



IMPACT ASSESSMENT REPORT

HEALTHCARE SERVICE DELIVERY AND PATIENT EXPERIENCE
AUGUST, 2025



VASAVI HOSPITAL
BENGALURU, KARNATAKA

Acknowledgement

ImpactDash expresses its sincere gratitude to all those who contributed to successfully completing the CSR Impact Assessment. We are particularly indebted to the Karur Vysya Bank's CSR team and the management and staff of Sree Vasavi Trust and Vasavi Hospital, Bengaluru for their support and collaborative spirit throughout the assessment process.

We extend our appreciation to the diligent enumerators whose meticulous work in conducting the data collection and whose collective efforts have enabled us to produce a comprehensive analysis of this important project.

Finally, and with the utmost sincerity, we offer our profound thanks to the respondents who so graciously and patiently endured the extensive interview sessions. Their contributions were invaluable.

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Publication year: 2025

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EXECUTIVE SUMMARY

Executive Summary

ABOUT THE PROJECT

The project focused on the installation of a state-of-the-art MAKO RIO orthopaedic robotic surgery equipment at Vasavi Hospital in Bengaluru. This initiative, supported by Corporate Social Responsibility (CSR) funding from Karur Vysya Bank, aimed to enhance the hospital's surgical capabilities, particularly in the orthopaedics department. The technology allowed surgeons to perform complex procedures like Total Knee and Total Hip Arthroplasty with greater precision, flexibility, and control than conventional methods. The goal had been to make minimally invasive surgery more accessible, leading to better patient outcomes.

KEY FINDINGS



The robotic arm has significantly reduced surgical time and improved precision in orthopedic procedures. Surgeons reported that operations which earlier took two hours are now completed in about one hour.



Patients experienced faster recovery, reduced pain, and earlier mobility post surgery. Staff observed that patients could walk within hours of their operation.



Training and hands on practice have enabled surgeons, nurses, and technicians to operate the robotic arm with confidence. This has reduced dependence on external expertise and embedded the technology into routine hospital practice.



The navigation system and checkpoints reduce human error, instilling greater confidence among doctors and patients.



The hospital is able to perform more surgeries within the same timeframe due to reduced operative duration.



Robotic surgery has fostered closer coordination between surgeons, OT staff, and technicians, as procedures rely on precise teamwork.

CHALLENGES

Key challenges included geographic barriers that limited patients' ability to reach the hospital. Awareness about robotic-assisted surgery and its availability at Vasavi Hospital remains low, particularly among rural communities.

RECOMMENDATIONS

- **Awareness Campaigns:** Conduct targeted awareness drives in semi-urban and rural areas to inform communities about robotic surgery and its benefits.
- **Referral Linkages:** Establish partnerships with smaller hospitals and primary health centres, enabling them to refer complex surgical cases to Vasavi.
- **Mobile Screening Camps:** Organize periodic outreach camps to identify patients in need and guide them into the robotic surgery program.
- **Subsidy Mechanisms for Marginalized Patients:** Design structured subsidy and cost-sharing mechanisms to enhance affordability for patients from marginalized backgrounds, leveraging and institutionalizing Vasavi's trustee-approved financial support framework.

The project aligns with **SDG 3 (Good Health and Well-being)** by improving access to quality diagnostic services and outcomes, and with **SDG 10 (Reduced Inequalities)** by making advanced robotic-assisted surgical equipment accessible to underserved populations. It also aligns with **Schedule VII of the Companies Act, 2013**, specifically under 'promoting health care, and 'reducing inequalities faced by socially and economically backward groups'.



INTRODUCTION

Background and Context

Healthcare systems across the world continue to grapple with challenges in delivering effective and equitable care, particularly in settings where resources are limited. Persistent issues such as workforce shortages, systemic inefficiencies, and disparities in access often hinder optimal patient outcomes, even as medical technologies and treatment protocols advance (Kruk et al., 2018). These complexities highlight the critical need for rigorous assessments of healthcare interventions to ensure they are not only clinically effective but also responsive to patient needs and adaptable within evolving healthcare landscapes.

Research underscores that the success of healthcare interventions depends on more than just their medical efficacy; factors such as patient experience, provider workflows, and institutional efficiencies play a crucial role in determining their overall impact (Berwick et al., 2021). A comprehensive understanding of these elements is essential for refining healthcare delivery and addressing gaps that may limit the long-term effectiveness of interventions. The World Health Organization (2021) further emphasizes that sustainable healthcare solutions require ongoing evaluation to assess their real-world applicability, efficiency, and scalability.

By 2030, the world is expected to face a shortage of 11 million healthcare workers, with low- and lower-middle-income countries being the hardest hit. This gap threatens to undermine access to essential health services, making it crucial to develop interventions that optimize existing resources and improve healthcare delivery. (WHO, 2023)



Sree Vasavi Trust and Vasavi Hospital, Bengaluru

Vasavi Hospital is a not-for-profit multi-specialty healthcare institution managed by the Sree Vasavi Trust. It offers comprehensive medical care across 36 departments, including surgery, physiotherapy, and other general specialties. With a capacity of 150 beds and NABH certification, the hospital functions as a tertiary care centre and regional healthcare provider, serving thousands of outpatients and inpatients each month and performing a significant number of surgeries.

The hospital's services are complemented by various initiatives such as health camps, screening programmes, basic life support awareness sessions, orthopaedic check-up camps, and rural outreach activities. It also operates a free dialysis and daycare centre at KSRTC Hospital, delivering thousands of free dialysis sessions annually and supporting patients from economically weaker sections. The Vasavi Trust oversees these operations, ensuring equitable access to quality healthcare for diverse communities.



Image 1: Vasavi Hospital, Bengaluru

Project Rationale

Access to advanced orthopedic care has remained a significant challenge for many economically disadvantaged and marginalized communities, where the cost and limited availability of specialized surgical procedures often restricted treatment options. To address this gap, the project equipped Vasavi Hospital with a state-of-the-art Robotic-Arm Assisted Surgery Unit in its Orthopaedics department. This advanced system, particularly effective for complex surgical procedures, enabled surgeons to perform operations with greater precision, flexibility, and control than conventional methods. The adoption of minimally invasive techniques reduced complications such as infections, pain, and blood loss, while also lowering hospital stays and accelerating recovery times. These interventions strengthened the hospital's capacity to provide equitable access to high-quality surgical care, reflecting its commitment to improving health outcomes for marginalized and underserved populations.

