KEY INTERVENTIONS

PROJECT VISHWAAS

BREATH OF HOPE

Setting the global benchmark for quality management of tackling childhood pneumonia in India

Philips Foundation | PHILIPS | ZMQ Technology for Development | Save the Children

SBANS
सॉंस
निमोनिया नहीं, तो बचपन सही
Save the Children
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Philips Foundation

The Philips Foundation help develop low-cost, easily accessible solutions that provide access to care for under-served /underprivileged communities. Together with partners from selected non-governmental and governmental organizations, as well as with social entrepreneurs, the foundation aims to drive system change, resulting in measurable social impact. The Foundation benefits from Royal Philips' expertise and knowledge and resources.

PHILIPS

Philips India through its Corporate Social Responsibility is committed to improve access to care for the vulnerable and underserved communities. The aim is to ensure that these communities derive the maximum benefits through our interventions, which are implemented in collaboration with multiple NGO partners and stakeholders across different states in India.

ZMQ
Technology for Development

ZMQ is a non-profit organization which creates and implements practical technology linked tools & solutions to empower communities by providing timely information and connecting them with life-saving services, thus achieving sustainable development. ZMQ's model combines social mission with technology to maximize the impact of health, education and livelihood interventions.

Save the Children

Save the Children works in 120 countries globally and across 20 states in India for children's rights - to inspire breakthroughs in the way the world treats children, and to achieve immediate and lasting change in their lives. It is determined to build a world in which every child attains the right to survival, protection, development and participation. It delivers immediate and lasting improvement to children's lives worldwide.

MHealth Pneumonia Tool

Application for Behavior Change and Treating Childhood Pneumonia in Low Resource Setting in India

KEY CHALLENGES

Lack of knowledge & awareness in communities on childhood pmeumonia

Lack of conyext specific tools of pneumonia management of FHWs

Poor knowledge & ability of FHWs

Lack of access to timely treatment

LEADING TO

Low demand seeking behaviour

Weak referral & reporting

Low capacity and lack of skills among FHWs

Increase severely of cases leading to death

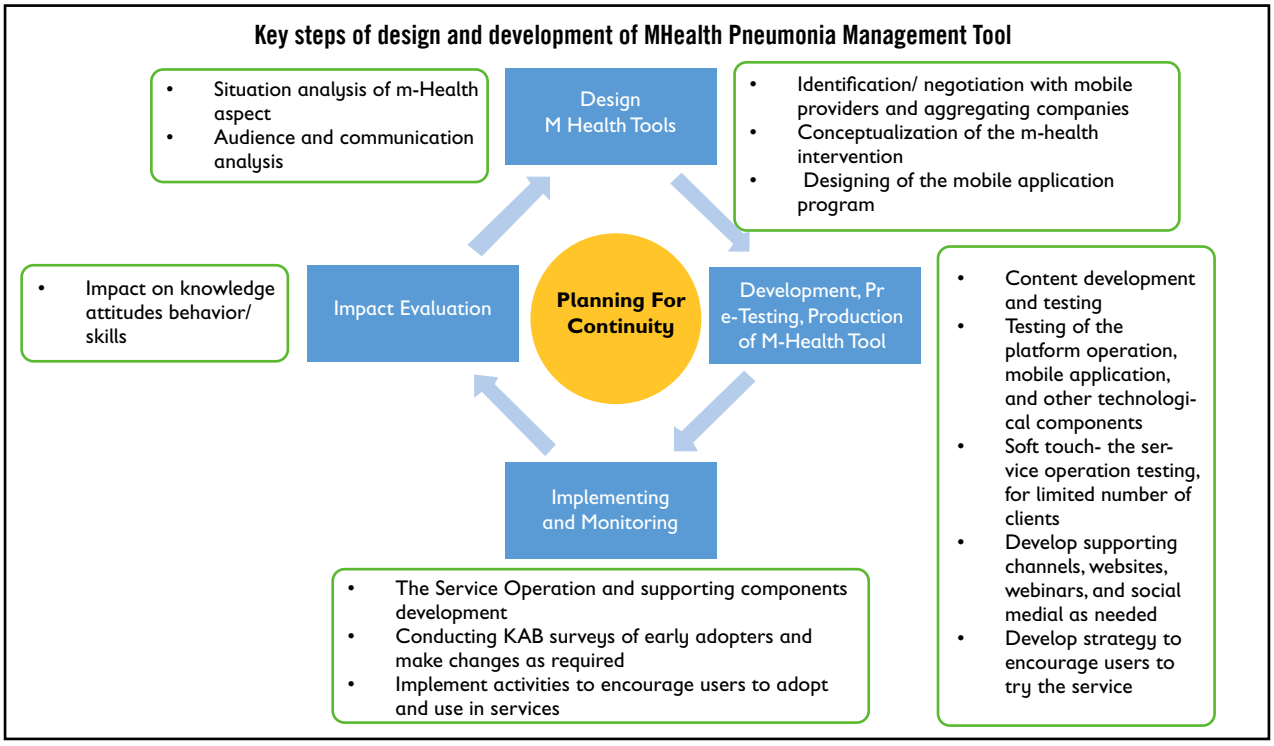
Pneumonia continues to be the leading cause of mortality in children worldwide, with India accounting for 20% of those deaths and a higher burden of childhood pneumonia than any other country. The current approach for pneumonia diagnosis in the country--using Integrated Management of Neonatal Childhood Illness (IMNCI) paper-based protocols and relying on a health care provider's ability to count respiratory rate manually--has proven inadequate. In an effort to address childhood pneumonia mortality and improve frontline health care providers' ability to diagnose, classify, and manage pneumonia and other childhood illnesses, Save the Children collaborated with Philips Foundation, Philips India and ZMQ to develop "mHealth" an innovative mobile health application using an Android mobile phone/tablet.

We conducted a design-stage usability pilot of mHealth Pneumonia tool in Bahraich and Tonk, with the goal of creating a user-friendly behavior change and management tool for childhood pneumonia to improve knowledge, practice and facilitate adherence by health care workers to established guidelines in the country. The results of the field pilot provided valuable information for understanding the usability and acceptability of mHealth among caregivers of under 5 children and health care providers, and identifying approaches to iterate and improve.

