ADITYA BIRLA

EMIL

Impact Assessment Report for

# Cochlear Implant Surgeries

## Essel Mining & Industries Limited

A part of Aditya Birla Group

# Certificate

This is to certify that the Impact Assessment report titled: "**Cochlear Implant Surgeries'** is an original study conducted by CSRBOX and is submitted to Essel Mining & Industries Limited, a part of Aditya Birla Group.

The Impact Assessment Study has been conducted as per the requirements of the Companies Act, 2013 and the Companies (Corporate Social Responsibility Policy) Rules, 2014, as amended, and is compliant with the requirements of the law.

This study presents findings by CSRBOX, derived from reviewing secondary sources and conducting primary-level interactions. CSRBOX developed and implemented the impact assessment framework in alignment with the project's objectives and indicators.

BHOMIK SHAH

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Digital Signature

Bhomik Shah

Founder and CEO, CSRBOX

## Disclaimer

- The Impact Assessment Study has been conducted by the requirements laid out in the Companies Act, 2013 and the Companies (Corporate Social Responsibility Policy) Rules, 2014, as amended, ensuring compliance with the applicable legal requirements.
- This report shall be disclosed to those authorised in its entirety only without removing the disclaimers. CSRBOX has not performed an audit and does not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted as legal advice or opinion.
- This report contains an analysis by CSRBOX considering the publications available from secondary sources and inputs gathered through interactions with the leadership team of Essel Mining & Industries Ltd, I hear Foundation project beneficiaries and various knowledge partners. While the information obtained from the public domain has not been verified for authenticity, CSRBOX has taken due care to obtain information from sources generally considered to be reliable.
- In preparing this report, CSRBOX has used and relied on data, material gathered through the internet, research reports, and discussions with personnel within CSRBOX as well as personnel in related industries.

### With Specific to Impact Assessment of Cochlear Implant Surgeries Programme under Essel Mining & Industries Ltd. (FY2022-23):

- CSRBOX has neither conducted an audit or due diligence nor validated the financial statements and projections provided by Essel Mining & Industries Ltd.
- Wherever information was not available in the public domain, suitable assumptions were made to extrapolate values for the same.
- CSRBOX must emphasise that realising the advantages/enhancements resulting from the recommendations set out within this report (based on secondary sources) is dependent on the ongoing validity of the underlying assumptions. The assumptions will need to be reviewed and revised to reflect such changes in business trends, regulatory requirements, or the direction of the business as further clarity emerges. CSRBOX accepts no responsibility for the realisation of the projected benefits.
- The premise of an impact assessment is ‘the objectives’ of the project along with output and outcome indicators pre-set by the programme design and implementation team. CSRBOX’s impact assessment framework was designed and executed in alignment with those objectives and indicators.

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# Executive Summary

## Background

Essel Mining & Industries Ltd. (EMIL), a part of the Aditya Birla Group, is deeply committed to inclusive social development and improving the quality of life for marginalised communities. With a strong sense of trusteeship, EMIL consistently invests in initiatives that create lasting impact in critical areas such as healthcare. Through strategic partnerships and focused CSR interventions, EMIL empowers underserved populations with access to life-changing medical technologies and services. One such area of focus is supporting individuals, especially children, affected by hearing disabilities to help them lead fuller, more integrated lives.

## Project Details

In 2022-2023, Essel Mining & Industries Ltd., in collaboration with the **I Hear Foundation** and **P. D. Hinduja Hospital**, supported the **Cochlear Implant Programme** aimed at children from economically disadvantaged backgrounds suffering from severe to profound hearing loss. The programme covered the costs of **advanced cochlear implant surgeries**, conducted by expert surgeons at P. D. Hinduja Hospital, and included **post-operative speech and auditory rehabilitation** facilitated by the I Hear Foundation.

This CSR initiative enabled identified children to access comprehensive hearing care, restoring their ability to hear and speak, thereby significantly enhancing their developmental, educational, and social integration opportunities. The project stands as a testament to EMIL's commitment to promoting inclusive healthcare by leveraging partnerships with renowned healthcare institutions and specialised foundations to ensure sustainable outcomes for the most vulnerable sections of society.

## Alignment with SDG Goals


## Alignment with BRSR Principles

| ESG Principle | Alignment with the Project |
|---|---|
| **5** | Businesses should respect and promote human rights. |
| **8** | Businesses should promote inclusive growth and equitable development. |

## Alignment with National Priorities

- National Health Policy 2017
- Ayushman Bharat Scheme
- Rights of Persons with Disabilities (RPwD) Act, 2016
- Rashtriya Bal Swasthya Karyakram (RBSK)
- National Programme for Prevention and Control of Deafness (NPPCD)

## Alignment with CSR Provision of the Companies Act ,2013

| | Activities |
|---|---|
| Section 135, Schedule VII of Companies Act, 2013 (i) | 1. Eradicating hunger, poverty and malnutrition |
| | 2. Promoting Healthcare including preventive health and sanitation |
| | 3. Including contribution to the Swatch Bharat Kosh set up by the Central Government for the promotion of sanitation] and making available safe drinking water |

## Key Findings

| | |
|---|---|
| **Relevance** | • **90%** Beneficiaries were not able to respond to sounds due to impaired hearing.<br>• **50%** Beneficiaries Suffered from Bilateral Hearing Loss.<br>• **70%** Beneficiaries were diagnosed above 1 year of age.<br>• **50%** Beneficiaries incurred expenses prior to intervention between INR 50,000 – 2,00,000. |
| **Effectiveness** | • **60%** Beneficiaries underwent consultation and diagnosis at the Hinduja hospital and rest at the local affiliated centers.<br>• **100%** Beneficiaries received information regarding pre- and post-surgical aspects of the program.<br>• **100%** Beneficiaries received necessary services at the hospital.<br>• **100%** Beneficiaries undergoing habilitation therapy. |
| **Efficiency** | • **70%** Beneficiaries underwent more than 3 hospital visits prior to surgery.<br>• **70%** Beneficiaries incurred expenses of above INR 25,000 in prehospitalisation process.<br>• **90%** Beneficiaries found the clarity of information provided as excellent.<br>• **80%** Beneficiaries did not face any post-surgical complications after surgery. |
| **Coherence** | • Alignment with National Health Policy 2017.<br>• Alignment with Rights of Persons with Disabilities (RPwD) Act, 2016.<br>• Alignment with Ayushman Bharat Scheme. |
| **Impact** | • **50%** Beneficiaries underwent Cochlear implant in right and left ear respectively.<br>• **100%** Beneficiaries report improved listening skills.<br>• **80%**reported improved quality of life post implant. |
| **Sustainability** | • **70%** Beneficiaries encountered technical issues with implant.<br>• **20%** Beneficiaries received financial support for maintenance of the devices. |

Chapter 1

# Project Background & Overview

# Chapter 1: Programme Overview and CSR Initiatives of Essel Mining & Industries Limited

## 1.1 CSR Initiatives of Essel Mining & Industries Limited

Essel Mining & Industries Limited (EMIL), a distinguished member of the Aditya Birla Group, is a prominent figure in the industrial realm, celebrated for its steadfast dedication to excellence and sustainability. Benefiting from a rich heritage of over five decades marked by innovative ventures and ethical business practices, EMIL boasts a diverse portfolio spanning mining, infrastructure development, manufacturing, renewable energy and related sectors. With an unwavering commitment to innovation and efficiency, EMIL maintains rigorous environmental standards and prioritises corporate social responsibility.

EMIL is dedicated to enhancing social and economic progress in communities, especially those from vulnerable backgrounds. Driven by a vision to generate lasting value for all stakeholders, EMIL is deeply committed to promoting economic prosperity, societal advancement, and environmental welfare throughout its operations. The company's commitment to corporate social responsibility is evident through initiatives spanning five key thematic areas, strategically implemented across its operational regions.

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**Healthcare**

To render quality healthcare facilities to people living in the villages and elsewhere through a range of initiatives, including hospitals, primary healthcare centres, mother and childcare projects, and immunisation programmes.

**Education**

To spark the desire for learning and knowledge at every stage.

**Sustainable Livelihood**

To provide livelihood in a locally appropriate and environmentally sustainable manner.

**Infrastructure Development**

To set up essential services that form the foundation of sustainable development

**Social Change**

To advocate and support Gender equality, espousing basic moral values, and run awareness programmes on antisocial issues.

[1] https://www.esselmining.com/wp-content/uploads/2022/09/csr-policy.pdf

### 1.2 Programme Overview

Between **FY 2022–24**, EMIL, in collaboration with the I Hear Foundation, supported **20 children 10 children for the FY 22-2023 and FY 23-2024 respectively** affected by hearing loss particularly those diagnosed with **profound sensorineural hearing impairment** who could not benefit from conventional hearing aids. These individuals were provided access to life-changing cochlear implant surgeries and a full continuum of comprehensive post-operative care.

The programme placed strong emphasis on early diagnosis and timely intervention, recognising that these are critical for children with profound hearing loss to develop auditory perception, language, and speech skills. By initiating treatment during the optimal developmental window, the programme empowered young beneficiaries to successfully transition into mainstream educational settings and engage more fully in social and community life.

Partnering with **P.D. Hinduja Hospital**, a nationally recognised centre of excellence for cochlear implantation, ensured the delivery of **high-quality surgical care**. Each of the 20 beneficiaries underwent **detailed pre-operative assessments** to ensure suitability for implantation, followed by precise surgical procedures carried out by expert surgeons.

Post-surgery, beneficiaries were enrolled in a structured programme of **habitation and rehabilitation**, which included **auditory-verbal therapy (AVT)**, regular customised **therapy sessions** along other supports depending on the individual needs of the patient. These services were delivered through a network of specialised centres affiliated with the I Hear Foundation, ensuring **geographic accessibility and continuity of care**.

The holistic approach adopted through this programme continues to serve as a model for delivering sustainable, inclusive healthcare solutions to the most vulnerable sections of society.

**For the year 2022-24 Cochlear Implant Surgeries programme was implemented keeping in mind the following broad objectives**:

1. Identify and screen individuals with hearing impairments through referral network
2. Provide underserved communities access to affordable and timely cochlear implant surgeries for underserved population
3. Deliver post-surgical habilitation and rehabilitation sessions through specialised centers to ensure holistic recovery
4. Support the development of auditory , speech and cognitive skills for patients post- cochlear implant surgery
5. Reduce preventable deafness and improve beneficiaries' quality of life of the beneficiaries

### 1.3 Programme Activities

| | |
|---|---|
| **Preoperative Assessment** | • Preoperative Diagnostic Tests and Assessments<br>• Referral of patients fulfilling selection criteria to Hinduja hospital<br>• Preoperative check-ups and consultation<br>• Admission and patients' preparation for surgery |
| **Cochlear Implant Surgery** | • Patients undergoing Electrode Implant<br>• Follow-up after the surgery for installation of the speech processor |
| **Post operative assessment** | Facilitating comprehensive habitation and rehabilitation sessions for cochlear implant recipients to support effective auditory, speech, and overall developmental outcomes, enabling their holistic integration into society. |
| **Delivering Social Impact** | Enabling transformative hearing solutions through affordable cochlear implant surgeries, thereby enhancing beneficiaries' quality of life, independence, and social inclusion. |
| **Improving Patient Access** | Facilitating access to affordable cochlear implant surgeries for underserved patients and supporting their reintegration into society. |

### 1.4 Geographical Distribution of the Cochlear Implant Programme

The **Cochlear Implant Programme** is anchored at **P. D. Hinduja Hospital, Mumbai**, in partnership with the **I Hear Foundation**. With a network of **85 affiliated centres across India**, the programme caters to **patients from across the country**, including rural, semi-urban, and urban areas. This extensive reach enables access to quality cochlear implant services for children from diverse geographical and socio-economic backgrounds, ensuring equitable healthcare support nationwide.

Chapter 2

# Design & Approach of the Impact Assessment

# Chapter 2: Design and Approach for Impact Assessment

## 2.1 Objectives of the Study:

The Essel Mining & Industries Limited-CSR team formed a strategic partnership with the I Hear Foundation to implement the "Cochlear Implant Surgeries" initiative across India. Recognising the importance of evaluating the impact of their investment, the EMIL-CSR team has commissioned a comprehensive impact assessment study for this project.

The objectives of the impact assessment study are as follows:

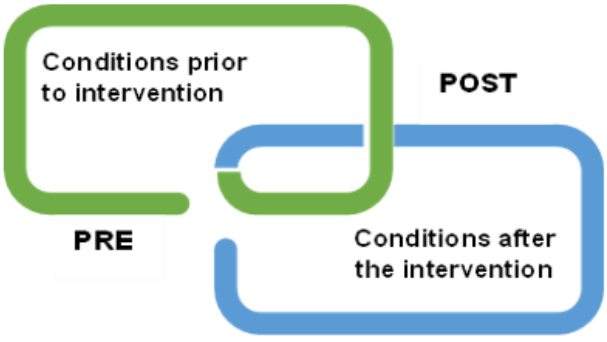
1. To assess health outcomes in patients following cochlear implant surgeries among children with hearing loss.
2. To access the social and economic outcomes of cochlear implant interventions including improved access to auditory and speech related services , reduced communication barriers and quality of life of children and thier families in target communities.
3. To determine if the cochlear implant initiative has fostered sustained improvements in communication, education, and social participation, as well as strengthened linkages with local audiological and rehabilitative services.
4. To collect feedback from beneficiaries, healthcare workers, and otherstakeholders to ensure their experiences and insights are considered inrefining the program.

## 2.2 Evaluation & Framework Indicators

### Evaluation Approach

The study's objectives and primary areas of investigation directed the development of the evaluation, with a central focus on learning. In this segment, CSRBOX outlines its strategy for crafting and implementing a rigorous, adaptable, and outcome-driven evaluation framework/design.