Core Outputs



Enhanced surgical precision and capability for complex orthopaedic procedures.



Increased surgical capacity, with the potential to more than double the number of knee revisions performed monthly.



Improved patient outcomes through minimally invasive techniques, leading to faster recovery and reduced complications.



Greater access to advanced surgical care for disadvantaged and rural community members at subsidized rates.

KVB's support to Vasavi Hospital

As part of its strategic CSR mission—focusing on health, sanitation, education, environment, and inclusive development—Karur Vysya Bank consistently supported advanced healthcare initiatives across India.

In a direct intervention to enhance specialized surgical care, the Bank provided significant funding for a state-of-the-art **MAKO RIO Orthopaedic Robotic Surgery Equipment** at Vasavi Hospital in Bengaluru. This investment empowered the hospital to offer cutting-edge, minimally invasive surgeries, particularly for complex knee and hip replacements. The technology equipped surgeons with enhanced precision and control, leading to better patient outcomes, reduced recovery times, and fewer complications.

The initiative was designed to address the healthcare needs of disadvantaged communities by making advanced robotic surgery accessible at subsidized rates. Beneficiaries included **economically weaker patients, senior citizens, women** and **individuals from rural areas**. Between July 2024 and July 2025, a total of 74 surgeries were undertaken involving 65 patients. Out of these patients, 14 were male and 51 were female. Age-wise distribution indicated that one patient was below 50 years, while the remaining 64 were above 50 years of age.

The total CSR support amounted to ₹2.00 Crore, which covered the procurement of robotic surgery equipment and the training of four surgeons, in line with KVB's commitment to impactful and sustainable healthcare contributions.



Image 2: Robotic Arm Assisted Surgery Equipment



IMPACT ASSESSMENT

Impact Assessment Study

Impact assessments are systematic assessments designed to measure the long-term effects and overall success of programs or interventions. These assessments aim to identify how programs influence target populations and whether they achieve their intended goals. By employing diverse data collection methods, including surveys, interviews and field observations, impact assessments offer a comprehensive view of both outcomes and underlying factors contributing to success or challenges.



Assessment Objectives

1. Evaluate the Effectiveness of the Medical Interventions

- Assess how the installed medical equipment and funded healthcare services have improved diagnostic, treatment, and surgical capacities in the beneficiary hospitals.
- Measure the extent to which the interventions have contributed to enhancing patient outcomes and overall healthcare efficiency.

2. Assess Beneficiary Reach and Utilization

- Analyze the number and demographics of patients who have benefited from the initiative at the Vasavi Hospital (Banglore)
- Identify trends in patient usage and determine whether the intervention has improved accessibility to critical healthcare services.

3. Analyze the Impact on Patient Care and Recovery

- Examine improvements in patient care, treatment timelines, and recovery rates as a result of the funded interventions.
- Collect qualitative insights from patients, doctors, and hospital staff on the perceived benefits and challenges of the provided medical support.

4. Understand the Perspectives of Healthcare Providers

- Gather insights from doctors, nurses, and medical technicians on how the intervention has supported their work and hospital efficiency.
- Identify any operational gaps or challenges related to the use, maintenance, and sustainability of the installed equipment.

5. Assess the Sustainability and Long-Term Utility of the Intervention

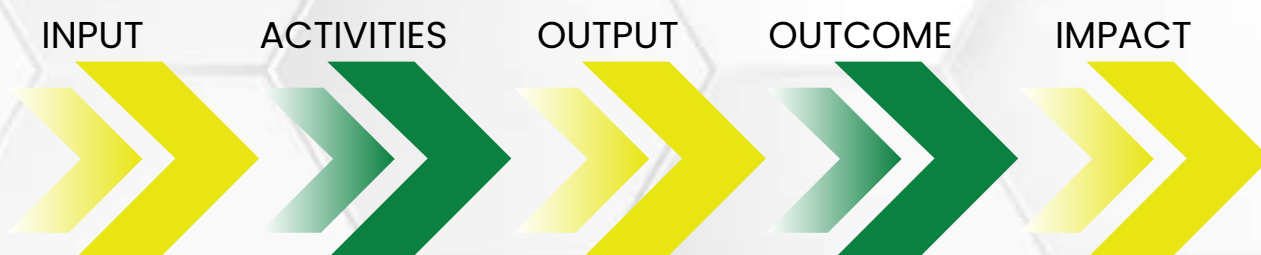
- Evaluate the durability, maintenance, and continued usability of the provided medical equipment.
- Identify any existing or potential challenges in sustaining the intervention beyond the CSR funding period.

6. Identify Areas for Further Improvement or Scale-up

- Provide recommendations on how similar future interventions can be enhanced for greater impact.
- Suggest possible strategies for scaling up, replicating, or improving the initiative based on findings.

Assessment Framework

The Theory of Change (ToC) is a methodological tool to analyse and evaluate the social change that has been brought by the intervention. It is essentially a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. The theory shows a causal pathway from the inputs required that lead to tangible outputs and outcomes. Through this approach, the precise link between activities and the achievement of the long-term goals are more fully understood. It also leads to better evaluation, as it is possible to measure progress towards the achievement of longer-term goals that goes beyond the identification of program outputs.



Element	Description
Input	• Financial support from Karur Vysya Bank's CSR initiatives, for the MAKO RIO Orthopaedic Robotic Surgery Equipment, including hardware, software, and training for Total Knee and Hip Arthroplasty applications. • Training for four surgeons, including fees, travel, lodging, and boarding, to ensure proficient operation of the Robotic-Arm Assisted Surgery Unit. • Partnership with Sree Vasavi Trust to integrate the robotic surgery equipment into Vasavi Hospital's Orthopaedic Department, enhancing its operational capacity.