M-Health Pneumonia Management Tools

SAANS campaign guidelines clearly lay out the pneumonia communication needs to enable caregivers to identify critical sign & symptoms of pneumonia early, and trigger prompt care seeking with qualified providers. M Health is designed to drive behavior change and sustain frontline health workers with standardized protocols to identify, classify, manage, refer and treat Pneumonia in children under 5 years. Project VISHWAAS, based on social behavior change communication strategy has developed user friendly digital mobile based applications to drive behavior change among caregivers of under 5 children. Based on technical pneu-

Key steps of design and development of MHealth Pneumonia Management Tool



monia guidelines of SAANS campaign, mobile-based application on pneumonia case management for ASHAs and ANMs developed under project VISHWAAS. The M-Health Model based on a bottom-up strategy to strengthen the four key pillars:

1. **Active Ground Building** – Building awareness and knowledge about Childhood Pneumonia at the community level, with frontline health workers (ASHAs and ANMs) and other key stake holders in the health service delivery – such as pharmacists, informal health service providers, doctors and others;
2. **Active Case Finding** – to enable timely identification and diagnosis;
3. **Active Case Management** – Referrals, care & treatment and follow-ups;
4. **Real-time Integration with Health System** – from ASHA workers to ANMs, ANMs to sector PHCs, sector PHCs to block and block to district (bottom-up integration).

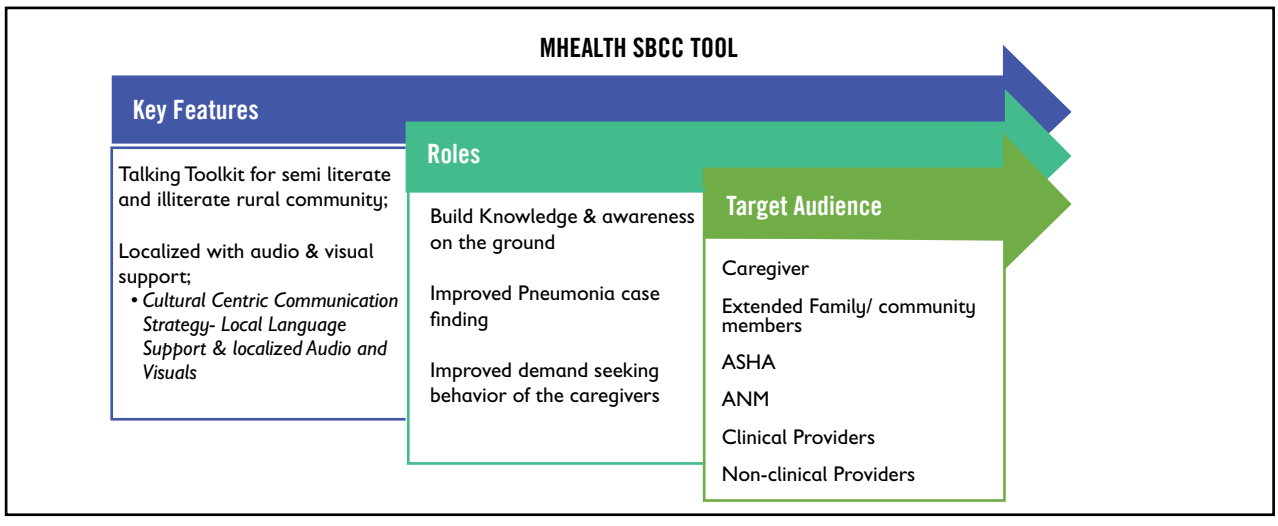
MHealth Pneumonia Management Tools

MHealth SBCC Tool builds knowledge and awareness on protect, prevent and treat interventions of pneumonia among caregivers of under 5' children and communities and key stakeholders and helps in achieving increased case finding.

MHealth Case Management Tool designed as a bottom-up approach to enable case finding, screening, treatment & care and follow-up of pneumonia cases. It has provision of integration with existing Health Systems for efficient and timely service delivery.

MHealth SBCC Toolkit- It is an audio-visual interactive application with iconic graphics, audio & videos which provides customized information to the defined intended groups, for easier and quicker understanding of specific pneumonia related information. The entire SBCC toolkit has been divided into 5 modules- Basic understanding on Childhood Pneumonia; Signs & Symptoms of Childhood Pneumonia; Prevention from Childhood Pneumonia; Protection from Childhood Pneumonia; and Treatment for Childhood Pneumonia.

The prototype (basic structure) of the toolkit is designed by mapping with the communication objectives set out for each intended audience as per the Pneumonia SBCC strategy. In order to provide the most relevant information to the primary audience, which is the caregiver of the children under 5 years, an assessment mechanism is integrated. This assessment mechanism helps in identifying the gaps in the knowledge of an individual, as result of which only specific modules of concern are logically displayed to the user. To make the toolkit interactive and highlight the misconceptions in the community related to Pneumonia, stories are added before each module to build connect with the caregivers and with the modules. For other intended audiences, the toolkit follows the mapped modules based on the communication objectives & key messages defined in the SBCC strategy. The toolkit comprises of the 5 key components- Assessment questions (For caregivers); Interactive short stories (For caregivers); 5 audio & visually enabled information modules & sub-modules comprising of videos, still graphics & animations; Recap section; feedback mechanism for each module. The



MHealth SBCC toolkit has an internal monitoring and evaluation mechanism to assess the usage and consumption of information both at the level of individuals as well as in-group sessions. Every session conducted by a registered user is captured along with information such as number & type of modules accessed, number of participants engaged, time spent, feedback provided by the intended audience etc.,

MHealth Pneumonia Case Management Toolkit works at different levels both at the community (ASHAs) as well as the facility level (Sub-Centre, PHC, CHC etc.). The toolkit is being designed based on the government guidelines and its design follows a complete case management algorithm starting from mapping of households, mothers/caregivers & children; identification, screening & categorization pneumonia patients among children under 5 years; Referrals, pre-referral services & counselling; follow- up tracker & case closure. The application has a built-in robust M&E mechanism to capture each and every activity & action starting from registrations to cases identified/ notified, services provided, referrals done, treatment provided, recovered cases etc. It comprises of the following components – Registration; Assessment of the children less than 5 years old (based on the protocol); Services post categorization (Pre-referral dose, referral & counselling); Follow up visits; Case record management & treatment outcome. This is a well-connected system, which enables identification, referrals & management of pneumonia cases.

