manager	<ul style="list-style-type: none"> ▪ Manages the pediatric department, including IPD, OPD, NICU, PICU, surgical, and medical departments. ▪ Conducts patient rounds, including NICU, PICU, and general pediatric medical and surgical cases. ▪ Provide patient and family counselling and discuss progress, reports, expectations, and outcomes. ▪ Addresses issues in clinical sites, recruitment, and assessment of medical officers and consultants.
Nurses	In Patient Department (IPD)	<ul style="list-style-type: none"> ▪ Ensure smooth handovers during shift changes, verifying patient details.

		<ul style="list-style-type: none"> ▪ Maintain and update registers for admissions, discharges, and post-operative care. ▪ Monitor and maintain IV sets, ensuring changes every three days and timely updates on treatments and medications.
	Outpatient Department (OPD)	<ul style="list-style-type: none"> ▪ Monitor visitors, and ensure smooth coordination of staff and patient services. ▪ Keep accurate records of doctor visits, OPD sessions, and appointments. ▪ Verify if there are any issues or complaints from doctors or patients.
	Neonatal Intensive Care Unit (NICU)	<ul style="list-style-type: none"> ▪ Ensure staffing ratios comply with quality care standards. ▪ Conduct rounds, oversee patient care, and ensure accurate medication and treatment administration. ▪ Provide counselling and support to parents, addressing their concerns and ensuring a mother-friendly environment. ▪ Coordinate with specialists, including consultants, cardiologists, and ophthalmologists, for comprehensive neonatal care.
	Emergency Department (ED)	<ul style="list-style-type: none"> ▪ Manage emergency cases (medical and surgical), providing primary treatment and stabilizing patients before transferring them to the ward. ▪ Administer IV treatments, manage investigations for surgical patients, and ensure emergency protocols are followed.
	Operation Theatre (OT)	<ul style="list-style-type: none"> ▪ Assists in anaesthesia and scrubbing for surgeries, including general, ophthalmology, orthopaedic, and other specialized surgeries. ▪ Manages OT duties, including preparation for surgeries and assisting during operations.
Infection Control Nurse (ICN)		<ul style="list-style-type: none"> ▪ Conduct regular rounds in OPD, ED, IPD, NICU, PICU, OT, Laboratory, and CSSD to monitor cleanliness, infection control, and hygiene standards. ▪ Organize infection control audits, including hand hygiene, sterilisation practices, and hygiene education for staff. ▪ Liaise with the Infection Control Officer and quality committee to implement solutions and monitor progress. ▪ Conduct training sessions on infection control for various hospital staff, evaluating training effectiveness and addressing gaps.
Administrative Staff	Vice president	<ul style="list-style-type: none"> ▪ Oversees overall management, policy decisions, and strategic planning for the hospital.

	HR head	<ul style="list-style-type: none"> Manages recruitment, employee welfare, and retention programs.
	Medical administrator	<ul style="list-style-type: none"> Coordinates medical activities, oversees operational efficiencies, and manages medical staff resources.
	Quality control	<ul style="list-style-type: none"> Ensures the hospital meets health care quality standards, coordinates audits, and tracks performance metrics
	IT department	<ul style="list-style-type: none"> Oversee the maintenance, troubleshooting, and rectification of hardware, software, and basic network issues to ensure seamless operation of hospital systems.
	Finance	<ul style="list-style-type: none"> Handle budgeting, expense tracking, preparation of financial statements, and finalization of CSR expenditures
Others	Floor coordinator	<ul style="list-style-type: none"> Manages patient flow and coordination among departments to ensure smooth operations.
	Housekeeping staff	<ul style="list-style-type: none"> Responsible for cleaning the hospital multiple times a day, including dusting, mopping, and sanitizing. Follows specific cleaning protocols for areas with blood or spillage, using appropriate cleaning agents like Hypo
	Pharmacist	<ul style="list-style-type: none"> Manages and dispenses medicines and surgical items. Verifies prescriptions entered by doctors, checks batch numbers, expiry dates, and quantities upon receiving stock. Prepares Goods Receipt Notes (PTS) and ensures proper stock entry into the hospital system.
	Receptionist	<ul style="list-style-type: none"> Handles patient registration and billing for both IPD and OPD. Maintains patient data for all departments and manages the admission and discharge processes for patients
	Lab Technician	<ul style="list-style-type: none"> Conduct tests in biochemistry, haematology, serology, clinical pathology, and microbiology. Handle patient samples, manage lab reports, and coordinate with doctors for timely results. Ensure the lab follows cleanliness, safety, and quality standards for testing procedures

6.2.1 UNM Children Hospital General Information

This section contains the type of services available, common trends in medical and surgical cases, and referral system, which are shown in Figures 13, 14, and 15, respectively.

