

Facility Readiness Assessment and Provider Preparedness of the eSanjeevani – National Telemedicine Service in Odisha, India

JULY 2024



Acknowledgements

We extend our sincere gratitude to all those who contributed to the successful completion of this report, "Facility Readiness Assessment and Provider Preparedness of the eSanjeevani - National Telemedicine Service in Odisha". Our deepest thanks go to the healthcare providers, facility administrators, and government officials across Odisha who generously shared their time, insights, and experiences. Their valuable inputs have provided us with a deeper understanding of the challenges and opportunities within the eSanjeevani implementation.

We would like to express our appreciation to the Department of Health and Family Welfare, Government of Odisha, and particularly to Ms. Aswathy S (IAS), Commissioner cum Secretary - Health; Dr. Brundha D (IAS), Mission Director – NHM Odisha; Dr. Jeetendra Mohan Bebortha, Special Secretary – Public Health; Dr. Bijay Kumar Mohapatra, Special Secretary (MS) cum Director of Health Services; Dr. Nilakantha Mishra, Director Public Health; Dr. Susanta Kumar Swain, Additional Director of Health Services (NCD); Dr. Sanjulata Satpathy, Joint Director Medical Technology, Mr. Lalit Mohan Sahu, State Consultant – NCD & eSanjeevani; and the members of the state ethical committee for their support and guidance throughout this assessment. Their cooperation and commitment to enhancing telemedicine services have been instrumental in shaping the direction and scope of this report. We also acknowledge the support of the National Health Mission (NHM) Odisha, whose collaboration has been pivotal in ensuring the comprehensiveness and accuracy of the findings.

Lastly, we are grateful to the research team, data analysts, and IntelHealth's field team in Odisha whose dedication and hard work made this assessment possible. Special thanks to our funding partners for their unwavering support and belief in the transformative potential of telemedicine. We hope that this report will serve as a useful resource for all stakeholders working towards strengthening the eSanjeevani platform and advancing equitable access to healthcare in Odisha.

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MESSAGE

The **Facility Readiness and Provider Acceptability Study** for the eSanjeevani Telemedicine Program represents a significant milestone in Odisha's journey towards strengthening digital healthcare delivery. Conducted with the support of the **Telehealth Innovation Foundation (Intelehealth)**, this study offers valuable insights into the program's implementation, its successes, and areas for improvement.

Since its inception, the eSanjeevani initiative has been pivotal in addressing the challenges of healthcare accessibility, especially in remote and underserved areas of the state. By connecting Health and Wellness Centres (HWCs) with higher-level health facilities, the platform ensures timely, patient-centered care through technology-driven solutions.

This study sheds light on critical aspects of the program, including the preparedness of facilities, the acceptability of telemedicine among healthcare providers, and the satisfaction levels of patients availing of teleconsultation services. Encouragingly, the findings underscore the positive impact of eSanjeevani in enhancing healthcare access and quality, with high patient satisfaction rates and improved confidence among providers.

The report also identifies challenges such as infrastructural gaps, the need for more private consultation spaces, and strategies to increase telemedicine adoption. Its recommendations for capacity building, system upgrades, and community engagement are well-aligned with the National Health Mission's vision to deliver Comprehensive Primary Health Care (CPHC) services through innovative and sustainable models.

I congratulate all stakeholders for their invaluable contributions to this study. As we move forward, the National Health Mission, Odisha, remains committed to leveraging these findings to strengthen the eSanjeevani program and ensure that every citizen benefits from equitable, high-quality, and accessible healthcare services.



[DR. BRUNDHA D.]



Dr. Bijay Kumar Mohapatra
Special Secretary (MS) cum Director of
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Government of Odisha



Preface

The eSanjeevani Telemedicine Program has emerged as a transformative initiative in Odisha, bringing quality healthcare services closer to the people, especially in rural and remote areas. It gives me great pleasure to share the findings of the **Facility Readiness, Provider Acceptability, and Patient Satisfaction Study**, conducted by the **Department of Health and Family Welfare, Odisha**, in collaboration with **Telehealth Innovation Foundation (Intelehealth)**.

This study provides a comprehensive understanding of the current state of telemedicine services in the state, highlighting our achievements while offering actionable insights for further enhancement. The findings reflect a positive trajectory in the implementation of the eSanjeevani program, with:

- Substantial improvements in facility readiness, ensuring basic infrastructure and resources are in place for teleconsultation services.
- Growing acceptance and confidence among healthcare providers, who see telemedicine as a vital tool to extend their reach and improve patient care.
- Encouraging feedback from patients, who appreciate the accessibility, reduced travel burden, and timely consultations enabled by telemedicine.

While the study identifies areas that require focused attention, such as optimizing utilization rates and ensuring consistent infrastructure support, these are opportunities for targeted interventions to strengthen the program further.

The insights from this study will guide us in further improving the quality of telemedicine services and expanding the program's reach, ensuring that no one is left behind in accessing healthcare.

I thank Intelehealth, the National Health Mission, Odisha, and all our partners for their continued dedication to strengthening healthcare delivery in the state. Together, we will continue to advance towards achieving Universal Health Coverage and improving the health outcomes of our people.


(Dr. Bijay Kumar Mohapatra)



Dr. Nilakanth Mishra
Director – Public Health
Directorate of Health Services
Government of Odisha



Message

The eSanjeevani Telemedicine Program, implemented under the guidance of the Directorate of Health Services, Odisha, has been a cornerstone in enhancing access to quality healthcare across the state. It is a matter of immense pride that Odisha is the first state in India to conduct a comprehensive study on Facility Readiness, Provider Acceptability, and Patient Satisfaction within the framework of telemedicine services.

This groundbreaking study, undertaken in collaboration with the Telehealth Innovation Foundation (Intelehealth), provides an in-depth analysis of the program's implementation, identifying both its successes and the potential areas for improvement.

The study highlights significant progress in equipping health facilities with the necessary infrastructure to ensure seamless teleconsultation services. It reflects the growing confidence among healthcare providers in using telemedicine as a reliable tool for delivering quality care. Additionally, patients have widely appreciated the program for reducing travel time, increasing accessibility, and providing timely consultations, especially in underserved areas.

While the findings underscore the remarkable strides made, they also serve as a roadmap for further strengthening the program. Moving forward, the focus will be on bridging gaps in infrastructure and internet connectivity to ensure uninterrupted services. Regular training and capacity-building initiatives will continue to support healthcare providers in optimizing the use of the eSanjeevani platform. Efforts will also be intensified to expand outreach through greater awareness and community engagement while establishing robust mechanisms for continuous monitoring and evaluation to adapt strategies based on real-time insights.

This study is a testament to Odisha's commitment to innovation in healthcare delivery and its proactive approach to leveraging technology for public health. The lessons learned and the milestones achieved will not only strengthen the telemedicine program in the state but also serve as a model for replication across the country.

I extend my heartfelt gratitude to the National Health Mission, Odisha, the Telehealth Innovation Foundation (Intelehealth), and all stakeholders who have contributed to this landmark achievement. Together, we will continue to ensure that telemedicine becomes accessible healthcare for all.

(Dr. Nilakanth Mishra)



Dr. Susant Kumar Swain
Additional Director – NCD
Directorate of Health Services
Government of Odisha



Message

It is a great source of pride that Odisha is the first state in India to conduct a comprehensive study on Facility Readiness and Provider preparedness within the framework of telemedicine services.

This pioneering study, carried out in partnership with the Telehealth Innovation Foundation (Intelehealth), underscores the notable progress achieved in enhancing infrastructure readiness, expanding provider capacity, and boosting patient satisfaction since the platform's launch. Key insights include improved access to essential equipment and internet services, greater provider confidence in using telemedicine, and strong patient approval of teleconsultation services. Nevertheless, the report also points to areas that need targeted attention, such as maintaining teleconsultation usage, ensuring adequate private spaces for consultations, and deepening community involvement.

A key aspect of this transformation lies in ensuring that facilities are fully prepared and equipped to offer efficient services. I am pleased to note that our efforts in improving infrastructure, training healthcare personnel, and standardizing protocols have yielded tangible results in both readiness and patient satisfaction.

This book provides valuable insights and data that highlight not only our achievements but also the path ahead. It will serve as a vital resource for policymakers, healthcare administrators, and practitioners committed to strengthening our digital health ecosystem.

I extend my sincere thanks to Intelehealth for their valuable contributions to this initiative and to our healthcare providers for their commitment to making telemedicine a success.

Dr Susant Kumar Swain



Dr. Sanjulata Satpathy
State Nodal Officer, Telemedicine
Directorate of Health Services
Government of Odisha



Message

It is a matter of great pride that Odisha stands as the first state in India to undertake a comprehensive study assessing Facility Readiness and Provider Acceptability within the realm of telemedicine services.

This study carried out in partnership with the Telehealth Innovation Foundation (Intelehealth), offers valuable insights into key dimensions of the programme, such as facility preparedness, healthcare providers' acceptance of telemedicine, and patient satisfaction with teleconsultation services. Encouragingly, the findings highlight the positive influence of eSanjeevani in improving healthcare accessibility and quality, reflected in high levels of patient satisfaction and growing confidence among providers.

This book provides valuable insights and data that highlight not only our achievements but also the path ahead. It will serve as a vital resource for policymakers, healthcare administrators, and practitioners committed to strengthening our digital health ecosystem.

I extend my sincere thanks to Intelehealth for their valuable contributions to this initiative and to our healthcare providers for their commitment to making telemedicine a success.


Dr Sanjulata Satpathy

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Abbreviations and Acronyms

AB-AAMs	Ayushman Bharat - Ayushman Arogya Mandirs
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
BAMS	Bachelor of Ayurvedic Medicine and Surgery
BCC	Behavior Change Communication
BDS	Bachelor of Dental Surgery
CHO	Community Health Officers
DH	District Hospitals
EHR	Electronic Health Records
GOI	Government of India
HWCs	Health & Wellness Centres
MBBS	Bachelor of Medicine and Bachelor of Surgery
MC	Medical Colleges
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
MPHW	Multipurpose Health Worker
NCDs	Non-communicable Diseases
OPD	Outpatient Department
PHCs	Primary Health Centres
SARA	Services Availability and Readiness Assessment
SDH	Sub-District Hospitals
SCs	Sub-centres
SRS	Stratified Random Sampling
TAM	Telemedicine Acceptance Model
WHO	World Health Organization

Factsheet 1: Facility Readiness

Facility Readiness Assessment-Key Indicators		
Indicators	Baseline (Oct-Dec, 2022)	Midline (Apr-Jun, 2024)
Overall facilities sampled	487	405
1. District (n)	25	30
2. AAM-PHC (n)	99	80
3. AAM-SC-HWC (n)	388	325
Functioning Equipment Availability		
4. Computer/Laptop/Tablet (%)	81%	99%
5. Printer (%)	33%	85%
6. Glucometer (%)	97%	99%
7. Blood Pressure Machine (%)	98%	99%
8. Weighing Machine (%)	95%	98%
9. Hemoglobinometer (%)	94%	92%
10. Pulse Oximeter (%)	-	91%
11. Microphone (%)	-	41%
12. Webcam (%)	-	63%
13. MUAC tape (%)	-	91%
14. Device used for teleconsultations - Provided by the state (%)	35%	61%
Infrastructure Availability		
15. Electricity supply (%)	79%	94%
16. Power backup (%)	53%	76%
17. Water Supply (%)	69%	88%
18. Availability of room with privacy for teleconsultation (%)	60%	54%
19. OPD waiting area (%)	83%	82%
20. Biomedical waste pick up and disposal (%)	75%	92%
Internet Availability		
21. Internet Access-Connection provided by the state (%)	9%	70%
Type of Internet Connection Used for Teleconsultations		
22. Mobile Hotspot (%)	89%	52%
23. Wi-Fi (%)	9%	39%
Rating of Internet Connectivity		
24. Facilities with sufficient internet to complete a teleconsultation (fair or above) (%)	78%	85%
Essential drugs' availability - Percentage of facilities that had all medicines from the	34%	41%

Factsheet 1: Facility Readiness

Facility Readiness Assessment-Key Indicators		
Indicators	Baseline (Oct-Dec, 2022)	Midline (Apr-Jun, 2024)
Essential Drug List available (%)		
25. Facilities update the drug list within a week (%)	-	57%
26. Facilities restock medicines as per updated records within a week's time (%)	-	90%
27. After requesting restock, medicines are received within a week (%)	-	83%
28. Facilities update the record within 2-3 days (%)	-	90%
29. Medication received after teleconsultation (%)		97%
Client footfall - Overall		
30. Average monthly OPD footfall	370	384
31. Average monthly teleconsultation footfall	81	25
Client footfall - By type of facilities		
Average monthly OPD footfall		
32. PHC	892	1040
33. SC-HWC	236	223
Average monthly teleconsultation footfall		
34. PHC	72	21
35. SC-HWC	84	26
Training and Capacity Building		
36. Trained on eSanjeevani application (%)	91%	84%
37. Providers receiving at least one training on eSanjeevani application in the last one year (%)	-	93%
38. Providers receiving at least one training on Clinical Protocols for Telemedicine in the last one year (%)	-	92%
Usage of eSanjeevani Application in regular OPD	eSanjeevani 1.0	eSanjeevani 2.0
39. Facilities regularly using the eSanjeevani application (%)	69%	93%
Smooth integration of eSanjeevani		
40. Ease of connecting with a doctor for teleconsultation (%)	64%	86%
Proportion of teleconsultations connected		
41. Video calls (%)	-	60%
42. Only audio calls (%)	-	20%
43. Direct prescription provided (%)	-	20%
44. Patients asked to return due to long waiting times (%)	64%	38%

Factsheet 2: Provider Acceptability and Satisfaction

Provider Acceptability and Satisfaction-Key Indicators			
Indicators	Baseline (Oct-Dec, 2022)	Midline (Apr-Jun, 2024)	
	CHOs	CHOs	MOs
Overall health providers sampled	492	404	245
Telemedicine Acceptance using TAM			
1. Perceived usefulness (Mean)	6.0	6.0	6.0
2. Perceived Ease-of-Use (Mean)	6.0	6.1	6.0
3. Attitude (Mean)	6.1	6.1	6.1
4. Compatibility (Mean)	5.6	5.8	5.6
5. Subjective norm (Mean)	6.0	5.9	5.9
6. Facilitators (Mean)	5.8	5.8	5.8
7. Habit (Mean)	6.1	6.0	5.9
8. Intention to use (Mean)	6.1	6.2	6.1
Provider Perceptions about eSanjeevani			
9. Viable approach (%)	79%	93%	91%
10. Prefer telemedicine over in-person consultation (%)	63%	70%	67%
11. Patients ask for telemedicine services (%)	63%	76%	-
12. Patients facing difficulty in expressing health issues or medical care (%)	43%	31%	32%
13. Provider facing difficulty in assessing or diagnosing clients issues (%)	42%	26%	24%
14. Easier to manage patients over telemedicine platform (%)	57%	92%	90%
15. Dedicate sufficient time for teleconsultation along with OPD (%)	60%	88%	87%
16. Potential benefits of telemedicine for our practice outweigh the associated challenges (%)	48%	56%	48%
17. Enough staff (%)	51%	57%	86%
18. Enough Infrastructure (%)		72%	90%
19. Patients understand while talking with the telemedicine doctor during teleconsultation (%)	-	82%	-
Key Features of eSanjeevani			
Comfortable prescribing medicine for following health conditions over teleconsultation			
20. Hypertension (%)	-	-	90%
21. Diabetes mellitus (%)	-	-	89%
22. Antenatal care (%)	-	-	74%
23. Skin conditions (%)	-	-	84%

Factsheet 2: Provider Acceptability and Satisfaction

Provider Acceptability and Satisfaction-Key Indicators			
Indicators	Baseline (Oct-Dec, 2022)	Midline (Apr-Jun, 2024)	
	CHOs	CHOs	MOs
24. Respiratory conditions (%)	-	-	84%
25. Gastrointestinal conditions (%)	-	-	86%
Comfort and Usefulness with Symptom Checkers			
26. CHOS' perceived comfort when using symptom checker for entering patient chief complaints (%)	-	94%	-
27. Doctors' perceptions on the usefulness of symptom checkers in detailing health complaints (%)		-	93%
Awareness and Usefulness of Probable Diagnostic Feature			
28. Doctors' awareness of new probable diagnostic feature	-	-	82%
29. Doctors' perceptions on the usefulness of the new probable diagnostic feature	-	-	90%
Provider Ratings for eSanjeevani Application (scale 1 to 5)	eSanjeevani 1.0	eSanjeevani 2.0	
30. Ease to use (Mean)	3.9	4.0	4.0
31. Interaction quality (Mean)	3.7	4.0	4.0
32. Reliability (Mean)	3.7	4.0	4.0
33. Satisfaction with the use of the platform (Mean)	3.8	4.0	4.0
34. Willingness to continue use (Mean)	4.0	4.0	4.0
Provider Satisfaction Score (scale 1 to 5)			
35. Helpfulness of telemedicine (Mean)	4.1	4.0	4.0
36. Confidence in using the eSanjeevani app (Mean)	4.2	4.0	4.1
37. Ease of learning the app (Mean)	4.1	4.1	4.2
38. Ease of using the app (Mean)	4.1	4.1	4.1
39. Beneficial for clients (Mean)	4.2	4.1	4.1
40. Helpfulness eSanjeevani application for your work at facilities (Mean)	4.0	4.0	4.0
41. Confidence in uploading clients documents for teleconsultation (Mean)	4.1	4.1	4.1
42. Comfort in using an app on mobile (Mean)	4.1	4.1	4.0
Adequacy and Effectiveness of Training			
The percentage of providers who rated the training as "adequate" and "very adequate," for the following trainings			
43. eSanjeevani Platform 2.0 latest features and its use (%)	-	90%	95%
44. Telemedicine guidelines (%)	-	91%	95%

Factsheet 2: Provider Acceptability and Satisfaction

Provider Acceptability and Satisfaction-Key Indicators			
Indicators	Baseline (Oct-Dec, 2022)	Midline (Apr-Jun, 2024)	
	CHOs	CHOs	MOs
45. Refresher training of the eSanjeevani 2.0 platform (%)	-	91%	95%
46. Clinical guidelines/protocol (%)	-	92%	94%
Enhances Capacity Building of Providers via Training			
Percentage of providers who agree that the training they received has supported the following domains:			
Supports in their day-to-day decision-making processes			
47. eSanjeevani Platform 2.0 latest features and its use (%)	-	86%	91%
48. Telemedicine guidelines (%)	-	86%	91%
49. Refresher training of the eSanjeevani 2.0 platform (%)		86%	91%
50. Clinical guidelines/protocol (%)	-	87%	90%
Enhanced their capacity to perform better triaging			
51. eSanjeevani Platform 2.0 latest features and its use (%)	-	92%	94%
52. Telemedicine guidelines (%)	-	92%	93%
53. Refresher training of the eSanjeevani 2.0 platform (%)	-	94%	95%
54. Clinical guidelines/protocol (%)	-	94%	95%
Improved their capacity for more accurate diagnosis	-		
55. eSanjeevani Platform 2.0 latest features and its use (%)	-	94%	97%
56. Telemedicine guidelines (%)	-	94%	95%
57. Refresher training of the eSanjeevani 2.0 platform (%)	-	96%	98%
58. Clinical guidelines/protocol (%)	-	95%	97%
Improved the quality of referrals made to higher-level care			
59. eSanjeevani Platform 2.0 latest features and its use (%)	-	93%	94%
60. Telemedicine guidelines (%)	-	94%	93%
61. Refresher training of the eSanjeevani 2.0 platform (%)	-	97%	95%
62. Clinical guidelines/protocol (%)	-	95%	92%
Required Technical Support and its Effectiveness			
63. Receiving technical support to resolve their day-to-day challenges while providing consultation (%)	-	89%	78%
64. The providers who rate the effectiveness of technical support they receive as ("Effective" and "Very Effective.") (%)	-	86%	89%

Introduction

Odisha, a state in eastern India with a population exceeding 41 million, relies heavily on its primary healthcare facilities as the first point of contact for most residents seeking medical care. Quality accessible care provision in these facilities is restricted due to suboptimal infrastructure (Behera et al, Bhoj et al), poor availability of essential drugs and equipment (Behera et al), inadequate staffing (Dash et al) and lack of training and supervision of healthcare workers (Das et al). These systemic issues contribute to the challenges of delivering effective healthcare in the region.

To address the challenges in healthcare accessibility and improve the overall quality of primary health services, the Ministry of Health and Family Welfare (MOHFW) of India initiated a significant upgrade of primary healthcare facilities through the establishment of "Health and Wellness Centres" (HWCs). These centers deliver a comprehensive range of healthcare services, including maternal and child health, management of communicable and non-communicable diseases, and services for the elderly and palliative care. HWCs also provide free essential medicines and diagnostic services, teleconsultation, and health promotion activities such as Yoga.

Complementing these efforts, the MOHFW deployed eSanjeevani, a national telemedicine service, across 28 states and 8 union territories. This real-time, cloud-based service operates through two primary modes: health worker-to-doctor (eSanjeevaniAB-AAM) and patient-to-provider (eSanjeevaniOPD) telemedicine services. The eSanjeevaniAB-AAM mode, in particular, is closely integrated with HWCs, following a hub-and-spoke model where hubs are established in secondary and tertiary-level hospitals, including medical colleges, and spokes are located in primary healthcare facilities such as HWCs and Primary Health Centers (PHCs). By leveraging telemedicine, eSanjeevani enhances healthcare access by bridging the gap between providers and patients, especially in remote and underserved areas, making it a critical tool for improving healthcare delivery in Odisha and beyond.

In Odisha, the eSanjeevani platform was launched in March 2021, utilizing a hub-sub-hub-and-spoke model to extend its reach across the state. Health and Wellness Centres (HWCs) have been equipped to facilitate teleconsultations, with frontline health workers, including Auxiliary Nurse Midwives (ANMs) and Community Health Officers (CHOs), playing a vital role in delivering these services. This collaboration aims to make telemedicine more accessible and efficient, especially for rural populations that face significant barriers to traditional healthcare services.

However, the implementation of telemedicine services in India, including eSanjeevani, is not without its challenges. Existing literature indicates that telemedicine services face numerous obstacles, including electricity shortages, unreliable internet connections, insufficient manpower, and a lack of supporting amenities (Suman Ray et al). Additionally, there are technological issues, funding problems, provider resistance, and a general lack of awareness about telemedicine among both providers and patients. Arun Kumar S. et al. found that while healthcare providers find patient counseling via telemedicine to be less challenging, they also expressed a desire for further training. Chandwani et al. identified several critical areas needing attention for the successful implementation of telemedicine in India, such as unreliable connectivity, complex coordination between central and peripheral nodes, low expertise among peripheral providers, and low patient awareness.

Recognizing these challenges, IntelHealth in collaboration with the State government initiated a baseline study to assess the readiness of Health and Wellness Centers (HWCs) in Odisha to deliver telemedicine services. The primary objective of this assessment was to identify areas for improvement

and develop strategies to address the gaps. Specifically, the study aimed to evaluate the preparedness of primary healthcare facilities in Odisha to provide telemedicine services, identify the strengths and weaknesses of these facilities in terms of infrastructure, equipment, training, and medicine availability, and make recommendations for improvements where needed.

The baseline study began in May 2022, with a pilot phase conducted between July and August 2022. Comprehensive data collection took place from October to December 2022, in 487 sampled facilities. The initial findings revealed several challenges, including limited connectivity in rural areas, which hinders seamless access to eSanjeevani services. Additionally, there was a need for further training among community health officers and frontline health workers to enhance their capacity to deliver telemedicine services effectively. Another critical area identified was the need to raise awareness among clients about the availability and benefits of telemedicine services.