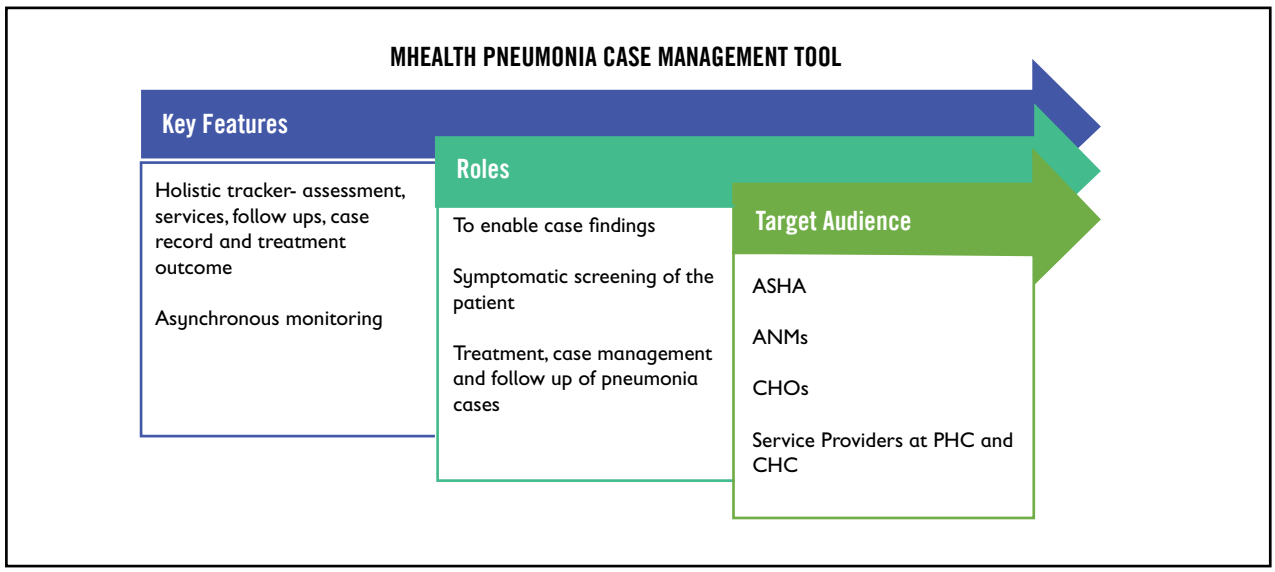
A. SBCC Toolkit (live updated on Google Play Store);
https://play.google.com/store/apps/details?id=com.zmq.sbcc

B. Pneumonia Case Management Tools and Web Platform

1. Asha Case Management Mobile App – https://play.google.com/store/apps/details?id=com.zmq.stc.pneumonia.toolkit
2. ANM Case Management Mobile App – https://play.google.com/store/apps/details?id=com.zmq.anm4stc

3. Pneumonia Case Management Web Platform (for CHWCs, PHC (in), PHC (out); CHC (in) CHC (out)
http://connect2mfi.org/stc1.0/

C. Project VISHWAS Dashboard, both for SBCC and Pneumonia case management.
https://collaborativeactionlab.com/sbcc

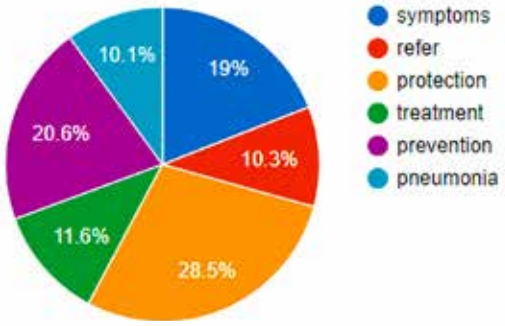


Key Result

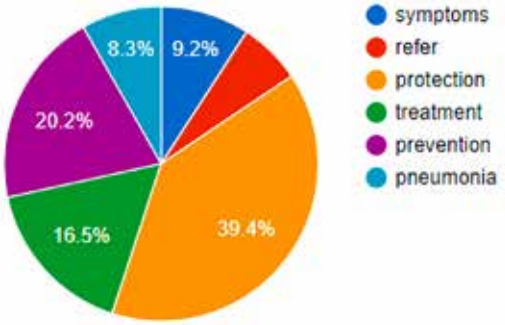
1. MHealth Tool pilot implementation with 144 ASHAs and 26 ANMs in district of Bahraich (Uttar Pradesh) and Tonk (Rajasthan)
2. Frontline Health Workers opinion on use of MHealth Pneumonia tool
   - Helps to keep record cases of pneumonia in one place
   - Helps to report cases easily
   - Easy to communicate and interact
   - Easy to spread awareness with less effort
   - Easy to refer and track case
   - Easy to use application

Rani Jalwaniya, ASHA Sanyogini, Tonk, sharing her experience of using MHealth mentioned that it has made it convenient for her to maintain the data and also keep a time track of followups on patients. Rani also highlights that carrying ASHA dairy and entering data manually into them was quite cumbersome.

Module delivery analysis -ASHA



Module delivery analysis -ANM



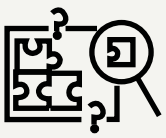
Key Learning

MHealth interventions targeting FLHWs and beneficiaries have the potential to improve performance of FLWs, reduce barriers to information and potentially change the behaviors of beneficiaries. While technology is an enabler for FLHWs to improve their service delivery, it also help overcome social and cultural barriers to bring about improvements in knowledge and health behaviors.

Project learnings suggest "single function" and "single-disease" mHealth tools, to more integrated solutions that cut across the roles and responsibilities of a FLHW, and content related to multiple diseases and commodities

Project learnings further suggest that, to overcome the top three barriers namely infrastructure, lack of equipment, and technology gap, project leaders who wish to implement mHealth interventions must establish partnerships with local governments and nongovernmental organizations to secure funding, leadership, and the required infrastructure. With partnerships forming between governments, technologists, non-governmental organizations, academia, and industry, there is great potential to improve health services delivery by using mHealth in the country.