To measure the impact of the project, a pre-post-project evaluation approach was adopted for the study. This approach relied on the respondents' recollection ability. With this approach, beneficiaries were queried about their conditions before and after the project intervention. The

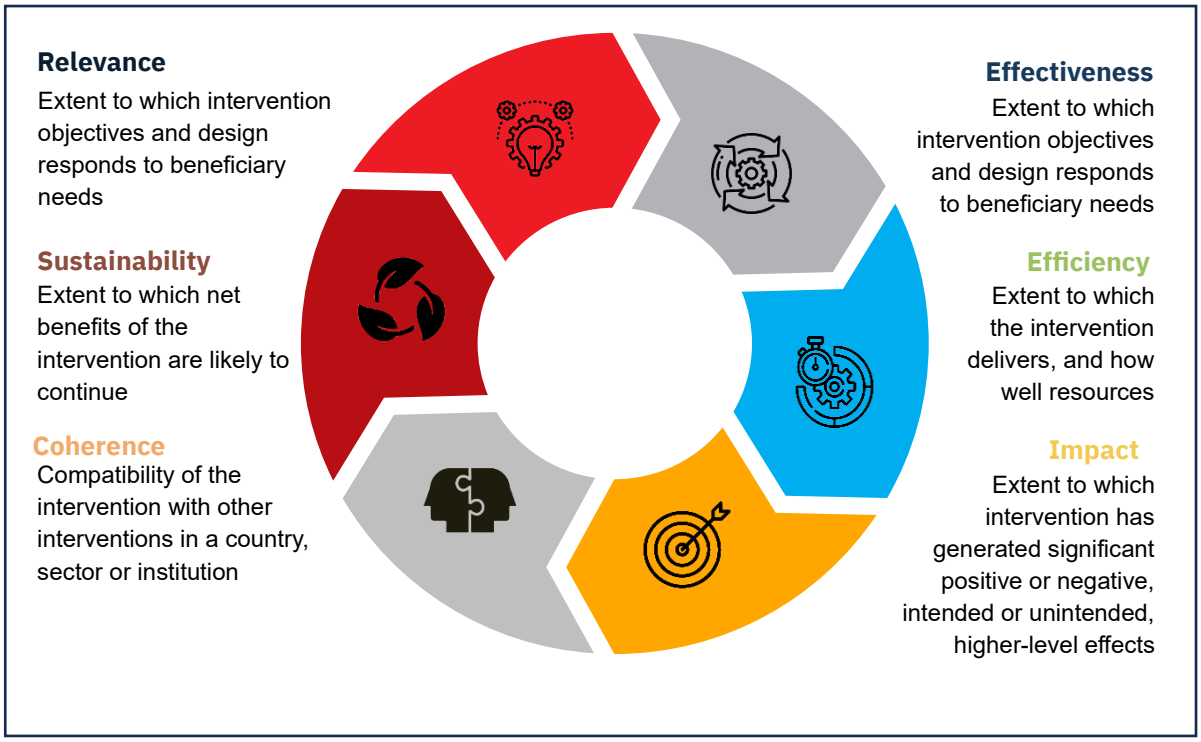


disparity aided in comprehending the project's contribution to enhancing the intended beneficiary condition.

This approach, at best, could comment on the contribution of the project to improving living standards, though it might not be able to attribute the entire change to the project. Other external factors might also have played a role in bringing positive changes along with the project. Hence, contribution was assessed, but attribution might not have been entirely assigned to the project.

## Framework

Given the study's objectives to determine the project's effectiveness, efficiency, impact created and sustainability, the evaluation has used the **OECD-DAC Framework**. Using the criteria of the OECD-DAC framework, the evaluation has assessed EMIL's contribution to the results while keeping in mind the multiplicity of factors that may be affecting the overall outcome. The social impact assessment hinges on the following pillars:




The impact assessment has aligned itself with the impact parameters as per the criteria mentioned in the Terms of Reference. The following parameters are prioritised to satisfy the criteria of the Impact Assessment – **Relevance, Coherence, Effectiveness, Efficiency, Impact, and Sustainability.**

| Parameter | Indicator | Data Sources |
|---|---|---|
| Relevance | • Socioeconomic status of the beneficiaries<br>• **10** patients with accessibility to advanced diagnostic and preoperative assessment centres<br>• **16** medical staff available for patient treatment at the hospital.<br>• **85** therapists, audiologists, and support staff available for patient treatment. | • Quantitative survey with the beneficiaries<br>• Secondary Review - including reviewing project documents and reports to assess the relevance of the project<br>• Interaction with the implementing team, the CSR team, and other key stakeholders. |
| Effectiveness | • **100%** of children undergoing successful cochlear implant surgeries<br>• **80%** of children who did not suffer from any post-surgical complications<br>• **100%** of children successfully completing scheduled re/habitation sessions<br>• **100%** of caregivers reported improvement in the listening and speaking skills of the beneficiaries | |
| Efficiency | • Average expenditure per child for complete medical intervention<br>• **100%** of parents are aware of the post-surgical interventions and schedule of the therapy sessions. | |
| Coherence | • Convergence between project activities<br>• Coordination between project stakeholders<br>• Alignment with local, and national priorities | |
| Impact | • **100 %** of Families reported improved quality of life of children post-intervention<br>• **100%** of families reported improved school attendance and participation in the learning activities<br>• **100**% of children demonstrating age-appropriate language development after intervention<br>• | |
| Sustainability | • **100%** of Families with access to regular mapping and therapy sessions without programme support<br>• **100%** of families with access to trained healthcare specialists in the proximity to the residence<br>• **100%** of partnerships active after the intervention cycle<br>**70%** of children face issues with the device after the implant | |

## 2.3 Sampling

A two-pronged approach to data collection and review was chosen for the assessment. The secondary data was obtained through a literature review, while the primary data was collected from qualitative and quantitative data collection methods. This methodology enabled us to gather valuable insights related to the impact from a holistic, 360-degree perspective that includes all pertinent stakeholders necessary for the study.


The figure above illustrates the study approach used in data collection and review. The secondary study includes a review of annual reports, internal data, monitoring reports, government data & reports, and other studies and research by renowned organisations available in the public domain to draw insights into the situation of the area. The primary study comprised qualitative and quantitative approaches to data collection and analysis. The qualitative aspects included In-depth Interviews (IDIs), Key Informant Interview and observation from the study area.

### 2.3.1 Quantitative Sampling

The sampling has been carried out on the beneficiary level. A simple random sampling approach was adopted to ensure the sample's representativeness, encompassing beneficiaries across the universe. The Sampling for the study will be conducted with a Confidence Level of 95% and a 10% Margin of Error for the project. Any impact reflected by the sample can then be safely assumed to be a reflection of the entire population.

| Sr No | Stakeholder | Mode of Data Collection | Sample Size | Rationale |
|---|---|---|---|---|
| 1 | Beneficiaries Tranche 1 (FY 22-23) | Quantitative Survey (Virtual) | **5** | 95% Confidence Level and 10% Margin of Error |
| 2 | Beneficiaries Tranche 2 (FY 23-24) | | **5** | |
| | | **Total** | **10** | |

### 2.3.2 Qualitative Sampling

Apart from the quantitative data collection methods, qualitative data was also collected. The list of the secondary stakeholders has been mentioned below: -

| Sr No | Stakeholder | Mode of Data Collection | Number of Interviews Conducted |
|---|---|---|---|
| 1 | Parents | In-Depth Interviews | 5 |
| 2 | Implant Surgeons | Key- Informant Interview | 1 |
| 3 | Audiologist | In-Depth Interviews | 3 |
| 4 | Speech Therapist | In-Depth Interviews | 3 |
| 5 | Implementation Partner (I Hear Foundation) | In-Depth Interviews | 1 |
| **Total** | | | **13** |

### 2.4 Ethical Practices for Consideration

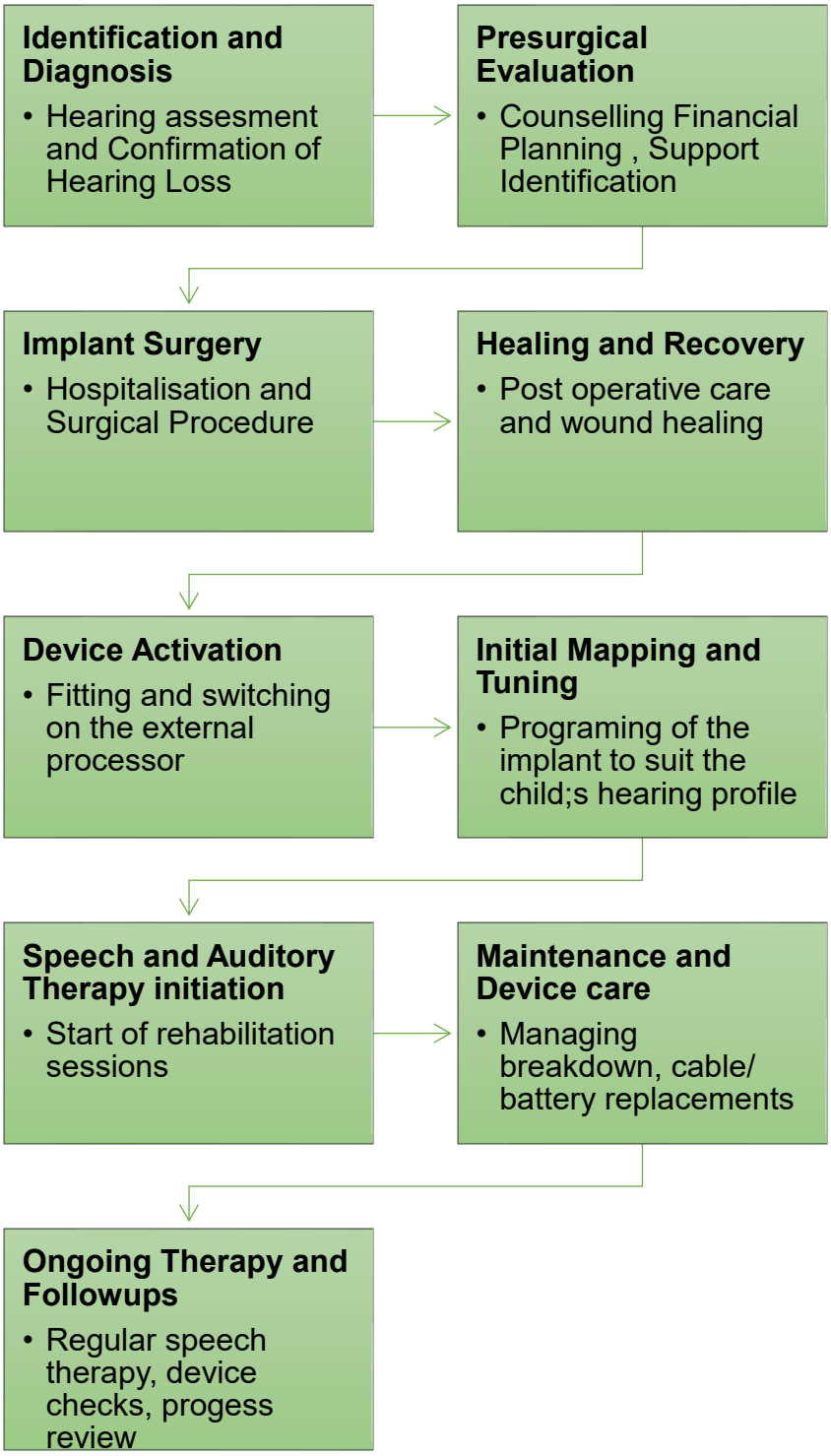
- **Ethical Considerations in Data Collection**: During the data collection for this project, the team adhered to ethical standards by ensuring that informed consent was obtained from all participants before gathering their feedback. Respondents were thoroughly briefed on the purpose of the study, the expected outcomes, and the manner in which their responses would be accurately recorded.
- **Sensitivity in Handling Personal Information**: As the data collection process involved gathering sensitive patient information, the team took special care to handle all data with respect and discretion. A sensitisation session was held for all team members to ensure they followed the proper procedures when interacting with respondents and collecting information.
- **Assurance of Confidentiality**: Respondents were assured that their personal information would remain confidential, and all data collected would only be used for the purpose of the impact assessment study, ensuring privacy and trust throughout the process.

## Theory of Change

<table>
<tr><th>Activity</th><th>Outputs</th><th>Outcomes</th><th>Impact</th></tr>
<tr><td rowspan="3">Preoperative Assessment</td><td>• 20 beneficiaries underwent Pre-diagnostic tests and assessments<br>• 85 centres accessible to the patients for consultation, diagnosis and rehabilitative sessions</td><td>Early identification and screening of eligible patients for cochlear implant</td><td rowspan="6">• Enhanced accessibility to early-stage ENT diagnostics and treatment in underserved regions.<br>• Affordable access to cochlear implant surgeries for economically disadvantaged groups<br>• Empowerment through reintegration of beneficiaries into educational and social settings through rehabilitation settings<br>• Enhanced developmental outcomes for children with hearing impairment</td></tr>
<tr><td>• 20 beneficiaries referred for cochlear implant</td><td>Timely referral of patients eligible for cochlear implant/upgrade for intervention</td></tr>
<tr><td>• 20 patients underwent preoperative check-up</td><td>Improved readiness of the patients for cochlear implant to avoid post-surgical complications and increase the success rate of the surgery</td></tr>
<tr><td rowspan="2">Cochlear Implant Surgery</td><td rowspan="2">• 20 received surgery for an electrode implant<br>• 20 Patients underwent follow-up for the installation of the speech processor</td><td>Restoration of auditory function initiated through successful cochlear implantation</td></tr>
<tr><td>Enhanced auditory perception through device optimisation</td></tr>
<tr><td rowspan="2">Postoperative Support</td><td>• 20 Patients underwent rehabilitation sessions</td><td rowspan="2">Improvement in speech perception, comprehension, and social communication of the beneficiaries</td></tr>
<tr><td>• 20 Patients underwent mapping sessions</td></tr>
</table>

## Cochlear Implant Surgeries Programme

The Cochlear Implant Surgeries Programme is a comprehensive initiative that restores hearing in children with profound hearing loss through advanced surgical intervention. Supported by post-operative therapy and device care, it ensures long-term rehabilitation and integration into mainstream society. Below is the step-by-step process followed under the programme:



Chapter 3

# Impact Findings

# Chapter 3 Impact Findings

The following section in the report indicates key findings and insights drawn from the impact assessment study based on field interactions and the **OECD DAC** standard parameters outlined in the study framework. Insights have been drawn by adopting a 360-degree approach to data collection by gathering data from the quantitative and qualitative methods by engaging with different programme stakeholders.