Element	Description
Activities	• Procurement of FDA-approved Orthopaedic Robotic Surgery System. • Installation, calibration, and staff training on the new equipment. • Maintenance of a comprehensive 3-year warranty period for sustained operation.
Output	• Installation of the MAKO RIO Robotic-Arm Assisted Surgery Equipment at Vasavi Hospital, enabling minimally invasive procedures with enhanced precision, flexibility, and control. • Capability to increase knee revision surgeries from 8-10 to 20-25 per month, expanding the hospital's ability to serve more patients. • Provision of robotic surgery services at reduced or waived costs for BPL cardholders, senior citizens, rural patients, and public servants like police personnel.
Outcome	• Improved accuracy in complex orthopaedic procedures, reducing complications, pain, blood loss, and recovery time while minimizing scarring. • Increased availability of high-quality surgical interventions for disadvantaged and rural communities, addressing healthcare inequities. • Higher success rates in surgeries, particularly for total knee and hip arthroplasties, leading to improved mobility and quality of life.
Impact	• Long-term enhancement of healthcare access for marginalized groups, ensuring equitable distribution of advanced medical technology. • Significant reduction in disability and morbidity rates due to precise and effective orthopaedic interventions, particularly benefiting underserved populations.

The Theory of Change for this project was based on investing financial resources, acquiring the necessary technical expertise, and leveraging institutional support provided through Karur Vysya Bank's CSR initiatives (Inputs). Vasavi Hospital procured and successfully installed a Robotic-Arm Assisted Surgery Unit, significantly enhancing its capacity to deliver advanced orthopedic procedures to a larger number of patients. This installation immediately improved surgical precision, facilitated minimally invasive techniques, and reduced the risk of intraoperative and postoperative complications (Outputs). As a result, patients experienced faster recovery times, reduced hospital stays, and improved surgical outcomes (Outcomes). Ultimately, this contributed to better musculoskeletal health, enhanced quality of life, and greater access to advanced surgical care, particularly benefiting disadvantaged and marginalized communities (Impact).



Image 3: Robotic Arm Assisted Surgery Equipment at Vasavi Hospital

METHODOLOGY

The assessment followed a **qualitative approach** to measure service reach and efficiency, incorporating qualitative insights to understand beneficiary experiences and institutional perspectives. A cross-sectional study design was adopted, capturing data at a single point in time while reflecting on the period from the installation of the medical equipment and implementation of healthcare services to the present. A combination of stratified purposive sampling for patient groups and quota sampling for healthcare professionals and administrators ensured diverse representation across hospitals and beneficiary categories.

STUDY LOCATION

The study was conducted at the Vasavi hospital Bangalore, Karnataka. The data was collected on 9th July, 2025.

DATA COLLECTION PROCESS

Primary data was gathered through direct engagement with beneficiaries and stakeholders using the following methods:

Key Informant Interviews (KIIs): Semi-structured interviews were held with hospital administrators, doctors, nurses, and CSR representatives to evaluate operational challenges, sustainability, and long-term impact.

Facility Observations: On-site observations of medical equipment usage and healthcare service delivery complemented stakeholder feedback and provided an objective assessment of service efficiency.

Secondary data sources was used to contextualize the primary findings and validate trends observed during data collection.

SAMPLING STRATEGY

Stakeholders	Tool Type	Sample Covered
Patients	Key Informant Interviews	5
Healthcare Providers (Doctors, Nurses, Technicians)	Key Informant Interviews	5
Hospital Administrators	Key Informant Interviews	1
CSR & Project Implementation Representatives	Key Informant Interviews	1
Total Sample Covered		12

DATA ANALYSIS

The study utilized Narrative, and Thematic Analysis to comprehensively assess the program's impact. Qualitative data was transcribed, coded, and synthesized into key themes. This ensured a thorough interpretation, providing nuanced insights to inform policy decisions and enhance program effectiveness.

DATA QUALITY ASSURANCE, VALIDATION & ANALYSIS

Data quality in the assessment was ensured through a comprehensive monitoring process. The Supervisors played a crucial role by conducting spot-checks and back-checks of the data enumerated by the field teams. Data monitoring was also carried out by the Researcher, who assessed the performance of the field teams on a sample basis. The Qualitative data from interviews were systematically analyzed to extract meaningful insights.

ETHICS ADHERED

The study followed strict ethical guidelines, ensuring confidentiality, informed consent, and participant safety. Adhering to UNICEF's 2021 standards, it prioritized privacy, transparency, and respect, safeguarding all participants, including adolescents, from distress.



KEY FINDINGS

Operational Efficiency and Technological Benefits

Analysis of surgical records and qualitative feedback from medical, technical, and support staff indicates that the provision of the MAKO Robotic Arm Assisted Surgery Equipment at Vasavi Hospital has led to measurable improvements in surgical precision, operational efficiency, and patient recovery outcomes. The intervention has **enhanced the hospital's capacity to perform a higher volume of complex orthopedic procedures with reduced complications**, shorter recovery periods, and greater confidence among the surgical team.

Precision and Accuracy in Surgery

Robotic arm assisted surgery equipment have significantly elevated the precision and accuracy of surgical procedures, surpassing the limitations of manual techniques that rely heavily on a surgeon's experience and manual dexterity. The incorporation of advanced navigation, imaging, and automated checkpoints ensures exactness in every procedure. A staff member, emphasized this advancement, stating, "Navigation and checkpoints make it easy. Cutting is precise. Earlier we had to do all measurements manually—now the machine handles it." Similarly, the scrub nurse noted, 'It saves time and ensures precise cuts,' underscoring the equipment's ability to execute complex procedures with remarkable accuracy.

“

It gives uniform and accurate results every time.
—Senior Surgeon

“

Perfect measurements, accurate cuts, faster recovery. It even shows the density and how much to cut.
—Technician (Hospital Staff)

The operating team experienced these changes with notable intensity. The Operating Theatre (OT) Manager described the equipment as transformative, explaining that the navigation and checkpoint features simplified complex tasks and improved surgical precision. Similarly, the scrub nurse emphasized the efficiency of the system, explaining that it significantly reduced the time spent during procedures while also ensuring consistently precise cuts.