By harnessing the increasing presence of mobile phones among diverse populations, there is promising evidence to suggest that mHealth could be used to deliver increased and enhanced health care services to individuals and communities, while helping to strengthen health systems.



Bridging the knowledge gap - localized m Health tools available for improved and consistent communication delivery

Better Health Tracking - Built in Case tracking system for end to end management and case monitoring

Improved service Delivery & Referrals - Bottom-up health connect model for immediate referrals and timely service delivery

Supportive supervision for overall Health System strengthening - Improved digital screening follow ups, referrals & treatment management

Implementation Research on Point of Care Diagnostic Tool

Philips has developed the Children's Automated Respiration Monitor (ChARM). The device is placed around the child's belly and automatically measures respiratory rate and classifies fast breathing according to WHO guidelines.

Globally, pneumonia accounts for 16% of all deaths of children under five years of age. Research has suggested that community case management of pneumonia if properly implemented, could reduce under-five deaths due to pneumonia by 70%. India has the highest burden of childhood pneumonia in the world, both in terms of morbidity and mortality. Around 140,000 children die due to pneumonia annually in the country. There are 30 million new cases of childhood pneumonia reported every year, with an incidence rate of 0.26 episodes per child-year. Approximately ten percent of these episodes tend to be very severe. Among children under-five years, pneumonia contributes to nearly a sixth (15%) of all deaths in India. With one child dying from pneumonia every four minutes. The reduction of under-five mortality from 39/1000 live births in 2016 to 23 by 2025 is one of the prime goals of India's National Health Policy 2017. In order to achieve this goal, mortality due to childhood pneumonia needs to be reduced to less than three per 1000 live births from the current level of 5.7 per 1000 live births. Four of the poorer states in India together contribute to nearly 60% of the country's total burden of under-five deaths and more than 50% of pneumonia deaths (Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan). Integrated Action Plan for Diarrhea and pneumonia which outline the PPDT (Prevention, Protection, Diagnosis and Treatment) model, thereby ensuring sustainability and uptake of the scale up of the intervention in the long run.

In 2012, WHO and UNICEF published a joint statement that supported iCCM as "an essential strategy that can both foster equity and contributes to a sustained reduction in child mortality" and identified fast breathing as the key presenting symptom for diagnosing and treating pneumonia using the iCCM strategy. WHO has set the threshold for respiratory rate (respiratory rate per minute) in infants less than 2 months at a respiratory rate of 60 per minute, for children 2 to 12 months at a respiratory rate of 50 per minute, and children 1 to 5 years at a respiratory rate of 40 per minute and includes these guidelines in its Integrated Management of Childhood Illness (IMNCI) handbook widely used as the technical guidelines at the community level of care.

Variability in humans counting respiratory rate (RR) in children under five

- Manual counting of child's breath is difficult
- Currently used techniques are not accurate and may lead to miscounting
- Poor ability and skills of FHWs to detect refer and manage pneumonia including predictors of severity

Studies demonstrate that there is evidence to show that, when well trained; frontline health workers (FLHWs) can adequately manage pneumonia cases at the community level. However, when training is deficient FLHWs' skills in measuring respiratory rates and accurately classifying pneumonia remains a challenge. Manual counting of a child's breath is difficult and currently used devices often lead to miscounting and inaccurate diagnosis.

In response to the call for innovation of pneumonia diagnostic, Philips has developed the Children's Automated Respiration Monitor (ChARM). The device is placed around the child's belly and automatically measures respiratory rate and classifies fast breathing according to WHO guidelines. The technology is based on the Philips Intellivue cable less monitor which includes 3D accelerometer and signal processing of respiration-based biomechanics, launched in 2014 for adults and since then tailored for infants and children.

Children's Automated Respiratory Monitor (ChARM), a low cost device for low skilled health workers. Clinical tests have concluded that ChARM is an acceptable alternate diagnostic tool for identifying fast breathing among <5 children, which may have potential for use at point-of-care by low-skilled community health workers in low resource countries. The proposed study will test whether or not the Children's Automated Respiratory Monitor (ChARM) can be successfully used as a tool to help FLHWs self-monitor and improve their competency to count respiratory rate accurately, diagnose pneumonia cases correctly and determine whether to treat or refer a child under 5. By applying the ChARM device on the child, and at the same time counting the child's respiratory rate themselves, the FLHWs can carry out an accurate real time assessment of their breath counting skills.

To combat pneumonia first step is to assess the child. Fast breathing is one of the important signs to identify pneumonia. Counting the respiratory rate is a challenge among under-5 children and need expertise to correctly count the RR. To prevent deaths from pneumonia gross root level of health care worker has been involved and trained to count RR, but it has been a difficult for them to count the RR correctly. ChARM Device is an attempt to make the counting easy for ASHAs. With this device identification of pneumonia cases will be easy.

The Device – An Innovation at the field level for accurate data recording

Aim

This study aims to understand the usability of a new automated RR device (ChARM) for frontline health workers (ASHAs, ANMs) and the acceptability of this device among these community health workers and caregivers.

Objective of Study

1. To determine if ASHAs and BHWs adhere to required WHO case management guidelines and device manufacturer instructions for use of device to assess and classify children under-five with cough and/or difficult breathing using ChARM.
2. To document the user experience of ChARM in a sick child consultation;
3. To explore the acceptability of the ChARM device to health workers (MOs, ASHAs/BHWs) and caregivers.

Methodology

Study design: This was a cross-sectional study. Mixed methods (qualitative and quantitative) used for data collection from the study participants.

Study Settings: This study conducted in state of Uttar Pradesh and Rajasthan. In Rajasthan, study conducted in urban areas of district Tonk and in Uttar Pradesh it conducted in two rural blocks (Payagpur and Huzurpur)of district Bahraich.