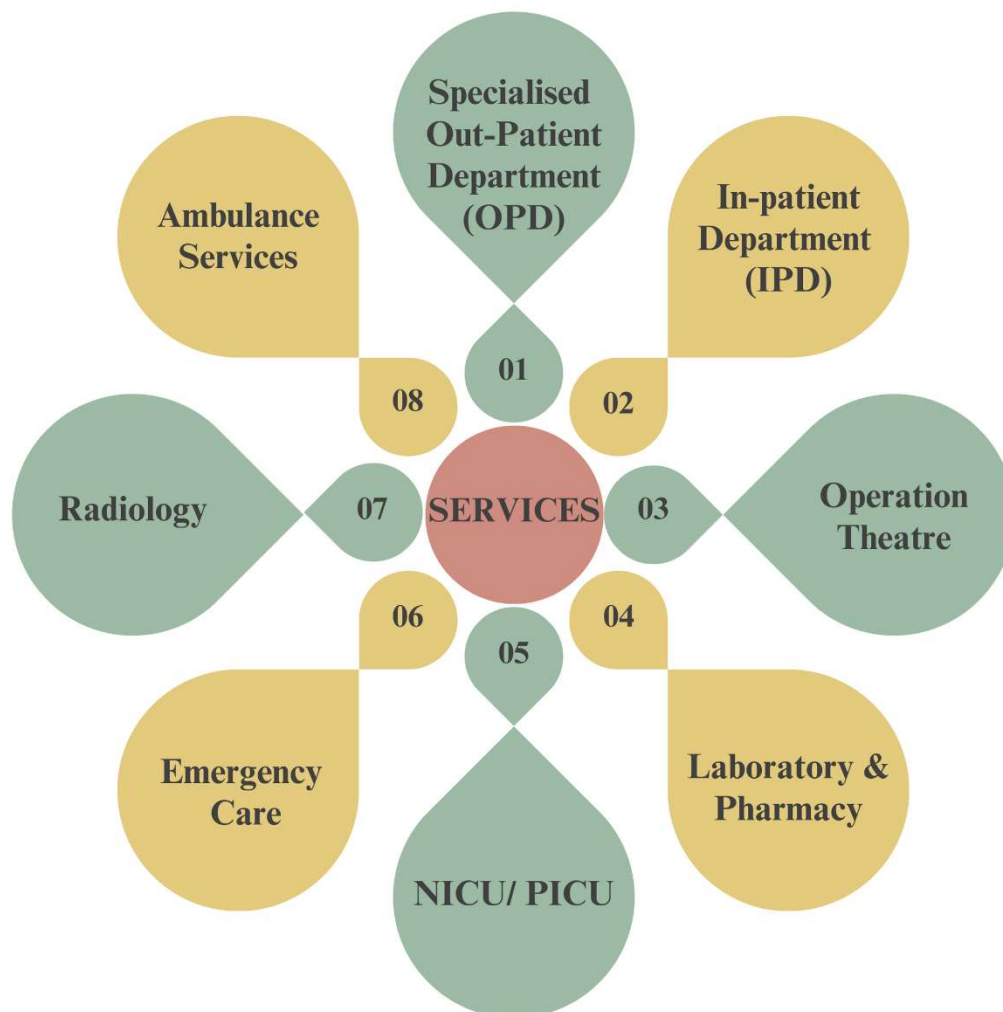


Figure 13: Services available at the UNM Children Hospital

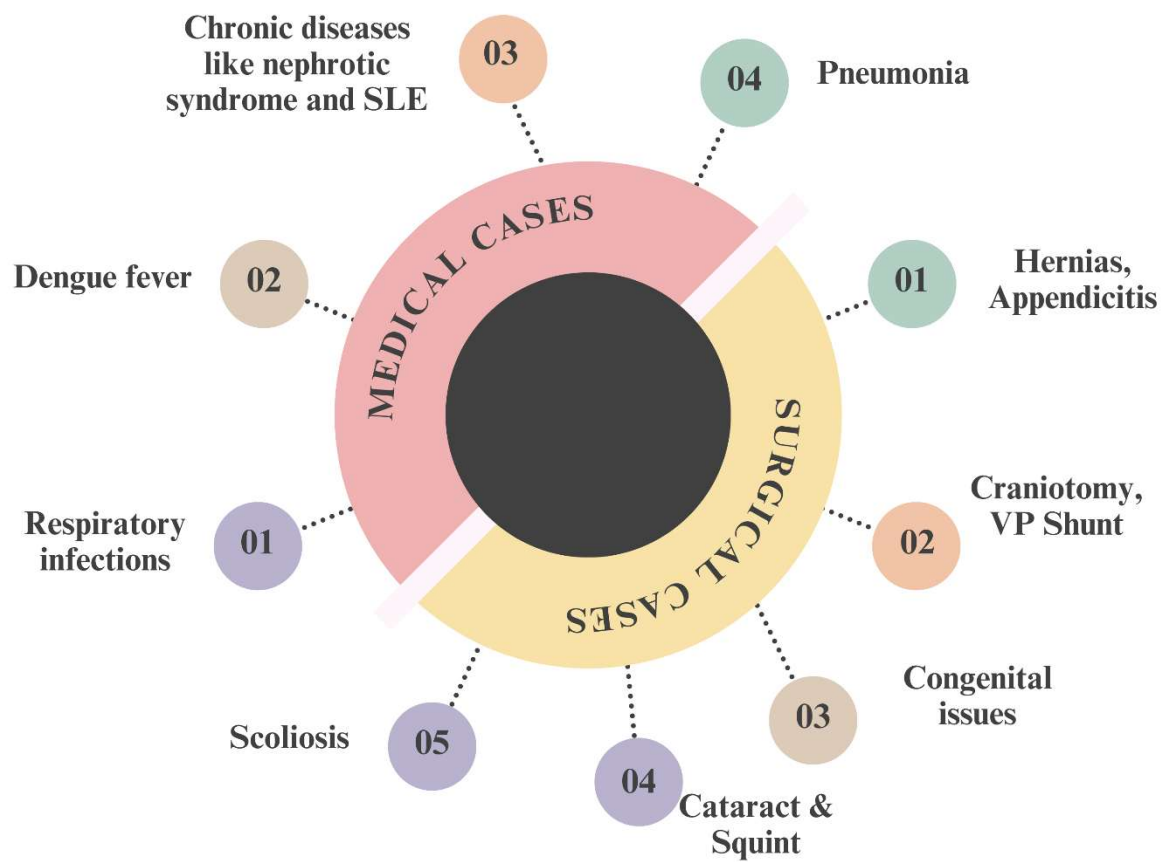


Figure 14: Common Trends in Medical & Surgical Cases

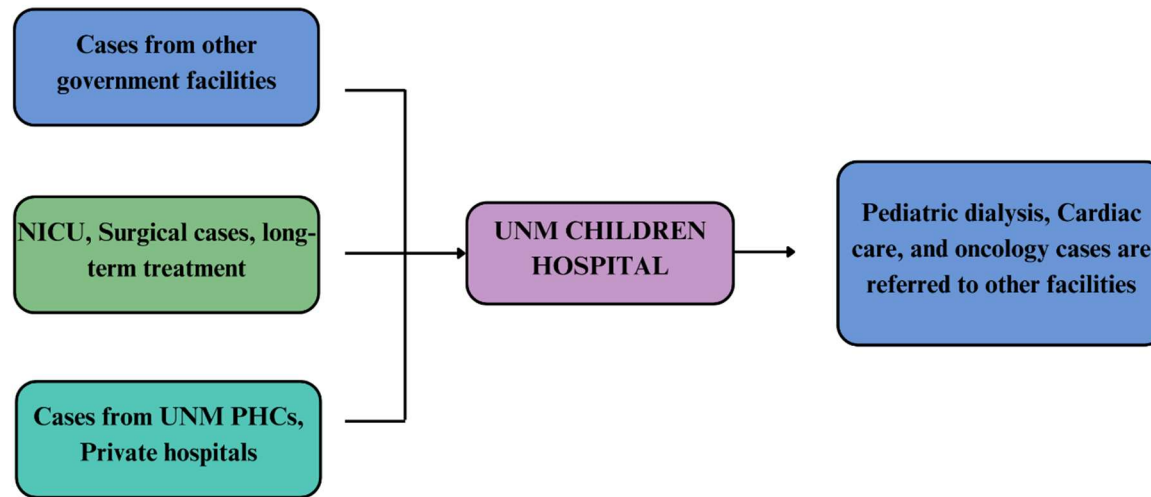


Figure 15: Referral System

6.3 Findings from the Qualitative Interviews

6.3.1 Results from In-depth interviews of staff

Prioritizing Quality and Safety

The hospital ensures high standards of quality and safety by adhering to NABH (National Accreditation Board for Hospitals), NABL (National Accreditation Board for Testing and Calibration Laboratories) and CDC (Centers for Disease Control and Prevention) guidelines for infection control and clinical procedures. A dedicated quality and safety department oversees patient care, incident reporting, and compliance with established protocols, ensuring continuous monitoring and improvement. Standard Operating Procedures (SOPs) guide emergency responses, supported by a specialised team for all codes for respective crisis management. Monthly audits are conducted to evaluate outpatient (OPD), inpatient (IPD), and surgical data, ensuring accountability and performance tracking. Mortality reviews are systematically performed, with cases presented and analysed to identify causes and implement care protocol improvements. Hospital facilities are shown in Figure 16.