In response to these findings, Intelhealth partnered with the Government of Odisha to provide strategic and technical support aimed at overcoming these challenges. The intervention's primary objectives are to increase the acceptance of eSanjeevani among providers and clients, improve the number and quality of consultations, and ensure that facilities are adequately equipped to offer effective telemedicine consultations.

State Government Contributions

- **Enhancing Infrastructure:** Upgrading facilities to support telemedicine.
- **Supervision:** Conducting regular review meetings.
- **Incentives:** Providing incentives for teleconsultations.
- **eSanjeevani 2.0:** Rolling out an improved version of the platform.
- **Expanding Network:** Increasing hub and sub-hub networks.

Intelhealth Contributions

- **Facility Readiness:** Conducting baseline assessments and establishing a Project Management Unit (PMU).
- **Provider Readiness:** Offering training and support, and providing additional doctor support.
- **Ecosystem Readiness:** Advocating with the government and organizing review meetings.
- **Demand Generation:** Implementing promotional activities and capacity building for ASHAs.
- **Supportive Supervision:** Intelhealth provides ongoing supportive supervision to ensure the effective implementation and operation of telemedicine services at HWCs.

The diagram below details the technical support provided by Intelhealth to the state. We follow a proven 6 step approach to this:

1) Program design and Facility readiness: We conduct facility readiness and baseline in the beginning, identify gaps and challenges in implementing the telemedicine services. We conduct readiness assessment for assessing the availability of equipment and internet capacity needed for providing telemedicine services. Based on the findings we develop customized plans for the states.

2) Strengthening Supply of quality telemedicine services: We map hubs, spokes & providers. Ensure availability of internet, telecommunication equipment, drugs & diagnostics at spokes. We train all health providers Medical Officers, Community Health Officers and ANMs in telecare skills - how to use

telemedicine in the 12 service package, clinical guidelines and norms, communication skills & digital skills to use the eSanjeevani software.

3) Strengthening demand for telemedicine services: We create demand for telemedicine services through Behavior Change Communication (BCC) and addressing barriers to acceptability of telemedicine by the end users (patients).

4) Quality monitoring: We implement a quality audit process monitoring 47 clinical quality indicators to measure the quality of teleconsultations and then implement training to improve the quality in a continuous quality improvement cycle.

5) Monitoring, learning and evaluation: We set up robust processes for continuous monitoring and data reporting of the program. We also conduct impact evaluations to understand the impact of the program on health outcomes, health access and healthcare costs.

6) Capacity building & sustainability: We build the capacity of state telemedicine nodal officers & create master trainers, SOPs & handbooks and sustainably exit within 3 – 5 years.

Additionally we work with the Centre for Development of Advanced Computing (C-DAC) and e-health division, GoI for strengthening the eSanjeevani telemedicine software itself by providing tech stack from our open-source telemedicine solution suite.

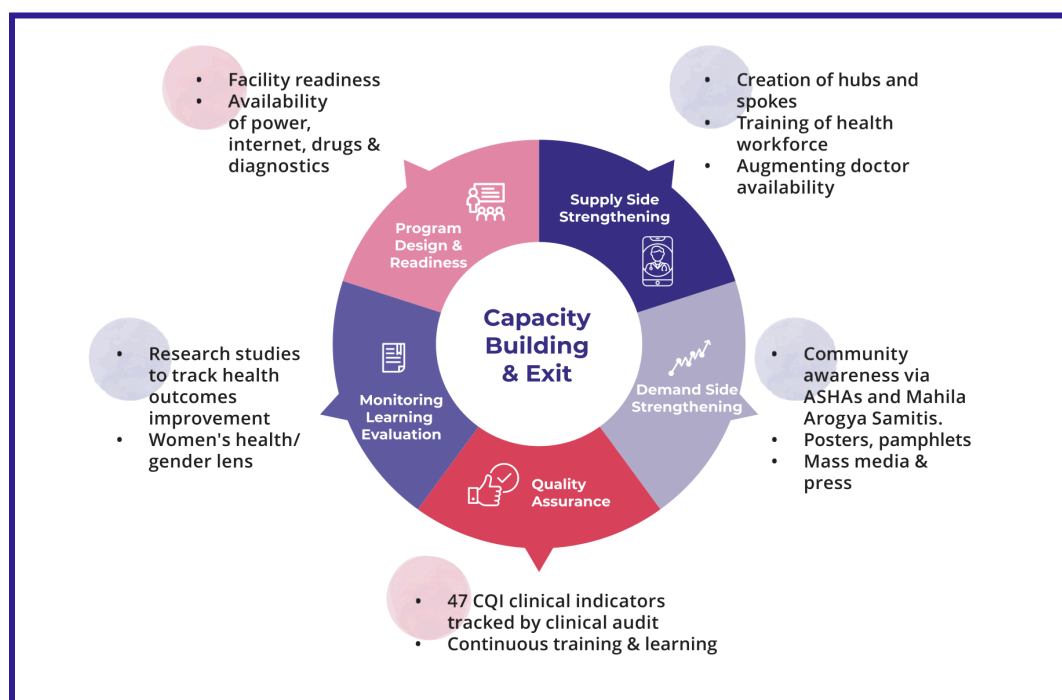


Fig 1: Intellehealth Technical Support Model has a 6 steps approach to supporting state governments to strengthen the implementation of the Strengthening eSanjeevani Telemedicine Services

These combined efforts aim to ensure the effective deployment and operation of eSanjeevani, improving healthcare accessibility and quality in Odisha.

Study Objectives

The primary objectives of this midline evaluation are as follows:

1. To assess the **facility readiness of the spokes (SC-HWCs and PHC)** to offer effective telemedicine consultations.
2. To assess the **acceptability and satisfaction (Sub-hub and Hub)** of the eSanjeevani platform among healthcare providers.

Methods

Study design

To achieve the study objectives, a mixed-methods approach, integrating both quantitative and qualitative data collection and analysis, was employed. A facility-based cross-sectional survey was carried out across Health and Wellness Centres (HWCs), Sub-hub and Hub in Odisha.

A midline evaluation study was conducted from April to June 2024 to assess improvements in eSanjeevani telemedicine services and the impact of technical support provided by Intelhealth in collaboration with the Government of Odisha. The study aims to measure progress one year after the initial implementation.

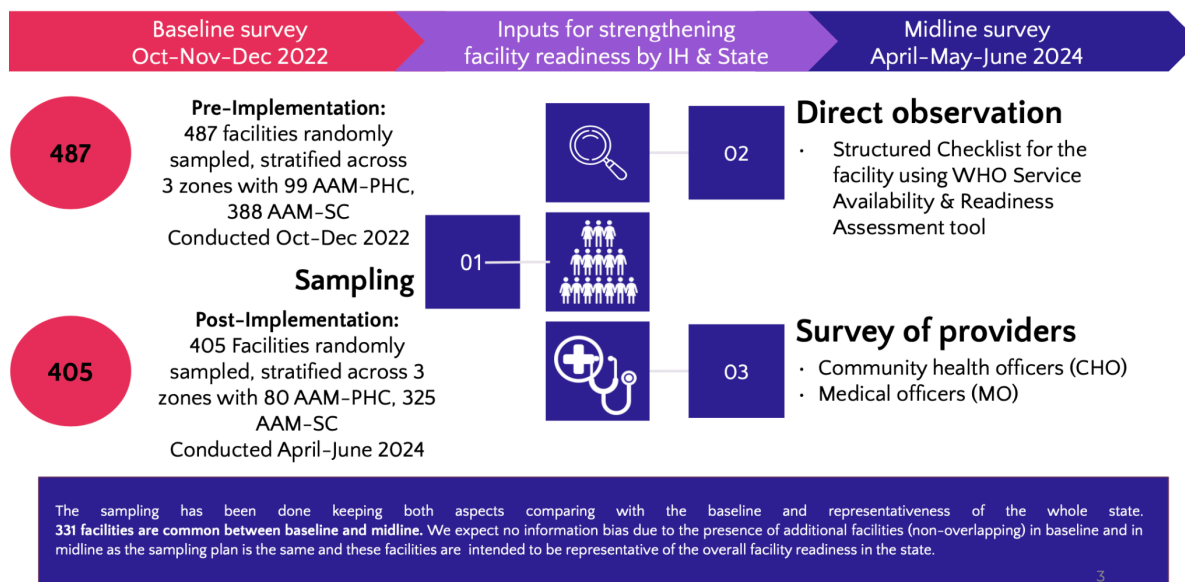


Fig 2: Methods used

The sampling process involved the following steps:

- **Sampling Technique:** Stratified Random Sampling (SRS) was employed to select the facilities. The sample size was determined using Cochrane's sampling formula, Z^2pq/l^2 , with Z set at 1.96 for a 95% confidence level. Parameters from the baseline included availability of electricity, power backup, internet connectivity, and waiting room privacy for teleconsultations. Based on a p-value of 40% (maximum sample size), q-value of 60% (1-p), and an absolute error of 5%, the estimated sample size was 368. This was inflated by 10% to account for non-response, resulting in a final sample size of 405 HWCs.
- **Sampling Plan:**

Facility Readiness: The sampling was designed to be representative of the entire state and to facilitate comparison with baseline data. Of the 405 facilities sampled, 331 were common between baseline and midline assessments. The non-overlapping facilities are expected to introduce minimal information bias, as the sampling plan ensures that these facilities are representative of the overall facility readiness in the state.

Provider acceptability and satisfaction: Provider Types and Sample are as follows

- **Sub-Hubs:** Doctors at Community Health Centers (CHCs), Sub-District Hospitals (SDH), and District Hospitals (DH).
- **Central Hubs:** Doctors at District Hospitals (DH) and Medical Colleges (MC).
- **Spokes:** Community Health Officers (CHOs) at Health and Wellness Centres (HWCs).

The baseline assessment covered 492 CHOs/spokes. For the midline evaluation, the study included CHO from those connected to the 405 HWCs identified in the facility readiness assessment. Samples from HUB and Sub-HUB include 245 providers. This sample featured a mix of general practitioners and specialists to ensure broad representation, with data collection reflecting availability and proportional speciality distribution.

Tools

The data collection tool comprised of two portions:

1. Facility Readiness for eSanjeevani AB-AAM

A semi-structured questionnaire based on the World Health Organization (WHO)'s SARA checklist was designed for facility readiness assessment.



Fig 3: Facility readiness assessment components

By focusing on these key areas, the evaluation aimed to identify gaps and challenges in facility readiness, ensuring that HWCs are well-equipped to offer effective telemedicine consultations and improve healthcare delivery to patients.

2. Provider Acceptability and Satisfaction of eSanjeevani

- **TAM (Technology Acceptance Model) Scores:** To evaluate perceived ease of use and usefulness.
- **PSAT (Provider Satisfaction and Acceptance Tool) Scores:** To gauge overall satisfaction with the eSanjeevani platform.

The provider acceptability assessment questionnaire was structured based on the Technology Acceptance Model (TAM), provider satisfaction and training.

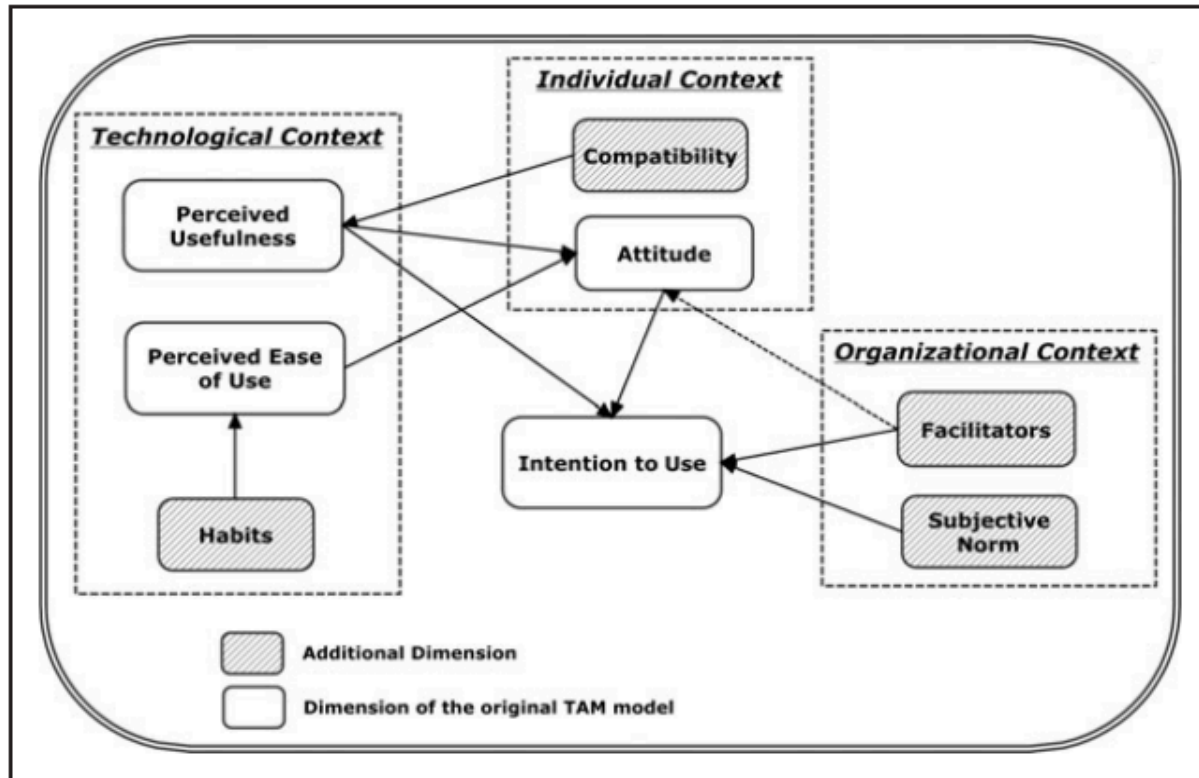


Fig 4. Theoretical Model (TAM)

Source: Gagnon, M. P., Orruño, E., Asua, J., Abdeljelil, A. B., & Emparanza, J. (2012). Using a modified technology acceptance model to evaluate healthcare professionals' adoption of a new telemonitoring system. *Telemedicine and e-Health*, 18(1), 54-59.

TAM has eight domains, namely:

Perceived Usefulness (PU)	subjective perception of users where they believe that using certain technologies can improve the performance of their work;
Perceived ease-of-use (PEU)	the extent to which users believe that by using a particular system, they will be free from effort;
Habit (Ha)	the extent to which an individual believes the behavior to be automatic (because of learning);
Attitude (AT)	perception by an individual of the positive or negative consequences related to adopting the technology;
Compatibility (Co)	degree of correspondence between innovation and existing values, past experiences and needs of potential adopters;
Subjective Norms (SN)	the extent to which an individual believes that people who are important to him or her will approve his or her adopting of a particular behavior;
Facilitators (Fa)	an individual believes that an organizational and technical infrastructure exists to support the use of the system;
Intention to use (IU)	intention to use is an attitude or behavior that tends to want to use technology;

Ethics Approval

This study titled “**Impact Evaluation of eSanjeevani Telemedicine Services at Odisha**” received ethical clearance from both a Sigma institutional review board and the State Ethical Committee as detailed below.

1. Sigma Institutional Review Board (IRB), India

- **Principal Investigator (PI):** Dr. Neha Verma – Chief Executive Officer, Intelehealth
- **IRB Number:** 10091/IRB/23-24
- **Date of IRB Meeting:** 27 January 2024
- **Date of IRB Approval:** 23 February 2024
- **Approval Valid Through:** 22 February 2025

The Sigma IRB, an independent ethics committee, reviewed the study protocol, informed consent process, data protection procedures, and risk-minimization strategies.

2. State Ethics Committee, Directorate of Health Services, Odisha

- **Chair:** Commissioner-cum-Secretary, Health & Family Welfare Department, Government of Odisha
- **Date of IRB Meeting:** 13 March 2024
- **Letter No.:** 10225/MS-2-IV-02/2022
- **Date of Approval:** 6 April 2024

The State Ethics Committee reviewed the proposal and associated documents. Approval was granted under the above letter number, affirming that all ethical considerations—participant information, consent procedures, and confidentiality safeguards—conform with national guidelines.

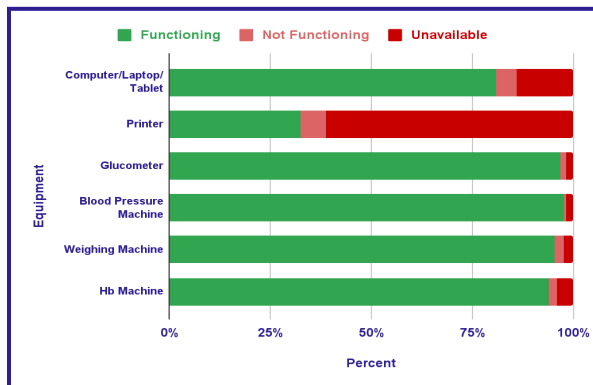
Note: All study procedures were conducted in accordance with the national ethical guidelines for biomedical and health research involving human participants. Informed consent (written or verbal as approved) was obtained from every participant before any data collection activity commenced.

Results

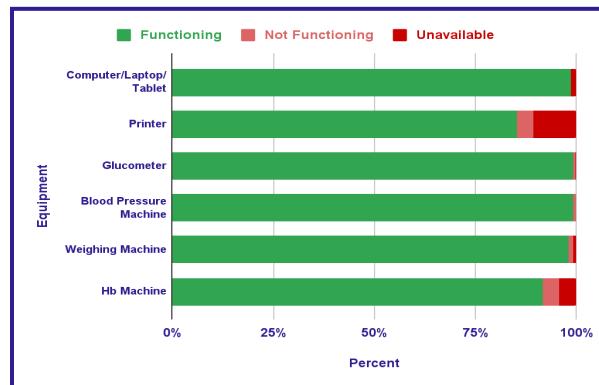
Part I: Facility Readiness for eSanjeevaniAB-AAM

Equipment Availability

Pre-Implementation

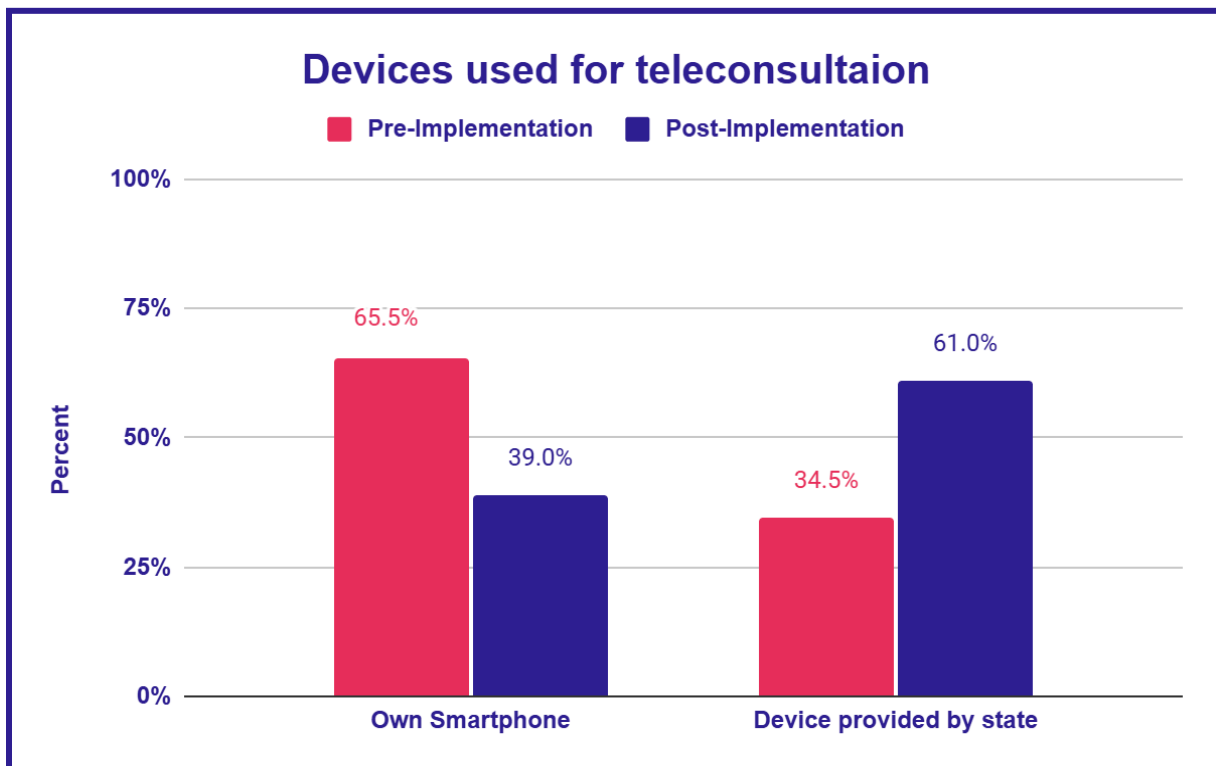


Post-Implementation



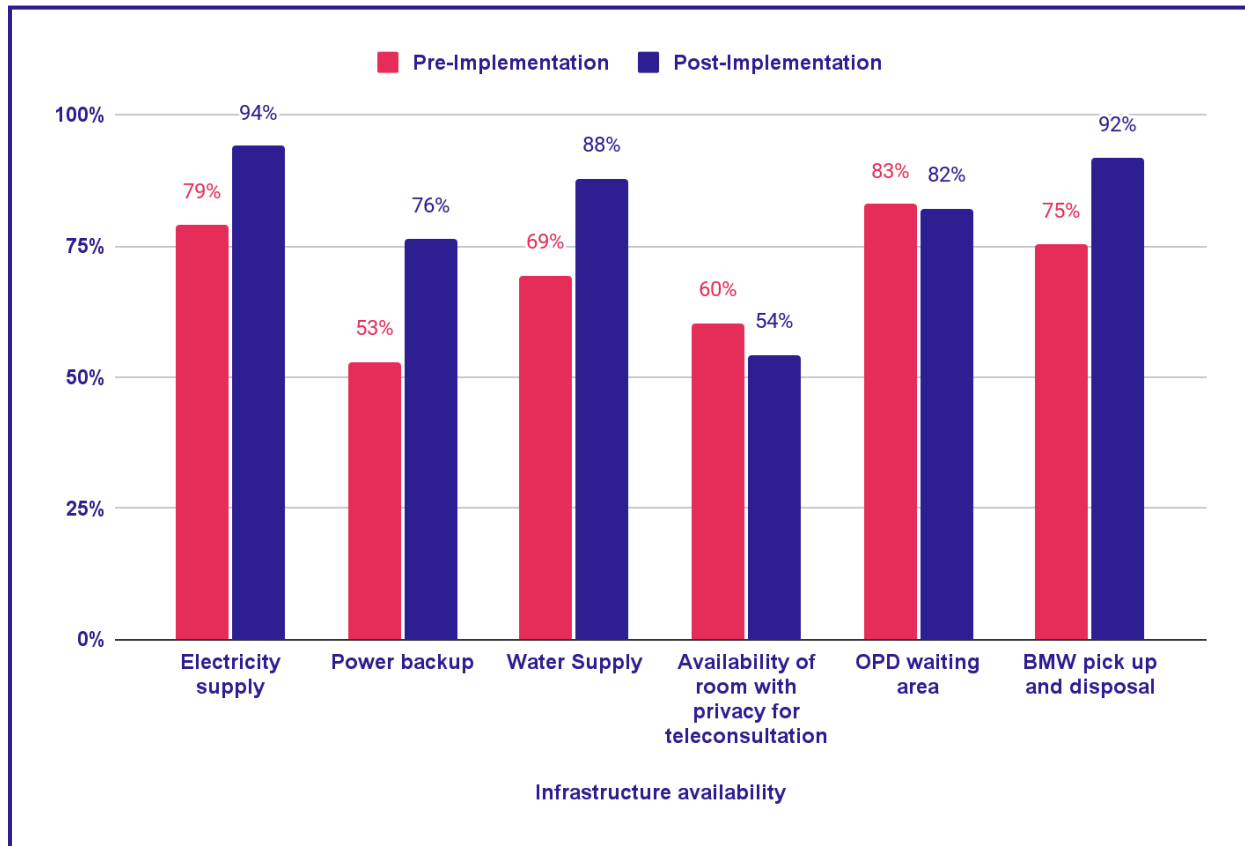
Overall, the availability of functioning equipment has been improved compared to pre-implementation.