**80%** Beneficiaries were Male

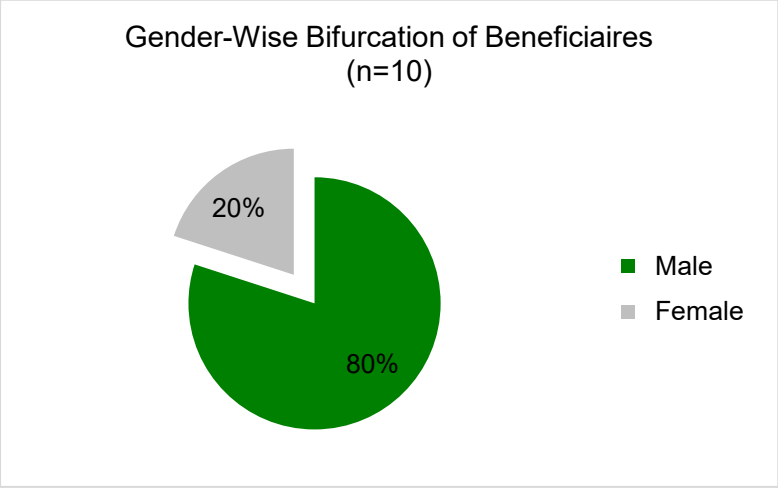
**80%** Beneficiaries were above age of 3 years

**70%** beneficiaries belonged to the OBC category

**70%** families have private job with **40%** with Annual income between INR 1,00,000-1.50.000.

## 3.1 Sociodemographic Profile

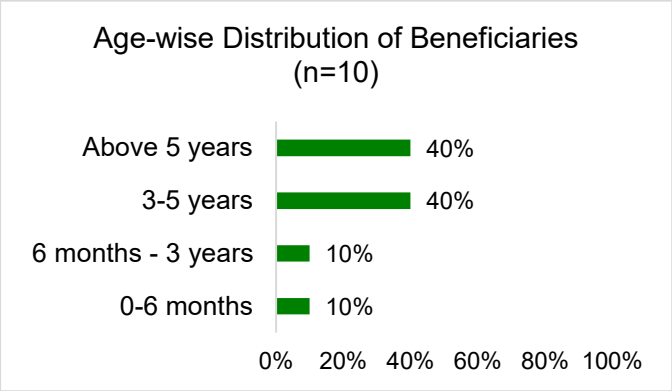
### 3.1.1 Gender-Wise Bifurcation of Beneficiaries




The data shows a significant disparity in the gender distribution of beneficiaries undergoing cochlear implant surgeries, **80% are male** and only **20% are female**.

***Figure 1.Gender-Wise Bifurcation of beneficiaries***

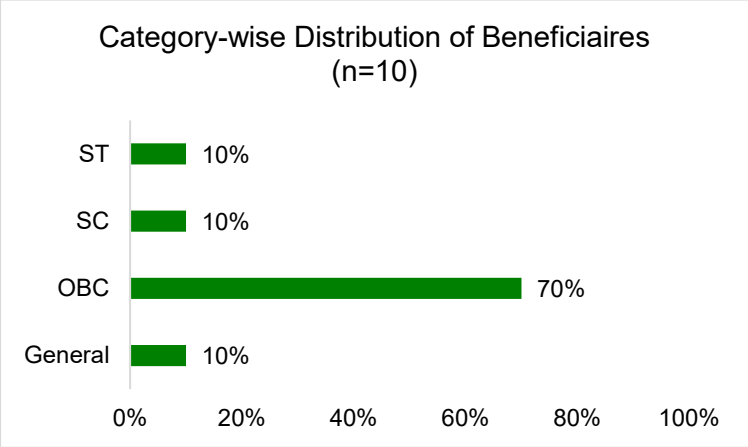
### 3.1.2 Age-Wise Distribution of Beneficiaries




The data shows age wise distribution of cochlear implant surgeries, with **10%** surgeries performed in infants aged 0–6 months and another **10%** in children between 6 months and 3 years. The majority **80%** of surgeries took place after the age of 3, and within this group, **40%** are conducted in children older than 5 years.

***Figure 2.Age-Wise Distribution of Beneficiaries***

### 3.1.3 Category-Wise Distribution of Beneficiaries




The distribution of beneficiaries by social groups shows that a majority **70% belong to the Other Backward Classes (OBC)** category, while only **10% each** are from the General, Scheduled Caste (SC), and Scheduled Tribe (ST) categories.

***Figure 3.Category-Wise Distribution of Beneficiaries***

### 3.1.4 Occupation-Wise Distribution of Caregivers

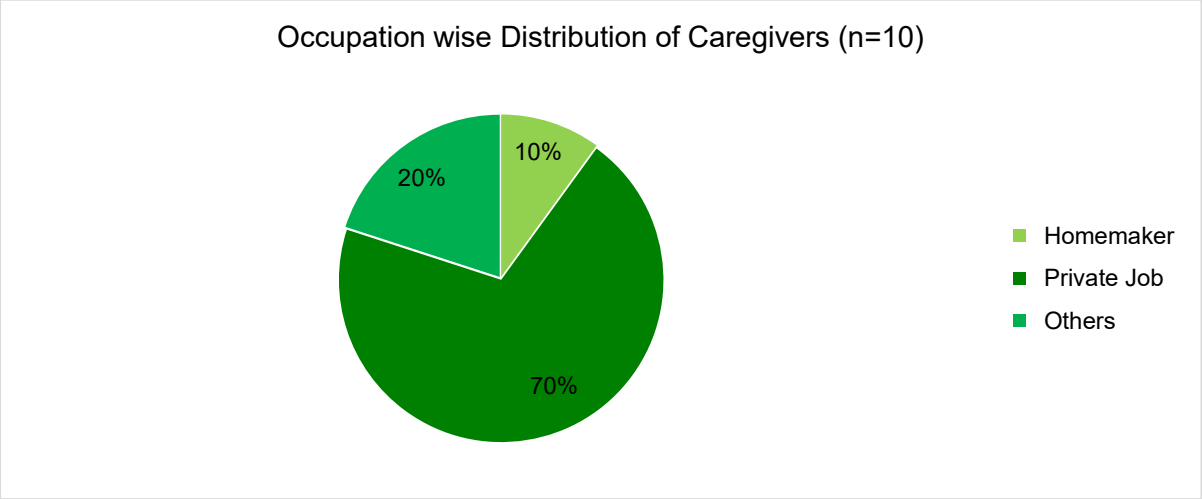



***Figure 4.Occupation-Wise Distribution of Caregivers***

The occupation-wise distribution of caregivers indicates that **70%** of families of children receiving cochlear implants come from private-sector employment backgrounds. This suggests that families with a steady income from private jobs are more likely to pursue and afford cochlear implant surgeries. The private sector roles reported during qualitative interviews included shopkeepers, retail workers in shopping centres, and accountants employed by private companies. The programme aims to provide cochlear implants to children from low-income families, ensuring that vital healthcare is accessible to those who might otherwise be hindered by financial constraints.

### 3.1.5 Income-Wise Distribution of Caregivers Beneficiaries

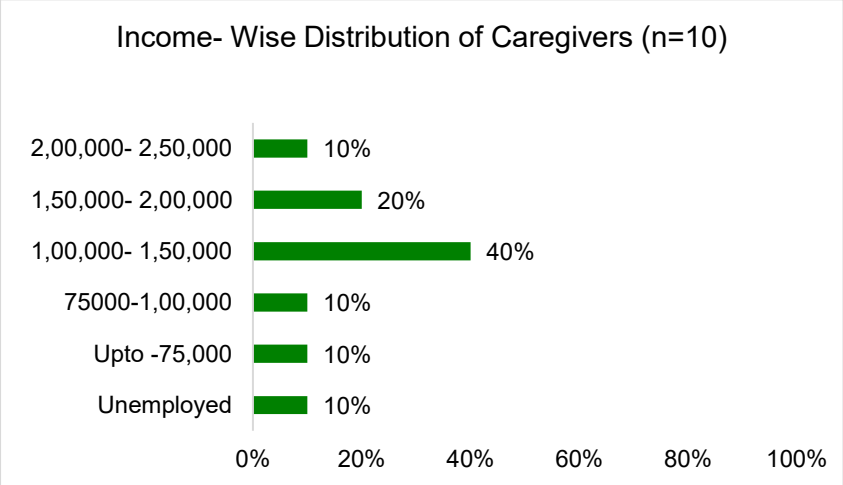



***Figure 5. Income-Wise Distribution of Caregivers***

The programme aims to ensure equitable access to cochlear implant surgeries for children across different income levels, particularly focusing on families facing financial constraints. The income-wise distribution of beneficiaries reveals a broad range of financial backgrounds. **10%** of the beneficiaries come from families earning up to **INR 75,000**, while another **10%** belong to families with an income between **INR 75,000** and **INR 1,00,000**.

A significant portion, **40%**, are from families earning between **INR 1,00,000** and **INR 1,50,000,** indicating that the majority of beneficiaries fall within the lower-middle-income bracket. 20% of families earn between **INR 1,50,000** and **INR 2,00,000**, and **10%** fall within the **INR 2,00,000** to **INR 2,50,000** lakh range. Additionally, **10%** of the beneficiaries come from unemployed households, showing that the programme is effectively supporting families even in financially challenging situations. This income distribution highlights the programme's broad reach in providing cochlear implants to children from diverse economic backgrounds, with a strong focus on lower and middle-income families.

### 3.1.6 Enrolment in the Health Insurance Scheme

The programme's beneficiary distribution in terms of **health insurance coverage** shows that a significant majority, **90%**, of the beneficiaries are **not enrolled in any insurance scheme**, while only **10%** have access to **health insurance which was enrolled in private insurance**. A large proportion of families receiving cochlear implants do so without the financial support of insurance, highlighting the importance of the programme in providing critical healthcare services to those without sufficient coverage.

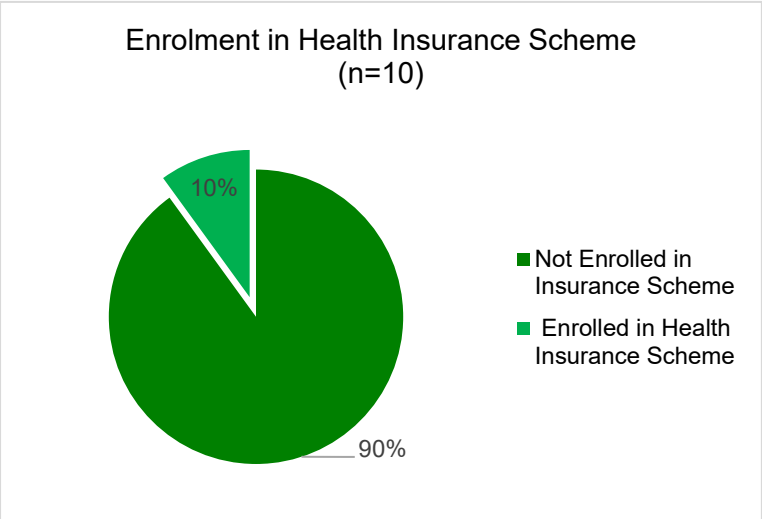



***Figure 6.Beneficiaries Enrolled in Health Insurance Scheme***

## 3.2 Relevance

The following section discusses the relevance and necessity of the intervention, detailing socio-demographic indicators and other factors that highlight the need for support.

**90%** Beneficiaries were not able to respond to sounds due to impaired hearing

**50%** Beneficiaries Suffered from Bilateral Hearing Loss

**70%** Beneficiaries were diagnosed above 1 year of age

**50%** Beneficiaries incurred expenses prior to intervention between INR 50,000 – INR 2,00,000.

**90%** Beneficiaries were referred to the program by healthcare professionals

### 3.2.1 Symptom-Wise Distribution of Beneficiaries

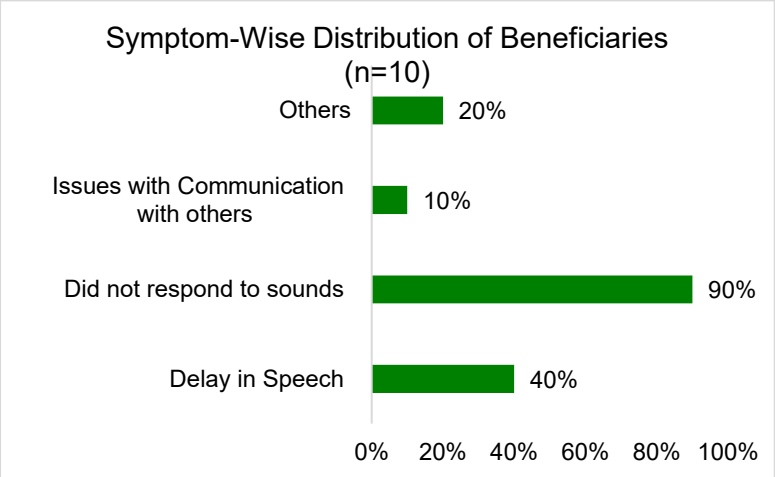



***Figure 7.Symptom-Wise Distribution of Beneficiaries***

Cochlear implant surgeries are essential for addressing various hearing-related issues in children, enabling them to develop speech and language skills. The reasons for seeking these surgeries among beneficiaries reflect a range of challenges. **90%** of the children did not respond to sounds, indicating severe hearing impairment that required intervention to help them perceive sound. Additionally, **40%**

of the beneficiaries experienced a **speech delay**, suggesting that their inability to hear properly was hindering the development of speech and language skills. **20%** had other issues, which could involve more specific or complex hearing-related challenges, while **10%** faced difficulties with **communication with others**, highlighting problems in understanding or processing speech. These figures underscore the importance of cochlear implants in addressing various aspects of hearing loss, particularly the inability to respond to sounds, which can significantly impact a child's communication and development.