Figure 16: Hospital facilities

We review the MIS each month, which includes the number of surgeries performed by everyone.

We discuss the OPDs, inpatient numbers, and the total surgeries conducted. – Doctor

Yes, there is one quality person who is looking after everything, as far as quality is concerned there is also a committee for biomedical waste, and another committee for NABH and all the members are fixed. - Administrative staff

Expert Care & Patient-Focused Services

The hospital provides an extensive array of auxiliary services, including emergency care, pharmacy, radiology, pathology, mortuary, and ambulance services. In addition, it specializes in a variety of pediatric subspecialties, such as nephrology, neurology, ophthalmology, endocrinology, gastroenterology, orthopaedics, spine care, and general surgery. These services are supported by investments in cutting-edge technology such as laparoscopic and laser instruments. Plans for developing transplant services demonstrate a proactive approach, encompassing ICU enhancements, team training, and infrastructure upgrades to ensure readiness for complex procedures. The hospital effectively manages intricate cases, such as congenital anomalies like Spina Bifida, Clubfoot, Cleft Lip and Palate, and Limb reduction surgery with a focus on precision and care. Additionally, families are actively engaged through education about surgical procedures and recovery processes, alleviating fears and empowering them to make informed decisions. IPD area for children is shown in the Figure 17 below.

In addition to routine cases, some congenital diseases are also there, but there is little understanding for them that these diseases can ever be cured. - Doctor

Tailored Care for Underserved Communities

The hospital prioritizes the needs of tribal and rural patients, who often have limited access to advanced medical care. Special attention is provided to ensure these vulnerable groups receive appropriate treatment and support. Community outreach programs play a vital role in establishing trust, identifying patients in need, and facilitating their access to the hospital, bridging gaps in healthcare delivery for underserved populations. If a patient requires a consultation with a doctor but faces challenges due to long-distance travel, the hospital provides the option to admit the patient for a single day.



Figure 17: IPD area

Patients often come to us from the tribal areas, especially those whose families have lost hope for their child's recovery, and who have given up on their child. By "given up," I mean that they believe the child's condition is incurable. - Doctor

Fostering Trust Through Patient Care

Patients widely accept recommended treatments, driven by the financial model that minimizes their direct expenses. However, a common perception of the hospital being entirely free sometimes results in misaligned expectations regarding discounted services. To address these gaps, counselling sessions for patients' relatives are conducted, providing updates on progress, reports, and expected outcomes. Play area is shown in the Figure 18.



Figure 18: Play area for children

If the patient trusts you and accepts the necessity of treatment, everything falls into place. - Doctor

Enhancing Operational Excellence

The hospital demonstrates organizational strength through efficient administration, where decision-making actively involves specialists to align equipment and infrastructure with clinical requirements. Patient treatment details are meticulously documented in physical files, which are periodically reviewed by administrative staff to maintain accurate records and accountability. A culture of continuous improvement is fostered through regular reviews of complications and outcomes, enabling the refinement of care protocols and enhancing overall operational efficiency.

Excellence in Comparative Performance

The hospital surpasses municipal facilities in key areas such as infrastructure, staff expertise, and response time, ensuring superior patient care. Compared to private hospitals, it leads in updating equipment and offering affordable or free services, making quality healthcare accessible to a broader population while maintaining high standards of care delivery. OPD area is shown in the Figure 19 below.



Figure 19: OPD area

The beauty of the facility is remarkable, and the available instrumentation is top-notch. The support staff is excellent, and there is a strong presence of paediatricians, along with reliable backup in both the NICU and PICU. Importantly, a paediatrician is always available, even during the night, in addition to the medical officers on duty. – Doctor

Housekeeping & Staff Wellness

The hospital's housekeeping services prioritize cleanliness, hygiene, and infection control. Staff members are responsible for frequent cleaning, with specific protocols for high-risk areas like operation rooms and labs. The use of color-coded cloths and dedicated cleaning agents ensures targeted cleanliness across various zones. Waste management is structured, with clear segregation into designated bins for efficient disposal. Training is regularly provided, focusing on infection control and waste management practices, supported by supervisors to ensure adherence to guidelines. This structured approach not only maintains hygiene but also fosters staff resilience and job satisfaction, as staff members feel motivated and valued despite occasional challenges such as supply shortages.