Observed slight increase in “Non-Functioning” of HB Machine in post-implementation.



Overall, state-provided devices have been improved.

Infrastructure Availability



Overall, an increase has been observed in the infrastructure compared to pre-implementation other than the availability of rooms with privacy for teleconsultation.

The qualitative findings indicate a need for infrastructure improvements to enhance telemedicine consultations, as highlighted by feedback from healthcare providers.

If they would have provided printer and other infrastructures then it would have been better.

-CHO

If they give a movable camera in which we can contact the patient directly with the hub then it will be good. Sound and camera should be good, so that they can see the patient's face properly.

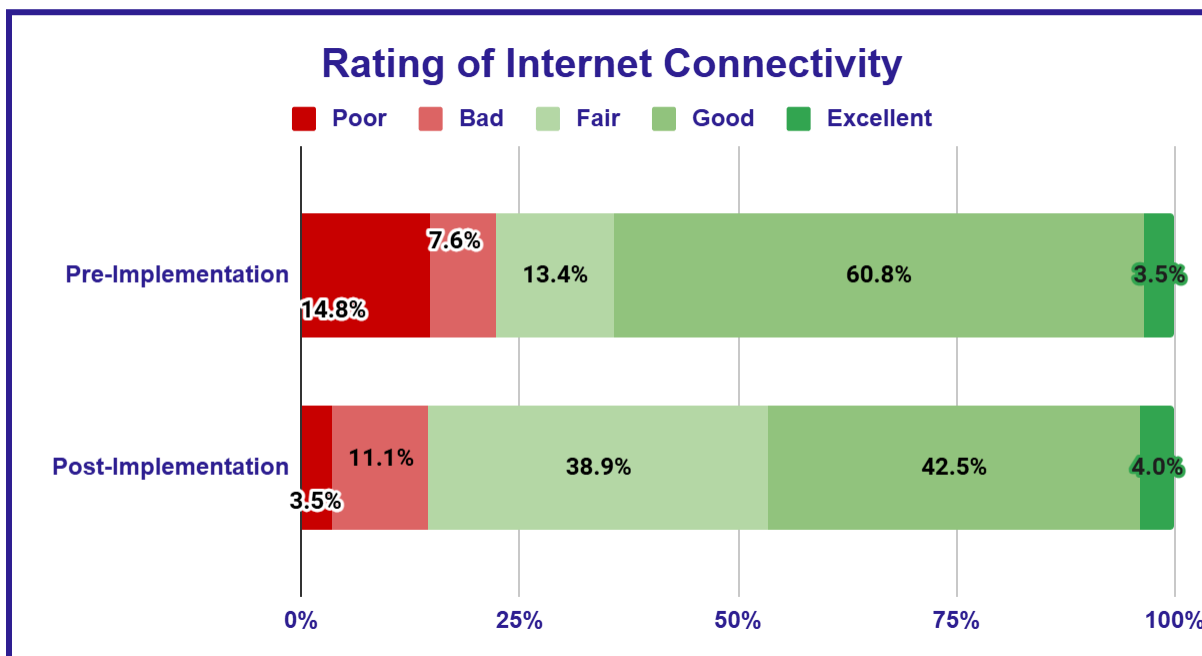
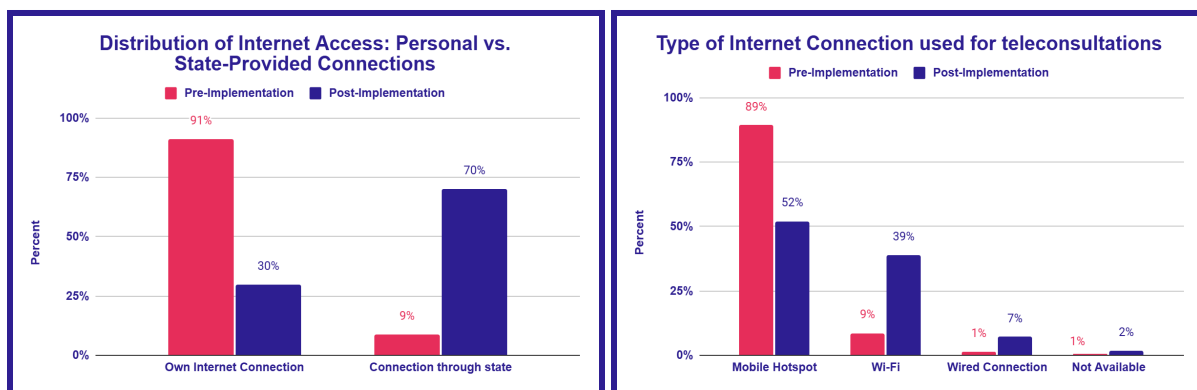
-MO

eSanjeevani has been significantly impactful for HIV follow-up cases as they are not having the stigma of getting noticed by others and feeling awkward discussing with the specialists. As isolation rooms are there for eSanjeevani sessions, patients are preferring to open up there instead of visiting OPDs and CHCs for consultation.

-MO

Internet Availability

Internet Connectivity: A stable and reliable internet connection is crucial to support high-quality video and audio communication during teleconsultations. Adequate bandwidth is required to ensure smooth and uninterrupted communication.



Overall, state-provided Wi-Fi connection has been improved. The proportion of facilities with sufficient internet to complete a teleconsultation (fair or above) has increased from 78% to 85%.

The qualitative findings reveal frequent disruptions in internet connectivity, which significantly impact the completion of telemedicine consultations. This issue, as noted by healthcare providers, affects the overall effectiveness of the telemedicine services.

Connection losses and system errors occur sporadically, likely due to slow internet speeds. These disruptions are a significant contributor to delays in delivering telemedicine services

-MO

Due to poor internet connectivity sometimes prevent the proper completion of telemedicine consultations. In such cases, providers have to switch to alternative communication methods, such as voice or video calls via phone, to continue the consultation, which can compromise the effectiveness of the telemedicine process

-MO

Essential drugs' availability and Management

Table 1: Essential drugs' availability across different facility levels

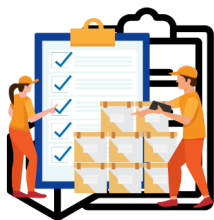
Essential drugs	Pre-Implementation			Post-Implementation		
	AAM-PHC	AAM-SC	Grand Total	AAM-PHC	AAM-SC	Grand Total
No. of Facilities	99	388	487	80	325	405
Amlodipine	94%	86%	88%	91%	86%	87%
Atenolol	65%	54%	56%	74%	68%	69%
Enalapril	36%	22%	25%	40%	36%	37%
Telmisartan	73%	59%	62%	93%	88%	89%
Isosorbide	22%	20%	21%	28%	25%	26%
Clopidogrel	21%	13%	14%	25%	23%	23%
Furosemide	38%	26%	29%	51%	39%	42%
Hydrochlorothiazide	25%	20%	21%	24%	22%	22%
Spironolactone	26%	16%	18%	18%	16%	17%
Glimepiride	70%	62%	63%	90%	87%	88%
Insulin	35%	27%	29%	31%	27%	28%
Metformin	68%	61%	62%	84%	83%	83%
Carbamazepine	23%	18%	19%	21%	21%	21%
Diazepam	18%	12%	13%	18%	17%	17%
Phenobarbitone	25%	21%	22%	15%	22%	21%
Oral Phenytoin	25%	23%	24%	23%	26%	25%
Injectable Phenytoin	18%	16%	16%	23%	17%	18%
Sod. Valproate	23%	17%	18%	23%	24%	24%
Oral Salbutamol	64%	49%	52%	84%	74%	76%
Inhalational Salbutamol	54%	28%	33%	66%	40%	45%
Anti TB	43%	31%	33%	16%	38%	34%
Anti-Laprosy	29%	30%	30%	20%	22%	21%
%Medicines available	41%	32%	34%	43%	41%	41%

Facilities with the availability of essential drugs have been improved from 34% pre-implementation to 41% post-implementation.

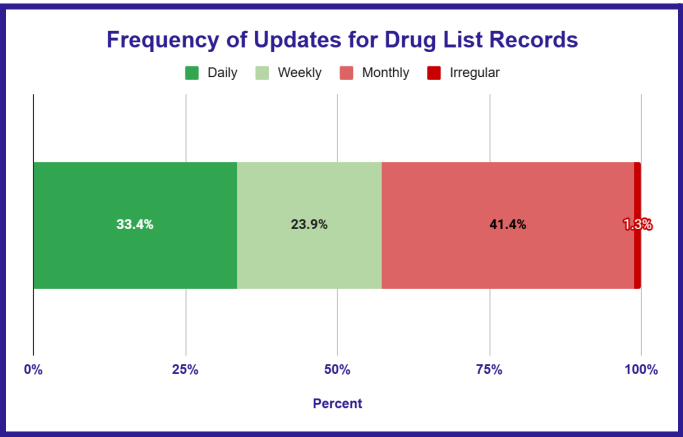
Status of Medicine-reported by health provider (data only collected in the midline)

Facilities update a drug list:

Post-Implementation



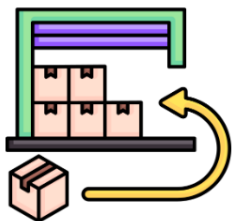
99.3% of healthcare facilities reported maintaining regular records and bookkeeping of all drug lists, indicating strong adherence to record-keeping practices.



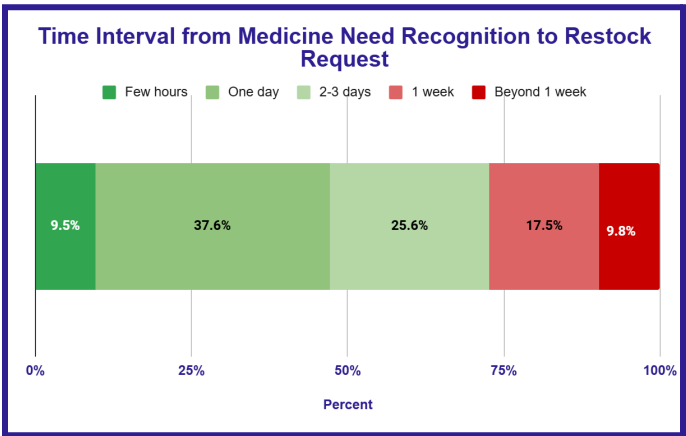
57% of the health providers are updating the drug list within a week which ensures proper availability of medicine. Further, 43% of facilities require improvement as they update the list monthly or irregularly.

Facilities restock medicines as per updated records

Post-Implementation

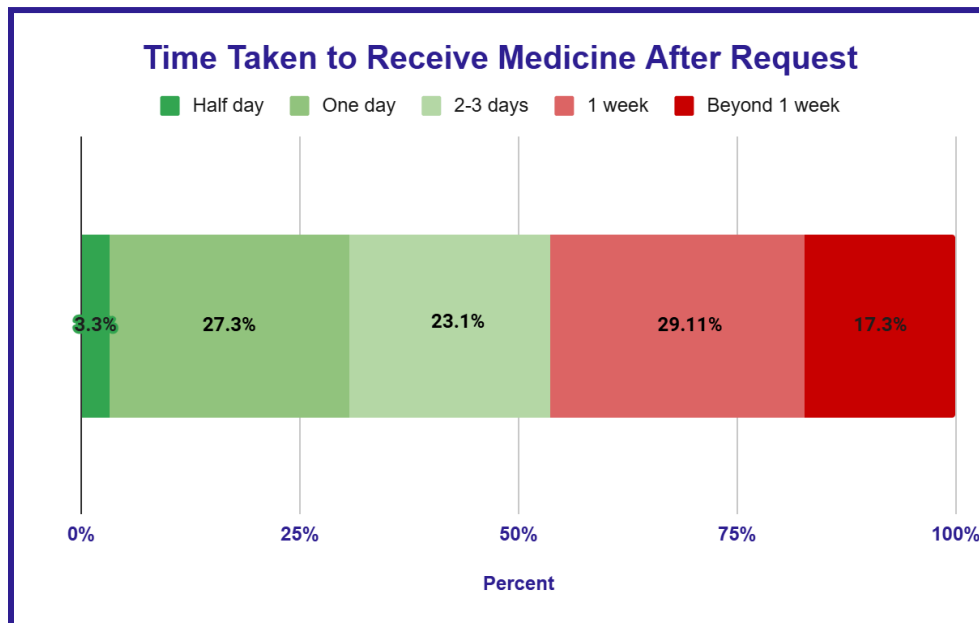


All facilities **(99.5%)** restock medicines as per updated records, with turnaround time varying from hours to days.

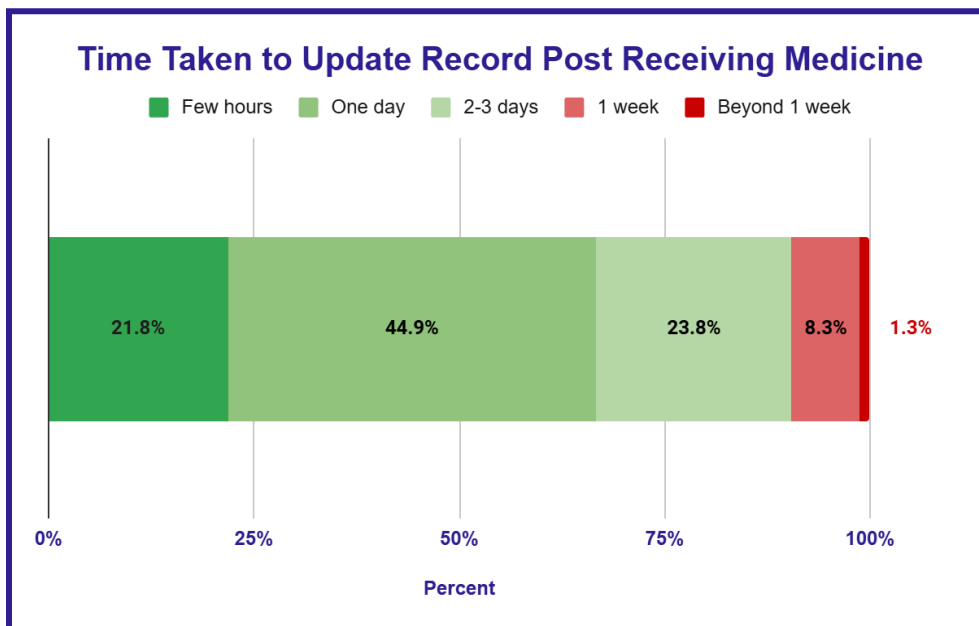


Most of the facilities (90%) restock medicines as per updated records within a week's time.

After requesting restock, medicines are received and updated records post receiving medicine

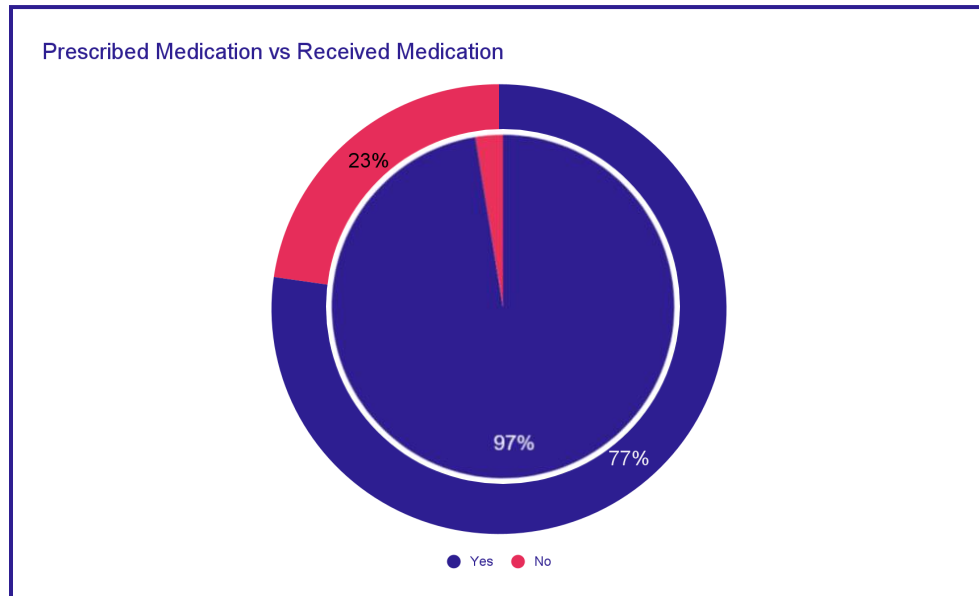


After requesting restocking, the majority of facilities (83%) receive medicines within a week.

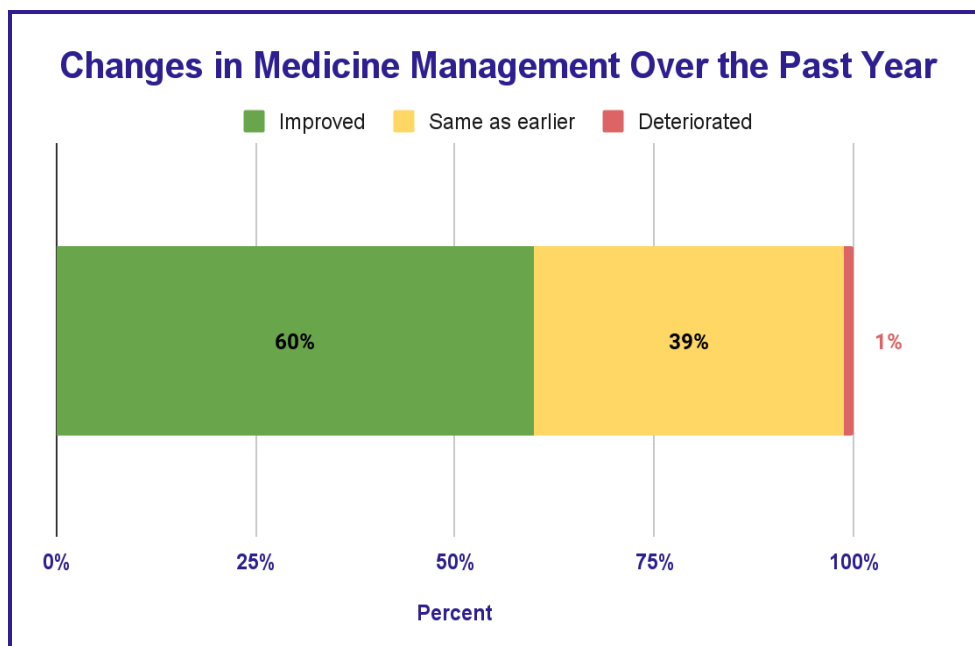


Almost 90% of health providers update the record within 2-3 days which ensures the availability of medicine on a regular basis.

Change in Medicine Management over the past year



Almost all the clients (97%) received medicine based on the prescription provided to them. It shows that most of times, medicines are available at the facility level.



More than half of the facilities reported improvements in medicine management. However, others reported "Same as earlier".

Client Footfall

Overall

Pre-Implementation				
Indicators	Obs	Mean	Min	Max
Daily OPD Footfall	487	16	0	130
Daily Teleconsultation Footfall	487	5	0	27
Monthly OPD Footfall	487	370	0	4000
Monthly Teleconsultation Footfall	487	81	0	300
Post-Implementation				
Daily OPD Footfall	405	16	0	141
Daily Teleconsultation Footfall	405	2	0	18
Monthly OPD Footfall	405	384	24	3000
Monthly Teleconsultation Footfall	405	25	0	350

By Type of Facility

Indicators	PHC				SC-HWC			
	Pre-Implementation							
	N	Mean	Min	Max	N	Mean	Min	Max
Daily OPD Footfall	99	36	3	130	388	11	0	52
Daily Teleconsultation Footfall	99	4	0	16	388	5	0	27
Monthly OPD Footfall	99	892	35	4000	388	236	0	1500
Monthly Teleconsultation Footfall	99	72	0	300	388	84	0	300
Post-Implementation								
Daily OPD Footfall	80	40	0	141	325	10	0	40
Daily Teleconsultation Footfall	80	1	0	13	325	2	0	18
Monthly OPD Footfall	80	1040	36	3000	325	223	24	575
Monthly Teleconsultation Footfall	80	21	0	350	325	26	0	220

The mean number of teleconsultations per facility has reduced. This could be due to many factors such as a greater number of available facilities, easing out of the pandemic, CHOs capability to manage health issues improving, reducing unnecessary teleconsultations, and bottlenecks in backend providers.

Integration of 12 service packages will boost teleconsultation footfall for necessary conditions.

Training and Capacity Building

Effective training and capacity building are crucial for the successful deployment of the eSanjeevani telemedicine services. This process ensures that both spoke and hub-level providers, including Community Health Officers (CHOs), Auxiliary Nurse Midwives (ANMs), and medical officers, are well-equipped to deliver high-quality teleconsultations. Proper training addresses the orientation to the eSanjeevani platform, user guidelines, technical troubleshooting, and maintaining quality standards. Regular refresher training for new providers and updates on new features and guidelines are also vital to keep all staff up-to-date with the latest practices and technological advancements.