Sample Size

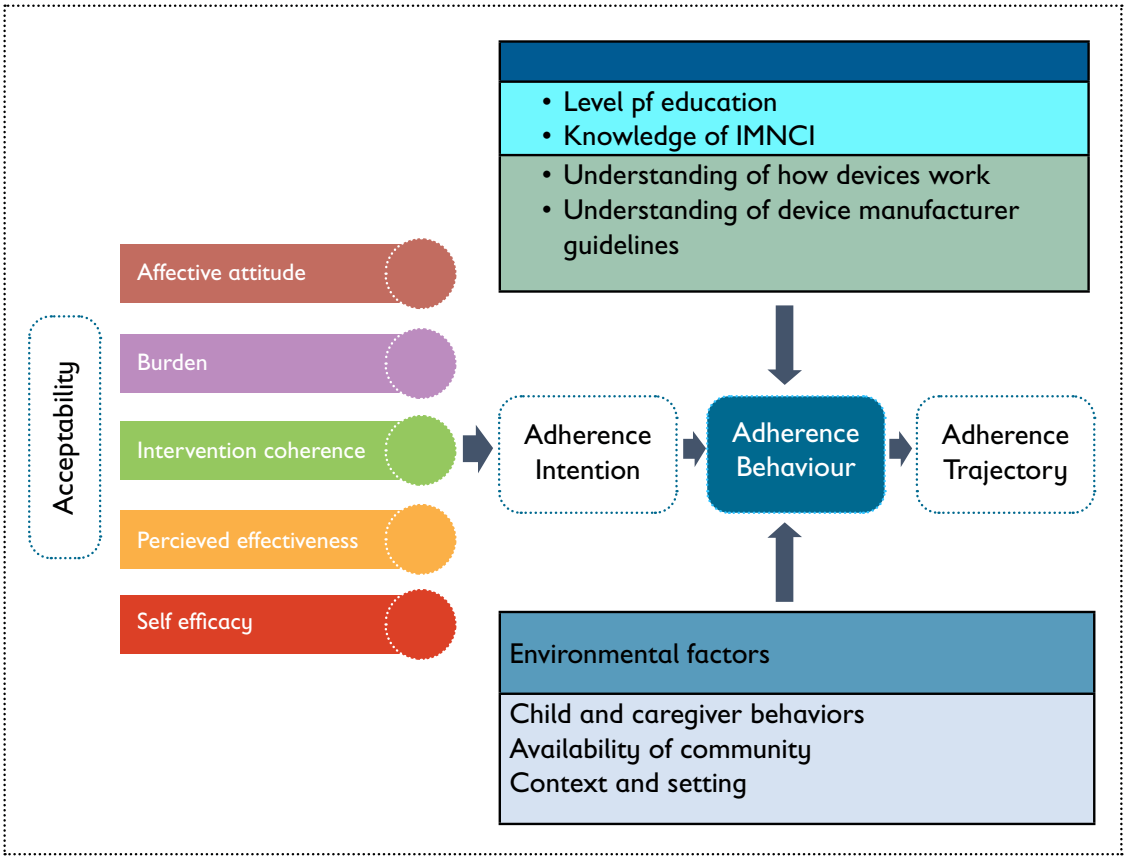
The study was powered for the primary outcome: the proportion of under-five child consultations where health workers using a CHARM adhered to required WHO case management guidelines and device manufacturer instructions for use after two months of routine use. 90 frontline health workers were selected in the study to observe three-four sick children's consultations twice, once directly after being trained and one subsequently after having used the device for two months in routine practice – thus total 566 sick child consultations were assessed for ChARM usability and acceptability among the ASHAs and ANMs.

ETHICAL APPROVAL: Ethical approval was obtained from institutional ethical committee, KGMU (Ref. No.106/Ethics/2021 dated 02.02.2021). Research assistants obtained written consent for observation and interviews from each health worker and from each caregiver whose child was assessed by a health worker during observation. Consent was also taken from the health workers for participation in the study initially at the time of training.

Result

- Mean (SD) age of children involved in the study was 17.9 + 16.4 months.
- In between the two phases mean number of children assessed by ASHAs/ANMs on their own using the Charm device were 26+13.9.
- Mean number of children assessed in the age group 02- months were 7.5+5.8, 9.0+4.7 children in the age group 2-12 months and 10.4+ 7.2 children in the age group 12-59 months.
- The mean time taken to complete all the steps by health workers(that is the time from when the device started to be strapped to the child, to when the health worker get a RR reading) in first observation was 3.98+ 1.2 minutes and in second observation mean time taken was 4.9+2.5 minutes.
- Overall, in both the districts most of the health workers attached the ChARM belt to the child correctly and more than 90% ensured that the child was not feeding/ eating during assessment.
- The most challenging step for health workers using ChARM was the correct device position followed by correct position of the child during the assessment. About 60% health workers completed all eight steps correctly in first observation, a significant increase of 11.3% was observed from the first observation after training.

Conceptual Framework



Child consultation steps to be performed by ASHA & ANMs

Correct child position	Correct belt attachment	Correct age group	Child calm immediately before ChARM attempt	Child not eating/feeding during successful ChARM attempt
Correct device position	Child calm during successful ChARM attempt	iCCM guidelines correctly performed	Correct assessment and classification	Correct treatment decision
Manufacturer instructions for use correctly performed		HW classified the child's breathing status correctly using ChARM during 'successful' attempt		