When we clean the table, we use blue cloth. In the washroom, we use red cloth. When we clean the computer, we use yellow cloth. And in the pantry, we use green cloth. – Housekeeping staff

Streamlined Operations & Hygiene Standards

We prioritize high-risk areas. For example, in the lab, we often have various samples without knowing which ones are positive or negative. When there is a blood spill, our immediate response is to cover that area. We will address the rest of the situation afterwards, but the initial step is to ensure that the area is contained. - Housekeeping staff

The hospital maintains operational efficiency through a robust shift system that ensures continuous coverage and effective staff allocation. Housekeeping staff are trained to respond to emergencies, further enhancing their integral role in maintaining a hygienic environment. Infection control is a key focus, with strict hygiene practices followed, especially in high-risk zones. The hospital emphasizes the importance of using protective gear and sanitizing agents to minimize infection risks, and immediate containment of any contamination ensures patient and staff safety. Regular updates and training by supervisors contribute to continuous improvement in these processes. IEC is shown in the Figure 20 below.



Figure 20: IEC

6.3.2 Results from In-depth Interviews of patients

Improving Access & Awareness

The hospital plays a pivotal role in providing accessible care, with patients often traveling significant distances (20–45 km) due to the absence of adequate healthcare facilities near their homes. Its reputation as a quality care provider is reinforced through a robust referral system, with patients learning about the hospital via friends, family, and healthcare providers. In regions where, Primary Health Centers (PHCs)

He had tonsillitis when he was two years old, but they didn't tell us he was infected. We took him to many places. My friend, who lives in Jalwa, told us about this hospital. – Patient's parent

My house is nearby, so this hospital is very convenient whenever we need medical help. It has good facilities and provides excellent care for patients. We always come here whenever there is a health issue. – Patient's parent

are limited or unavailable, the hospital serves as a crucial resource for rural and underserved communities. The availability of 24/7 pediatric care and OPD services, even on holidays, further enhances its accessibility and reliability.

Ensuring Exceptional Care

Patients consistently express high satisfaction with the quality of care provided at the hospital. They appreciate the thorough explanations offered by doctors, prompt attention to their health concerns, and effective treatments that lead to noticeable improvements in their conditions. The hospital's specialized services are also widely acknowledged, with patients valuing its capacity to manage complex cases, such as surgeries for throat conditions, dengue treatment, and brain operations, further reinforcing its reputation for excellence in healthcare delivery.

Affordable Care

The hospital's affordability stands out as a key strength, with many patients valuing the availability of free or subsidized treatments. Financial support mechanisms, such as Ayushman Bharat cards and other welfare schemes, significantly alleviate the financial strain on families. These provisions not only make quality healthcare accessible but also enhance patient trust and confidence in the hospital's commitment to equitable care. A small recommendation from mothers was that they would appreciate simpler, less spicy food options, as they are concerned that spicy food may affect their breastfeeding. Patient with mother is shown in the Figure 21.



Figure 21: Patient with mother

Optimizing Operations for Better Patient Care

The hospital demonstrates strong operational efficiency through streamlined processes, including token systems and staff-guided navigation, ensuring a seamless experience from registration to treatment. Most patients find waiting times reasonable, reflecting the hospital's commitment to timely service delivery.

Clean and Patient-Friendly Infrastructure

Patients widely commend the hospital for its cleanliness and adherence to high hygiene standards, meeting their expectations of a well-maintained healthcare facility. The provision of amenities such as dormitories and resting areas for families accompanying patients enhances the overall comfort and convenience of hospital visits, reinforcing its reputation as a patient-friendly institution. A few patients expressed concerns regarding the hospital's isolated location, noting that it can be challenging for those without personal vehicles. However, it was observed that the hospital has addressed this issue by arranging frequent pick-up and drop-off services from the Ghala Patiya road near Kamrej, Surat.

It is somewhat difficult to travel from there to here. Those who have their own vehicles can reach here easily. - Patient's parent

Effective Staff Communication and Support

The hospital is very clean, and the staff is kind and respectful. Everyone here is polite, and the overall experience is very good. - Patient's parent

No, I am not scared, she explained to me very well. - Patient's parent

The hospital staff's polite and approachable behaviour, both medical and non-medical, significantly enhances the patient experience. Security and reception staff are especially appreciated for their proactive guidance, helping patients navigate the hospital efficiently. While most interactions are positively received, a few patients reported challenges in understanding communication in languages like Gujarati especially for patients arriving from outside Gujarat. Extracurricular activities for children in the hospital premises is shown in the Figure 22.



Figure 22: Extracurricular activities for children

Building Trust Through Emotional Support

Patients express strong trust in the hospital's doctors, commending their approachability and comprehensive care, which fosters a sense of reassurance. Emotional support provided to families

There are many doctors here who take care of us - Patient's parent

during critical care situations is highly valued, reflecting the hospital's commitment to a holistic approach that addresses not only medical but also emotional needs, enhancing the overall patient and family experience.