### 3.2.2. Affected Ears of Beneficiaries

The graph shows the distribution of the **affected ear(s)** in children receiving cochlear implant surgeries. **50%** of the beneficiaries have hearing impairment in **both ears**, indicating a bilateral hearing loss that requires implants for both sides to restore hearing. **30%** have hearing loss in the **right ear**, while **20%** have impairment in the **left ear**. This distribution suggests that bilateral hearing loss is the most common among the beneficiaries, emphasising the need for cochlear implants in both ears to achieve the best outcomes in hearing restoration and communication skills.

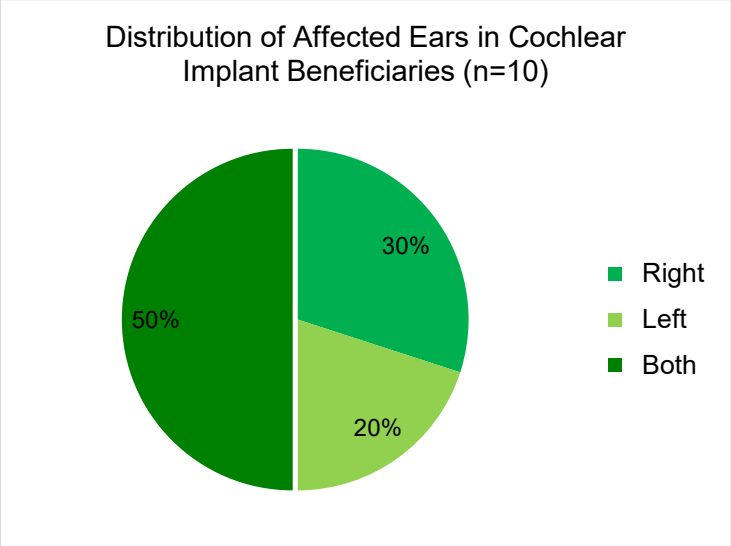



***Figure 8.Distribution of Affected Ears in Cochlear Implant Beneficiaries***

### 3.2.3 Age at Diagnosis for Hearing Impairment Among Beneficiaries

Age plays a crucial role in determining the effectiveness of cochlear implant surgery. The earlier the intervention, particularly within the first three years of life, the better the outcomes in terms of speech, language, and cognitive development. As the brain's adaptability decreases with age, late implantation can limit the child's ability to fully benefit from the device, affecting their learning potential, academic performance, and social integration. Therefore, timely detection and early intervention are essential for maximising the benefits of cochlear implants[2].

[2] http://dx.doi.org/10.1007/s12070-021-02725-3

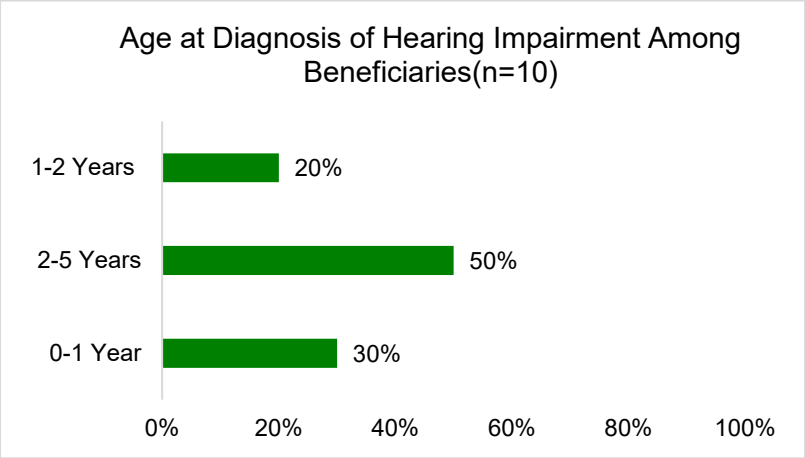



***Figure 9. Age at Diagnosis of Hearing Impairment Among Beneficiaries***

Early identification of hearing loss is critical to ensuring optimal speech, language, and cognitive development in children. However, the current data reveals that **80%** of the children were diagnosed **after the age of 3 years**, with **40%** diagnosed only after turning 5.

This indicates a considerable delay in the detection of hearing impairment, often missing the crucial developmental window for intervention. Qualitative interviews suggested a lack of awareness among parents regarding the awareness regarding symptoms of hearing, thus causing delays in the identification and diagnosis of hearing impairment. These findings highlight the urgent need for **increased awareness** among parents, caregivers, and healthcare providers about early signs of hearing loss. There is also a pressing need to implement universal new born hearing screening and periodic hearing assessments in early childhood. Strengthening these systems, particularly in low-resource and rural settings, can lead to **timely diagnosis and intervention**, significantly improving outcomes for children with hearing impairment.

Qualitative interviews also suggested that following diagnosis, many patients first underwent initial therapy and were fitted with hearing aids for a period of 6 months to 1 year as a preparatory step before receiving cochlear implants. This interim phase aimed to familiarise beneficiaries especially young children with environmental sounds and basic auditory cues. The use of hearing aids during this period helped stimulate the auditory nerve and provided early exposure to sound, which is critical for developing speech and language skills. Coupled with auditory-verbal therapy, this approach also allowed clinicians and families to assess the child's response to sound and speech stimuli, and to determine the suitability and timing of cochlear implantation. Moreover, it served as an important orientation phase for parents and caregivers, enabling them to better understand the rehabilitation process and engage actively in the child's auditory and language development journey.

### 3.2.4 Medical Expenses Incurred Prior Intervention

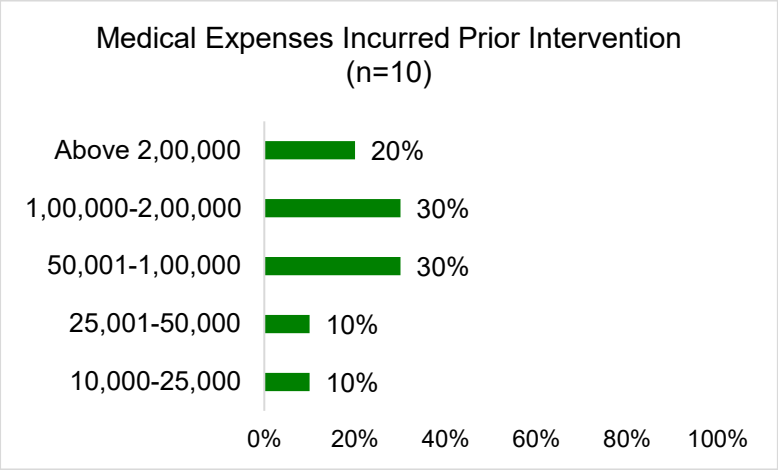



*Figure 10. Medical Costs Incurred Prior Intervention*

For families awaiting cochlear implant support through the programme, the distribution of pre-intervention medical expenses reveals a notably heavy financial burden. Only one-fifth of families had spent below **INR 50,000 on hearing-related care (10% in the Rs 10,000 –INR 25,000 range and 10% in the INR 25,001 to INR 50,000 range),** whereas the remaining **80%** faced much higher costs. **Qualitative interviews revealed that a significant portion of these expenses was on hearing aids, diagnostic tests, and therapy sessions**, which are often necessary to confirm the severity and type of hearing loss and to support communication development prior to surgical referral. In fact, **30% had incurred expenses between INR 50,001 and INR 100,000 and another 30% between INR100,001 and INR 200,000, with a further 20% exceeding INR 200,000**. This pattern indicates that most households have already invested substantially in diagnostics, consultations, or interim treatments prior to receiving the implant. The relatively small proportion in the lowest-cost categories suggests that few families access affordable, early interventions; instead, many accumulate large out-of-pocket expenses over time. Overall, the skew toward elevated spending underscores potential barriers to accessibility and timely intervention, as substantial costs are shouldered by families before any programme assistance is available.

### 3.2.5 Referral to the Programme

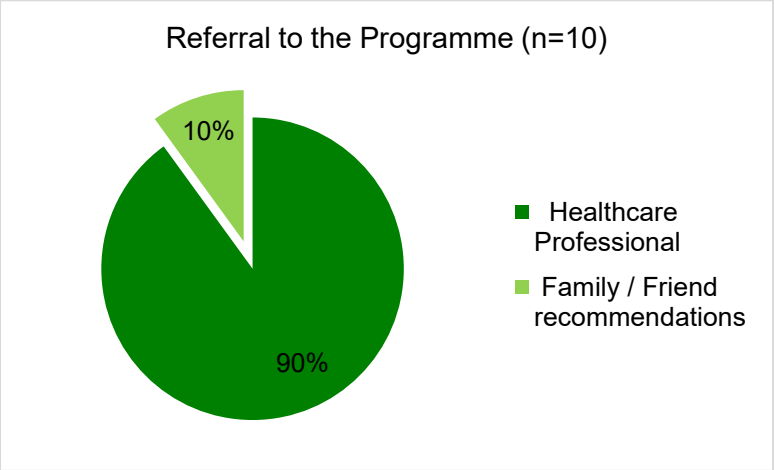



*Figure 11.Referral to the Programme*

The programme operates on a **Hub and Spoke Model**, with **P.D. Hinduja Hospital** serving as the central hub where all **cochlear implant surgeries** are conducted. It is supported by a network of **85 associated centres across India**, functioning as the spokes. These centres play a critical role in the **referral, diagnosis, consultation, and rehabilitation** of patients.

Through this decentralised approach, the programme ensures wide geographical reach and accessibility, allowing patients from various regions to receive timely assessments and follow-up care while centralising surgical expertise and facilities at the hub. This structure is reflected in the referral data, where **90%** of the beneficiaries were referred by **healthcare**

**professionals** likely from these associated centres, while only **10%** were referred through **family or friend recommendations**. This indicates the programme's strong integration with the formal healthcare system and the pivotal role of trained professionals in identifying and guiding patients toward timely intervention.

## 3.3 Effectiveness

The programme's effectiveness measures the extent to which objectives have been achieved and identifies the supporting processes and systems that influence the achievement of these objectives.

**60%** beneficiaries underwent consultation and diagnosis at the Hinduja hospital and rest at the local affiliated centres

**100%** of beneficiaries received information regarding pre- and post-surgical aspects of the program

**100%** of beneficiaries received necessary services at the hospital

**100%** of beneficiaries undergoing habitation therapy

### 3.3.1 Location for Diagnosis

In line with the Hub and Spoke Model, the data indicates that **consultation and diagnosis services** are shared between **P. D. Hinduja Hospital** and its **85 associated local centres**. While **60%** of the beneficiaries underwent consultation and diagnosis at **P. D. Hinduja Hospital**, the remaining **40%** accessed these services at the **local centres**. This approach ensures early identification and screening at the community level while maintaining access to specialised care at the hub.

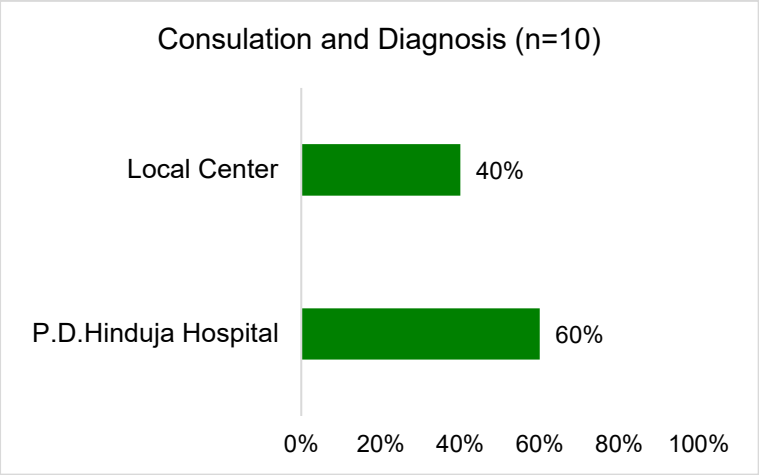



***Figure 12.Location-Wise Distribution for Consultation and Diagnostic Tests Among Beneficiaries***

It also emphasises the important role played by the spokes in streamlining referrals and preparing patients for surgery and rehabilitation. The diagnostic process for cochlear implant candidates involves a comprehensive set of tests to ensure accurate assessment and surgical readiness. These include **CT scans** to detect any **structural abnormalities** in the ear, and **MRI scans** to evaluate **neurological and anatomical changes** in the **ear and brain**.

Additionally, a thorough **paediatric workup** is conducted to assess the child's **overall health status** and determine if they are medically fit to undergo surgery. This multi-layered diagnostic approach ensures that each child receives appropriate and safe treatment tailored to their specific medical condition.

Additionally, a range of other tests such as **BERA (Brainstem Evoked Response Audiometry)** to assess the brain's response to sound, **OAE (Otoacoustic Emissions)** to

evaluate the cochlear function, and **ASSR (Auditory Steady-State Response)** to measure auditory responses. Additionally, **impedance audiometry** checks the middle ear function, while **hearing aid trials and fittings** help assess how well the child responds to hearing aids. **Aided and unaided audiometry** compare hearing abilities with and without hearing aids, and **auditory training** is used to improve listening skills. **Speech audiometry**, when necessary, is conducted to gauge speech perception. Beyond hearing tests, the **speech and language therapy sessions** tailored to each child's specific needs are undertaken, ensuring their communication abilities are developed effectively. To provide a holistic understanding of the child's overall development, **psychological assessments** like **Developmental Quotient (DQ)** and **IQ testing** are also conducted. This thorough and multi-faceted evaluation ensures that each child is medically and developmentally prepared for cochlear implantation, providing a solid foundation for post-surgical rehabilitation and success.