“

“Earlier we had to do all measurements manually—now the machine handles it.”

—OT Manager

“

“It saves time and ensures precise cuts.”

—Scrub Nurse

The orthopedic surgeon highlighted the remarkable time efficiency introduced by the system. He explained that procedures which previously required nearly two hours could now be completed in just one hour, effectively cutting the surgical duration in half. This reduction not only eased the pressure on the operating team but also allowed for better utilization of theatre time, enabling more patients to benefit from timely interventions.

“

“Earlier, it took 2 hours; now it takes only 1 hour.”

—Orthopedic Surgen

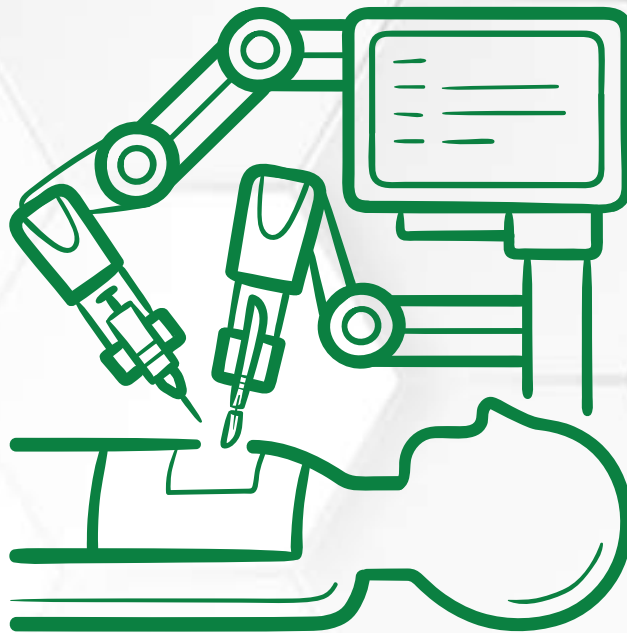
From the IT Incharge perspective, the change was not just about machines, but about the lives being touched. He explained that surgeries, which once seemed daunting, were now faster and far less painful for patients. The technology, in his words, had opened the door to quicker recoveries and fewer complications, allowing families to see their loved ones return home sooner and healthier. For him, it was proof that innovation in the operating theatre could translate directly into comfort and hope for patients.

“

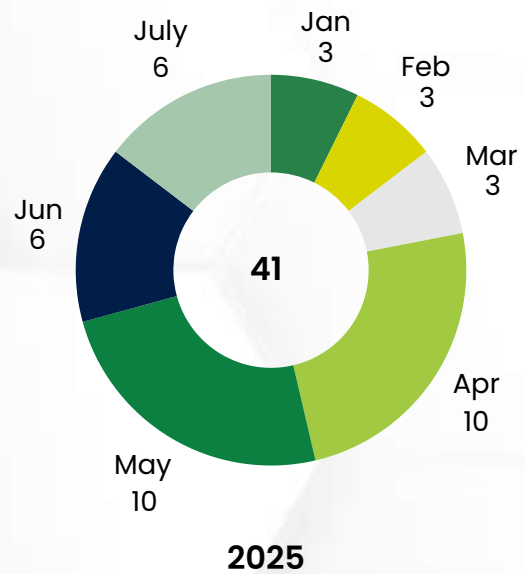
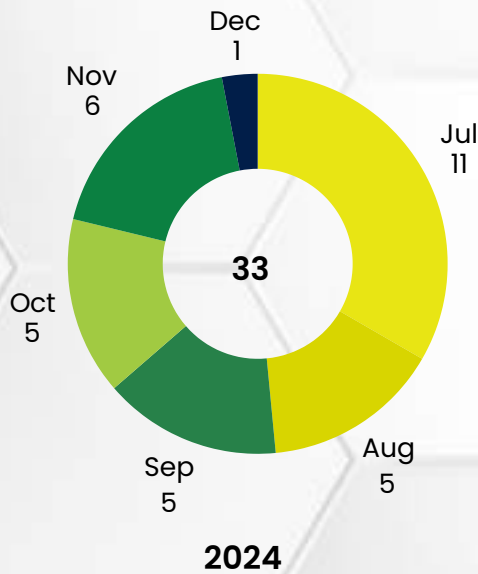
Surgeries are faster, less painful, with quick recovery and fewer complications."

-IT Incharge

Together, these experiences show how robotic technology has become a trusted partner in the operating room, helping surgeons work with greater precision, reducing the time and strain of procedures, and giving patients the comfort of faster recovery with reduced risks.