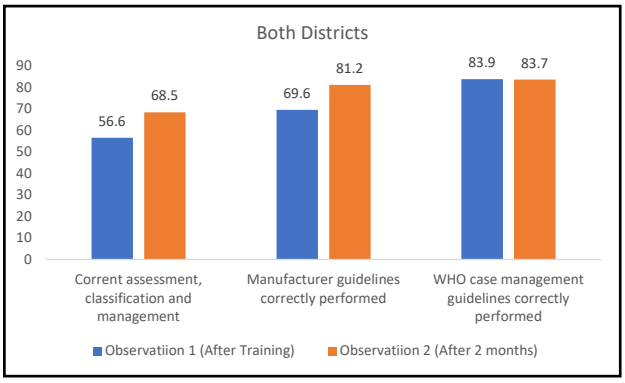
- The proportion of health workers who conducted all eight steps correctly was higher when they assessed 12-59 months children compared to when they assessed 2-12 months old children
- Significantly, large proportions of health workers completed all eight steps correctly in normal breathers compared with fast breathers (68.2% Vs 57.3%). The significant large variation in assessment steps between normal and fast breathers was observed for the step," Child calm during the assessment", (89.2% fast breathers Vs 96.9% Normal breathers)
- In two third of the children, health workers assessed all the eight steps correctly. No significant difference was seen between the performance of ASHAs and ANM.
- In about three fourth of the children ASHAs as well as the ANMs followed the manufacturer guidelines correctly. No significant difference was observed between the ASHAs and ANMs.
- All Health workers (ASHAs and ANMs) compared Charm to their previous RR counting method. Most ASHAs and ANM preferred ChARM over the ARI timer, mobile watch, or wristwatch. Health workers were not much confident with these methods. They all indicated at the potential for error (miscounting or forgetting the count) in counting RR and the frequent need for repeat counting with previous methods. It was also difficult for them to keep track of 'one minute', as required for counting breaths in Pneumonia. All of them perceived that these methods led to a faulty RR count, thereby resulting in misclassification of pneumonia in a child.

"Checking the child with ARI timer…….. I am not confident with the ARI timer. Most of the time, I keep on thinking whether I am taking correct reading or wrong'. I was repeating the whole process three to four times. It was very time-consuming. I was also hesitant to refer the child to a health facility. After receiving training on ChARM device, I am very much confident about the correctness of RR and classification of pneumonia".

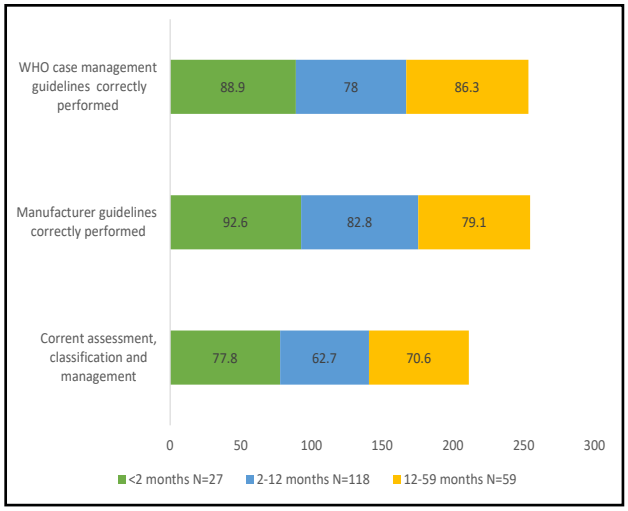
"Earlier we used to assess and refer the child for pneumonia based on symptoms in the child (She was not confident with the mobile watch); suppose the child is not breastfeeding, has a fever, or has breathing difficulty. We refer such a child to the health facility. If the child's parent brought them to the doctor, they would have told us that he/she had Pneumonia."

ASHA

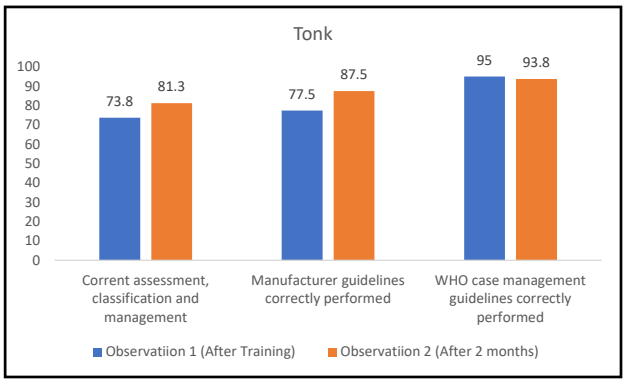
Proportions of child consultations steps correctly performed by health workers with ChARM after training and after 2 months both districts

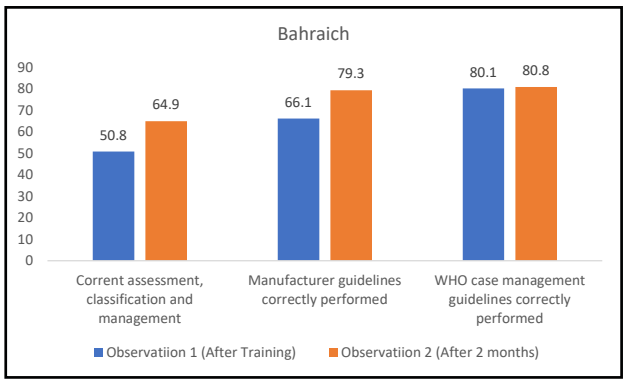


Proportions of child consultations steps correctly performed by health workers with ChARM after training by age of child after 2 months of training in both districts

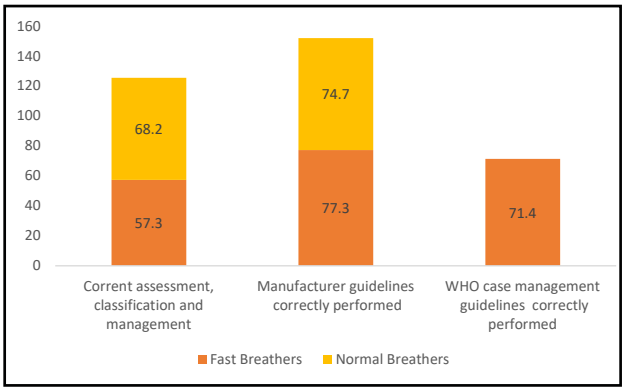


Proportions of child consultations steps correctly performed by health workers with ChARM after training and after 2 months in Tonk , Raj & Bahraich, UP. Obsr. 1, Tonk – 80; Bah – 236. Obsr. 2, Tonk -80; Bah-256