Spoke-Level Training: For Community Health Officers (CHOs) and Auxiliary Nurse Midwives (ANMs), training includes:

- Orientation to eSanjeevani 2.0
- User guidelines and best practices
- Handling common technical issues
- Understanding the role of teleconsultations in various health areas
- Soft skills and communication
- Adherence to quality standards

Hub-Level Training: For Medical Officers and specialist doctors, the focus is on:

- Conducting teleconsultations effectively
- Reviewing patient data comprehensively
- Providing clear and actionable prescriptions
- Ensuring follow-up and continuity of care

Refresher Training: Regular refresher training is provided to:

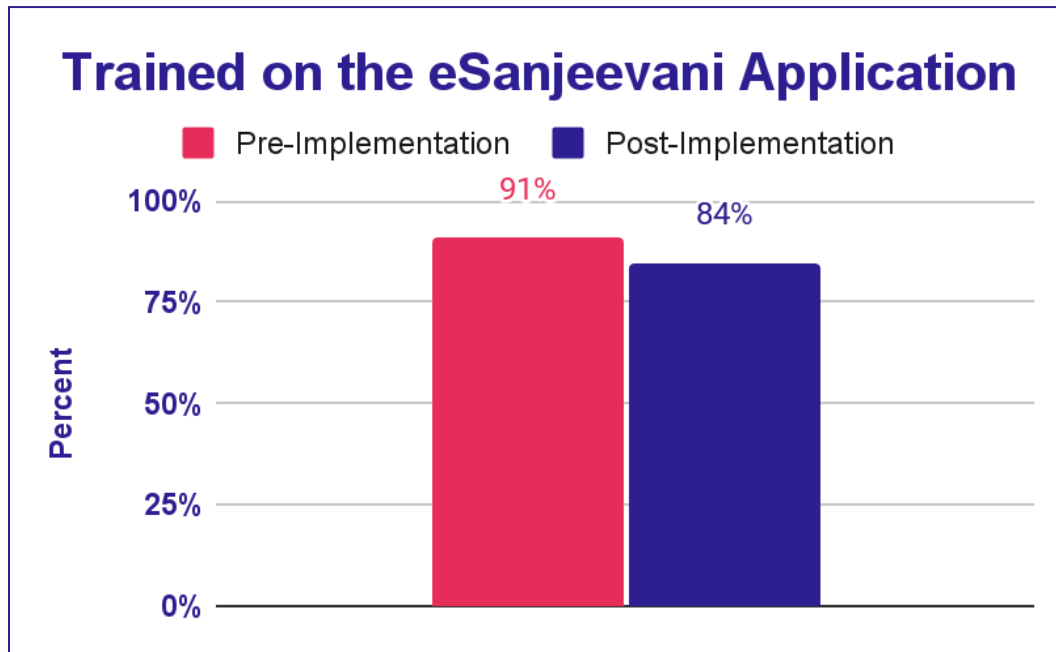
- New joiners to ensure they are up-to-date with the eSanjeevani platform
- Existing providers when new features or guidelines are introduced

Consultation Guidelines:

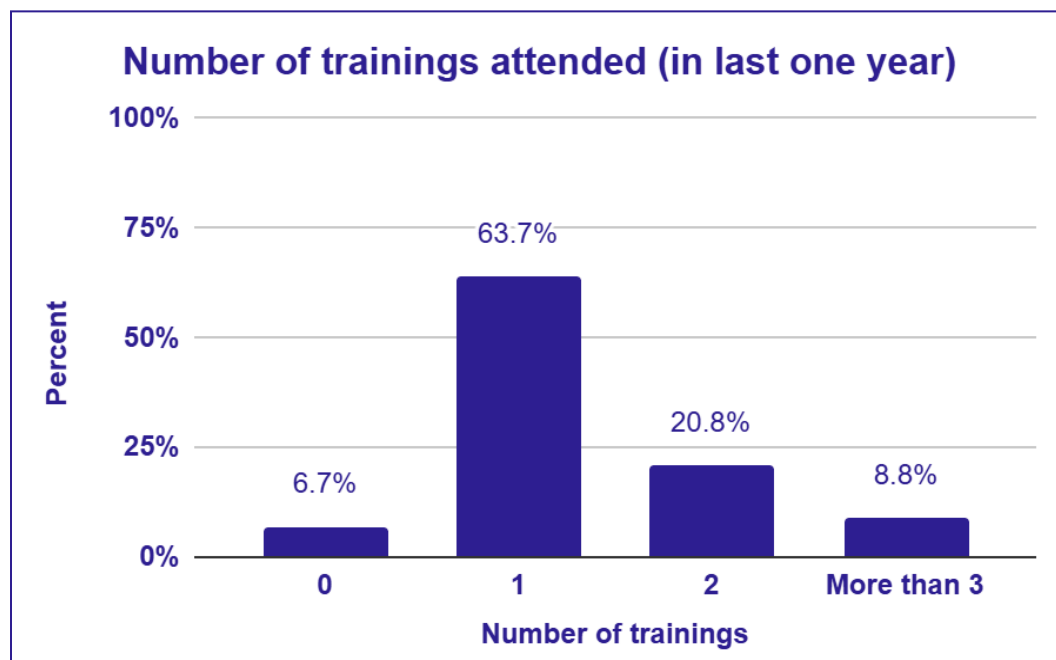
- **For CHOs:** Includes patient interaction, registration, data entry, and teleconsultation management, including obtaining consent, ensuring privacy, and providing post-consultation support.
- **For Medical Officers (MOs):** Includes initiating consultations, verifying completeness of clinical data, providing clear prescriptions, and ensuring follow-up.

This structured approach to training and capacity building aims to enhance the effectiveness and quality of telemedicine services provided through the eSanjeevani platform.

Status of health providers trained on eSanjeevani Application



Number of trainings participated for eSanjeevani Application Post-Implementation

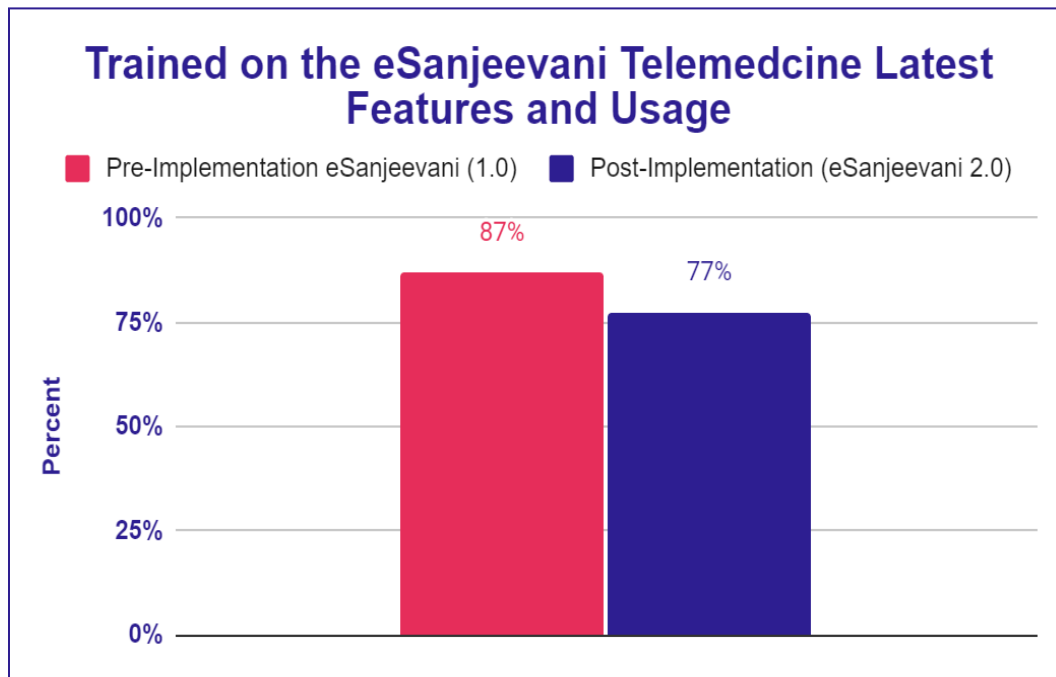


The qualitative findings would highlight how the training session positively influenced participants' attitude addressing their initial lack of confidence in eSanjeevani.

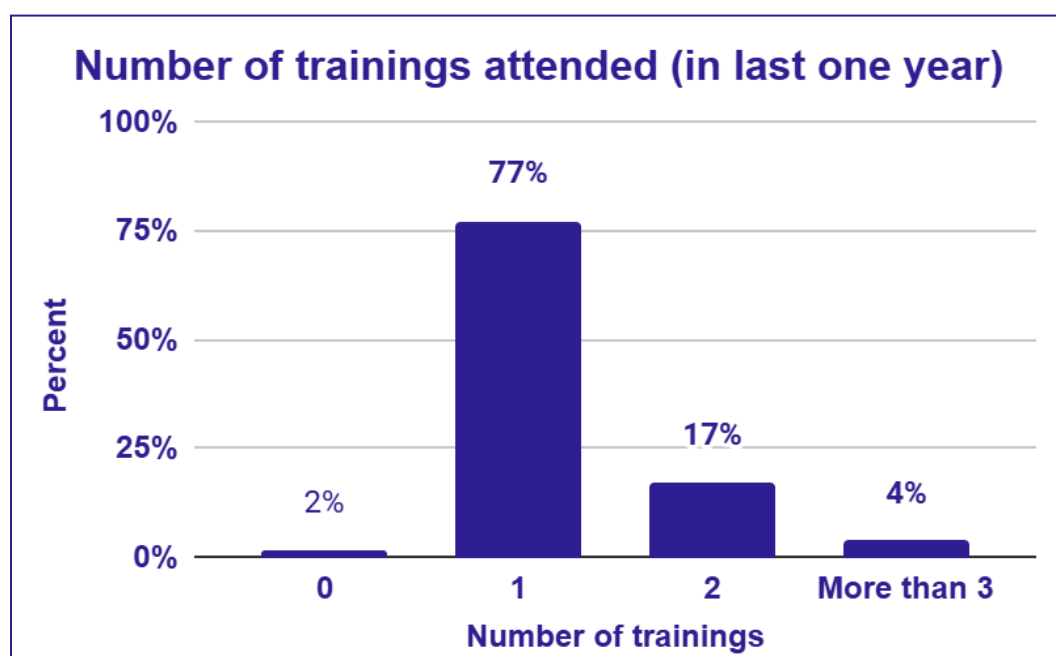
Earlier we did not know what is teleconsulting, they had informed us but we were not so confident. In the training, he showed us demo of the application and how to use it, in detail.. I am following that.

- CHO

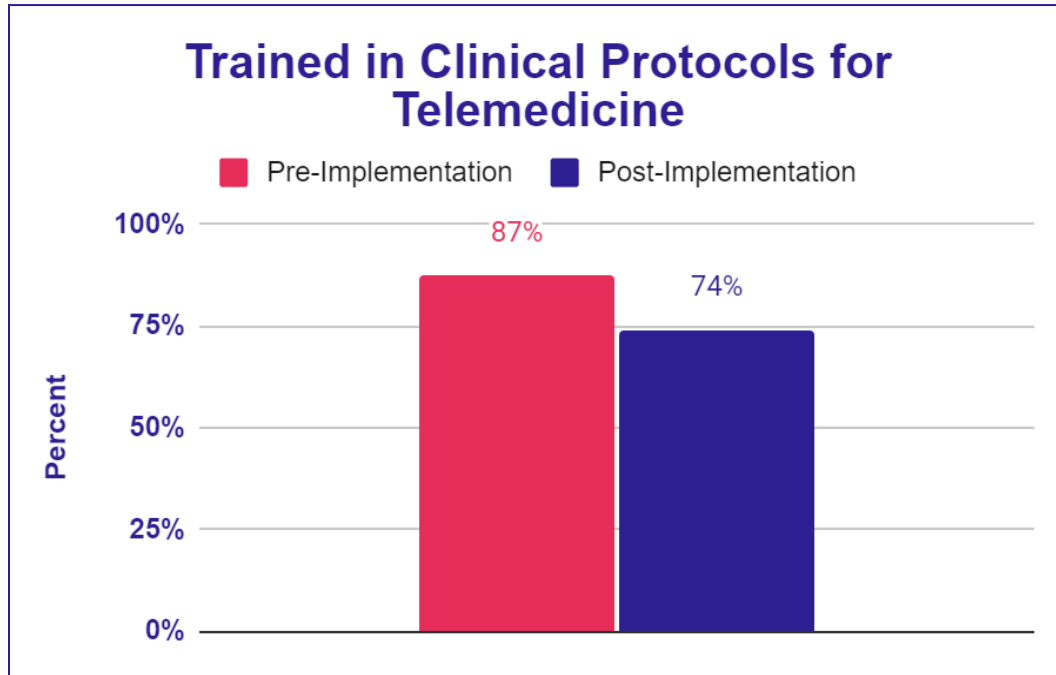
Status of health providers trained on the eSanjeevani telemedicine latest features and usage



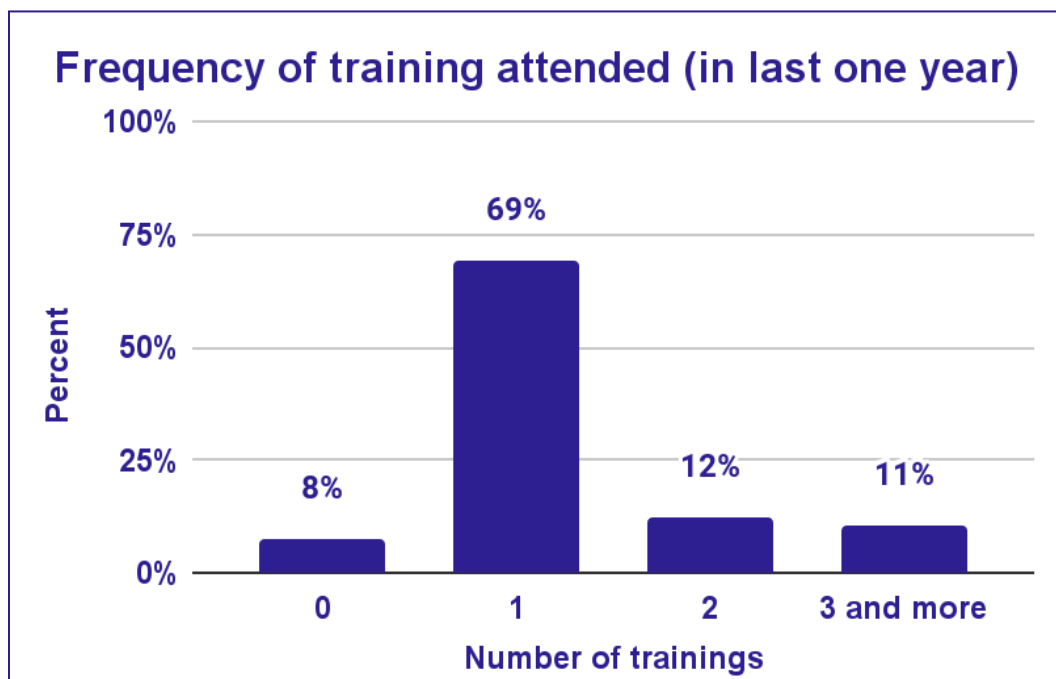
Number of training attended for eSanjeevani 2.0 telemedicine latest features and usage Post-Implementation



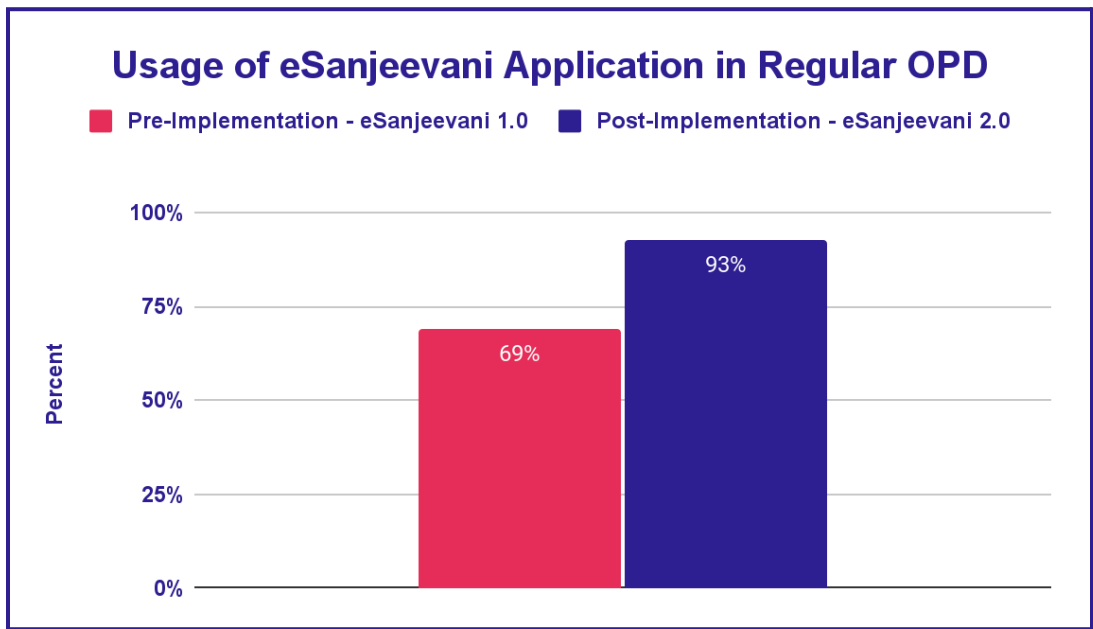
Status of health providers trained in clinical protocols for telemedicine



Number of trainings participated attended for clinical protocols for telemedicine Post-Implementation



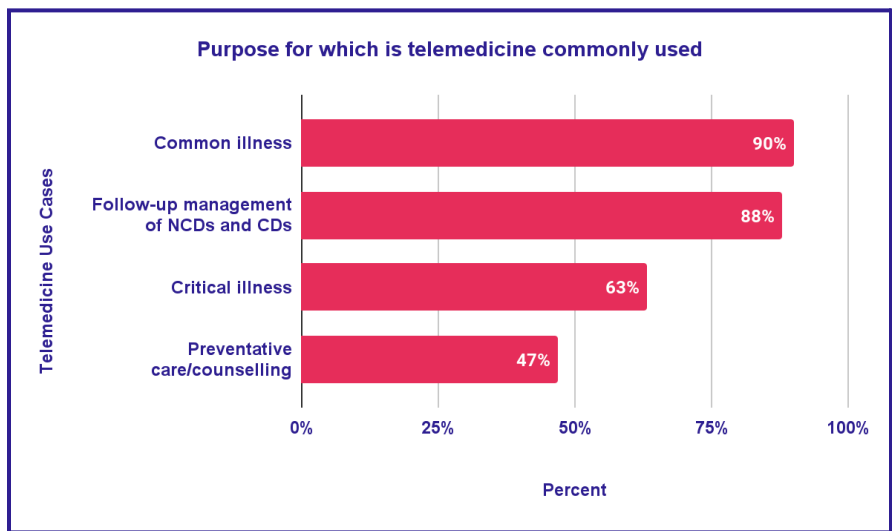
Usage of eSanjeevani Application



A significant increase has been observed of the eSanjeevani Application in the post-implementation.

Commonly used telemedicine at facilities reported by health providers (data only collected in the midline)

Post-Implementation



Approximately 90% of the facility reported preparedness to handle common illnesses and NCD management. Facilities need to be more equipped with the management of critical illness and preventative care/counselling.

Smooth Integration of eSanjeevani into daily workflows

Ensuring seamless integration of eSanjeevani into existing health systems is crucial for its successful deployment and effectiveness. To achieve this, several strategic and operational steps have been implemented:

Activation of HUBs and Spokes

Mapping and Establishment

- **Spokes:** Health and Wellness Centres (HWCs) serve as spokes, with each covering approximately 5,000 people. The mapping ensures that all HWCs are equipped and operational to handle teleconsultations.
- **Hubs:** District hospitals act as HUBs, providing teleconsultation services across various specialities. A central HUB at the state level supports specialist and super-specialist consultations. HUBs may also be decentralised to Community Health Centers (CHCs) and Primary Health Centers (PHCs) as needed.

Mapping Spokes to HUBs

- All spokes are connected to district and central HUBs. The eSanjeevani 2.0 model allows for flexible linking of spokes to HUBs within and across districts, based on demand and operational needs.

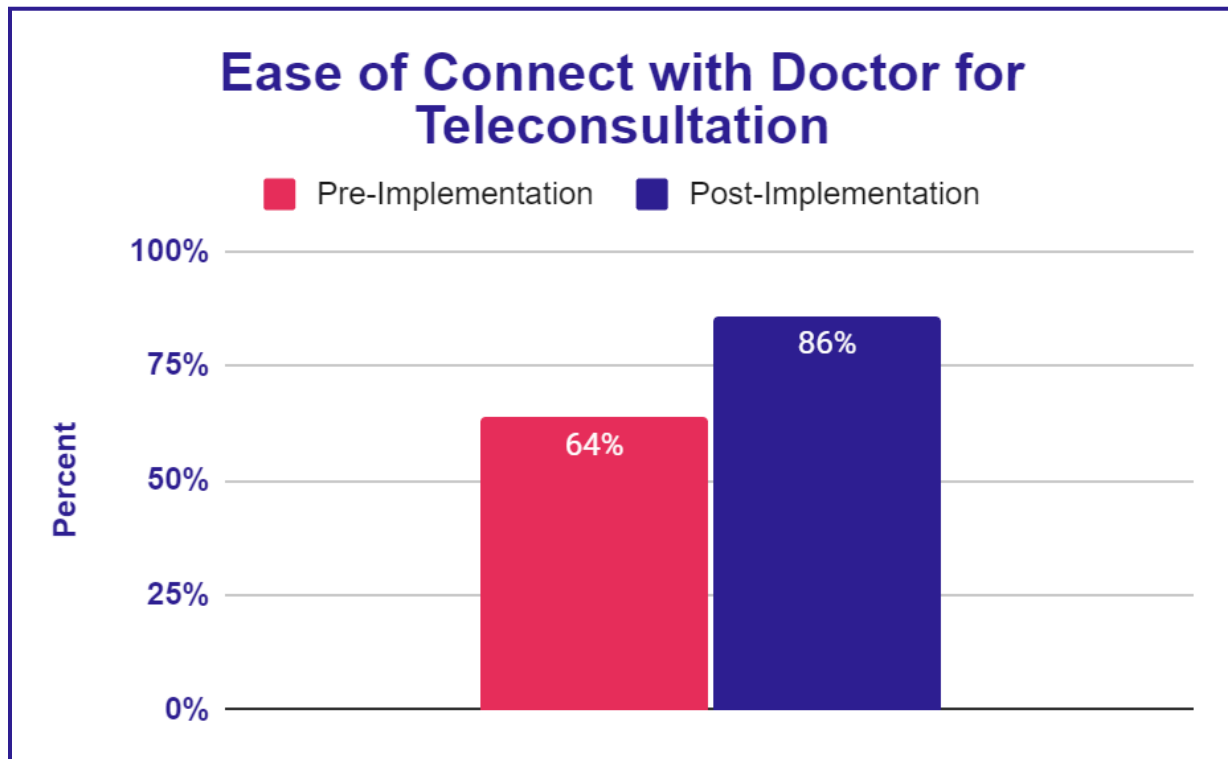
Supply Side Interventions

Ensuring Quality and Timely Services:

Maintaining a supply of uninterrupted, responsive, and quality services is essential for eSanjeevani's success. This involves continuous support and integration within existing healthcare systems to meet the Comprehensive Primary Healthcare (CPHC) goals.

By implementing these strategies, eSanjeevani aims to provide comprehensive, accessible, and effective telemedicine services across Odisha, ensuring that both healthcare providers and patients benefit from a well-integrated telemedicine platform.

Ease of connection with doctors for teleconsultations



Ease of connection with doctors have been significantly improved in post-implementation.

The qualitative findings reveal significant challenges with the timing and availability of doctors for teleconsultations.

one of the major issues is the timing mismatch between ours and the doctors. For example, when I am checking a patient, the doctor is available, but after registration and screening, when I upload for teleconsultation, the hub doctor becomes busy with patients at their center. Besides, there is no surety that each specialist doctor is available every day according to the patients that visit HWCs for teleconsultation.

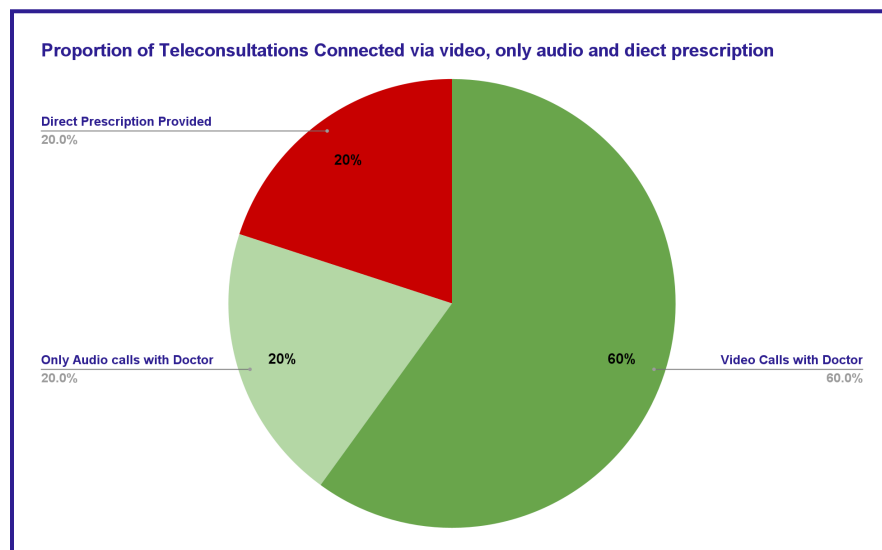
- CHO

one of the biggest challenges we face is that doctors at DHH and Medical Colleges remain busy with teleconsultations most of the time due to receiving many calls. As a result, patients often have to wait longer than promised, leading to frustration.