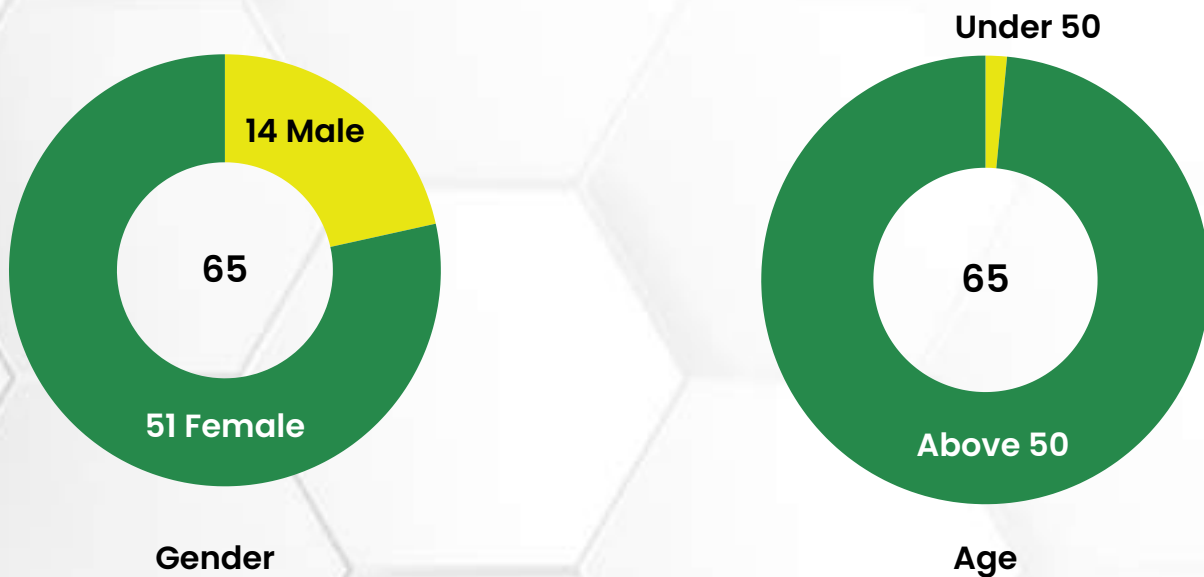
Beneficiary Reach



In July 2024, the hospital performed its first robotic-assisted surgery, with eleven patients undergoing procedures within that month alone, marking the commencement of a program that would gradually reshape care delivery at the institution. Over the subsequent five months, patient numbers remained relatively steady, fluctuating between five and six per month. **By December 2024, a total of 33 individuals had benefited from robotic surgery.** Many early recipients subsequently shared their experiences within their communities, workplaces, and families, effectively acting as initial advocates of the intervention.

Significant growth was observed in 2025. By January, three patients had undergone surgery, a figure replicated in February and March. A notable increase occurred in April and May, with ten patients treated each month—the highest monthly caseload recorded to date. By June, six additional patients were served, resulting in a cumulative total of **41 beneficiaries within the first seven months of the year.** Relative to the initial phase, this represents a 24% increase in reach, reflecting growing confidence among both patients and clinical staff.

The cumulative figures of **33 and 41 patients correspond to 74 individuals whose access to advanced surgical care was facilitated.** The peak in April and May 2025 indicates a transition of the robotic surgery program from an introductory stage to a more integrated component of Vasavi Hospital care delivery pathway, highlighting its potential to serve an expanding patient population in subsequent years.



Between July 2024 and July 2025, a total of 74 robotic arm-assisted surgeries were performed on 65 unique patients. Some of the patients underwent multiple surgeries, making the total count of procedures higher than the number of individuals treated.

Out of the 65 patients who underwent a total of 74 surgeries, 51 patients (78.5%) were female, while 14 patients (21.5%) were male. This distribution demonstrates a pronounced predominance of female patients in accessing robotic arm-assisted surgical procedures, highlighting gender-related trends in the utilization of advanced surgical interventions.

Among the 65 patients, 64 (98.5%) were aged over 50 years, whereas only 1 patient (1.5%) was under 50 years of age. This distribution underscores the concentration of robotic arm-assisted surgical procedures among older patients.

The demographic profile of beneficiaries highlighted two clear patterns, most patients were female, and nearly all procedures were performed on individuals over 50 years of age.



Transforming Patient Outcomes and Recovery

The introduction of robotic surgery has led to transformative outcomes for patients, particularly in terms of recovery, pain reduction, and overall quality of life. Across interviews with patients, doctors, and hospital staff, a consistent narrative emerged: robotic surgery is not only enhancing clinical results but also reshaping patient experiences.

Faster Recovery

One of the most significant improvements observed was the accelerated recovery time for patients undergoing robotic surgery. Both patients and medical staff repeatedly highlighted the contrast between robotic and conventional surgical procedures. Patients described a quicker return to mobility and normal daily activities.

“

I feel comfortable now. I am even able to climb stairs. There's still a bit of pain, but they told me it will reduce.”

-Patient

“

“Feeling much better. Earlier I couldn't walk properly. Now I can walk smoothly.”

-Patient

From the perspective of the medical team, these results were not only visible but measurable. A senior orthopedic department head explained, ‘Length of stay has reduced from 4 days to just 1. Blood loss is minimal, and recovery is 10 times faster. Patients are happy.’ Similarly, a senior scrub nurse, who works with surgeons in the operating theatre to maintain sterility and assist throughout the procedure, described the pace of recovery, saying, ‘If surgery is done at 9 in the morning, they walk by 4 in the afternoon.’

These accounts underline the profound efficiency that robotic equipments bring to surgical care, where shorter hospital stays and faster mobility directly translate into better patient outcomes and optimized hospital resources.

Reduced Pain and Complications

Alongside quicker recovery, patients and staff also emphasized the reduction of postoperative pain and complications. The precision of the robotic equipment ensured minimal incisions, which in turn led to less blood loss and discomfort. Respondents highlighted that patients were able to resume daily activities sooner and with greater ease compared to conventional surgical methods.

“

“They told me it would be a robotic surgery, that it would only make the necessary cuts, with no pain and minimal bleeding”.

–Patient

Beyond pain reduction, robotic procedures were also perceived as safer, with fewer associated risks. A hospital IT in-charge observed, “Minimal risk and complications. Even blood clotting is much lower now.” (IT In-Charge). This perception of reduced complications further enhances confidence in robotic interventions among both patients and healthcare providers.



Image 4: Equipment Display Banner at Vasavi Hospital

Accessibility and Affordability

While robotic surgery is often associated with high costs, the experiences of patients and staff revealed a different picture in this context. Affordability, coupled with supportive hospital initiatives, ensured that patients across different socio-economic backgrounds could access advanced surgical care.

Affordability

Patients had mixed perceptions about the affordability of robotic surgery. For some, the cost was reasonable and manageable, particularly with insurance coverage or hospital support that reduced financial strain. Their accounts challenge the notion that such advanced procedures are only for the wealthy. For some patients from economically weaker backgrounds, the cost of treatment continued to pose a significant barrier, highlighting that true progress will be achieved only when CSR efforts make advanced healthcare genuinely affordable and accessible to all.

“

“It was quite affordable.”
-Patient

“

“In my opinion, I find the treatment a bit costly. However, since the whole family worked together to arrange the amount, it became manageable.”
-Patient

“

“My daughter works and has insurance, so we were able to manage with that.”
-Patient



Yes, it is manageable. In the current situation and the standard of care provided in a hospital of this scale, this level of cost is expected."