6.3.3 Department wise services

To obtain services from the facility, the admission policies for patients are as follows:

- OPD consultation is free for all patients.
- Walk-in patients or referrals from other centers if they have an Ayushman Card, BPL Card, or Sandarbh Card will receive free services.
- If a patient lacks a beneficiary card, their socio-economic status is assessed for potential eligibility.
- If patients are from the affordable category, they pay subsidised rates for treatments and investigations.

The department-wise services provided by the facility are shown in Table 4 below.

Table 4: Department wise services

Sr.no	Department	Inflow	Services
1.	Patient Registration	-Patients arrive at the registration desk. -Documentation ID Proof (e.g., Aadhar card or birth certificate) is required, with flexibility in urgent cases. Personal Details (e.g., mobile number, name, address) are collected even if incomplete	-Floor coordinator guides the patient through the whole process, coordinates between patient and doctor.
2.	Neonatal Intensive Care Unit (NICU)/ Pediatric Intensive Care Unit (PICU)	-Admission Process: Patients are admitted based on referrals from the emergency department or pediatric OPD. Typical cases include preterm and full-term babies with conditions like jaundice, meningomyelocele	-Medical and Nursing Care: The NICU operates with 20 beds, staffed by 23 nurses and 24/7 on-call medical officers. A strict 1:1 nurse-to-patient ratio ensures intensive and individualized care. -Daily Activities:

		<p>(MMC), and respiratory distress syndrome (RDS).</p> <p>-Initial Assessment: On arrival, medical officers (MO) assess the infant's condition. Vital signs are monitored, and the appropriate treatment protocol is initiated.</p>	<p>Inventory Management: Nurses check and replenish medical supplies and equipment daily.</p> <p>-Emergency Readiness: Preparations are made for managing critical situations.</p> <p>Feeding and Monitoring: Preterm babies are fed based on medical advice (e.g., breast milk, formula, or IV nutrition). Regular monitoring of vitals and response to treatment is documented.</p>
3.	Inpatient Department (IPD)	<p>-Admission and Ward Allocation: Patients are admitted to the IPD Medical Ward (24 beds) or the IPD Surgical Ward (24 beds) based on diagnosis and treatment requirements. 1 Isolation bed is available in both wards to manage infectious or critical cases. Admission documentation includes a treatment sheet stored in patient files.</p> <p>-Patient Handover: Nurses and administrative staff ensure a smooth transition for patients, especially when shifting from the operation theatre (OT) to the ICU or between wards.</p>	<p>-Nursing Care: Initial Rounds: Nurses perform rounds before the doctor's visit at 9:00 AM, checking patient readiness, hygiene, and vitals.</p> <p>-Daily Care: Bed cleaning, sponging, and hygiene education (e.g., hand hygiene for mothers) to prevent infections and bedsores. Nurse-to-patient ratio maintained at 1:4, with 5–6 nurses on duty per ward per shift.</p> <p>-Medical and Surgical Care: Medical Cases: Handled in Medical Ward with a focus on treatment for conditions like infections, chronic diseases, or acute illnesses. Surgical Cases: Managed in the Surgical Ward with post-operative care and monitoring by nurses and medical officers. One pediatrician and one medical officer are present during the night shift for emergencies.</p> <p>Administrative Oversight: Nurses and staff maintain treatment sheets, ensuring accurate documentation of procedures and patient progress. Staff also assist in patient movement between departments.</p>

4.	Emergency Department (ED)	<p>-Patient Admission: Patients primarily come from Vagai, Rajpipla, and nearby areas, including workers from the nearby plant and referrals from nearby villages by RBSK (Rashtriya Bal Swasthya Karyakram) doctors.</p> <p>-Common cases include accidents and poisoning.</p> <p>-Initial Assessment: Upon arrival, patients are registered and immediately assessed by the medical team. During night shifts, staff multitask, managing both registration and emergency care due to the absence of a receptionist.</p> <p>Bed Allocation: Patients are stabilized and allocated one of the five emergency beds for initial treatment before determining further care needs.</p>	<p>-Emergency Care: Provides primary treatment, including IV infusion, wound care, and stabilization for surgical or medical emergencies. Critical cases are discussed with doctors for guidance, transfers, or further specialized care.</p>
5.	Pharmacy	<p>-Medicine Stock Planning: Inventory is managed using a 3-month consumption average, ensuring advanced planning. Stock requirements are calculated based on closing stock and system-tracked consumption data. Purchase Orders are raised and sent to higher authorities for approval before procurement.</p> <p>-Medicine and Supplies Receipt: Medicines and surgical items are delivered by vendors, with proper documentation of batch numbers, expiry dates, and stock levels entered into the system. Coordination between the pharmacy and administration ensures smooth logistics for incoming supplies.</p> <p>-Expiry Monitoring: Regular checks are conducted to identify medicines nearing expiry within a 3-month timeframe.</p>	<p>-Medicine Dispensing: Prescriptions entered digitally by doctors are verified by pharmacists. Dispensing involves a multi-step verification process by three pharmacists to ensure accuracy. Medicines are provided to patients with detailed instructions for use.</p> <p>-Inventory Management: Digital systems maintain records of stock levels, prescriptions, and expiry dates, synchronized with physical stock audits. Inventory reconciliation ensures minimal stockouts or overstocking issues.</p> <p>-Logistics Support: The transport of medicines and supplies within the hospital is well-coordinated, ensuring timely availability across departments.</p>