### 3.3.2 Complete Information on Complete Provided to Beneficiaries Regarding Cochlear Implant Process and Rehabilitation Diaries

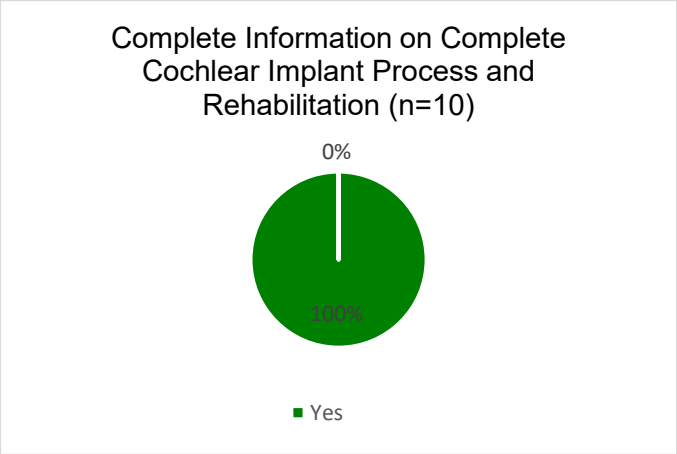



***Figure 13.Beneficiaries Receiving Complete Information on Complete Cochlear Implant Process and Rehabilitation***

All the beneficiaries reported receiving **complete information** regarding the **pre-surgical**, **surgical**, and **post-surgical** processes involved in the cochlear implant programme. This included detailed guidance on necessary diagnostic tests, surgical procedures, potential risks, and expected outcomes. Additionally, families were informed about the importance and schedule of **rehabilitation sessions**, which are critical for the success of the implant. The comprehensive information sharing reflects the programme's commitment to transparency and empowering families to actively participate in the treatment and recovery journey of their children.

### 3.3.3 Facilities and Services Received at the Hospital

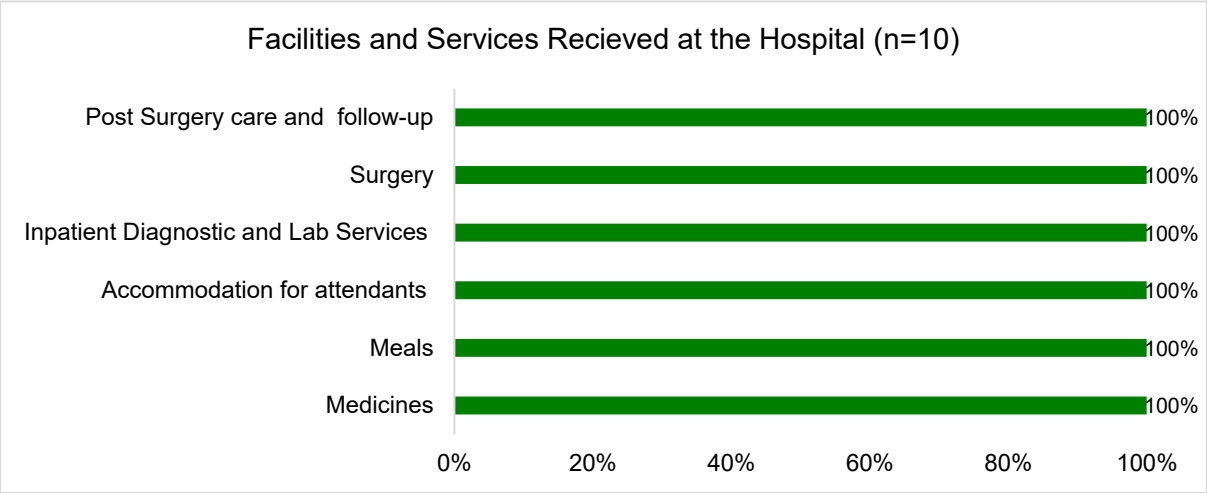



***Figure 14.Facilities and Service-Wise Distribution of Beneficiaries***

The cochlear implant programme is designed to provide holistic support to beneficiaries, addressing not only the medical needs but also the logistical and financial challenges that families may face throughout the treatment process. The data shows that **all the beneficiaries received full support** across all key service areas involved in the cochlear implant process. This includes the provision of **medicines**, **nutritious meals**, **accommodation for attendants**, **inpatient diagnostic and lab services**, the **surgery itself**, and **post-surgery care including follow-up visits**. The uniformity across all service categories highlights the programme's **comprehensive and inclusive approach**, ensuring that no aspect of the beneficiary's care journey is left unsupported. This all-encompassing coverage plays a crucial role in reducing the financial and logistical burden on families, thereby enabling equitable access to high-quality hearing restoration services.

*We did not face any issue at the hospital during our stay for surgery, The hospital staff including the nurses were very supportive.*

- *Parent*

### 3.3.4 Post Cochlear Implant Therapy Sessions

Rehabilitation refers to the process of helping children adapt to their new hearing abilities through various therapeutic sessions, including speech and language development, auditory training, and communication skills. It plays a crucial role in maximising the benefits of the cochlear implant by enhancing the child's ability to understand and respond to sound.


***Figure 15. Rehabilitation Sessions Undertaken by Beneficiaries Post Cochlear Implant***

All the beneficiaries who are currently undergoing cochlear implant surgeries receive **rehabilitation sessions** for a minimum of **three years**. Post-implant, the therapists conduct **evaluations every three months**, following a structured goal-setting approach. These evaluations include **Category of Auditory Perception (CAP)** for assessing auditory perception, **MAIS (Meaningful Auditory Integration Scale)** for understanding auditory integration, **LSD (Listening Skills Development)** for evaluating listening, expression, reception, speech, cognitive skills, and communication behaviour, and **SIR (Speech Intelligibility Rating)** for assessing speech clarity.

**Mapping** refers to the process of adjusting the cochlear implant's settings to ensure it provides optimal sound quality and amplification for the user. This involves programming the device to match the child's hearing needs, ensuring the implant works effectively.

The **mapping sessions** are held once a month for the first three months, followed by sessions every three months for the next year, and once every six months thereafter, to ensure optimal device settings and monitor progress. **CI-aided audiometry** is also conducted every **3 to 6 months**, providing continued assessment of the child's auditory progress. This thorough approach ensures that children receive comprehensive support and optimal care throughout their rehabilitation journey.

## 3.4 Efficiency

This section assesses the extent to which the intervention delivered results in an economical and timely manner.

**70%** Beneficiaries underwent more than 3 hospital visits prior to surgery

**70%** Beneficiaries incurred expenses of above INR 25,000 in prehospitalisation process

**90%** Beneficiaries found the clarity of information provided as excellent

**90%** Beneficiaries stayed at hospital for duration of 3 days and **80%** did not have to pay for any

**80%** Beneficiaries did not face any post-surgical complications after surgery

**90%** Beneficiaries satisfied with the quality of services provided at the hospital

**90%** beneficiaries incurred expenses for the Therapy sessions of which **80%** rated the therapy sessions excellent

All the Beneficiaries Satisfied with the functioning of implant Device post installation.

### 3.4.1 Pre-Hospitalisation Visits to P. D. Hinduja Hospital

The pre-hospitalisation visits are essential for ensuring that all necessary preparations are made before the cochlear implant surgery. These visits, which are categorised as **1-2 visits** for **30%** of children and **more than 3 visits** for **70%**, typically involve a range of activities. They include **diagnostic tests**, such as hearing assessments and imaging, to confirm the child's suitability for the surgery. Additionally, these visits are important for the **payment of advance fees**, ensuring that the financial aspects are settled before the procedure. The higher percentage of children requiring more than three visits indicates that the process involves multiple steps, including thorough medical evaluations, financial arrangements, and final preparations to ensure the best outcome for each child.

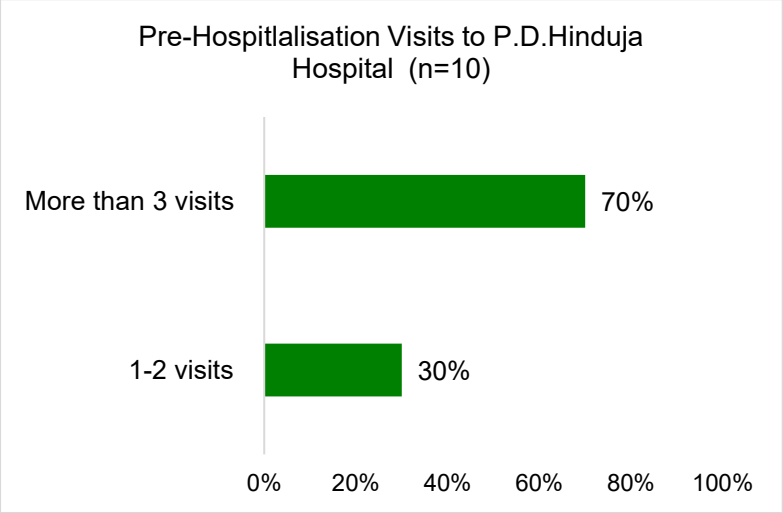



***Figure 16. Frequency of Pre-Hospitalisation Visit to the P.D Hinduja Hospital***

### 3.4.2 Expenses Incurred in Pre-Hospitalisation Process

The **expenses incurred during the pre-hospitalisation process** for cochlear implant surgery vary depending on the number of visits, diagnostic tests, and financial preparations involved. The data shows that **30%** of families spent between **INR 10,000–25,000**, **40%** incurred expenses between **INR 25,000–50,000**, and another **30%** spent between **INR 1,00,000–2,00,000**. These costs typically cover **diagnostic investigations** and **consultations**. The variation in expenditure reflects the differing needs and complexities in evaluating each child before surgery. In addition to the prehospitalisation expenses, an advance of **INR 1,25,000** was paid by all the beneficiary families as their contribution to the surgery.

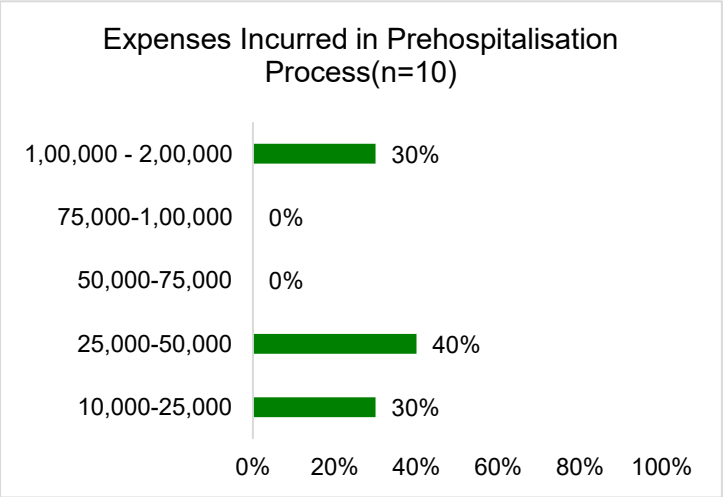



***Figure 17. Expenses Incurred in Prehospitalisation Process***

### 3.4.3 Satisfaction with Clarity of Information Provided at Hospital

The majority of beneficiaries expressed high satisfaction with the **clarity of information** provided during the cochlear implant process. According to the data, **90%** rated the information as **Excellent**, while **10%** found it to be **Very Good**. This indicates that the communication and guidance provided to families regarding procedures, expectations, and follow-ups were clear, comprehensive, and effectively addressed their concerns.

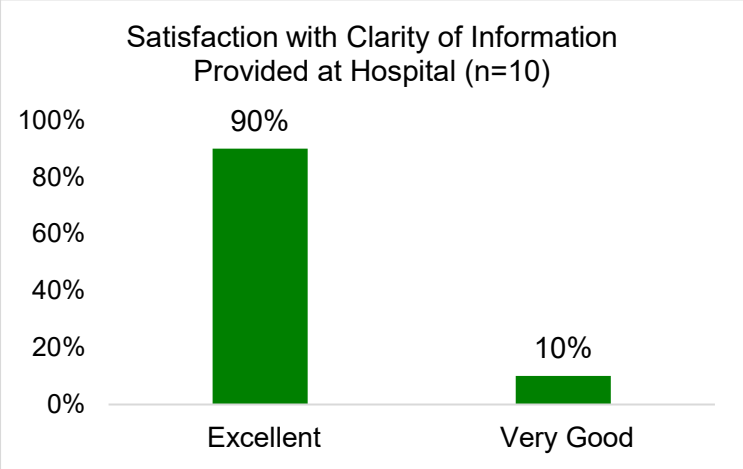



***Figure 18.Beneficiary Satisfaction with Clarity of Information Provided at the Hospital***

### 3.4.4 Duration of Hospital Stay for Cochlear Implant Surgery

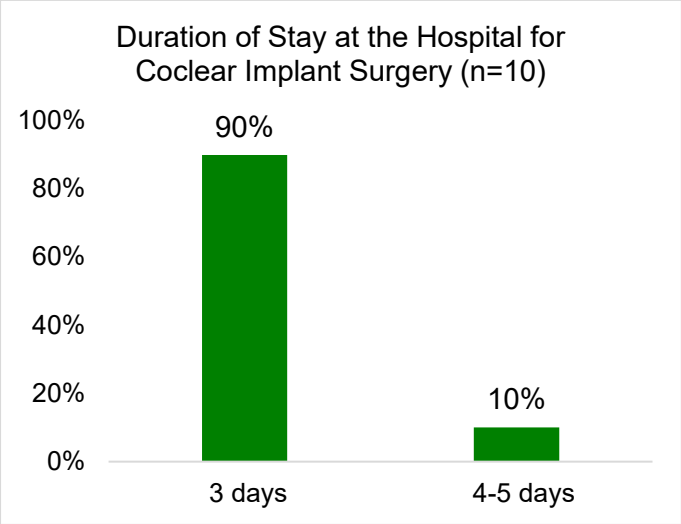



*Figure 19. Duration of Hospital Stay for Cochlear Implant Surgery*

The **duration of hospital stay** for children undergoing cochlear implant surgery was generally short and efficient. **90%** of patients were discharged within **3 days**, while **10%** had to stay for **4–5 days**. The extended stay in one case was due to **malalignment of the cochlear implant**, which was subsequently identified and **corrected** during the hospital period. This highlights the responsiveness of the medical team in managing post-surgical concerns and ensuring successful outcomes.