-Patient

Support for Low-Income Patients

Beyond individual affordability, the hospital also demonstrated a commitment to ensuring that low-income patients were not excluded from robotic interventions. Support from trustees played a pivotal role in extending the benefits of robotic surgery to marginalized groups.



We did a knee replacement for a BPL patient. With trustee approval, we did it at minimal cost."

-Head of Orthopedic Department.

Case Study

Tyagraju, a 49-year-old electrician from Shastri Nagar, Bangalore, came to Vasavi Hospital for a hip bone replacement on both legs. His problems started after a stroke and the strong medicines he had to take for a long time. He had first gone to another Hospital, but the treatment there didn't help. On his sister's advice, he chose Vasavi, and he says the doctors, nurses, and staff here made him feel comfortable, like at home, and explained everything clearly. The surgery went well, and apart from a few painkillers, he didn't need much medicine afterward. Now he can walk smoothly, something he couldn't do before. He also found the cost reasonable and the hospital easy to reach. Tyagraju feels such facilities should be available in more places and says he's very happy with his experience—he would surely recommend Vasavi Hospital if anyone asked him.

Perceptions of affordability varied among patients. While some considered robotic surgery to be manageable, either from their own resources or with insurance or hospital support, others found it little expensive. Despite measures to improve access, affordability remains a key barrier, compounded by low public awareness of such medical advancements.

Patient Perception of Surgery and Services

The success of any medical innovation is shaped not only by clinical outcomes but also by the perceptions of patients and the wider community. In the case of robotic surgery, patient satisfaction and community-level awareness emerged as central aspects of its acceptance and credibility.

Positive Patient Feedback

Patients consistently reported high levels of satisfaction with both the surgical outcomes and the quality of hospital services. Their appreciation extended beyond the surgical intervention itself to encompass the care provided by doctors, nurses, and support staff. This holistic satisfaction reinforced trust in the hospital's capacity to deliver advanced healthcare.

“

They were all excellent. The doctors, nurses, and caretakers took very good care of me.”

-Patient

Perceived Advantages of Robotic Surgery

Patients perceive robotic surgery as advantageous due to its precision and reduced invasiveness, leading to greater comfort and effectiveness compared to traditional manual surgery. These benefits stem from the technology's ability to enhance surgical accuracy and minimize tissue damage, often resulting in faster recovery and less pain.

“

"They mentioned that this method would be more comfortable and effective compared to the manual approach."

-Patient

Community Awareness and Recommendations to Others

The influence of patient experiences extended into the community, where word-of-mouth played an important role in spreading awareness of robotic surgery. Patients actively shared their positive outcomes with neighbors and acquaintances, thereby enhancing the hospital's visibility. Patients explained.



"Someone asked me while I was walking in my apartment. I told them about my knee surgery at Vasavi. They said they might get theirs done there too."

-Patient

Desire for Local Access to Advanced Medical Technology

Patients express a strong desire for advanced medical technologies, such as robotic surgery, to be available in rural areas. Local access to these technologies would significantly benefit underserved communities, particularly villagers, by reducing travel burdens and improving healthcare equity.



"If such advanced technologies were made available locally, it would greatly help those in need, especially villagers."

-Patient

Patients and community members reported highly positive perceptions of robotic surgery, emphasizing both favorable surgical outcomes and the quality of care provided by hospital staff. High levels of patient satisfaction reinforced confidence in the hospital, while personal recommendations contributed to wider community awareness and credibility. Robotic surgery was regarded as more precise, less invasive, and more effective than conventional methods, with particular value placed on faster recovery and reduced discomfort. Respondents also highlighted the importance of expanding access to such advanced medical technologies in rural areas to promote healthcare equity and reduce the burden of travel for underserved populations.

Operational and Maintenance Support

Beyond initial installation or implementation, the effectiveness of a technology, infrastructure, or program depends on how well it is managed, operated, and maintained over time. This includes establishing clear protocols for routine operations, preventive and corrective maintenance, capacity-building of staff, and mechanisms for vendor or technical support. A robust operational and maintenance framework not only minimizes downtime and unexpected costs but also enhances efficiency, extends asset life, and strengthens user confidence in the equipment.

Adequate Infrastructure

The hospital has created a dedicated environment for the robotic equipment, including separate rooms with controlled temperature and continuous air conditioning. These infrastructure provisions reflect compliance with global best practices for operating advanced medical technology, ensuring equipment efficiency and reducing risks of technical malfunction.



"Robotic arm has a separate room. Temperature is maintained and AC is always on."
-IT Incharge

Effective Maintenance

Maintenance of the robotic equipment is conducted effectively, supported by a collaborative framework between hospital staff and the equipment provider. Technical challenges have been minimal, and when issues did arise, they were swiftly resolved through warranty coverage and immediate vendor intervention. This rapid response has prevented disruptions to surgical schedules, reflecting strong operational reliability.



"Only one repair issue, but it was under warranty and quickly resolved."
(Medical Staff)

Sustainability and Long-Term Utility

The sustainability of the **MAKO Robotic Arm Assisted Surgery Equipment** at Vasavi Hospital rests on institutional commitment, vendor partnerships, and capacity building measures. Interviews with hospital administrators, medical staff, and technical personnel highlighted deliberate efforts to embed the robotic arm into the hospital's long term operations rather than treating it as a short term project under CSR support.

Administrators explained that the robotic arm has been incorporated into the hospital's strategic planning framework.



"We maintain a structured record of all major equipment, including purchase dates and expected replacement timelines. For the robotic arm, provisions are already in place for long term servicing once the warranty period ends."

-Senior Hospital Administrator

Vendor reliability was also emphasized. As one technical staff member explained, "There was a time when one arm did not work, but the company came and fixed it right away. The support system is strong, and problems are solved quickly." Similarly, a nurse recalled, "The handpiece broke twice, but the vendor repaired it without delay. We never lost a day of surgery because of these issues." These accounts point to an effective vendor engagement strategy that strengthens sustainability.

The human resource dimension emerged as a critical factor. A surgeon highlighted the importance of training: **"Giving the right input is very important. Once you learn how to use it, the machine enhances your skill and reduces error."** Another staff member expressed confidence gained through practice: **"Initially it was tough to adapt, but hands on training helped and now everything runs smoothly."** This indicates that skill transfer has taken root across cadres, reducing dependency on a narrow set of specialists.