		Expired or nearly expired items are returned to vendors for replacement, reducing waste.	
6.	Laboratory	<p>Sample Collection and Registration: Patient samples are collected for tests like biochemistry, serology, haematology, and clinical pathology. Each sample is registered in the laboratory system with unique identifiers and patient details for tracking. For advanced or rare tests, samples are prepared for outsourcing to external labs.</p> <p>-Sample Handling and Preparation: In-house samples are processed immediately for basic tests using available equipment. Outsourced samples for microbiology, culture, biopsy, or histopathology are packed securely and sent to partnered labs, ensuring adherence to transportation protocols. External Coordination for Outsourcing: Samples requiring advanced processing are dispatched to external labs due to the low in-house volume for such tests. Online communication is maintained with external labs to track the testing process and resolve issues like sample rejection or delays.</p>	<p>-In-house Testing: Routine tests, including biochemistry, haematology, serology, and clinical pathology, are performed within the lab, ensuring quicker results for patients. Staff operate 24/7 in shifts to handle patient needs, including emergency cases.</p> <p>-Outsourced Testing: Advanced tests like microbiology cultures, biopsies, and histopathology are conducted externally due to sample volume constraints. Machines and equipment for microbiology are available in-house but not utilized fully because of insufficient sample volume.</p> <p>-Quality Assurance: Lab staff maintain strict protocols for sample handling to reduce the likelihood of errors or contamination. The hospital has also achieved NABL accreditation, enhancing reliability and compliance with quality standards.</p>
7.	Operation Theatre (OT)	<p>Patient Scheduling: Patients are scheduled for surgeries based on urgency and availability of operating theatres. Emergency surgeries are also conducted at night-time.</p> <p>Preoperative Preparation: Patients are admitted to the OT with preoperative assessments conducted, including vital checks and fasting protocols.</p>	<p>Surgical Procedures: Surgeries are conducted from 9:00 AM to 6:00 PM, with night shifts only for emergencies. Ongoing hygiene practices ensure a sterile environment for all procedures.</p> <p>Postoperative Care: Patients are monitored post-surgery, with care plans tailored to their recovery needs.</p>

		<p>Surgical consents are obtained and documented in physical files.</p> <p>Specific OTs are assigned:</p> <p>OT 1: Infected cases.</p> <p>OT 2: Supramajor surgeries</p> <p>OT 3: Ophthalmology and Neurosurgery</p>	<p>Records are maintained manually, tracking patient progress and outcomes.</p>
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7. Conclusion

The findings and insights presented in this report highlight the remarkable progress and impact of the UNM Children Hospital in delivering high-quality pediatric care. Through dedicated medical expertise, innovative treatment approaches, and a strong commitment to patient-centered care, the hospital continues to set a benchmark in children's healthcare. A key strength of UNM Children's Hospital is its facilities and highly trained professionals, ensuring that quality is never compromised. The integration of advanced medical technology specialized pediatric units, and a collaborative approach further enhances its ability to provide comprehensive treatment to a diverse patient population.

By fostering a culture of continuous learning and innovation, UNM Children Hospital is shaping the future of pediatric healthcare, ensuring that children receive the best possible care. While challenges such as geographical accessibility and growing patient demand persist, the UNM Children hospital has shown resilience and adaptability in addressing these issues. Through strategic planning, ongoing improvements, and continued support from the community and stakeholders, the UNM Children Hospital is well-positioned to enhance its services and expand its reach.

In conclusion, UNM Children Hospital stands as a model institution in pediatric healthcare, offering exceptional medical services while creating a compassionate and supportive environment for children and their families. With its unwavering commitment to excellence, the UNM Children Hospital will continue making a profound difference in the lives of countless children, ensuring a healthier and brighter future for all.