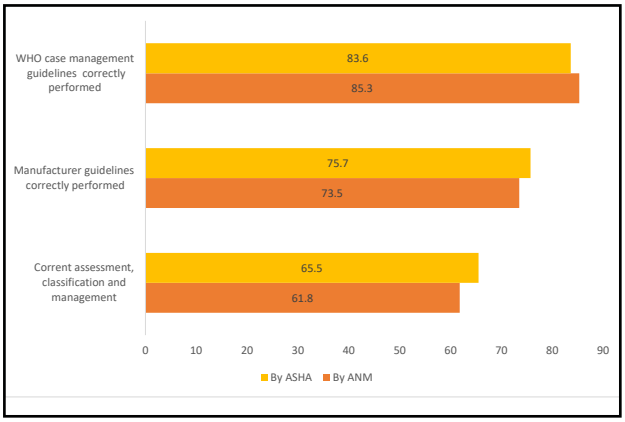




Proportions of child consultations steps correctly performed by health workers with ChARM after 2 months of initial observation by breathing status



Proportions of child consultations steps correctly performed by health workers with ChARM by type of health workers (N=672)



Acceptability of ChARM Device

Most health workers described the red and green lights displayed on ChARM, easy to understand and read. They compared the ChARM device with the previous methods where they had to remember the cut-off points to classify the Pneumonia.

"Here with this (ChARM), it is easy to classify the Pneumonia in a child. If you select 0-2 months age group, it will give RR accordingly; if you select 2-12 months, it will count accordingly. Now it is effortless. There is no need to remember the RR count for each age (cut-offs). If a child's respiratory is normal, it will give the green light, and if there is an increase, it will give red color light. Tension-free…All work is done systematically by this device."

"For classification, if the child is normal, then green and if there is increase in breathing, then red. We can easily understand that child is ill. Earlier it was difficult to remember the counts (cut off). We were not able to understand whether count is normal or increased for this child".

"All three previous devices are good (ARI timer, mobile, or watch). No difference. However, ChARM is best. If giving red indicator, then the child is suffering from pneumonia".

"I was using a watch to count the RR. With the watch, we did not know that it had been one minute; this problem used to be there. Now, this facility is there in this machine. I am confident that the classification is accurate now."

"It is very easy now. Earlier, we used to miss or forget the numbers. Even if in between child was moved, we used to put them in Pneumonia. Now it is coming in writing; we know our classification is accurate."

Most of the ASHAs said that display of RR count on the screen enabled them to show the results to the parents and convince them to take the child to the health facility. Most of them opined that displaying the results in green and red lights made it easier for them to counsel even illiterate parents that their child is sick and requires treatment from the doctor.

"Earlier, when we told them that (your) child is suffering from Pneumonia, they were not ready to accept that this is pneumonia. Only some literate people, on observing the fast-breathing, etc., accepted it. Now, with red light in the ChARM device, they can easily see that their child is sick. With this device, they themselves understand the condition of the child and come forward for treatment".

"If machine show a red light, we make all efforts that child get immediate treatment."

Confidence in use of device

Almost all health workers expressed that they could efficiently operate this device. Some of the ASHAs were initially concerned about their ability to use ChARM. They were worried whether parents would accept this device or not. However, for most of the workers, this initial reaction was short-lived. The majority said that they would get more comfortable in its use with time and training.

"No hesitation, Madam, we are experts now. This count is easier than the previous counts".

"I was not confident with the machine initially. I was wondering whether it will give the correct count or not. Would I be able to conduct all steps correctly? Now I am confident, Sir (community mobilizer) helps us a lot in the field".

"All steps are easy. We are using it enthusiastically. No problem in any of the steps. In case the child moves, the Charm device shows a 'minus' sign. Then we repeat the procedure"

"Initially I was not confident in using it in the field. There was a problem in tying the machine. Now after doing it several times, no problem."

"If the breathing rate is coming more or less, we repeat the whole process to clear the confusion.

Confusion should not be there".

"In the beginning, I was anxious to use it. There was some anxiety. But now no fear, no problem. We are thrilled."

The majority of the ASHAs expressed that the educational status or age of the ASHA workers will not impact their ability to use the device. However, few of them said that literacy level might impact the ASHAs ability to read the counts displayed on the device, especially for those who do not know the English numeral system. Some workers also admitted that it would be difficult to see the count displayed on the device for the aged ASHAs. However, the green and red-light indicators were found helpful to understand the results by such ASHAs.

"ChARM device is perfect. It is easy to operate the device. Everyone can easily operate it. One who knows the count can read it. Yes, in some older ASHAs, if weak eyesight…. then it can cause difficulty in reading the counts and also in the selection of age group."

Burden Or Effort Required To Use Device

Most of them perceived that assessment with CHARM is less time-consuming than the ARI timer or stopwatch.

"ARI timer and stopwatch were more time-consuming. Sometimes due to missing of the count or some distraction, we had to make several attempts for the assessment. Now result can be obtained in the single attempt".

"When I was new, everybody told me to put pen or paper on the baby's chest and count breaths. It used to take a long time; sometimes I used to forget the count, sometimes pen/ paper used to move. I was not confident about the accuracy of the counts. Now I can do it in a single attempt with confidence".

Caregivers Attitude And Demand For Device

Most of the ASHAs said that caregivers were comfortable with the device. Their response to the device was overwhelmingly positive. Some parents were initially apprehensive about strapping the device on the child's abdomen. However, the majority of the caregivers felt that this device would correctly assess their child's problem. Caregivers felt that the availability of devices with the ASHA near their home would "make care-seeking easy" for them.

"In the beginning, they were curious and asked, what is this? After explaining and observing one or two children, they found it helpful. Nobody opposes, now they are coming on their own."

"Parents were happy. They found it (device) useful. Sitting at home, they came to know that the problem their child is facing is due to pneumonia. Now they can consult a good doctor".

"In the beginning, when they were not aware of this machine, some parents used to ask, why are you trying it on my child? It will put pressure on the child's abdomen. Now, having observed the benefits, they themselves ask me to check their child with this machine."

Health workers believed that the new device has improved parents' trust on them and hence their reputation amongst the parents. Now, it is more likely that caregivers bring their sick children for checkups.

There was considerable demand from ANMs and ASHAs to use ChARM in the future. Particularly amongst ASHAs, this demand seems to be connected to their perception that the device always provide accurate respiratory count and it also provide correct information about the diagnosis of pneumonia in the child.