Taken together, the combination of forward looking financial planning, robust vendor support, and comprehensive staff training demonstrates strong prospects for the sustainability of the robotic arm intervention.

The Vasavi hospital has made financial provisions for maintenance and has embedded asset management protocols, but sustainability could be further reinforced through diversification of funding streams. Long-term sustainability planning could include multi-year CSR partnerships, integration with public health schemes, and research collaborations to generate evidence of cost-effectiveness.



"This is not just equipment for today. With the right planning, it will keep benefiting patients for many years."

-Hospital Administrator

Leveraging CSR for Broader Scale-Up

The Vasavi case illustrates how CSR can act as a catalyst for introducing high-end medical technology in socially committed hospitals. Scaling this model to other non-profit institutions could substantially enhance access to advanced surgical care for underserved populations. Lessons from this intervention—including vendor engagement strategies, patient subsidy mechanisms, and staff training protocols—can be replicated across geographies.



"Healthcare has always been a priority... robotic surgery has freed up doctors' man hours and expanded capacity."

-CSR Representative (Head of CSR KVB)

The robotic arm intervention at Vasavi Hospital demonstrates strong potential not only for institutional strengthening but also for broader health system transformation. By enhancing awareness, addressing affordability, expanding reach, investing in continuous capacity building, and leveraging CSR partnerships, the hospital can scale the impact of robotic-assisted surgeries to a wider and more diverse patient population.

Opportunities for Improvement and Scale-Up

The introduction of the MAKO Robotic Arm Assisted Surgery Equipment at Vasavi Hospital has generated significant clinical, institutional, and social benefits. At the same time, interviews with surgeons, staff, administrators, and patients revealed several areas where further improvement and scale-up could deepen impact, extend accessibility, and ensure long-term equity.

Enhancing Patient Awareness and Outreach

Although robotic-assisted surgery has proven clinical benefits, its advantages remain relatively unknown to large segments of the patient population, especially in rural areas. Several staff members emphasized the need for structured awareness campaigns to inform potential beneficiaries of the availability of subsidized robotic surgeries at Vasavi Hospital.



“Advertising and spreading patient awareness would help more.”
—Hospital staff

Addressing Affordability Barriers

Despite subsidized pricing, affordability continues to be a critical barrier for economically weaker patients. A few shared that they had to gather financial support from family members to cover the expenses. Doctors and staff pointed out that patients from marginalized communities have limited opportunities to benefit from robotic surgeries.

However, this challenge also presents an opportunity. Through innovative financing mechanisms and targeted subsidy models, robotic surgery could be made accessible to a much wider segment of society. Scaling up such approaches would not only reduce the financial burden on vulnerable households but also enable hospitals to extend the benefits of advanced surgical care to patients who might otherwise remain excluded.

“ “

Everything was fine, no trouble at all. It felt like home.

-Patient

“ “

I initially came for skin treatment, and later I saw advertisements on TV. The doctor then advised me to go ahead with the surgery.

-Patient

“ “

“My knees and bones were completely worn out, and it was really painful to walk. So I got both knees operated”.

-Patient

“ “

They were all excellent. The doctors, nurses, and caretakers took very good care of me.

-Patient

“ “

"All OT technicians have been trained since there's no one dedicated person—so we train everyone on a rotation basis."

-Head of Orthopedic Department

“ “

"If surgery is done at 9 AM, they walk by 4 PM."

-Hospital Staff

“ “

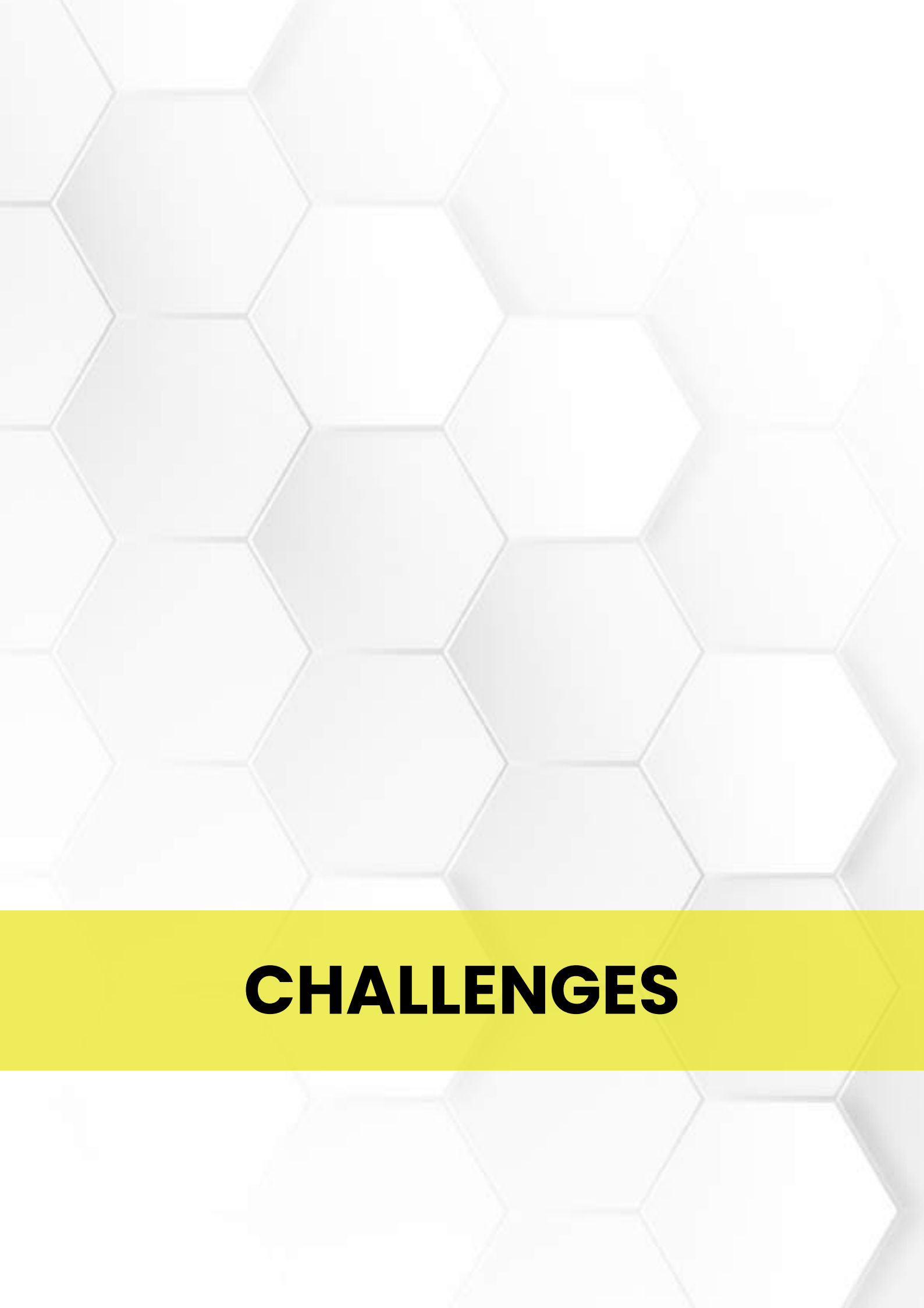
"I feel comfortable now. I am even able to climb stairs. There's still a bit of pain, but they told me it will reduce."