- CHO

Status of teleconsultation connected to hub doctors

Post-Implementation



Most of the times, clients were connected through video calls (60%, n = 359) or audio calls (20%).

Focus needs to be put on reducing the proportion of consultations where direct prescription was generated (20%).

CHOs reported that **40%** of the time call fails to connect with the doctor.

The qualitative findings highlights the key areas where there is room for growth in the acceptance of telemedicine.

"..the network issue is a significant problem....we sit for 2-3 hours. If there is a network issue, we cannot deliver the service properly. Since there is only one medicine specialist in the district, a lot of time is wasted, causing other patients who come directly...to suffer. The issue must be resolved somehow. "

- MO

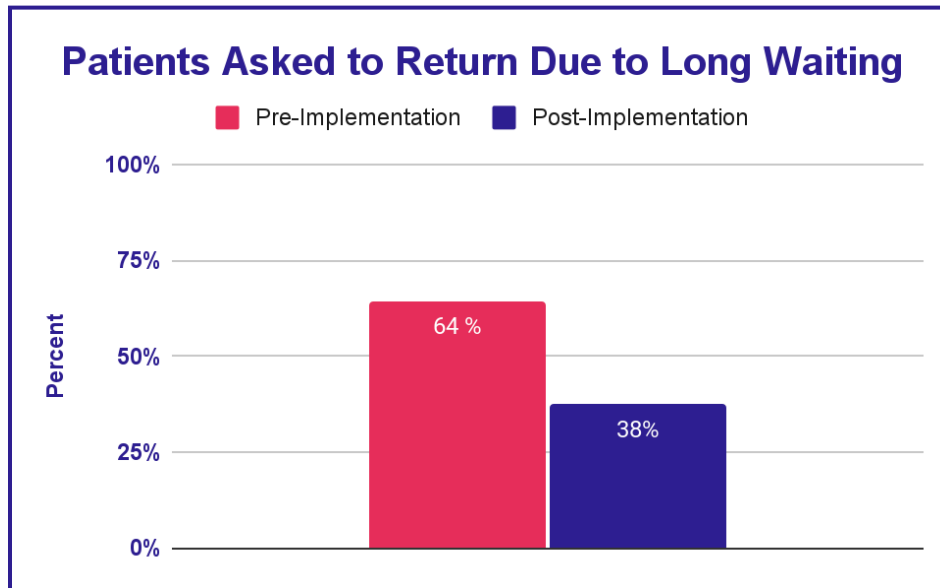
"Most of the time, doctors are not receiving the call. This has to be changed. And another thing is, they have to spend more time online so that they can receive our call."

- CHO

Some more problems we usually face are like; firstly internet strength issue, secondly low quality of videos during video conferencing and sometimes even voice call also becomes difficult.

- MO

Patients asked to return due to waiting times



A significant improvement has been observed where patients asked to return due to waiting times - **27% reduction**

The qualitative findings highlight issues with long waiting times in telemedicine consultations.

Patients don't want to wait for long time in telemedicine. Doctors will be present for one to two hours only, if patients come after doctors timing then patient has to return back.

- CHO

Yes, it has advantages and disadvantages. The frequent network issues and busy lines at DHH lead to a preference for connecting with CHC. However, even consultations with CHC can be delayed due to their high volume of patients and occasional busy periods, affecting the efficiency and timeliness of telemedicine services.

- CHO

Patients are not willing to stay for long time. They ask us to do early and leave them which is not possible for us. Mostly aged people come and they don't know their phone numbers so that we can't call them. Look here 10 patients had come, only one patient has given his number, others are old aged people, they don't know their phone numbers.

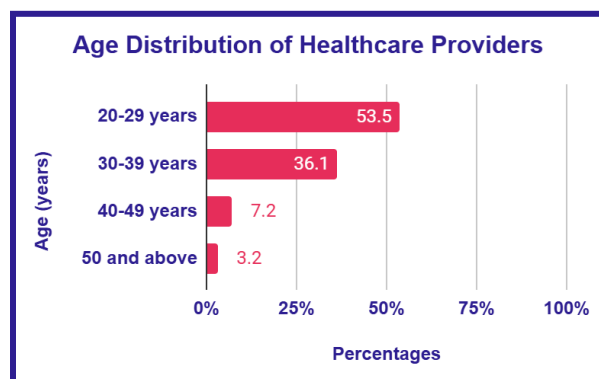
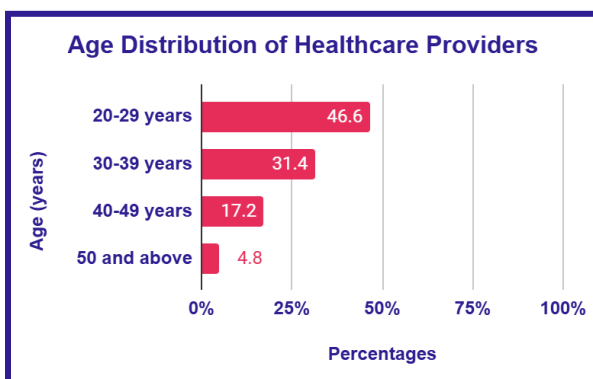
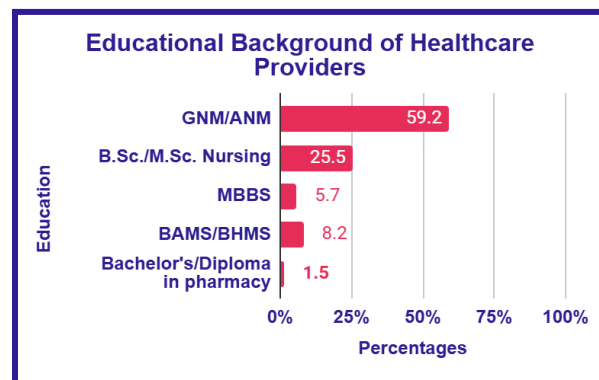
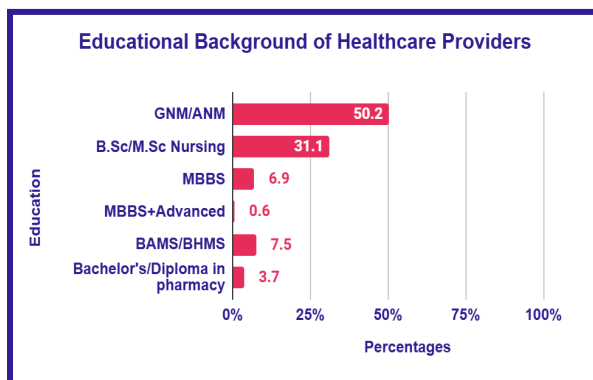
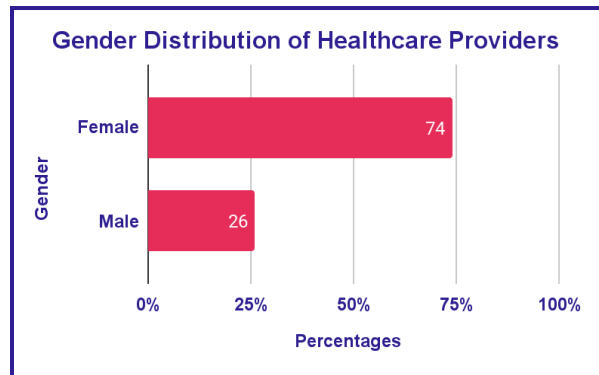
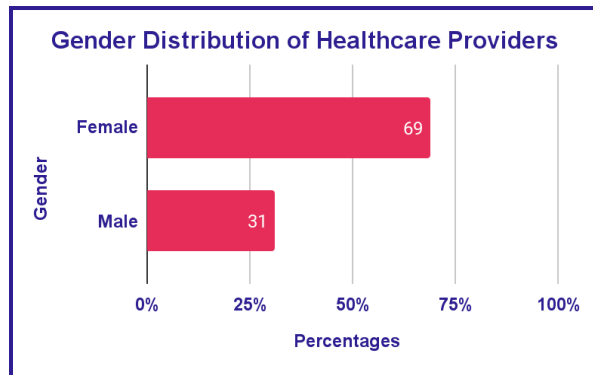
- CHO

Part II: Provider Acceptability and Satisfaction

Profile of Health Care Providers

Profile of CHOs

Pre-Implementation

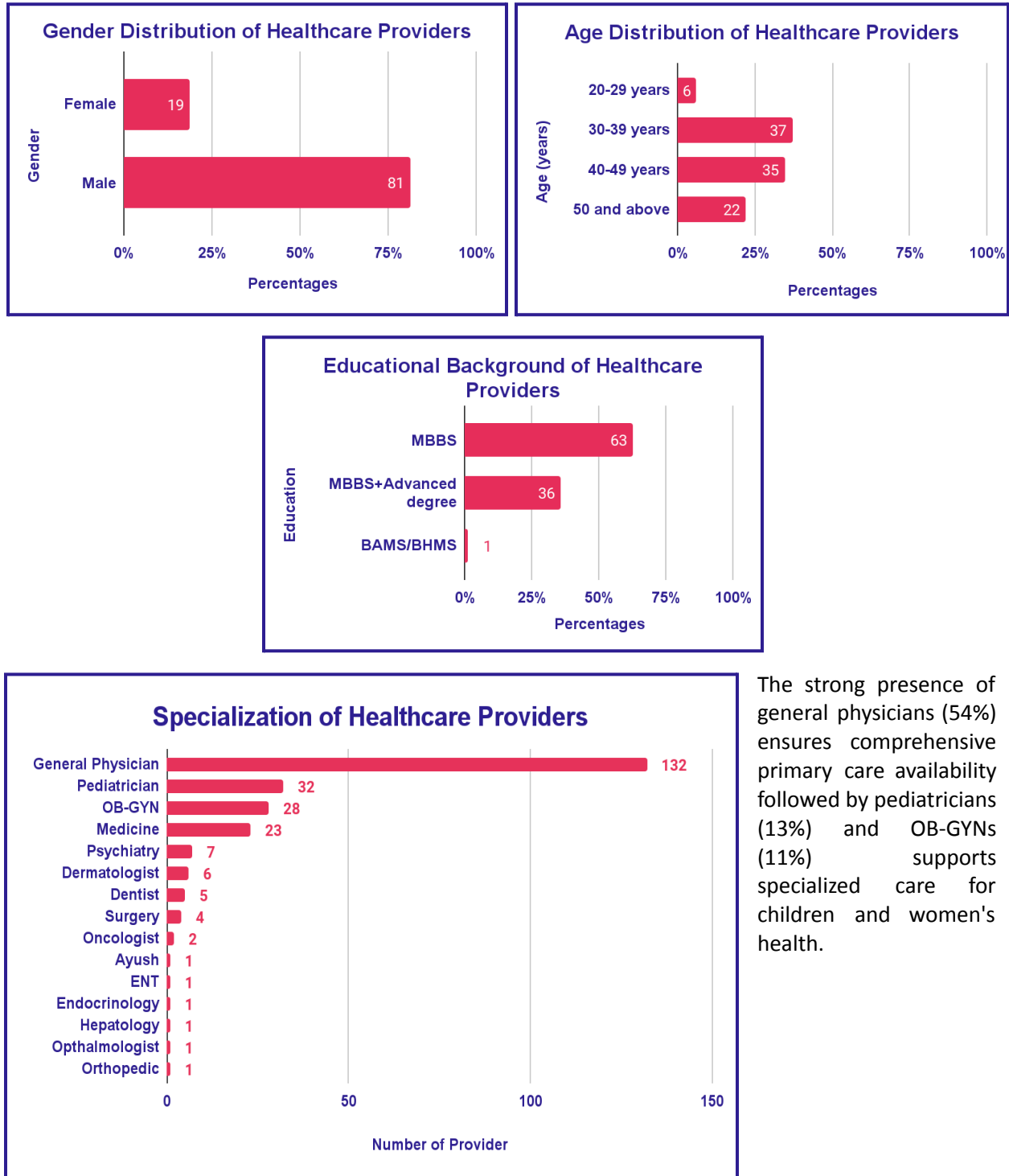


Pre and post implementation CHO demographics are similar.

Profile of MOs (Subhub/Hub)

Medical Officers (MOs) selected exclusively from subhubs and hubs in the midline survey only.

Post-Implementation



Telemedicine Acceptance using TAM

Technology Acceptability Model Scores (TAM)	CHOs Mean (Pre-Implementation)	CHOs Mean (Post-Implementation)	MOs
Perceived usefulness	6.0	6.0	6.0
Perceived Ease-of-Use	6.0	6.1	6.0
Attitude	6.1	6.1	6.1
Compatibility	5.6	5.8	5.6
Subjective norm	6.0	5.9	5.9
Facilitators	5.8	5.8	5.8
Habit	6.1	6.0	5.9
Intention to use	6.1	6.2	6.1

Acceptability continues to remain high between baseline & midline. The major difference between the two periods was the version of eSanjeevani that was being used by the providers - 1.0 vs 2.0. There is a marginal change in intention to use.

Logistic Regression: Technology Acceptance Model

CHOs

The effects of technological, individual and organizational domains on intention to use eSanjeevani application using logistic regression model.

Pre-Implementation

INDEPENDENT VARIABLES	MULTIVARIATE REGRESSION OR	STD. ERROR (95% CI)
Intention to use (ref.)	1.00	
Perceived usefulness	1.8	0.55 (0.97 - 3.27)
Perceived Ease-of-Use	2.5*	0.84 (1.3 - 4.83)
Attitude	1.3	0.38 (0.75 - 2.32)
Compatibility	0.9	0.14 (0.69 - 1.26)
Subjective norm	1.1	0.28 (0.65 - 1.79)
Facilitators	0.6*	0.13 (0.43 - 0.93)
Habit (HAB)	1.5	0.36 (0.93 - 2.38)

CI, confidence interval; OR, odds ratio; ref., reference category

Post-Implementation

INDEPENDENT VARIABLES	MULTIVARIATE REGRESSION OR	STD. ERROR (95% CI)
Intention to use (ref.)	1.00	
Perceived usefulness	1.2	0.78 (0.34 - 4.31)
Perceived Ease-of-Use	4.3*	2.48 (1.37 - 13.31)
Attitude	4*	2.03 (1.44 - 10.83)
Compatibility	0.9	0.22 (0.56 - 1.46)
Subjective norm	1.6	0.67 (0.69 - 3.62)
Facilitators	1.2	0.4 (0.59 - 2.28)
Habit (HAB)	1.2	0.61 (0.41 - 3.26)

CI, confidence interval; OR, odds ratio; ref., reference category

- **PEU** was a significant predictor of high intention to use (IU) at both pre- and post-implementation. This means that for every one-unit increase in the PEU score, we expect an increase in the odds of having a high intention to use eSanjeevani from 2.5 (95% CI: 1.3 - 4.83) pre-implementation to 4.3 (95% CI: 1.37 - 13.31) post-implementation, adjusting for all other variables.
- Post-implementation, **Attitude** has become a significant predictor, with the odds of having higher IU by 4, showing that CHOs have been able to understand the benefits of eSanjeevani due to exposure and training.

- **Facilitators** were significant barriers pre- implementation (OR: 0.6, 95% CI: 0.43 - 0.93), but improvements in infrastructure and support diminished their impact post-implementation. This may be due to the improvement in infrastructure availability at the facility.

MOs

Post-Implementation

INDEPENDENT VARIABLES	MULTIVARIATE REGRESSION OR	STD. ERROR (95% CI)
Intention to use (ref.)	1.0	
Perceived usefulness	9.2*	9.88 (1.12 - 75.51)
Perceived Ease-of-Use	14.5*	13.7 (2.26 - 92.6)
Attitude	2.2	1.83 (0.43 - 11.22)
Compatibility	0.4*	0.18 (0.2 - 0.98)
Subjective norm	4.8	4.08 (0.93 - 25.24)
Facilitators	1	0.52 (0.39 - 2.79)
Habit (HAB)	0.4	0.36 (0.09 - 2.15)
CI, confidence interval; OR, odds ratio; ref., reference category		

- For MOs at HUB, **PU** and **PEU** significantly predicted of high intention to use (IU). PU increased the odds of high IU by 9.2 (95% CI: 1.12 - 75.51) per unit, while PEU increased them by 14.5 (95% CI: 2.26 - 92.6).

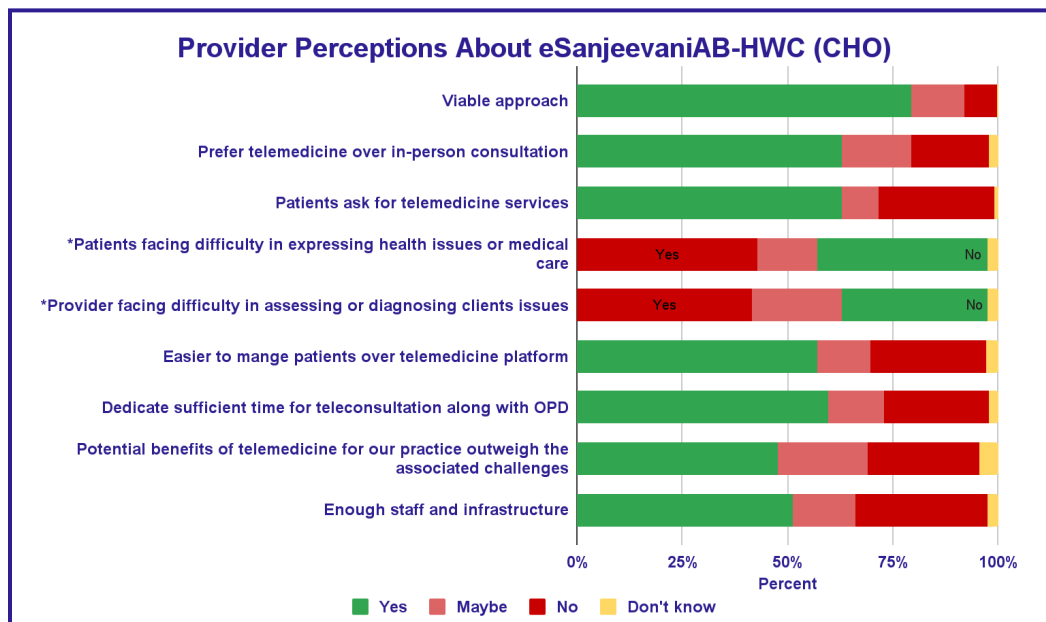
- Conversely, the decrease in **compatibility** was associated with lower odds of high intention to use (IU) by 0.4 per unit increase (95% CI: 0.2 - 0.98). Using the application with minimal changes to their daily routine and effective clinical practice enhances their intention to use it.

- Both the pre-implementation and post-implementation models were adjusted for socio demographics, type of facilities, and years of experience. However, these variables are not displayed in the final results as they were not found to be significantly associated with intention to use.

Provider perceptions about eSanjeevani

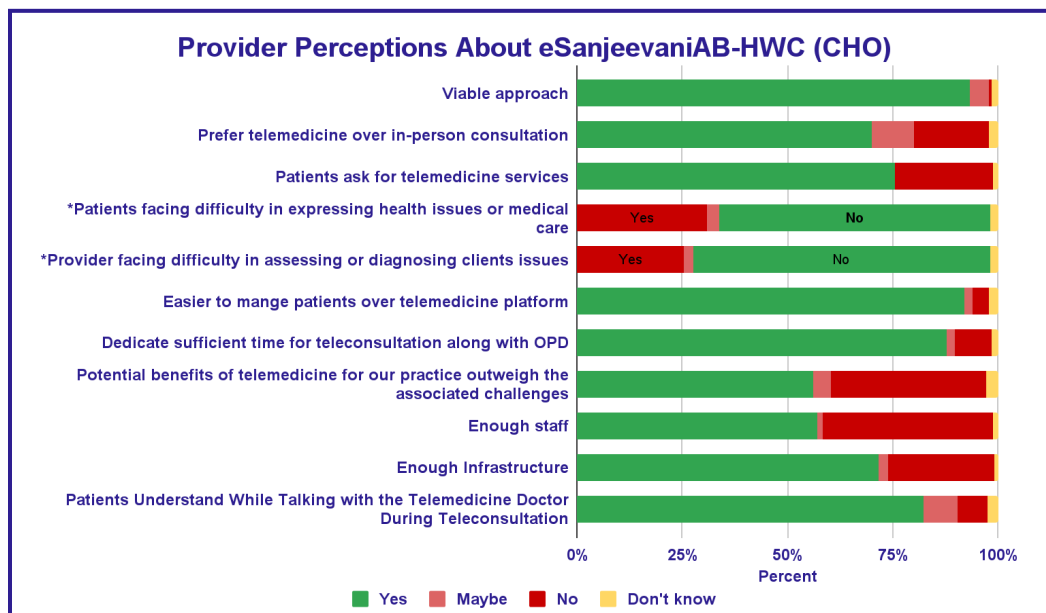
CHOs

Pre-Implementation



Note: *These statements are asked in reverse order, where “No” states positive response and “Yes” states challenges.

Post-Implementation

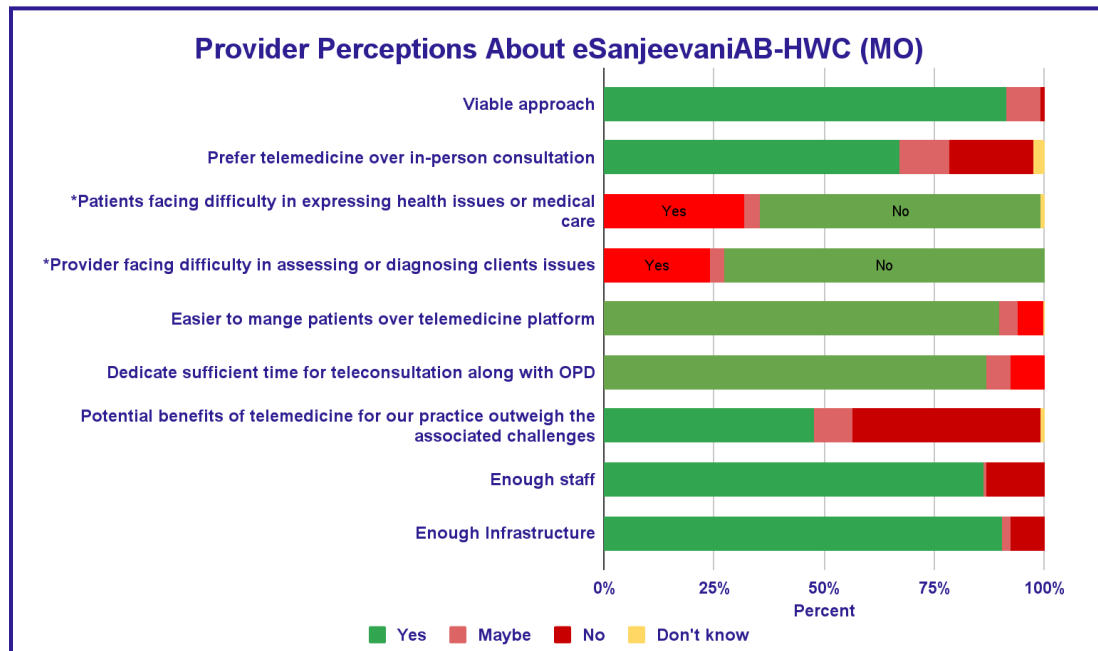


Note: *These statements are asked in reverse order, where “No” states positive response and “Yes” states challenges.

Post implementation, there has been improvements across all the perceptions of eSanjeevani. A positive, notable decrease have been found in facing difficulties in diagnosing health problems by CHOs, followed by expressing health issues by patients.

MOs

Post-Implementation



- Fewer MOs than CHOs have acknowledged the potential benefits of telemedicine.
- Approximately one-fourth of both MOs and CHOs report challenges faced by CHOs in diagnosing health complaints.
- Around 30% of both CHOs and MOs believe clients encounter difficulties in expressing health issues.
- They perceive inadequate infrastructure as a barrier.