### 3.4.5 Expenses Incurred for the Services Received at the Hospital

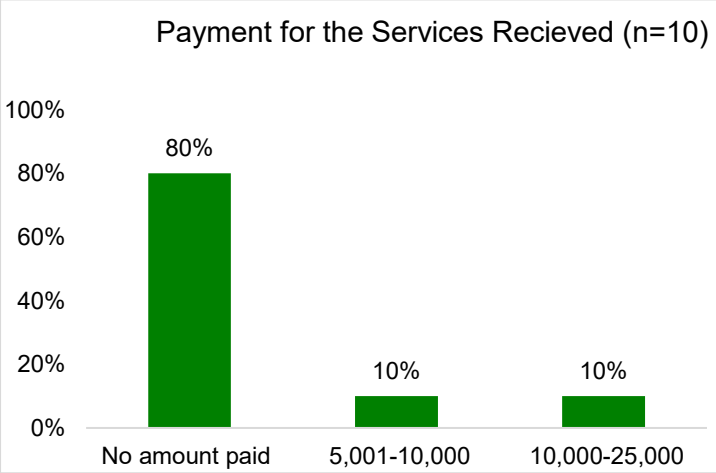



*Figure 20.Expenses Incurred for the Services Received at the Hospital*

The data indicates that **80%** of the beneficiaries mentioned **not paying any additional expenses** for the services received as part of the cochlear implant programme, reflecting the comprehensive support provided. Meanwhile, **10%** spent between **INR 5,001–10,000**, and another **10%** incurred expenses between **INR 10,001–25,000**. The two patients which incurred the cost of investigations at the hospital post-surgery and some medications which were purchased which were not available at the hospital.

### 3.4.6 Satisfaction with Quality of Services Received at the Hospital


*Figure 21.Beneficiary Satisfaction with the Quality of Services Received at the Hospital*

Beneficiaries reported high levels of **satisfaction with the quality of services provided at the hospital** during the cochlear implant programme. According to the data, **90%** rated the services as **Excellent**, while **10%** rated them as **Good**. This reflects the hospital's commitment to delivering high-quality care, professional expertise, and a supportive environment throughout the surgical and rehabilitation process.

### 3.4.7 Incidence of Post-Surgical Complications Among Beneficiaries

The occurrence of **post-surgical complications** among children who underwent cochlear implant surgery was relatively low. **80%** of the patients did **not experience any complications**, while **20%** did report some form of **post-surgical issues**. Among the **20% of children** who experienced **post-surgical complications** following cochlear implant surgery, two specific cases were reported. In one case, the **electrode remained outside the ear**, necessitating a **repeat surgery** to ensure correct placement. In another case, the child **suffered damage and lost stitches**, which required medical attention. While the majority of children (**80%**) had no complications, these instances highlight the importance of post-operative monitoring and the programme's readiness to address issues promptly to ensure patient safety and successful outcomes.

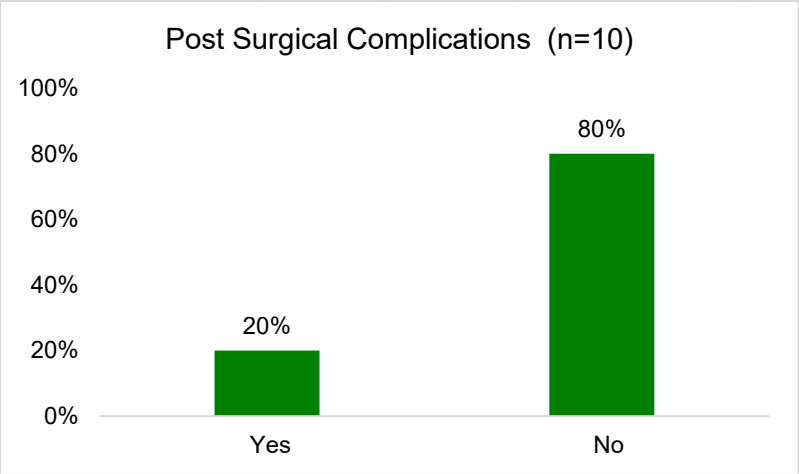



*Figure 22. Incidence of Post-Surgical Complications Among Beneficiaries*

### 3.4.8 Frequency of Rehabilitation Sessions Received by the Beneficiaries

The frequency of **rehabilitation sessions** following cochlear implant surgery varies depending on the **individual needs of each child**, ensuring a personalised and responsive approach. Data indicates that **50%** of children attended therapy **twice a week**, **30%** attended **once a week**, and **20%** had sessions **four times a week**. The **therapy plans are tailored** to the specific requirements of each patient and are conducted alongside **mapping sessions**, which help adjust the frequency and intensity of sound for the child's hearing device. In cases where physical attendance is not possible such as during illness **online sessions are recommended** by the therapists to ensure consistency in therapy. For longer breaks, **home-based therapy** is advised, with **prior guidance and support** provided to parents based on the child's therapy goals.

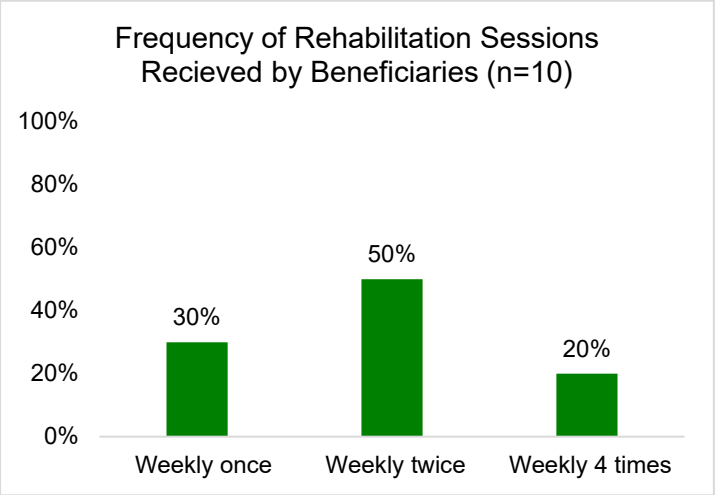



***Figure 23.Frequency of Rehabilitation Sessions Received by Beneficiaries***

Sessions are scheduled at centres that are **proximal to the patient's residence** to improve accessibility and attendance. Furthermore, **regular assessments** are carried out, and the child's progress is discussed among professionals. Based on these evaluations, **therapy goals are modified**, and **additional options are considered** to enhance outcomes, ensuring a comprehensive and continuous rehabilitation process.

*The Therapy Sessions for the child have been designed depending on his age and taking and various other factors into consideration. It is important that parents remain equally dedicated in the therapy process which will help in maximum improvement in language and listening skills of Child.*

*Dr Priya Bhale, Therapist*

### 3.4.9 Expenses Incurred for Rehabilitation Sessions

Cochlear implant surgery is only the first step toward restoring hearing and communication abilities in children; what follows is equally critical. Rehabilitation sessions are a **vital part** of the post-implantation journey, helping children develop listening, speech, and language skills essential for their integration into mainstream society. A significant proportion of families (**90%**) incurred expenses for these rehabilitation sessions, while only **10%** received financial support. The expenditure varied among families, with **33%** spending less than **INR 25,000**, **22%** between **INR 25,001 and INR 50,000**, another **33%** spending between **INR 50,001** and **INR 1,00,000**, and **12%** incurring costs above **INR 1,00,000**. However, the **economic condition of the family** greatly influenced the continuity and quality of the sessions. Qualitative interviews suggest for families with limited income, affording long-term therapy remains a challenge, which can hinder the full developmental potential of the child. This underlines the need for **accessible and economically sustainable rehabilitation services** to ensure every child receives the support needed for successful auditory and speech development.

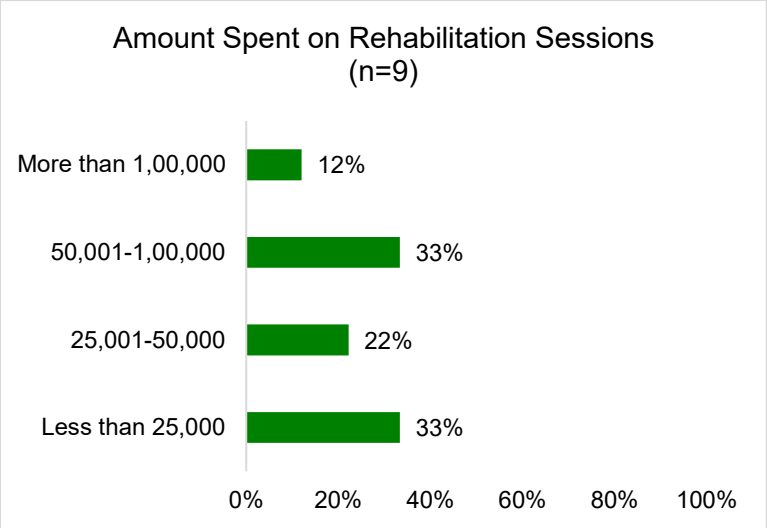



***Figure 24. Expenses Incurred for Rehabilitation Sessions***

### 3.4.10 Satisfaction with Rehabilitation Sessions Among Beneficiaries

Rehabilitation plays a crucial role in maximising the benefits of cochlear implant surgery, ensuring children can develop effective communication and auditory skills. Feedback from beneficiaries highlights a high level of satisfaction with the rehabilitation services provided. The ratings were collected using a **5-point Likert scale** (Excellent, Very Good, Good, Fair, Poor). About **80% of respondents rated the services as Excellent**, while the remaining **20% marked them as Very Good**. This reflects the positive impact of consistent therapy, individualised support, and structured follow-up in the post-implantation phase.

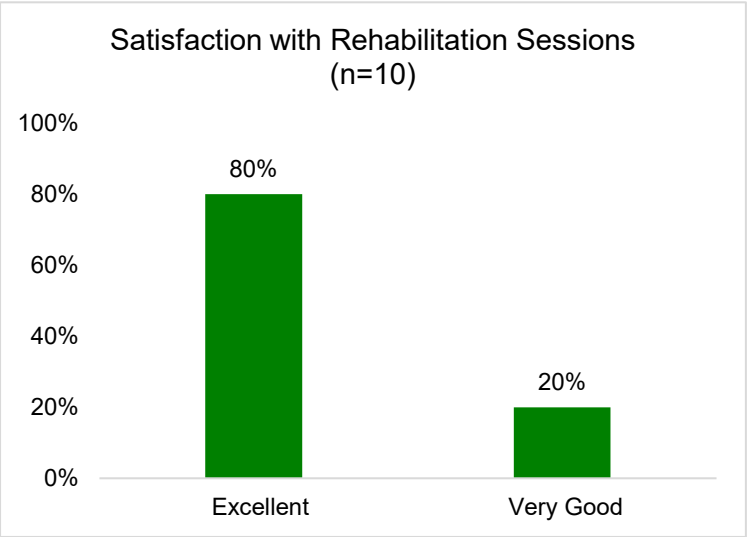
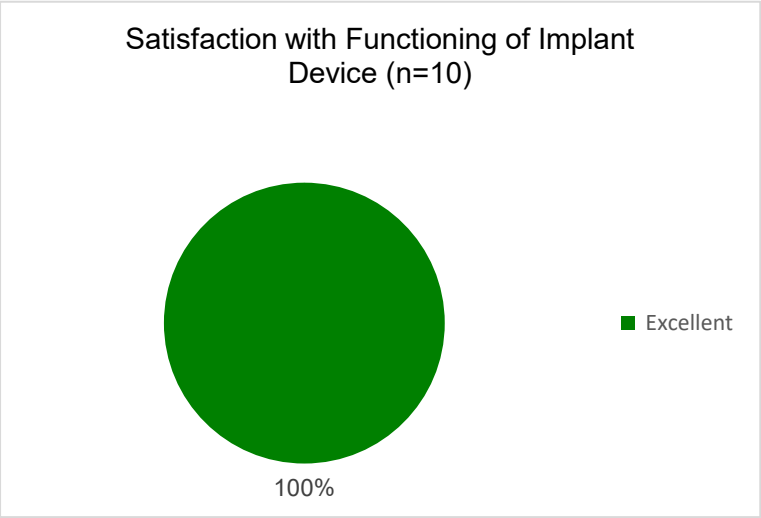



***Figure 25. Satisfaction with Rehabilitation Session Among Beneficiaries***

### 3.4.11 Satisfaction with Functioning of the Implant Device




All respondents (100%) reported that their cochlear implant devices were functioning effectively. This indicates that, despite challenges such as maintenance costs and technical issues, users perceive their devices as operational. However, one beneficiary has lost the implant device. Additionally, maintaining the functionality of these devices poses significant challenges for many families.

***Figure 26.Satisfaction with the Functioning of the Implant Device***

## 3.5 Coherence

The Coherence section of the report checks the alignment of the programme with other interventions in the country, i.e., with similar programmes which were being run by other institutions.