-Paiteint

“ “

"Minimal risk and complications. Even blood clotting is much lower now."

-IT Incharge



CHALLENGES

Challenges



Limited Community Awareness

Awareness about robotic-assisted surgery and its availability at Vasavi Hospital remains low, particularly among rural communities. Diffusion of information relies largely on patient word-of-mouth rather than structured outreach or communication strategies.



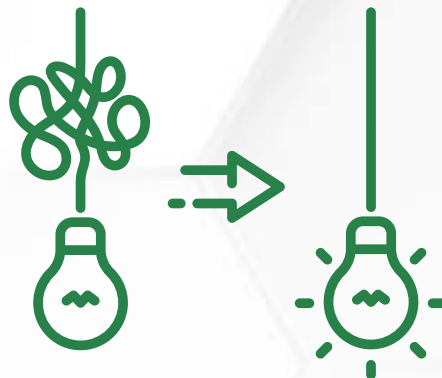
Geographic Accessibility

The concentration of robotic surgery facilities in Bengaluru creates inequity for patients residing in rural and semi-urban areas, who face financial and logistical difficulties in traveling to the hospital. This geographical concentration limits the reach of advanced surgical care to urban populations.



Affordability and Financial Barriers

Despite the availability of subsidies, affordability continued to be a challenge for some patients from low-income backgrounds. However, a number of surgeries were facilitated at minimal cost through trustee approvals, demonstrating the potential of such support mechanisms. Expanding these initiatives could further reduce financial barriers and enhance the inclusivity and equitable reach of the intervention.





RECOMMENDATIONS



Expand Financial Accessibility–Subsidy Programs:

- **Patient Welfare Fund:** Create a dedicated fund sourced from CSR contributions, philanthropic donations, and local community sponsors to directly finance surgeries for indigent patients.
- **Insurance & Government Schemes Desk:** Establish a small help desk to guide patients in availing Ayushman Bharat, state health insurance programs, or private insurance options. Many patients are eligible but lack awareness.
- **Affordable Medicines:** Collaborate with Jan Aushadhi Kendras and generic suppliers to reduce the cost burden of post-surgery medicines, which often deter patients from continuing care.



Strengthen Rural Outreach

- **Awareness Campaigns:** Conduct targeted awareness drives in semi-urban and rural areas to inform communities about robotic surgery and its benefits.
- **Referral Linkages:** Establish partnerships with smaller hospitals and primary health centres, enabling them to refer complex surgical cases to Vasavi.
- **Mobile Screening Camps:** Organize periodic outreach camps to identify patients in need and guide them into the robotic surgery program.



Capacity Development and Knowledge Exchange

- **Fellowship Programs:** Collaborate with medical colleges and universities to offer short-term fellowships for postgraduate surgical residents, exposing them to advanced robotic techniques.
- **Inter-Hospital Collaboration:** Partner with nearby tertiary hospitals to allow cross-learning and referrals, fostering a regional ecosystem of advanced surgical care.



CONCLUSION

Conclusion

The CSR intervention of Karur Vysya Bank (KVB) at Vasavi Hospital, Bangalore, through the provision of a robotic surgical arm, represents a landmark example of how technology, when strategically deployed, can transform healthcare delivery in India.

The findings from this impact assessment highlight several core achievements:

- **Clinical Transformation:** Robotic surgery has enhanced precision, reduced complications, and enabled faster recoveries. Patients who once faced years of restricted mobility are now walking within hours of surgery.
- **Human Capital Development:** Surgeons, nurses, and technicians report newfound confidence and competence, supported by structured training and practical experience.
- **Institutional Strengthening:** Vasavi Hospital has increased the number of surgeries, reduced patient stays, and built a reputation as a centre of advanced care in Bangalore.
- **Patient Trust and Advocacy:** Patient testimonials reveal not only high satisfaction with care but also a willingness to recommend robotic surgery to others, amplifying the hospital's impact beyond direct beneficiaries.

Empirical evidence indicates that technology, in isolation, does not constitute a sufficient mechanism for advancing social equity. Its capacity to generate equitable outcomes is contingent upon a set of interrelated conditions, including economic affordability, the level of technological competence among healthcare professionals, the extent of community access, and the durability of the technological infrastructure. When these conditions are collectively satisfied, technological innovation transcends limited applicability and contributes to transformative and inclusive societal change.

The Vasavi experiment demonstrates that corporate social responsibility in healthcare can be more tangible. With deliberate planning and strong partnerships, it can deliver meaningful change.

For KVB, this initiative has delivered tangible social impact. Yet its greater significance lies in the future. By strategically scaling and replicating this model, KVB has the opportunity to move from being a funder of equipment to a catalyst of equitable healthcare innovation in India.

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