Note: In midline we splitted the staff and infrastructure question, also added a new question about patient understanding.

The qualitative findings reveal critical manpower shortages, with staff struggling to manage multiple responsibilities.

Manpower shortage is one of the biggest issues here as only one staff is there to handle OPD, bank work, field visits, and TB follow-up. Right now, are having additional duty of Sickle cell anaemia cases. Besides online and offline entries are also additional works.

-CHO

We are getting a huge amount of data entered offline or online and other work as well. So, we need a few more people to distribute the workload.

-CHO

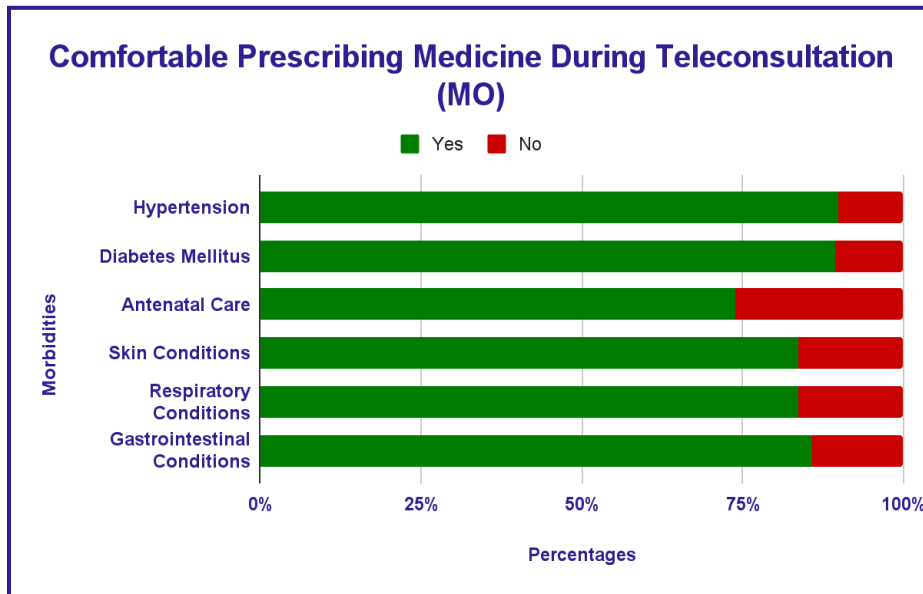
When patients are becoming more here than I am alone, I have to do the testing by myself, check the patients and do all the work.

-CHO

Key features of eSanjeevani

Prescribing Medicine over Teleconsultation (MOs)

Post-Implementation



Above 75% of MOs are comfortable in prescribing medications for hypertension, diabetes, skin, respiratory and gastrointestinal conditions. However, comfort levels with antenatal care prescription was found to be less when compared with other conditions.

The qualitative findings indicate that early screening for Non-Communicable Diseases (NCDs) like hypertension and diabetes is being effectively conducted.

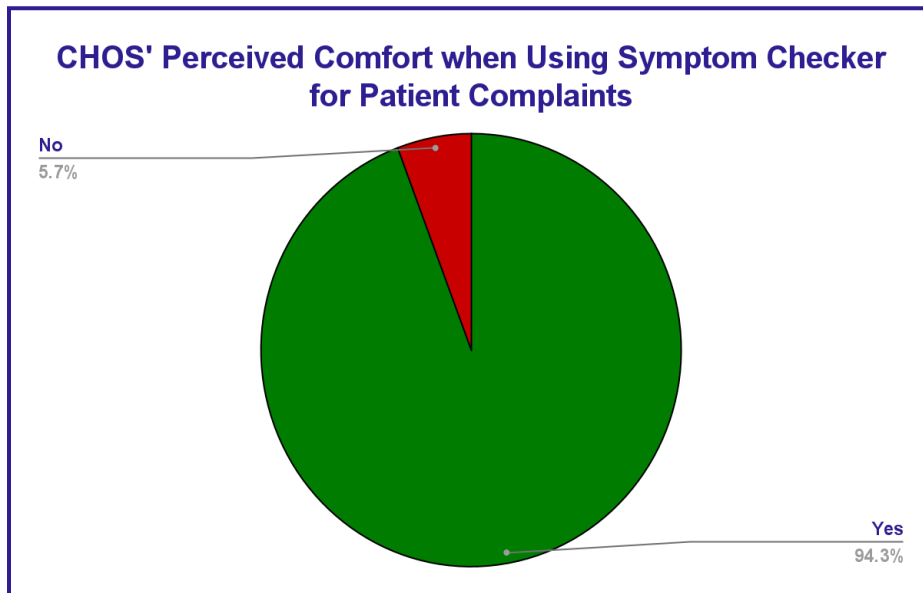
We know that people these days are prone to hypertension and diabetes at the age of 45-50. So, we are being able to do the early screening before to figure out if there are any symptoms or any chances of NCDs.

Besides, people believe the CHOs as they see them daily. Since the treatment is done through them, they trust the treatments.

-MO

Comfort and Usefulness with Symptom Checkers (CHOs)

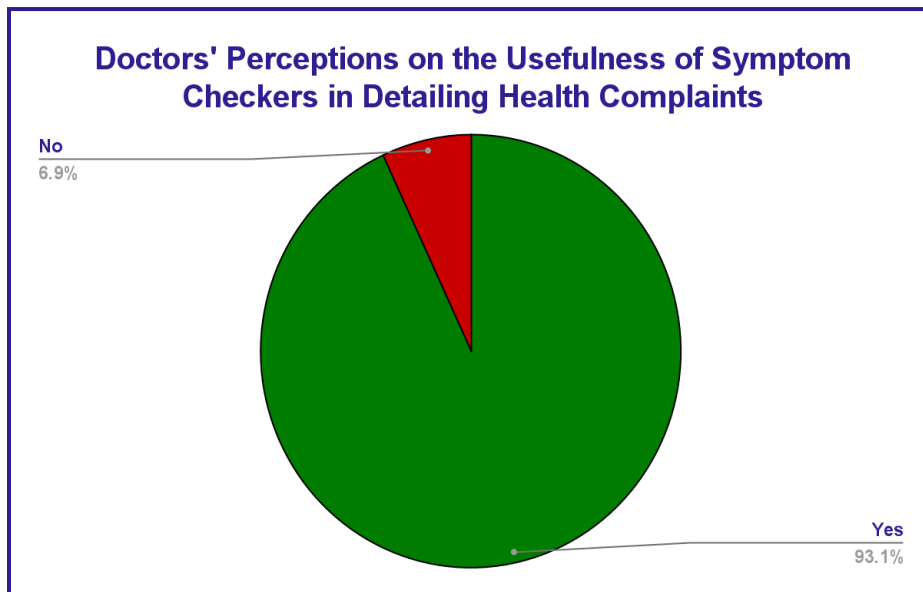
Post-Implementation



The majority of CHOs feel comfortable in using the symptom checker for patient's health complaints.

Comfort and Usefulness with Symptom Checkers (MOs)

Post-Implementation



Majority of MOs feel that the symptom checkers are useful in detailing patient's health complaints.

The qualitative insights shared by healthcare providers highlight the usefulness and challenges of the symptom checker.

Whoever is sending us the symptoms, they are writing everything in detail. So we are not facing any difficulty in symptom collection. I don't think any improvement is needed in this. The system at present is very good.

-MO

The symptom checker is advantageous in automatically displaying the most common symptoms for quick selection, but it lacks flexibility. Providers noted that in many cases, there are no options to add new or less common symptoms, as the application offers only limited choices.

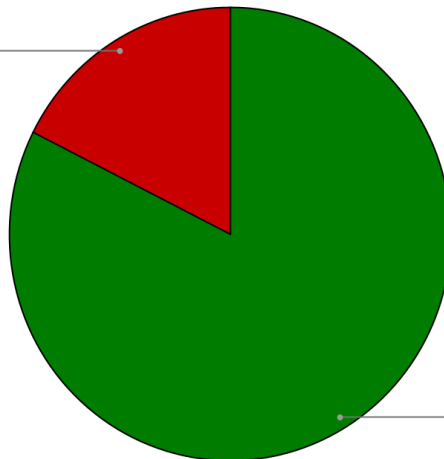
-MO

The new update is better. For example, we were not able to add vivid details about a screening. Let's say in the case of joint pain, earlier, we did not have a section for further details. However, in the new system, there are options for pain sites such as the joint, site, left or right etc. More work is required in the new system however, we can provide in-depth details that help in appropriate diagnosis and treatment.

-CHO

Doctors' Awareness of New Probable Diagnostic Feature

No
17.6%



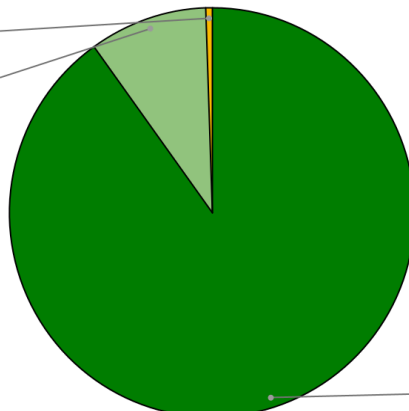
Yes
82.4%

82% of the MOs are aware about the newly introduced probable diagnostic feature in eSanjeevani.

Doctors' Perceptions on the Usefulness of New Probable Diagnostic Feature

Can't say
0.5%

Somewhat useful
9.4%



Useful
90.1%

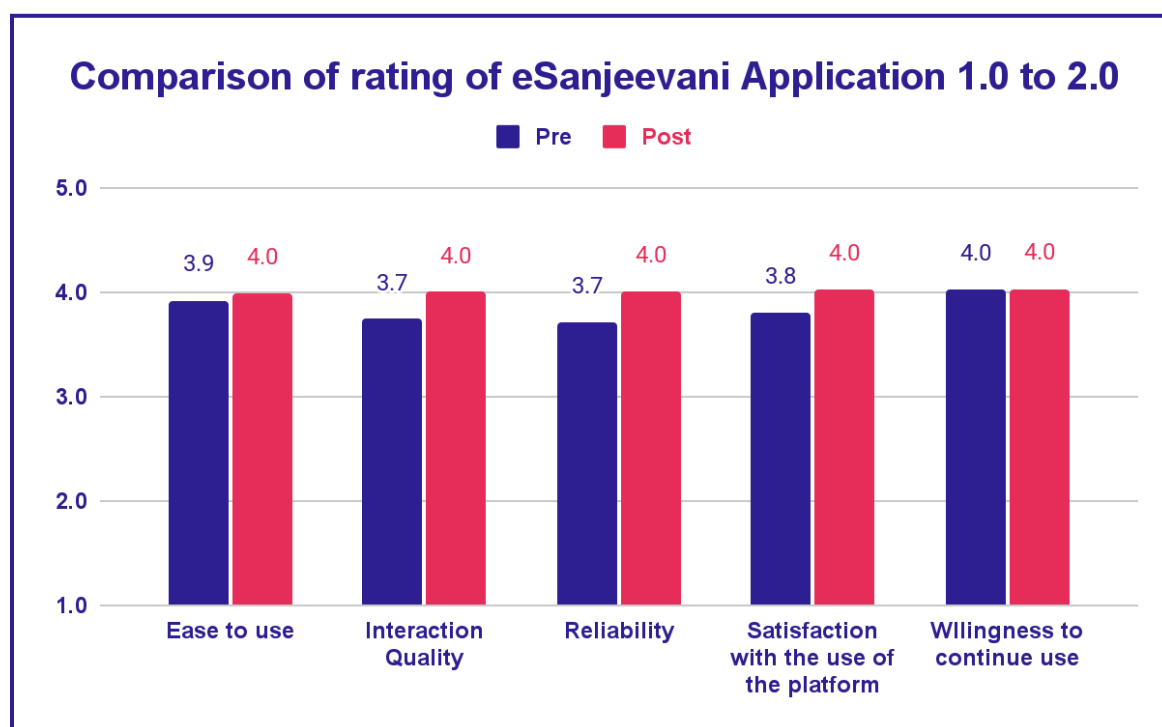
Majority of the MOs feel that newly introduced probable diagnostic feature in eSanjeevani is useful.

The qualitative findings underscore the importance of accurate diagnosis during seasonal outbreaks.

During summer, unsafe water consumption and mosquito breeding from coolers often lead to diarrhoea and dengue outbreaks. Local hospitals may misdiagnose these cases as routine fevers, resulting in ineffective treatment and worsening health conditions in patients. By utilising eSanjeevani for teleconsultations, healthcare providers approach these cases from a broader perspective...Additionally, field staff benefit by learning to differentiate cases.

-MO

Overall Rating of eSanjeevani Application



- Post-intervention ratings for ease of use, interaction quality, reliability, and satisfaction with the platform increased slightly among CHOs.
- Willingness to continue use remained consistently high post-intervention for both versions (1.0 and 2.0) of eSanjeevani.
- Post-intervention, MOs rated with a mean score of almost 4 in all aspects of the eSanjeevani application.

The qualitative findings indicate that the current system runs faster, significantly reducing patient wait times.

As it is running fast, patients don't have to wait for a long time now. Earlier 1.0 was running slow so patients had to wait for a long time.

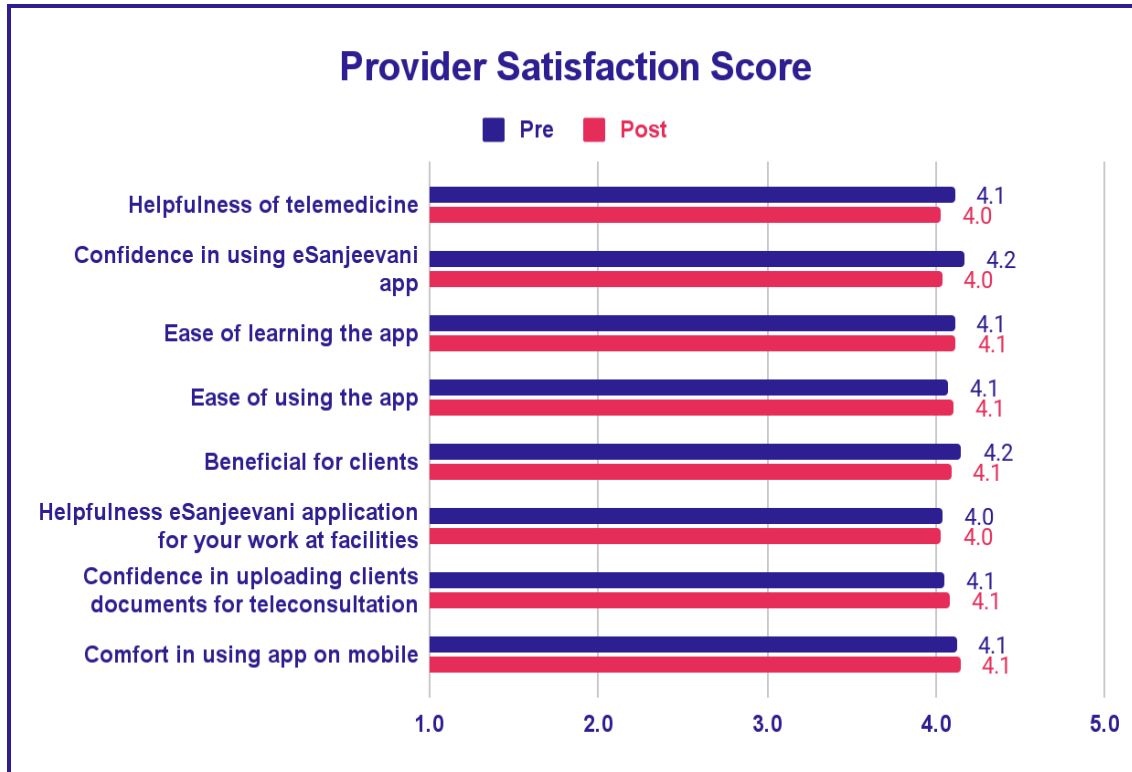
-CHO

70-80% satisfied. Patient management overall is useful. However, there is usually a delay in us getting the prescriptions. In some cases to complete the process faster, we get incomplete prescriptions.

-CHO

Provider Satisfaction Score

CHOs

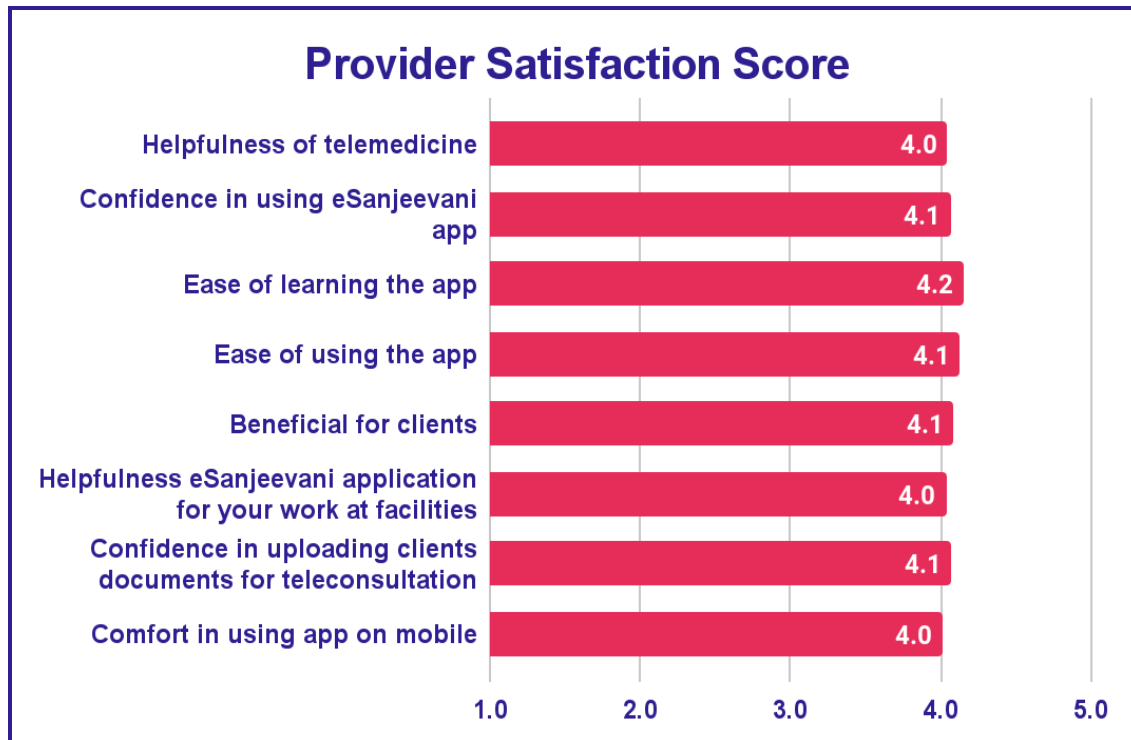


- Overall, the self-reported provider satisfaction scores have remained relatively stable pre and post implementation.
- Ease of learning and using eSanjeevani and confidence in uploading documents slightly increased.

MOs

Post-Implementation

Post-implementation, MOs rated with a mean score of above 4 in all aspects of the eSanjeevani application. Ease of learning and using the platform was higher than the other aspects.

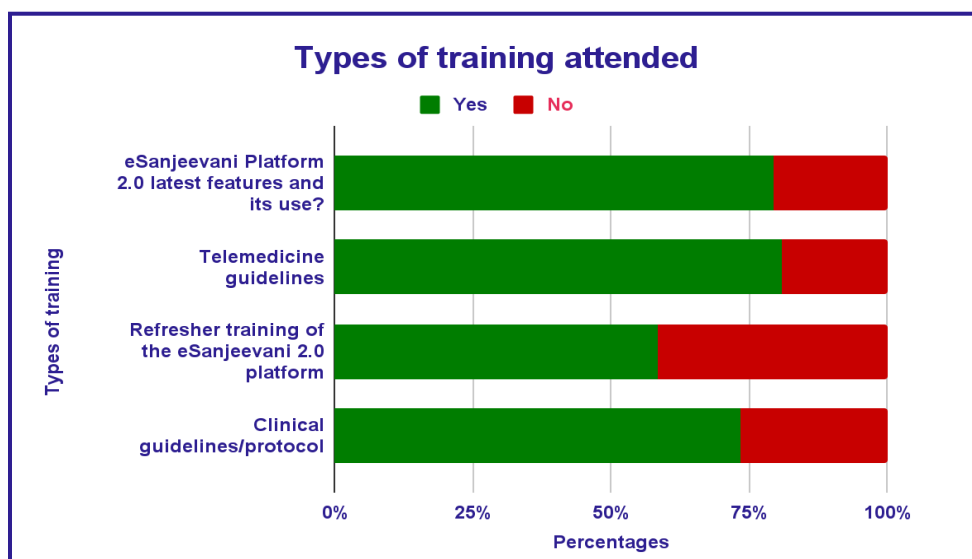


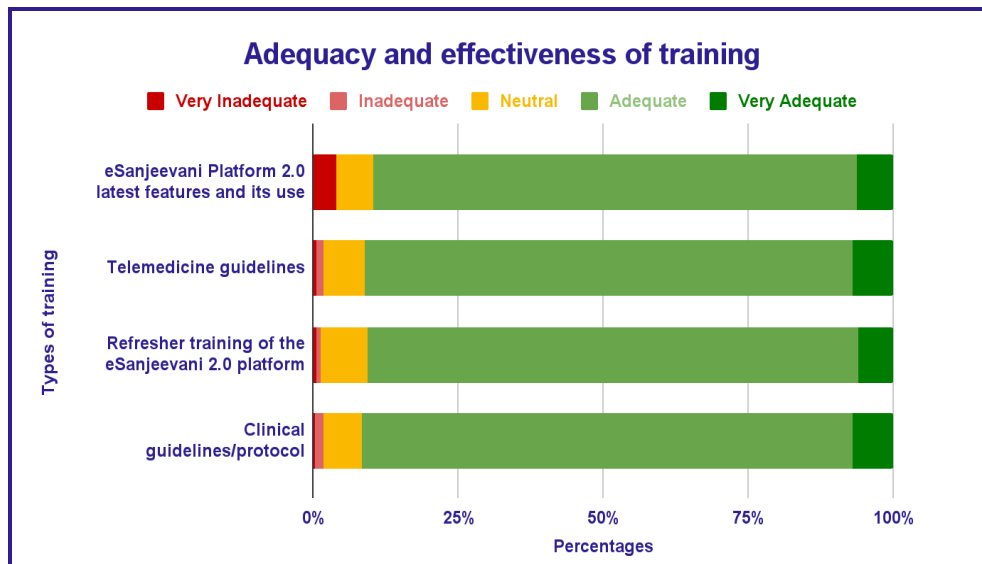
Training attended and its effectiveness

CHOs

Post-Implementation

Although healthcare providers attended training sessions for telemedicine guidelines (80.94%), eSanjeevani 2.0 features and usage (79.46%), and clinical guidelines/protocols (73.51%), many still need training in these areas. Overall, most providers found the training sessions adequate.