### 3.5.1 Alignment with SDG Goals

| SDG Goal | SDG Target | Alignment |
|---|---|---|
|   | **Ensure Healthy lives and promote well-being for all at all ages.**<br>**3.4 By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being**<br>**3.8 Achieve universal health coverage,** including financial risk protection**,** access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all. | Completely |
|   | **4.5 Eliminate gender disparities and equal access to education.** Early Cochlear implantation supports language development and access to inclusive education, especially for marginalised and low-income children. | Completely |

| | | |
|---|---|---|
|  | The hospital's **efforts to engage both male and female patients** in the Cochlear implant process contribute to **reducing gender disparities in healthcare.** | Completely |
|  | By removing communication barriers, the cochlear implant programme supports the full social and economic inclusion of persons with disabilities., directly supports **SDG 10**, which focuses on **reducing inequality** within and among countries. | Completely |

### 3.5.2 Alignment with BRSR Principles

| ESG Principle | Alignment with the Project |
|---|---|
| **5** | Businesses should respect and promote human rights. |
| **8** | Businesses should promote inclusive growth and equitable development. |

### 3.5.3 Alignment with National Priorities

| Scheme Name | Alignment with the Project |
|---|---|
| **National Health Policy (NHP) 2017** | The **NHP 2017** emphasises the importance of access to quality healthcare services, particularly in addressing non-communicable diseases (NCDs) and promoting universal health coverage (UHC). The integration of these technologies directly supports the NHP's goal of reducing the burden of NCDs and promoting early detection and treatment. |
| **Rights of Persons with Disabilities (RPwD) Act, 2016** | The RPwD Act recognises hearing impairment as a specified disability and mandates access to early detection, intervention, and assistive technologies such as cochlear implants. It supports the rights of individuals with hearing loss to access inclusive education, healthcare, and employment, thereby promoting their full participation in society. |
| **National Programme for Prevention and Control of Deafness (NPPCD)** | The NPPCD aims to prevent and control hearing loss through awareness, early identification, and timely intervention. It promotes screening especially in newborns and children and facilitates referral pathways for cochlear implantation. |

| | |
|---|---|
| **Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PM-JAY)** | Ayushman Bharat provides financial protection for secondary and tertiary care treatments for low-income families. Cochlear implant surgeries are included under the scheme in empanelled hospitals, making advanced hearing care accessible and affordable for economically disadvantaged populations. |
| **Rashtriya Bal Swasthya Karyakram (RBSK)** | Rashtriya Bal Swasthya Karyakram (RBSK) is a national child health screening and early intervention programme that identifies health conditions in children, including birth defects, developmental delays, and disabilities. It plays a critical role in detecting congenital hearing loss early and linking children to cochlear implant services and speech rehabilitation programmes. |

### 3.5.4 Alignment with CSR Provisions under the Companies Act, 2013

| | Activities | Alignment |
|---|---|---|
| Section 135, Schedule VII of Companies Act, 2013 (i) | 1. Eradicating hunger, poverty and malnutrition | Completely |
| | 2. Promoting Healthcare including preventive health and sanitation | Completely |
| | 3. Including contribution to the Swatch Bharat Kosh set up by the Central Government for the promotion of sanitation] and making available safe drinking water | Completely |

## 3.6 Impact

To attain a comprehensive assessment of the programme's impact, we delve into its profound and potentially transformative effects on the social ecosystem. This section meticulously examines the indirect, secondary, and prospective impact arising from the project.

**50%** Beneficiaries underwent Cochlear implant in right and left ear respectively

**100%** beneficiaries reported Improved listening Skills

**80%**reported improved quality of life post cochlear implant surgery

### 3.6.1 Distribution of Cochlear Implant Surgeries by Ear (Right vs. Left)

Among the beneficiaries, cochlear implant surgeries were equally distributed between the right and left ears **50%** underwent implantation in the right ear and **50%** in the left. This indicates a balanced surgical approach tailored to individual needs rather than any systemic preference.

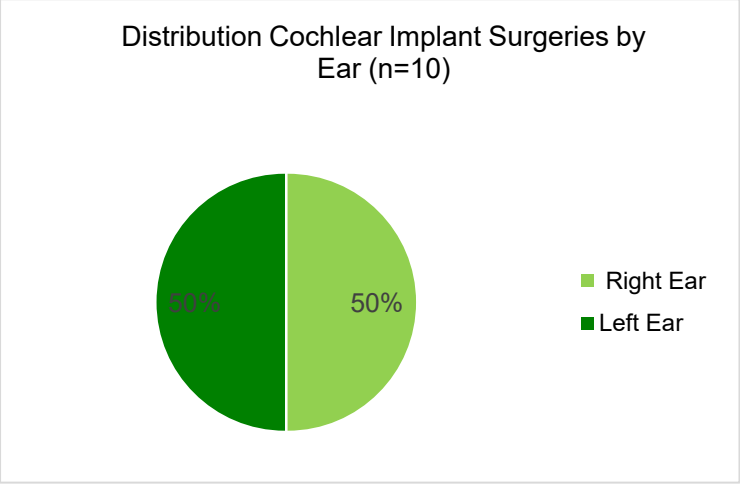



***Figure 27. Ear wise Distribution of Beneficiaries Undergoing Cochlear Implant Surgery***

The decision regarding which ear to implant was primarily guided by the degree of hearing loss in each ear. In many cases where children presented with bilateral (both ears) hearing impairment, the ear with more profound or complete loss was selected for the cochlear implant. The rationale behind this is to restore auditory input to the ear that could not benefit from conventional amplification through hearing aids. Meanwhile, the ear with comparatively better residual hearing is fitted with a hearing aid to support binaural hearing (hearing with both ears), which is crucial for sound localisation and improved speech comprehension in noisy environments.

In rehabilitation, this strategy enhances the development of auditory pathways by stimulating both ears, promoting balanced hearing. It also accelerates progress in **speech and language acquisition**, **listening skills**, and **social interaction abilities**, making the overall rehabilitation more effective and holistic. This combined approach of implanting one ear and aiding the other also provides a better foundation for auditory rehabilitation. It allows the child to make use of all available auditory cues, thereby accelerating speech and language acquisition and supporting cognitive and social development. In some cases, if the non-implanted ear shows no benefit even with a hearing aid, the child may be considered for a second cochlear implant later, depending on the overall progress and needs.

### 3.6.2. Changes in Audio-lingual Skills Post-intervention.

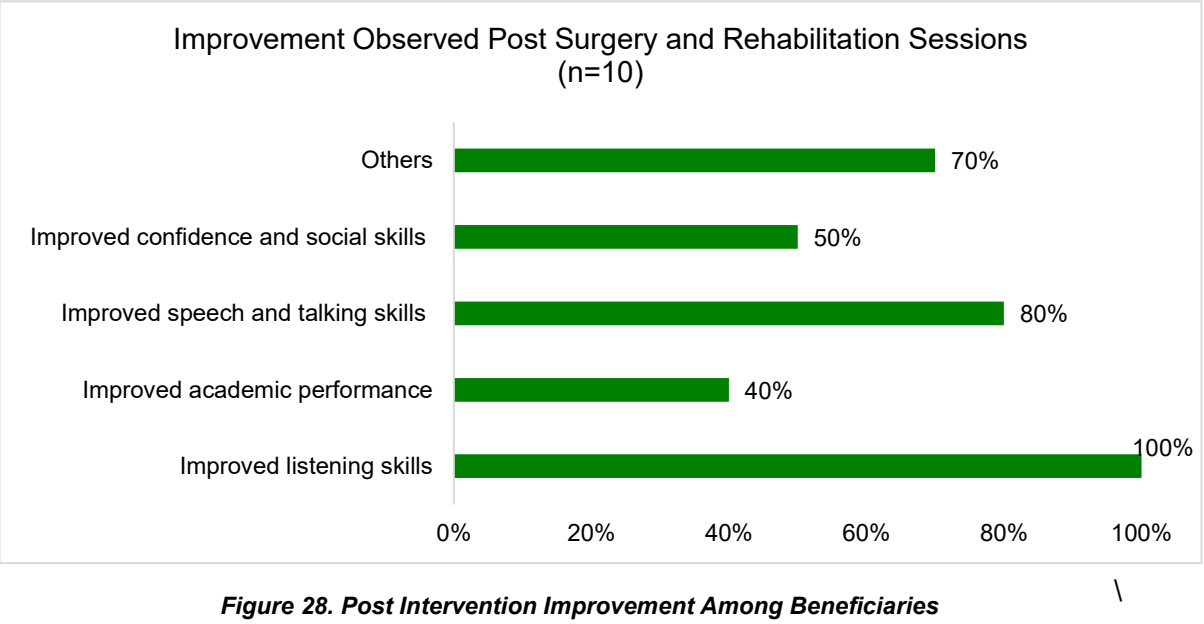



***Figure 28. Post Intervention Improvement Among Beneficiaries***

The outcomes reported by the families highlight the **transformative impact** of cochlear implantation combined with structured rehabilitation. All beneficiaries (**100%**) experienced **improved listening skills**, which is a foundational outcome of the intervention. Additionally, **80%** of the children showed enhanced **speech and talking abilities**, signifying effective auditory training and therapy.

About **50%** of the children displayed improved **confidence and social skills**, reflecting better integration into everyday social settings. Notably, **40%** demonstrated **improved academic performance**, showcasing the extended benefits of better hearing in classroom learning and participation. The **70%** show other improvements such as better emotional well-being, improved family communication, and participation in group activities. These findings emphasise the **multi-dimensional benefits** of the programme, extending beyond medical recovery to holistic child development.

Qualitative interviews with caregivers revealed notable improvements in children post-cochlear implantation and rehabilitation. Many children have shown progress in listening, speech development, school engagement, and social interactions. Caregivers reported improvements in attention span, eye contact, and verbal communication, with some children beginning to form words and express basic needs. Behavioural improvements such as increased attentiveness, better social mixing, and responsiveness to therapy were commonly noted.

However, challenges remain for some, including difficulty in forming longer sentences, emotional fluctuations, and resistance to wearing the device at home. A few children required additional interventions due to structural issues, indicating the need for comprehensive diagnostics and individualised care. Overall, the responses highlight the positive impact of early intervention and continuous therapy, while also emphasising the importance of personalised support and follow-up for sustained development.

*I am very happy with the treatment and the therapy sessions my child is receiving. There has been considerable improvement, now he is able to play, and mix with children of his age group.*

*- Parent of Beneficiary*

### 3.6.3 Changes in Quality-of-Life-Post Intervention

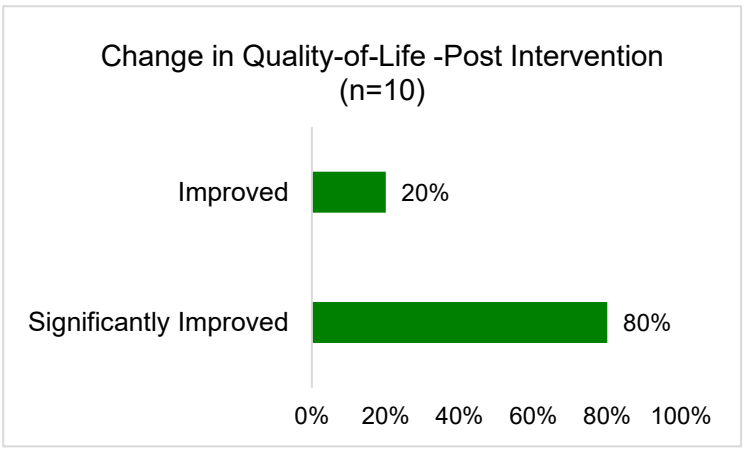



***Figure 29.Change in Quality of Life - Post Intervention***

Cochlear implantation, when complemented with consistent post-operative therapy and follow-up, has the potential to significantly transform the lives of children with profound hearing loss. In this study, **80% of the children were reported to have significantly improved**, and **20% showed overall improvement**.

These outcomes highlight the effectiveness of a well-integrated intervention model that includes diagnosis, surgery, mapping, and rehabilitation. The improvements were observed across multiple domains including listening skills, speech development, school engagement, and social confidence showing the long-term value of timely and holistic support for children with hearing impairments.

### 3.6.4 Change in Medical Expenditure Post-Intervention

**50%** of respondents experienced a clear reduction in their medical expenses, **30%** observed a partial change, and **20%** reported no change in their expenditures. This indicates that for a majority of beneficiaries, the intervention had a positive impact on reducing the overall cost burden related to their child's hearing and healthcare needs. However, the fact that **20%** did not observe any change suggests a need for deeper support or supplementary measures to ensure broader financial relief across all families. **Qualitative interviews** with parents of the beneficiaries revealed that while the **cochlear implant surgery significantly reduced medical expenses** related to the child's hearing disability such as the need for repeated diagnostic tests, hearing aids, and related consultations **other associated costs continue to pose financial challenges**.

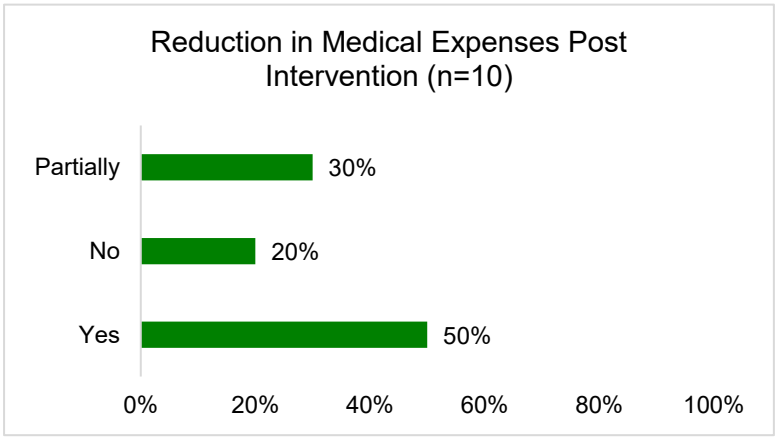



***Figure 30.Reduction in Medical Expenditure- Post Intervention***

Many parents highlighted the **ongoing expenditure for post-surgical needs**, especially **rehabilitation and auditory-verbal therapy sessions**, which are essential for the child's speech and communication development. Additionally, **occupational therapy** is required in some cases, particularly for children who experience developmental delays alongside hearing loss. One parent also shared that their child has a **structural** which will require **a separate corrective surgery**. This underscores the **complex and multi-dimensional nature of care** that some children with hearing loss may need, extending beyond the cochlear implant procedure itself.

### 3.6.5 Affordability for Surgery in Absence of Programme

According to the data, only **30%** of respondents stated that they would have been able to afford the cochlear implant surgery without the support provided through the intervention, while **70%** reported that it would not have been financially feasible for them. This highlights the critical role of the intervention in enabling access to cochlear implant surgeries, as the majority of beneficiaries depended on external support to undergo the procedure. The data underscores the significance of financial assistance programmes in making such life-changing medical interventions accessible to economically vulnerable families.

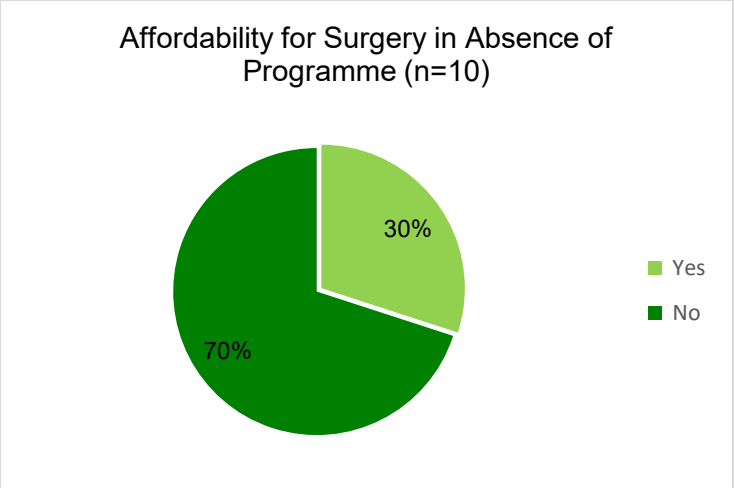



***Figure 31.Affordability of Surgery in Absence of Intervention***

## 3.6 Sustainability

This section addresses the extent to which the benefits of the intervention are likely to be sustained and continue over time.