8. Key Observations and Recommendations

Strengthening Communication and Coordination

- Conduct targeted outreach programs to educate the community about the hospital's free and affordable services, including eligibility criteria for financial aid such as the Ayushman card, preventing delays upon arrival.
- Optimize scheduling for multiple doctor consultations to minimize repeat visits and improve patient convenience. Often, patients must wait hours to see another specialist, which is particularly challenging for those travelling from distant locations. Implementing a multi-consultation registration system can streamline the process, reduce wait times, and enhance overall efficiency in patient care.
- Enhance community engagement to improve maternal health and ensure a seamless continuum of care for children, recognising that a mother's health directly impacts her child's well-being.

Enhancing Staff Engagement and Management

- Introduce team-building programs, motivational workshops, and staff retention initiatives to foster a positive and engaging work environment.
- Conduct regular topic-specific training sessions for OT staff to ensure continuous skill development and alignment with medical advancements.

Improving Patient and Family Experience

- Enhance in-house lodging facilities for parents to ease accommodation issues during peak hospital admissions.

Strategic Growth and Service Expansion

- Increase awareness about the hospital's high-quality and free healthcare services through strategic branding and outreach initiatives.
- Showcase success stories and community impact to build trust and encourage more patients to seek medical care.

9. Annexure

Interview Guide for Patients/Families

1. Could you please tell us about yourself?

Probe: relationship with the patient, hometown, employment status, annual income, family size, local healthcare options.

2. How did you first hear about UNM Children Hospital?

Probe: Referral, word of mouth, advertisement, community outreach, etc

3. Could you describe the reason for your child's visit to the hospital?

Probe: specific illness or condition, any previous treatments or services received

4. Can you describe the flow of events that occurred on the day of visit?

Probe: transportation, location, delays, OPD/IPD procedure, counselling sessions, specialist availability

5. How is your child's condition now after receiving care from this hospital?

Probe: health outcomes or improvements, challenges in following medical advice.

6. How was your overall experience with the care your child received?

Probe: From start to finish, staff explanations, waiting time, cleanliness, and staff responsiveness.

7. Were there any challenges or difficulties you faced during your visit?

Probe: appointment scheduling, understanding instructions, or accessing services.

8. Would you recommend this hospital to other parents or patients in a similar situation? Why or why not?

Probe: Based on facilities, staff, and service quality

Is there anything else you'd like to share about your experience that we haven't covered?

Interview Guide for Medical Staff

1. Please tell us about yourself and your major roles and responsibilities.

Probe: qualification, designation, work experience (past and present), training undertaken, how does your current work differ from previous work experience

2. Could you describe a typical workday for you?

Probe: workload, is it busy usually, number of cases you handle, counselling, treatment outcome, care provided in the OPD, IPD

3. How do you define and ensure the quality of care for pediatric patients?

Probe: how complaints are addressed, logistics management and approach to emergency care

4. Can you share a specific case where your care led to a notable improvement in a child's health?

Probe: contributing factors, the specific method applied

5. What has been your overall experience working with UNM Children Hospital?

Probe: Staff vs. patient ratio, workload, any administrative responsibilities

6. What challenges do you face in achieving desired health outcomes for your patients?

Probe: if yes, strategies or steps do you use to address them? elaborate on specific obstacles you face related to community engagement, logistics, or management.

7. In your opinion, what improvements could be made to enhance the quality of care at UNM Children Hospital?

Probe: Innovations, suggestions, recommendations

Is there anything else you want to add about the care provided to children and their families at UNM Children Hospital

Interview Guide for House Keeping staff

1. Can you please tell us a bit about yourself?

Probes: Could you share some personal information and details about your work experience? How does your current role compare with your past work experience?

2. Could you describe your main cleaning responsibilities?

Probes: Which areas of the hospital do you clean most frequently? Could you walk us through your cleaning procedures? What tools, materials, or chemicals do you use?

3. How would you describe the importance of regular cleaning and maintaining standards in the hospital?

Probes: standards following, what specific steps or extra precautions do you take in high-risk areas (e.g., operating rooms, isolation wards)?

4. Do you receive the supplies and resources needed for your tasks on time?

Probes: Are protective items like gloves, masks, and cleaning agents always available when you need them? In your opinion, why is it important to have these resources?

5. What motivates you in your role, and why do you feel your job is important to the hospital?

Probes: How does your work contribute to the hospital's overall environment and patient safety?

6. Are there any challenges you face in your job? If so, could you describe them?

Probes: Have you ever faced challenges like high workloads, resource shortages, or training needs? How do you usually manage these situations? Who do you report these issues to, if anyone?

7. What kind of training or support would help you perform your job better?

Probes: Are there any specific skills or resources you feel would make your work easier or more effective?

Is there anything else you'd like to share about your experience that we haven't covered?