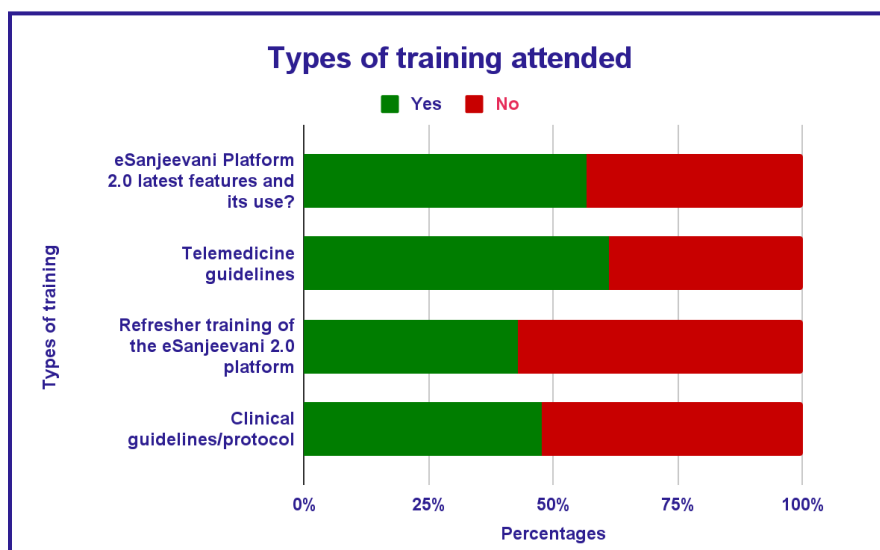


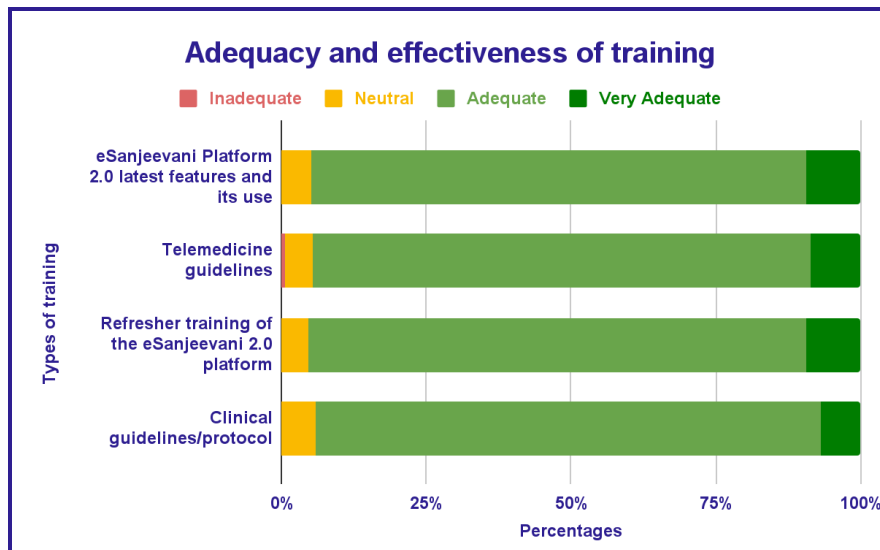


MOs

Post-Implementation

Although MOs attended training sessions for telemedicine guidelines (61.2%), eSanjeevani 2.0 features and usage (56.7%) and clinical guidelines/protocols (47.8%), a significant portion still need training in these areas. Overall, training sessions were found to be adequate by most providers.





The qualitative findings highlight that training is provided promptly upon joining, with additional sessions arranged whenever there are updates or issues.

We were provided with training as soon as we joined. Besides, whenever there is a new update or at times when we feel any issue, they arrange training from the district. In case of any doubts which are raised from the majority of the centres, they arrange training. They have also demonstrated to us of every operation that can be done using telemedicine such as call initiation, symptom entry, prescription generation etc. so, training has helped us a lot.

- MO

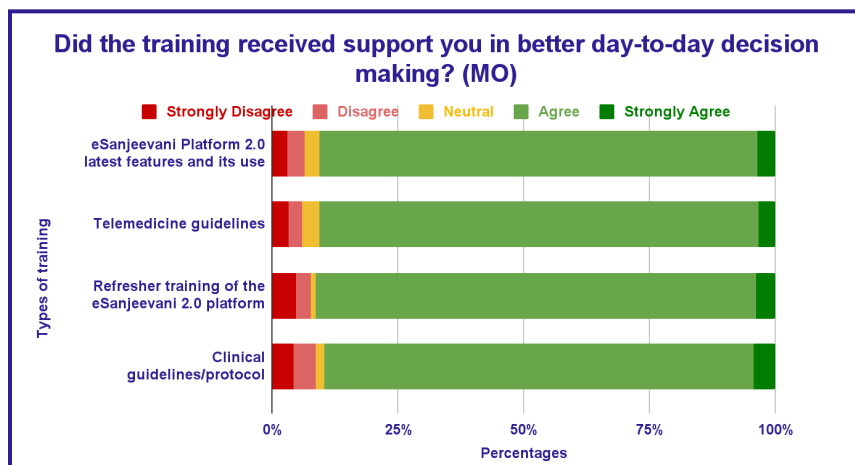
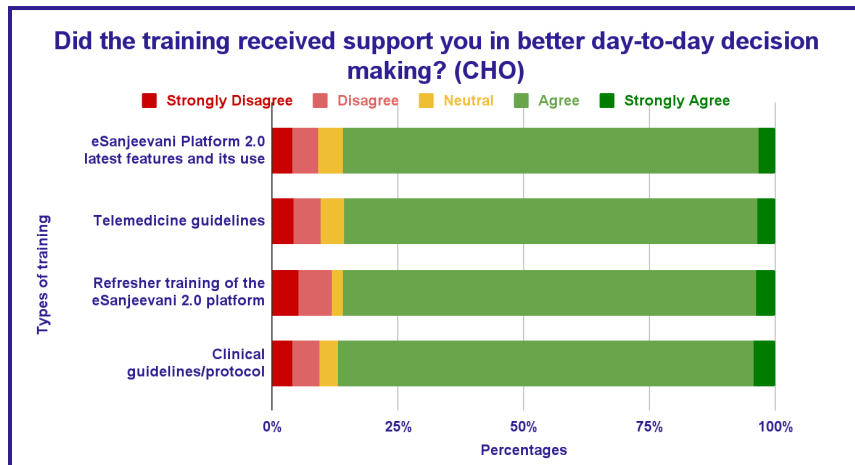
As of now, only one doctor is trained for telemedicine in a PHC. So, we are now focusing on training other staff such as ANMs and pharmacists so that they can attend telemedicine sessions in my absence. I am the only doctor in PHC. So, in case I remain absent, patients will get compromised through telemedicine. So, my plan as of now is to train the staffs and make them ready.

- MO

Enhances Capacity Building of Providers via Training

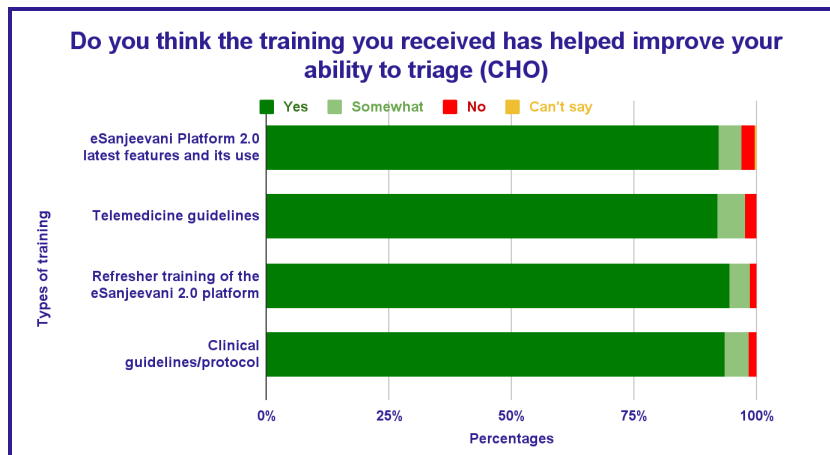
Supports in their day-to-day decision-making processes

Post-Implementation



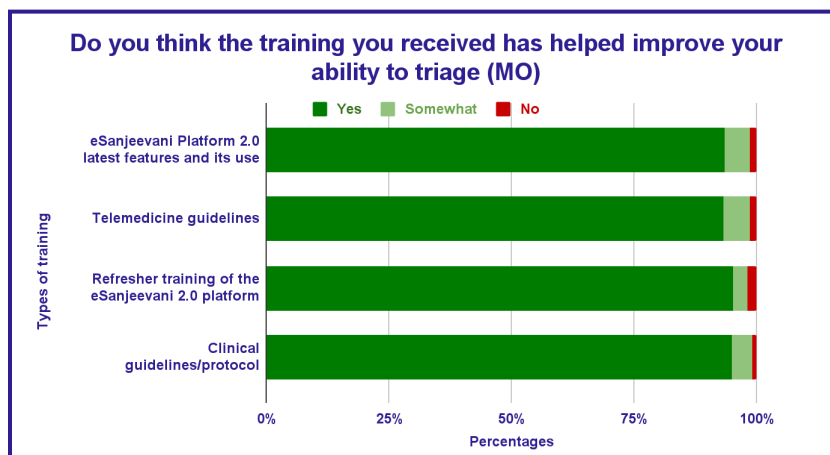
Approximately 85% of CHOs and MOs reported that they agree the training provided supports them in their day-to-day decision-making processes.

Enhanced their capacity to perform better triaging



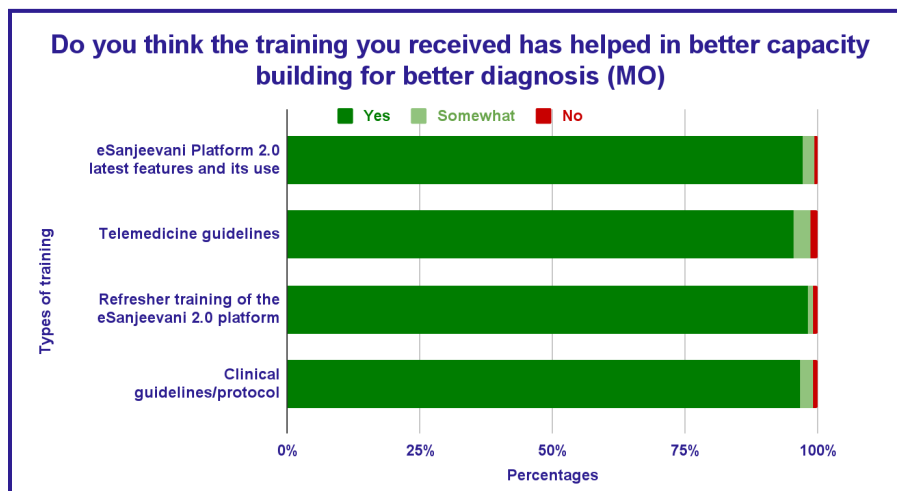
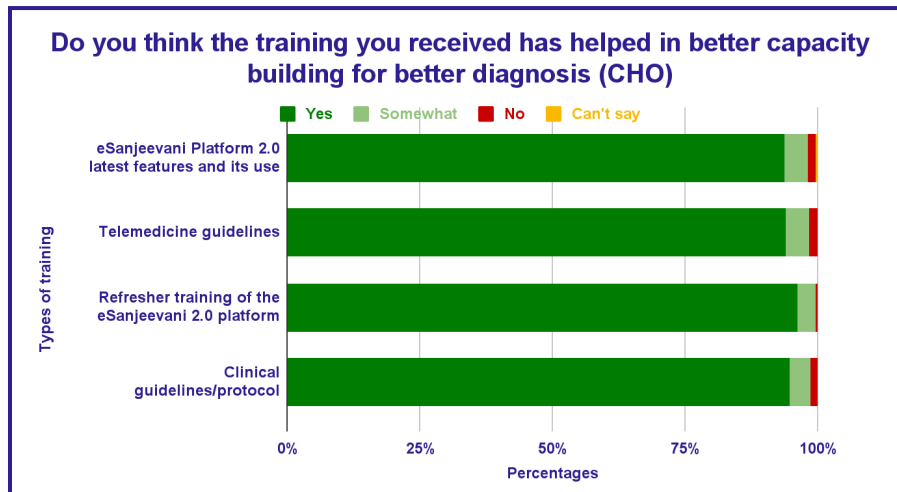
Post-Implementation

Approximately 93% of CHOs and MOs reported that their triaging skills have improved through capacity building training. However, there is still room for further enhancement.



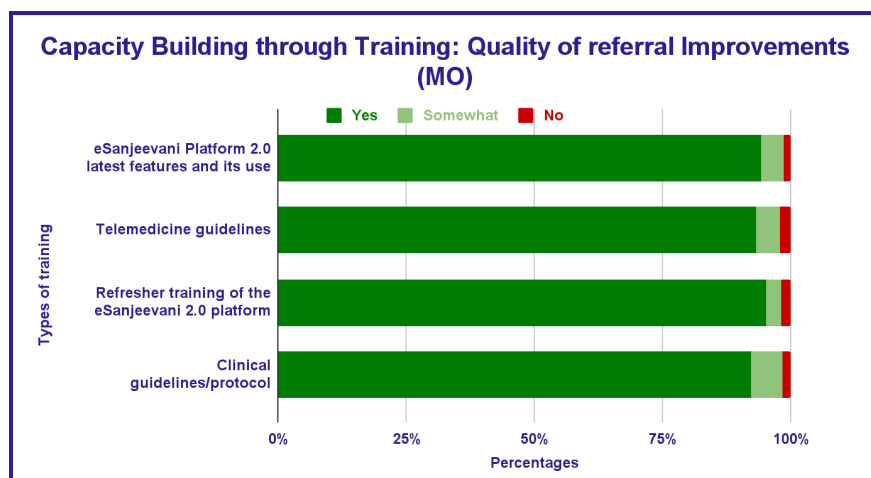
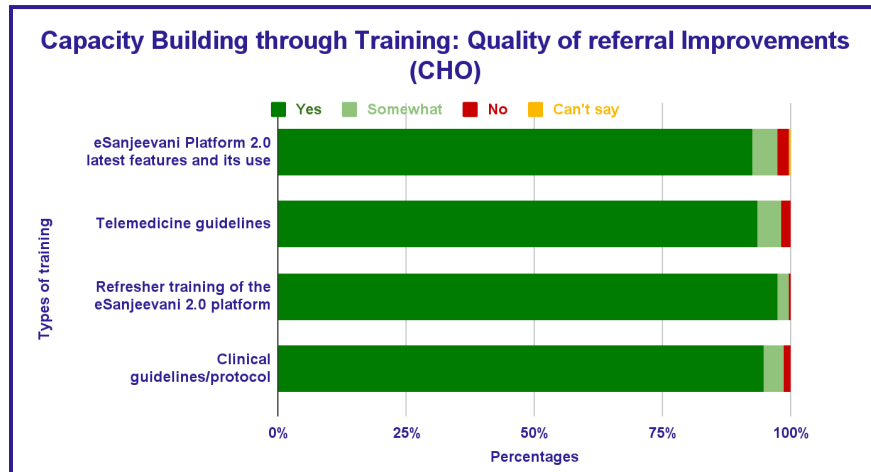
Improved their capacity for more accurate diagnosis

Post-Implementation



Approximately 94% of CHOs and 96% of MOs reported that their diagnosis have been improved through capacity building training.

Improved the quality of referrals made to higher-level care



Approximately 94% of CHOs and 93% of MOs reported that the quality of referrals has been improved through capacity-building training.

The qualitative findings highlight improved wound care management, enhancing referral decisions for non-healing ulcers in diabetic patients.

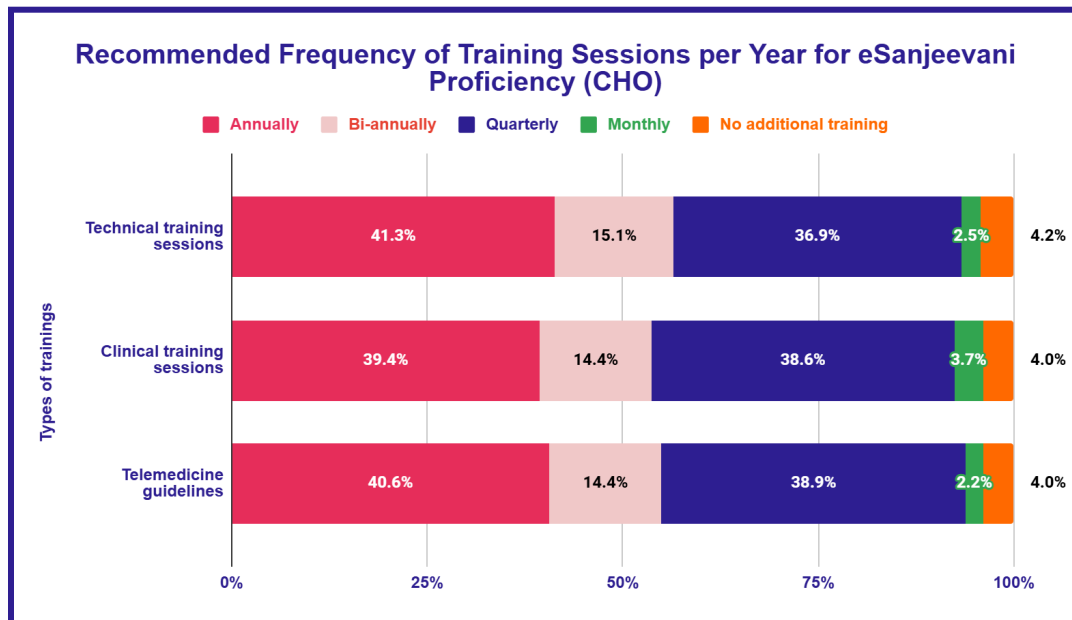
Dressings cannot be done frequently as the patients cannot travel frequently. So, in case of any confusion, we check through eSanjeevani whether the wound is healing or not, and if there is a need for referral for non-healing ulcer wounds. Quality of referral has increased as we now can decide which cases to be referred and which not.

- MO

Recommended frequency for training

CHOs

Post-Implementation

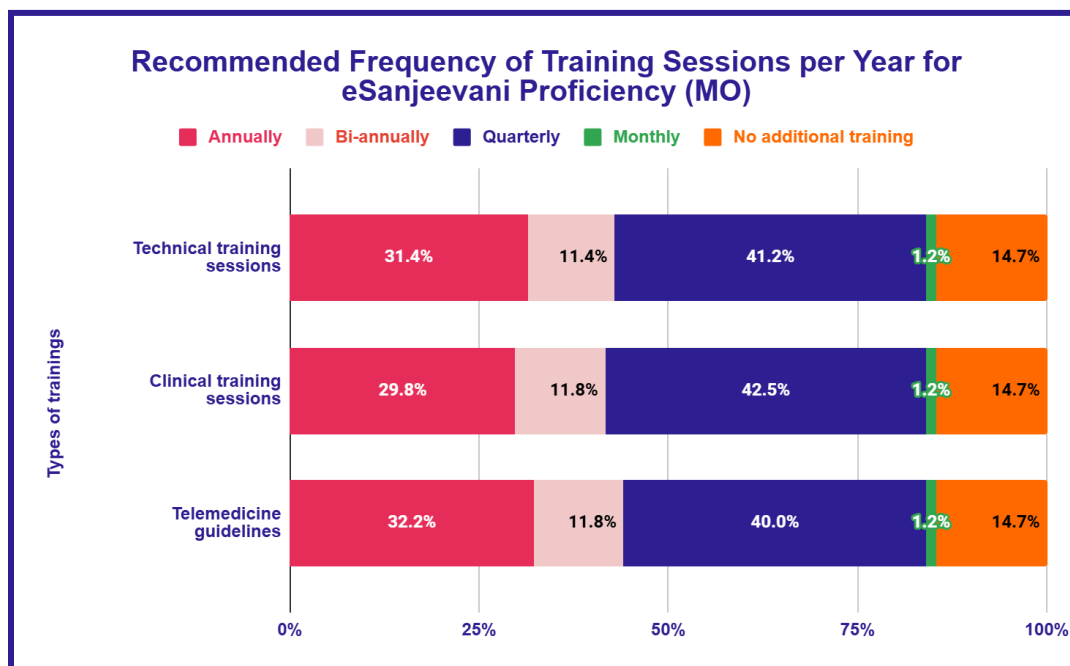


Across all three types of training approx 37-39% of providers would prefer quarterly training sessions, 39-41% annual and approximately 15% biannual and 4% felt they required no additional training.

MOs

Post-Implementation

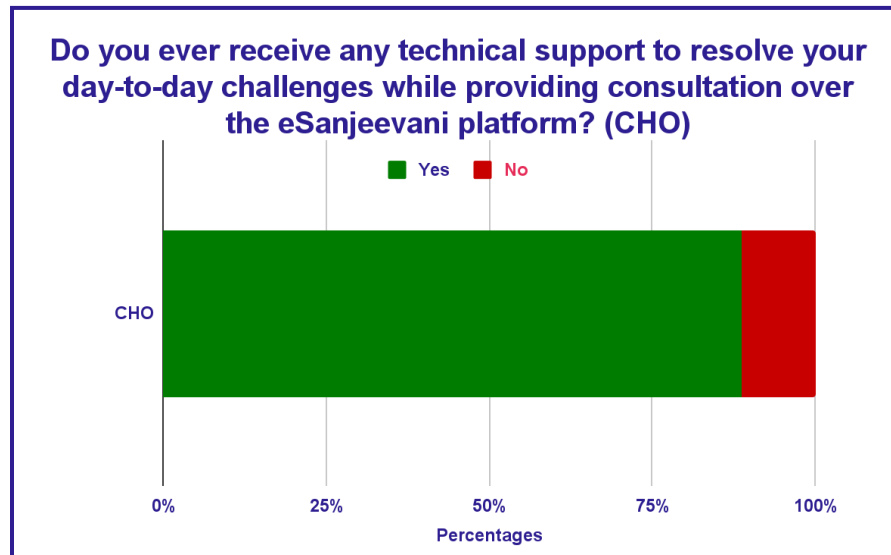
Across all three types of training approx 40% of providers would prefer quarterly training sessions, 30% annual and 11% biannual and 15% felt they required no additional training.



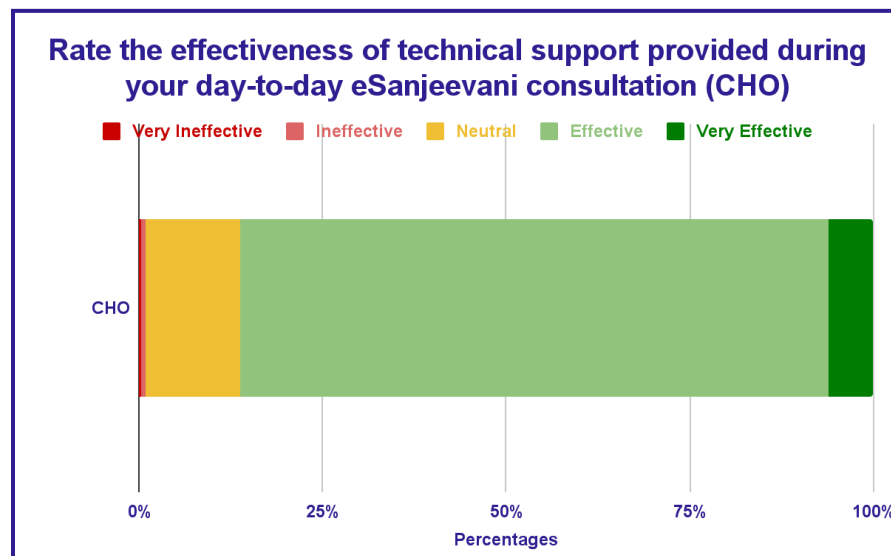
Required technical support and its effectiveness

CHOs

Post-Implementation



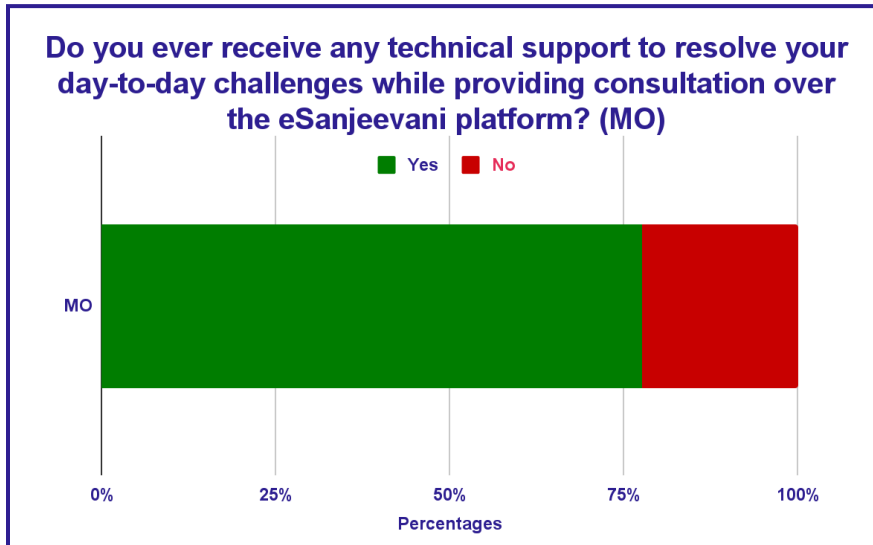
Around 85% of the CHOs received appropriate technical support on time. However, some healthcare providers still require additional assistance to ensure they receive adequate support.