**70%** Beneficiaries Encountered Technical issues with Implant

**20%** Beneficiaries received financial support for maintenance of the devices

### 3.6.1 Technical Issues Encountered with Implant Post- Surgery

A significant proportion of beneficiaries **70%**reported experiencing technical issues following cochlear implant installation, while **30%** did not face such concerns. These technical challenges, identified through qualitative interviews, often involved essential components of the cochlear implant system, leading to additional financial burdens and disruptions to rehabilitation. Common issues included the need for multiple cable replacements, which were reported to cost approximately **INR 25,000**, and battery issues, with costs ranging from **INR 8,000 to 15,000** for replacement, with some families having to replace batteries twice within a short period. Additionally, there were instances of microphone and coil cable malfunctions, wear and tear requiring cover and earbud replacements, and even the complete loss of a processor, which resulted in significant financial and functional setbacks. While some components were replaced under warranty, many of the replacements had to be borne by the families, contributing to economic stress. These technical disruptions, as identified in the interviews, have a direct impact on the continuity of the child's rehabilitation journey, as device downtime affects auditory input and, subsequently, progress in speech, language, and social skills. Timely support and accessible repair/replacement services are therefore essential to ensure that children can continue benefiting from their cochlear implants without extended interruptions.

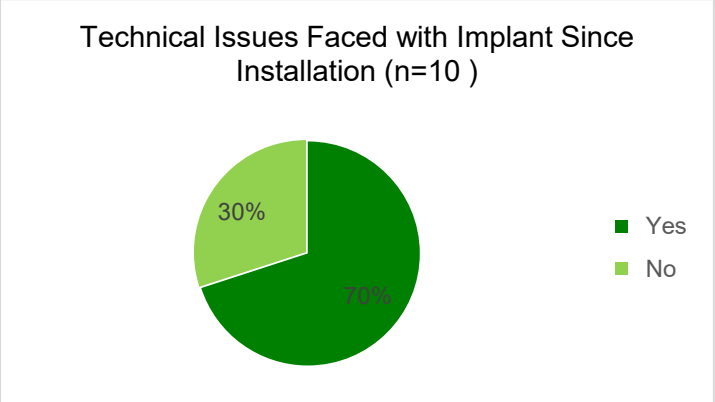



***Figure32.Technical Issues Faced with the Implant Post-Surgery***

### 3.6.2 Ability of Parents to Continue Therapy Sessions

Many caregivers expressed a strong commitment to continuing their child's therapy sessions despite facing considerable financial strain, particularly due to the high maintenance costs of cochlear implant devices. While families acknowledged receiving valuable support from hospitals and NGOs, they emphasised that sustaining rehabilitation without ongoing assistance would be challenging. Caregivers noted that therapy sessions are expensive, and the recurring need for device maintenance such as battery and cable replacements adds to their burden. One caregiver shared that they travel 60 km for sessions, underscoring the logistical and economic demands involved. Family circumstances, including limited income and other responsibilities, further constrain their ability to afford these essential services. Despite these hardships, many parents expressed a determination to continue with therapy, motivated by the desire for their child to gain basic functional abilities. Some drew strength from family support, with one mother sharing, "My husband says we have to do this since it is important we'll keep on doing this," illustrating the deep sense of responsibility and hope that drives families to persevere.

### 3.6.3 Maintenance Support for Cochlear Implant Device Received by Beneficiaries

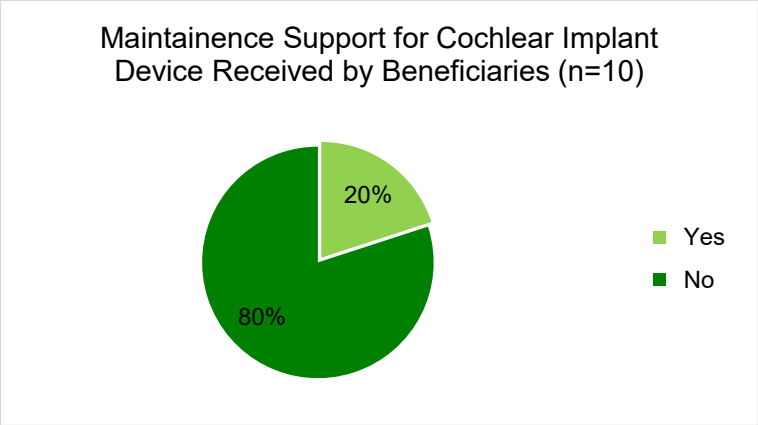



***Figure 33 .Maintenance Support Received by Beneficiaries for Cochlear Implant Device***

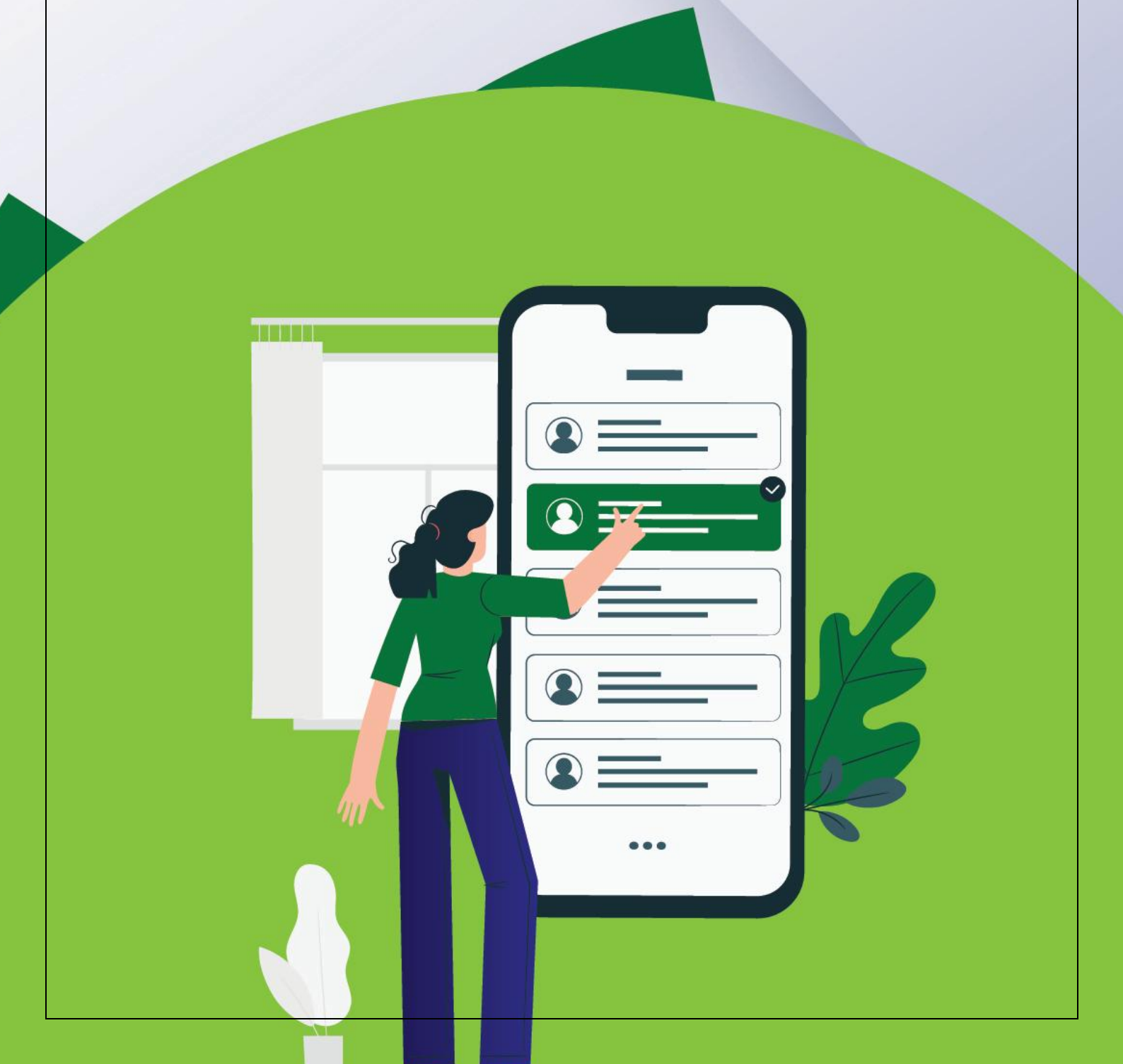
Only a small proportion of respondents **20%** reported receiving maintenance support for the cochlear implant devices, primarily through assistance provided by NGOs. The majority **80%** did not receive any such support, which added to the financial burden of maintaining the device and continuing therapy sessions. Families who did benefit from NGO support expressed appreciation, noting that such help was crucial in enabling them to manage costs and ensure consistent rehabilitation. However, for those without access to this support, the high cost of device maintenance along with therapy expenses and travel posed significant challenges. Despite these hardships, most caregivers remained determined to continue their child's therapy, driven by the hope of improved speech, language, and functional outcomes.

*It has become very difficult for me to afford the maintenance of the device due to my income; it would be very helpful If I could get financial support for this.*

*Parent, Mohit NK*

Chapter 4

# Recommendations for the Programme



## Recommendations for the Programme

The Cochlear Implant Surgeries Programme has emerged as a critical intervention for children with profound hearing loss, offering them a pathway to develop speech, language, and social skills. Through timely diagnosis, surgical implantation, and structured post-operative rehabilitation, the programme aims to support children and their families in achieving improved communication outcomes and better quality of life. It has not only provided access to advanced healthcare solutions but also enabled the inclusion of children into mainstream education and social environments.

| Sl.no | Current Scenario | Recommendations |
|---|---|---|
| 1. | Field observations and beneficiary interactions indicate that the programme is delivering significant clinical and developmental benefits. Most children have shown improvement in listening abilities, speech clarity, classroom engagement, and overall social participation. Families have expressed satisfaction with the hospital services, surgical care, and guidance provided. However, challenges persist in the continuity of therapy and the cost burden of rehabilitation. Some families experience difficulty attending regular therapy sessions due to distance and, financial constraints. | 1. Strengthen rehabilitation support by offering flexible options, including home-based and online sessions.<br>2. Provide regular guidance and monitoring from audiologists and therapists.<br>3. Introduce subsidies or financial support for travel and therapy costs for economically challenged families. |
| 2. | Technical issues with the implant components such as damaged cables, batteries, and processors are commonly reported, and replacements can be expensive for many families. | 1. Establish a responsive technical support system for troubleshooting and maintenance.<br>2. Provide subsidised or free replacement of essential components.<br>3. Maintain a device maintenance log for timely servicing. |
| 3. | It is essential to increase awareness among communities about hearing loss, the importance of early diagnosis, and the availability of cochlear implant services. | 1.Promote awareness campaigns focused on hearing health.<br>2. Strengthen early screening and referral systems.<br>3. Highlight cochlear implant programme availability in local networks and health centres. |

Chapter 5

# Impact Stories

# Impact Stories

### Ayat's Journey to a World of Sound

Ayat, a bright young girl from Mahim, Mumbai, was diagnosed with hearing loss at an early age. For her mother, it was a moment filled with worry and uncertainty. She feared how her daughter would communicate, study, and engage with the world around her. But with determination in her heart, she began the journey to seek the best possible care for Ayat.

In 2022, Ayat underwent **cochlear implant surgery** at P.D. Hinduja Hospital through the I Hear Foundation. While the experience came with its share of challenges, the care and coordination provided by the hospital team helped the family navigate the process smoothly.

After the surgery, she started **auditory-verbal therapy at a local NGO**, where she now attends sessions twice a week. The impact of these sessions has been profound. From the early days when Ayat cried at the unfamiliar sound from her hearing aid, she has grown into a confident child who responds to questions, expresses herself clearly, and reads with enthusiasm. Her mother proudly shares how Ayat can now hold conversations and is progressing steadily in her speech and language development.

Beyond the medical and therapy support, the programme gave Ayat and her family something even more powerful - **hope**. Hope that she can go to school, make friends, and live a life full of opportunities. For her mother, the journey has been one of learning, resilience, and joy as she watches her daughter connect with the world in ways that once felt out of reach.

Mahim's story is a heartening reminder of how timely intervention, compassionate care, and continued support can help a child break through silence and thrive.

### A New Sound of Hope for Kavish

Kavish, a four-year-old boy from Bhusawal in Maharashtra's Jalgaon district, was born with a hearing impairment that remained undetected for the first few years of his life. His parents noticed his lack of response to sound when he was around 1.5 years old, which led to growing concerns about his development and future.

Determined to find answers, his father, Yogeshwar, sought medical guidance. With support from a local health worker, they connected with the right professionals who recommended a cochlear implant to improve Kavish's hearing ability. While the path ahead was uncertain, the family remained resilient and hopeful.

The surgical procedure was conducted at a P.D. Hinduja hospital, where the family received compassionate care and logistical support throughout their stay. Kavish's implant was successfully placed in one ear, and he now uses a hearing aid in the other. Since then, his world has started to change from silence to sound, and from isolation to interaction. He has also begun speech therapy, and his progress has brought newfound joy and hope to the entire family.

Yogeshwar shared that the experience, though emotionally and physically demanding, was made easier thanks to the guidance and support provided at every stage from diagnosis to recovery. The family expressed deep gratitude to the hospital team and the people who helped them navigate this journey.

Kavish’s story reflects how timely intervention and community support can transform a child’s future. It is a powerful reminder of the importance of accessible healthcare and early detection, especially for children with hearing impairments in underserved areas.

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