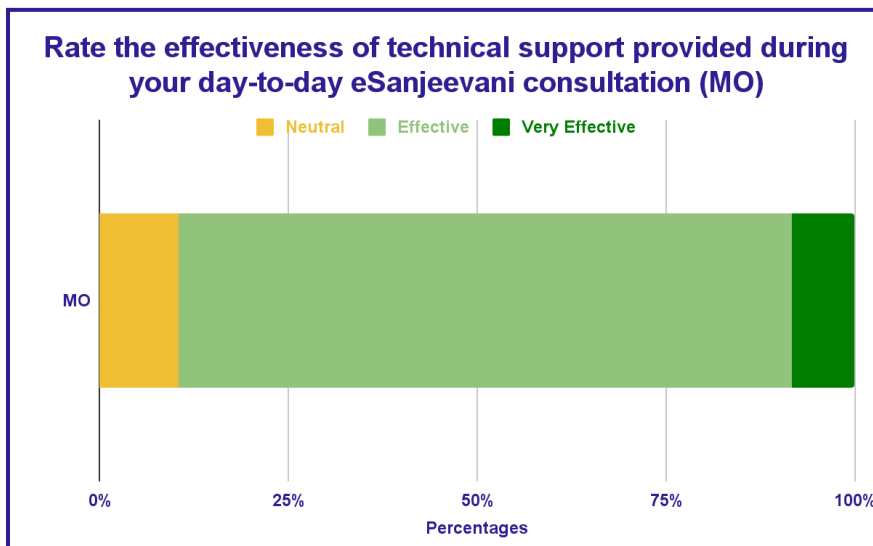
Around 86% of the CHOs have found the technical support effective.

MOs

Post-Implementation



Over 75% of the healthcare providers have received technical support to resolve your day-to-day challenges while providing teleconsultations. Some healthcare providers still require additional assistance to ensure they receive adequate support.



80% of the healthcare providers have found the technical support effective.

The qualitative findings reveal that technical support is readily available and effective in resolving issues.

We get help from BDM sir, CHC. They resolve the technical issue immediately and in case of complicated issues, it takes times.

-CHO

Suppose if any error arises during consultation then we have a system for that. We are sending the history of error to them and after looking at that they are resolving it.

-MO

Summary

SWOT Analysis

S

STRENGTH

- **Availability of Infrastructure-** The availability of necessary infrastructure like electricity, power backup and water supply has seen a significant improvement due to initiatives taken during the post-implementation.
- **Availability of Equipment-** Compared to the pre-implementation, there has been a significant improvement in the availability of equipment like laptops, mobiles, and printers across all facilities in post-implementation.
- **Internet connectivity-** A significant improvement has been observed in using devices provided by the state governments. There has been a substantial increase in the usage of wifi rather than using own mobile hotspots.
- **Bookkeeping, Drug Record Update-** An improved bookkeeping practice, drug record update, and medicine management have been observed. Medicine has also been restocked within 2-3 days after placing the request.
- **Ratings of eSanjeevani Application-** Post-intervention ratings for ease of use, interaction quality, reliability, and satisfaction with the platform increased slightly among CHOs and the MOs. Willingness to continue use remained consistently high.
- **Provider Satisfaction Score-** Overall, the self-reported CHO satisfaction scores have remained relatively stable. Post-intervention, MOs and CHOs rated with a mean score of above 4 in all aspects of the application. The ease of learning and using the platform was higher than the other aspects.
- **Comfort and Usefulness with Symptom Checkers-** Most CHOs are comfortable using symptom checkers for patient health complaints, and most MOs find symptom checkers useful for detailing patient health complaints.
- **Awareness and Usefulness of Probable Diagnostic Feature (MOs)-** Four-fifths of the MOs are aware, and find it is useful.

W

WEAKNESS

- **Internet connectivity:** There is a slight reduction in the self-reported rate of good internet connectivity in the compared baseline facilities and needs further attention to improve internet connectivity in such facilities .
- **Maintenance of Drugs:** Around 50% of facilities take a week or more to fulfil their medication requests which can affect the treatment of patients over telemedicine.
- **Training and Capacity Building:** More than 50% of facilities have received their training session before 6 months. There is need for re-fresher trainings on an ongoing basis for keeping the providers updated on latest features in eSanjeevani, strengthening quality of services and strengthening rationale use of telemedicine.
- **Audio and Video Calls of eSanjeevani:** There is still a lag in connecting through video or audio calls. It has been observed that around 20% of facilities reported that patients receive direct prescriptions without audio and video consultation. There is need to issue guidelines and standard operating procedures for doing teleconsultations for across all cadres including the CHOs and Doctors.
- **Patient Footfall:** Monthly OPD average footfall increased for PHC (904 to 1037) and slightly decreased for SC-HWC (237 to 227). However, monthly teleconsultations' average footfall has decreased for a PHC (70 to 21), and for SC-HWC (84 to 26). More efforts are needed to increase the operationality of the hubs and spokes to increase and redistribute teleconsultation traffic.
- **Telemedicine Acceptance-** There is a room for more substantial improvement in telemedicine acceptance which is also supported by qualitative findings with technical, doctor availability issues. MOs have a lower intention-to-use score compared to CHOs.
- **Perceptions of eSanjeevani-** There is a significant disparity between MOs and CHOs with only fewer than 50% acknowledge these benefits, indicating a perception gap.
- **Technical support-** Despite three quarter of the healthcare providers have received technical support, some healthcare providers still require additional assistance to ensure they receive adequate support

O

OPPORTUNITIES

- **Management of Health Conditions and Facility Preparedness-** As reported by facility managers, around 90% of the facilities report that the facilities are prepared to handle common illnesses and NCD management. Over half of the facilities are prepared to manage critical illnesses. This provides a greater opportunity of integrating eSanjeevani services with 12 CHPC service package thus improving the rationale use of eSanjeevani.
- **Smooth Integration of eSanjeevani-** Ease of connection with doctors has been significantly improved post-implementation as reported by the facility incharge. However, there has been a scope of improvement regarding the availability of doctors.
- **Patient Follow-Up-** There has been a substantial reduction in asking patients to return due to long waiting times. However, half of the facilities reported that only 10-50% of the patients come for follow-up visits.
- **Telemedicine Acceptance-** For MOs, PU and PEU significantly predict high intention to use (IU). For CHOs, PEU consistently predicted high intention to use (IU). Post-implementation, Attitude also became a significant predictor, reflecting improved understanding from exposure and training. Infrastructure improvements reduced the initial barriers of facilitators.
- **NCD management over Telemedicine-** Above three-fourths of MOs are comfortable in prescribing medications for hypertension, DM, skin, respiratory and gastrointestinal conditions.
- **Recommended frequency for training (MO)-** The majority of respondents recommend quarterly training sessions followed by annual training for sessions on technical, clinical, and telemedicine guidelines.

T

THREATS

- **Training** - Despite eSanjeevani 2.0 was the most highly attended training session, a significant portion (38 -57%), did not attend the training sessions on eSanjeevani, clinical protocols, and guidelines.
- **Difficulty in suspecting health complaints-** Approximately one-fourth of both MOs and CHOs report challenges faced by CHOs in suspecting health complaints.
- **Difficulty in expressing health issues-** Around 30% of both CHOs and MOs believe clients encounter difficulties in expressing health issues.

Recommendations

Infrastructure Enhancement

- **Strengthening Internet Connectivity for quality teleconsultations:** Additional efforts are required to ensure consistent and reliable internet connectivity across the facilities. There is a need to upgrade IT Infrastructure to ensure that all health facilities are equipped with reliable high-speed internet connectivity, adequate power backup, and necessary hardware (e.g., computers, webcams, microphones). This will minimize technical disruptions during teleconsultations and ensure smooth operations.
- **Infrastructure and staffing** - There is a need to upgrade infrastructure by introducing private rooms and staffing at the CHO level to support expanded telemedicine capabilities.
- **Waiting Time:** Despite efforts to reduce waiting times, over 30% of patients are still asked to return due to long waits, with average daily footfall being only 1-2 patients per day. Facility-level planning and arrangements are necessary to minimise patient dropouts. There is need for expansion of telemedicine Hubs by Increasing the number of telemedicine hubs in underserved and remote areas to reduce the burden on existing hubs, timely quality teleconsultations and improve accessibility for patients in distant locations. The feasibility of public private partnerships model for establishing HUBs needs to be explored.

Medications: There is a further need to improve efficiency in fulfilling medicine requests on time since nearly half of the facilities are taking one week or beyond to refill the medicine.

Capacity Building and Training

- **Training:** Refresher training is needed to enhance the capacity of current facilities for successful telemedicine consultations on eSanjeevani, focusing on the latest features and usage. Reducing the gap between spoke and hub will further improve efficiency. Quarterly sessions covering technical, clinical, and telemedicine guidelines are recommended by the majority of MOs.
- Implement continuous professional development programs for healthcare providers to keep them updated on the latest telemedicine practices, protocols, and ethical guidelines.
- There is need to develop and disseminate clear SOPs for telemedicine consultations, including guidelines for handling different medical conditions, managing emergencies, and ensuring data security.

Integrating NCD management in eSanjeevani telemedicine services.

- **NCD Management:** There is high potential in integrating NCD services through the eSanjeevani national telemedicine services, bu integrating the first consultations, follow up consultations, titration of medication etc over the telemedicine. There is need to do pilot to assess the scope of delivering NCD services through telemedicine and generate evidence for scale up.

Awareness and Community Engagement

- Launch state-wide awareness campaigns to educate the public on the availability and benefits of telemedicine services. Highlight the convenience, safety, and cost-effectiveness of using eSanjeevani, especially in rural and remote areas.
- Engage community health workers (ASHA workers, ANMs) in promoting telemedicine services. Train them to assist patients in accessing the service and understanding the process.

- Patient-Centric Communication: Ensure that communication materials are available in local languages and are culturally sensitive. This will help in better patient engagement and utilization of telemedicine services.

Service Quality Improvement

- Standardized Quality Assurance Processes: Implement standardized quality assurance processes to ensure consistency in the quality of telemedicine consultations across all facilities.
- Patient Follow-Up and Continuity of Care: Develop mechanisms for patient follow-up to ensure continuity of care, particularly for chronic conditions and post-treatment monitoring.
- Conduct periodic audits of telemedicine services to assess the performance of healthcare providers, patient satisfaction, and overall system efficiency. Use these audits to identify areas for improvement and best practices.
- Leverage data collected from telemedicine sessions to analyze trends, patient outcomes, and service utilization. This data should inform policy decisions and resource allocation to optimize the telemedicine service.
- Feedback Mechanisms: Implement robust feedback mechanisms to collect inputs from patients and healthcare providers on their experiences with the eSanjeevani platform. Use this feedback to continuously improve the service.

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Annexure

Table A1.1: Baseline essential drugs' availability across various districts

District	No. of Facilities	Amlodipine	Atenolol	Enalapril	Telmisartan	Isosorbide	Clopidogrel	Furosemide	Hydrochlorothiazide	Spironolactone	Glimepiride	Insulin	Metformin	Carbamazepine	Diazepam	Phenobarbitone	Oral Phenytoin	Injectable Phenytoin	Sodium Valproate	Oral Salbutamol	Inhalational Salbutamol	Anti-TB	Anti-Leprosy	% Medicines available
Balangir	5	80%	80%	20%	20%	60%	0%	60%	40%	20%	60%	60%	40%	40%	20%	20%	80%	80%	20%	80%	20%	20%	60%	45%
Balasore	15	100%	60%	87%	73%	40%	47%	47%	7%	7%	60%	40%	67%	27%	13%	20%	7%	0%	0%	67%	53%	13%	0%	38%
Boudh	5	60%	60%	20%	80%	0%	0%	20%	60%	0%	40%	40%	40%	40%	20%	20%	20%	40%	20%	40%	60%	20%	80%	35%
Cuttack	3	100%	33%	100%	67%	100%	67%	100%	100%	100%	100%	100%	100%	100%	67%	100%	100%	100%	100%	100%	100%	67%	33%	88%
Dhenkanal	4	100%	50%	75%	100%	0%	25%	50%	75%	25%	75%	50%	50%	25%	0%	0%	50%	25%	75%	75%	75%	50%	50%	50%
Gajapati	5	40%	80%	40%	0%	0%	20%	40%	20%	20%	40%	80%	20%	20%	20%	60%	60%	40%	40%	60%	20%	40%	40%	36%
Ganjam	76	92%	58%	26%	42%	20%	14%	33%	26%	24%	58%	36%	45%	29%	16%	28%	28%	18%	22%	57%	36%	50%	43%	36%
Jagatsinghpur	4	75%	75%	25%	25%	50%	25%	50%	25%	50%	100%	0%	50%	25%	50%	25%	25%	0%	0%	75%	50%	25%	25%	39%
Jajapur	11	91%	45%	18%	82%	18%	9%	36%	18%	9%	55%	36%	64%	27%	36%	45%	18%	0%	18%	55%	18%	27%	27%	34%
Jharsuguda	4	100%	100%	0%	100%	0%	0%	0%	0%	0%	75%	0%	75%	0%	0%	0%	0%	0%	0%	50%	0%	25%	0%	24%
Kalahandi	29	62%	45%	3%	83%	7%	3%	14%	7%	0%	59%	7%	69%	0%	7%	7%	10%	7%	7%	21%	10%	21%	21%	21%
Kandhamal	11	100%	45%	27%	64%	27%	18%	27%	18%	9%	73%	45%	73%	9%	27%	18%	18%	18%	9%	55%	45%	36%	18%	36%
Kendrapara	6	83%	83%	17%	67%	17%	0%	17%	17%	0%	67%	17%	50%	17%	0%	0%	17%	0%	0%	33%	17%	17%	0%	24%
Kendujhar	32	100%	47%	16%	63%	25%	9%	9%	13%	16%	31%	22%	38%	6%	6%	9%	9%	3%	22%	31%	38%	38%	28%	26%
Khordha	33	85%	42%	3%	55%	24%	9%	18%	15%	24%	70%	18%	61%	9%	6%	9%	9%	3%	6%	45%	15%	21%	21%	26%
Koraput	12	83%	58%	25%	83%	8%	17%	42%	33%	17%	75%	25%	50%	17%	17%	25%	25%	8%	33%	67%	50%	17%	25%	36%
Malkangiri	6	100%	50%	83%	17%	50%	67%	83%	50%	50%	100%	83%	83%	83%	17%	83%	100%	50%	83%	83%	100%	17%	83%	69%
Mayurbhanj	59	98%	39%	15%	83%	7%	12%	29%	17%	7%	61%	17%	68%	10%	7%	7%	5%	7%	10%	68%	20%	41%	22%	30%
Nabarangapur	7	100%	43%	0%	29%	0%	0%	0%	14%	14%	71%	14%	43%	0%	0%	0%	0%	0%	0%	29%	14%	14%	14%	18%
Nuapada	9	78%	56%	33%	56%	44%	11%	33%	0%	0%	56%	22%	44%	33%	0%	11%	33%	11%	0%	67%	0%	11%	11%	28%
Puri	48	98%	67%	27%	63%	17%	15%	27%	25%	21%	81%	31%	90%	13%	25%	25%	17%	23%	19%	40%	44%	35%	31%	38%
Rayagada	7	57%	43%	86%	14%	29%	14%	43%	14%	71%	29%	71%	0%	71%	14%	57%	43%	43%	29%	86%	43%	43%	43%	43%
Sambalpur	29	83%	59%	10%	59%	3%	7%	14%	10%	7%	52%	17%	69%	7%	3%	14%	14%	14%	3%	21%	17%	48%	34%	26%
Sonapur	52	75%	69%	38%	67%	42%	23%	38%	31%	37%	75%	40%	79%	27%	15%	42%	60%	35%	37%	65%	58%	19%	29%	46%
Sundargarh	15	93%	80%	13%	73%	13%	7%	27%	7%	7%	80%	13%	87%	13%	13%	20%	33%	20%	20%	60%	13%	47%	33%	35%
Grand Total	487	88%	56%	25%	62%	21%	14%	29%	21%	18%	63%	29%	62%	19%	13%	22%	24%	16%	18%	52%	33%	33%	30%	34%

Table A1.2: Midline essential drugs' availability across various districts

District	No. of Facilities	Amlodipine	Atenolol	Enalapril	Telmisartan	Isosorbide	Clopidogrel	Furosemide	Hydrochlorothiazide	Spirolactone	Glimepiride	Insulin	Metformin	Carbamazepine	Diazepam	Phenobarbitone	Oral Phenytoin	Injectable Phenytoin	Sodium Valproate	Oral Salbutamol	Inhalational Salbutamol	Anti TB	Anti-Leprosy	% Medicines available
Angul	8	100%	100%	88%	100%	63%	38%	75%	63%	63%	100%	13%	88%	63%	50%	63%	63%	63%	75%	88%	50%	75%	25%	68%
Balangir	5	100%	60%	0%	100%	20%	20%	20%	0%	0%	100%	0%	60%	20%	0%	0%	20%	0%	0%	80%	60%	40%	20%	33%
Balasore	21	90%	57%	57%	100%	14%	19%	33%	10%	14%	90%	19%	100%	10%	10%	14%	14%	10%	10%	90%	48%	24%	14%	39%
Bargarh	5	100%	80%	80%	100%	60%	40%	80%	40%	0%	100%	40%	100%	40%	40%	60%	60%	20%	60%	100%	80%	60%	60%	64%
Bhadrak	6	50%	50%	17%	100%	0%	17%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	0%	50%	17%	33%	0%	24%
Boudh	6	83%	50%	33%	83%	17%	0%	50%	0%	0%	67%	17%	83%	17%	0%	0%	0%	0%	33%	67%	33%	50%	50%	33%
Cuttack	9	56%	78%	67%	100%	33%	56%	33%	22%	22%	78%	44%	100%	22%	33%	33%	33%	22%	44%	33%	44%	11%	11%	44%
Deogarh	3	100%	100%	67%	100%	67%	67%	33%	33%	67%	100%	33%	100%	33%	0%	33%	67%	33%	67%	67%	67%	33%	33%	59%
Dhenkanal	5	100%	60%	40%	100%	0%	40%	60%	20%	0%	100%	20%	100%	0%	20%	20%	40%	20%	20%	100%	40%	20%	0%	42%
Gajapati	6	67%	100%	33%	100%	50%	50%	67%	50%	50%	83%	33%	100%	50%	50%	33%	83%	83%	100%	83%	83%	33%	33%	64%
Ganjam	55	89%	67%	31%	87%	16%	20%	40%	16%	16%	93%	33%	85%	27%	20%	31%	27%	13%	22%	85%	40%	71%	29%	44%
Jagatsinghpur	6	83%	83%	17%	83%	17%	17%	33%	33%	17%	100%	67%	100%	17%	17%	17%	17%	17%	0%	83%	83%	33%	17%	43%
Jajpur	7	100%	29%	14%	86%	14%	0%	14%	0%	14%	100%	14%	100%	14%	0%	14%	14%	14%	0%	86%	57%	0%	0%	31%
Jharsuguda	3	100%	100%	0%	100%	33%	0%	33%	0%	0%	100%	0%	100%	0%	0%	0%	33%	0%	0%	100%	0%	33%	33%	35%
Kalahandi	27	74%	44%	37%	85%	30%	33%	48%	37%	11%	70%	44%	78%	26%	7%	15%	26%	22%	26%	59%	37%	15%	19%	38%
Kandhamal	9	78%	67%	67%	78%	44%	33%	78%	33%	44%	89%	44%	78%	44%	44%	44%	56%	56%	22%	67%	67%	22%	0%	53%
Kendrapara	5	80%	80%	40%	100%	20%	20%	20%	20%	20%	100%	20%	100%	0%	0%	0%	0%	0%	40%	100%	20%	0%	0%	35%
Kendujhar	27	85%	70%	26%	96%	11%	4%	37%	15%	0%	85%	4%	78%	0%	7%	0%	4%	4%	4%	78%	19%	4%	4%	29%
Khordha	22	91%	55%	14%	82%	18%	9%	18%	5%	18%	100%	23%	68%	18%	18%	9%	14%	9%	14%	73%	36%	18%	9%	33%
Koraput	11	100%	91%	73%	100%	27%	27%	73%	36%	9%	100%	18%	91%	18%	9%	27%	36%	36%	45%	91%	91%	9%	9%	51%
Malkangiri	5	40%	60%	60%	100%	40%	20%	40%	20%	40%	60%	40%	100%	60%	40%	0%	60%	60%	60%	60%	60%	20%	20%	48%
Mayurbhanj	22	95%	77%	27%	91%	5%	14%	23%	9%	0%	77%	0%	73%	0%	0%	5%	5%	0%	0%	73%	23%	14%	5%	28%
Nabarangpur	7	100%	43%	57%	86%	29%	43%	57%	43%	29%	86%	43%	100%	57%	14%	29%	14%	29%	71%	100%	86%	57%	43%	55%
Nayagarh	6	100%	83%	33%	100%	17%	17%	17%	0%	17%	83%	33%	67%	0%	0%	0%	0%	0%	0%	67%	67%	33%	0%	33%
Nuapada	9	78%	44%	11%	78%	11%	11%	44%	11%	0%	100%	11%	78%	0%	0%	0%	0%	0%	0%	56%	11%	11%	0%	25%
Puri	38	92%	66%	37%	82%	29%	26%	45%	26%	26%	87%	32%	82%	18%	24%	18%	32%	21%	26%	79%	58%	37%	24%	44%
Rayagada	2	100%	50%	50%	100%	100%	50%	50%	50%	50%	50%	50%	100%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	59%
Sambalpur	27	89%	96%	52%	81%	56%	22%	59%	37%	26%	81%	52%	59%	37%	37%	56%	56%	33%	48%	70%	41%	48%	56%	54%

District	No. of Facilities	Amlodipine	Atenolol	Enalapril	Telmisartan	Isosorbide	Clopidogrel	Furosemide	Hydrochlorothiazide	Spirolactone	Glimepiride	Insulin	Metformin	Carbamazepine	Diazepam	Phenobarbitone	Oral Phenytoin	Injectable Phenytoin	Sodium Valproate	Oral Salbutamol	Inhalational Salbutamol	Anti TB	Anti-Leprosy	% Medicines available
Sonepur	29	83%	76%	17%	90%	28%	36%	41%	25%	14%	97%	31%	93%	21%	18%	28%	21%	17%	21%	72%	62%	46%	39%	44%
Sundargarh	14	93%	79%	50%	71%	36%	21%	43%	29%	7%	71%	29%	64%	14%	7%	0%	14%	0%	7%	57%	21%	36%	14%	35%
Grand Total	405	87%	69%	37%	89%	26%	23%	42%	22%	17%	88%	28%	83%	21%	17%	21%	25%	18%	24%	76%	45%	34%	21%	41%

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