Competency-Based Training On Pneumonia Management Through Skill Labs

The Pneumonia Skills Lab is a set of structured skill stations with the specific objective of imparting competency in Pneumonia management.

SAANS program recommends competency-based training of the health care providers on pneumonia management through the establishment of skill labs. Skills Lab serves as a prototype demonstration and learning facility for health care providers so that they develop desired competencies. They also aid in institutionalizing the usage of Standard Operating Procedures (SOPs) and adherence to technical protocols, so that they become a part of routine practice. Such labs have an edge over other didactic methods by providing the opportunity for repetitive skill practice, simulating clinical scenarios under the supervision of a qualified trainer.

Skills Lab refers to specifically equipped practice rooms functioning as training facilities offering service to various cadre; skills lab also plays a key role in service training quality assurance. Skills lab training follows a structured teaching concept, takes place under supervision, ideally creating an atmosphere that allows the repeated and risk-free practice of targeted skills and ensures that service providers are given the opportunity to perform these independently.

Objectives of Pneumonia Management Skills Lab

- Facilitates reinforcement of key standardized technical skills and knowledge
- Ensures the availability of skilled personnel at health facilities.
- Improves the quality of pre-service training
- Provides Continuing Nursing Education
- Monitors the performance at the workplace and reorient if required
- Develop as demonstration site for other districts

Target group

Pediatricians, Medical Officers, Community Health Officers, Staff Nurses, Auxiliary Nurse Midwife, students pursuing ANM, GNM and Midwifery courses.

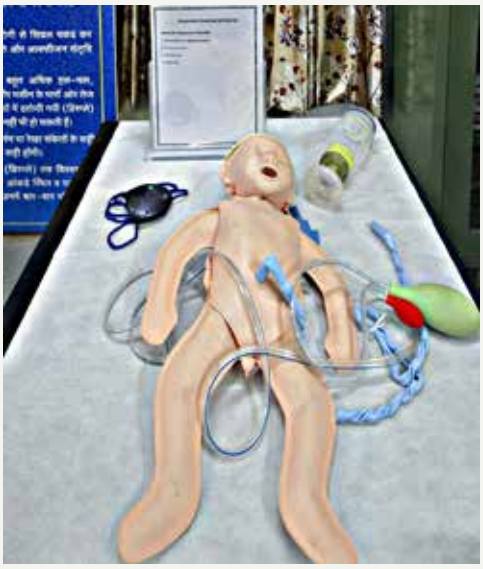
Setting up of Skills Lab

The Pneumonia Skills Lab is a set of structured skill stations with the specific objective of imparting competency in skills. These skill stations are of two levels; basic and add-on. Basic skills are the essential skills required for all cadres i.e. ANM, Staff Nurses, Lady Health Visitors, Medical Officers, Community Health Officer, nursing supervisors, Teachers and Trainers involved in imparting knowledge of services and its supervision. The add-on stations have skill stations to provide specialized skills required for Medical Officers, Staff Nurses, Nursing supervisors and Trainers.

Project VISHWAAS established one Pneumonia Management Skill Lab in Tonk, Rajasthan and two Pneumonia Management Skill lab in Bahraich, Uttar Pradesh as model demonstration sites. Following Six skill stations are demonstrated at Pneumonia Management Skill lab with display of Pneumonia treatment protocols for Medical officers, ANM and Community Health Officer

1. **Handwashing Skill Station** consists of
   - Wash Basin, Water (running), Soap, or bucket and water dispenser
   - Big clothes pieces/ handkerchief to blind fold
   - Pairs of gloves
   - Coloring agent for hand washing demonstration like tincture iodine,

2. **Respiratory Rate Counting Skill Station** consists of
   - Digital Watch
   - New born Mannequin on which inspiration and expiration can be demonstrated



3. Pulse Oximetry Skill Station consists of

- Table Top and Finger Pulse Oximeter

4. Amoxicillin and Gentamicin dose, method of Administration and Duration of Treatment Skill Station consist of

- Amoxycilline bottles with measuring cap
- Amoxycilline dispersible tablets (250 mg)
- Pediatric Inj. Gentamicin Vials
- Mannequin syringes with needles-1ml, 2ml, 5 ml-10
- Tea spoon, dropper
- Cotton swabs
- Hub Cutter •
- Color coded Dustbin

6. Oxygen delivery System Skill Station consist of

- Oxygen Cylinder with attachments
- Oxygen Concentrator
- Nasal Prongs

5. Inhalation Therapy (Nebulizer and MDI) Skill Station
consist of

- Nebulizer
- Salbutamol MDI
- Spacer
- Salbutamol Solution/capsules

Competency based training of Health Providers and Frontline Health Workers

1. Cadre of 66 Master Trainers on competency based training of childhood pneumonia management developed. 31 Master Trainers in Tonk and 35 Master Trainers in Bahraich district trained on childhood pneumonia management.
2. In Tonk, capacitated 75 Medical Officers and 75 Staff Nurses, 75 ANMs, 92 ASHAs and 150 ANMTC students on childhood pneumonia management.
3. In Bahraich, capacitated 13 Medical Officers, 6 Staff Nurses, 16 CHOs, 64 ANMs and 380 ASHAs on childhood pneumonia management.
4. Developed job aid on establishment of Pneumonia Management Skill Lab for scale up

Key Recommendations

1. Inclusion of Pneumonia skill lab training in Pre-Service Education (PSE) program of Nursing and midwifery institutions to provide competency-based training and eventually to improve pneumonia management skill of nursing cadre in a uniform and standardized manner. A dialogue should be initiated with State Nursing nodal officers, State Nursing Directorates, nursing midwifery institutions and other important key stakeholders under guidance of MoHFW.
2. Mandatory Pneumonia skill lab training for Community Health Officer (CHOs) during their Certificate Program in Community Health (CCH) developed by IGNOU in collaboration with MoHFW, GoI with aim to improve their knowledge, skills and competencies in managing and leading Pneumonia program through HWC-CPHC team.

INTERACTIVE VOICE RESPONSE SYSTEM -PNEUMO VAANI

PneumoVaani, an Interactive Voice Response System (IVRS), is a collaborative initiative to empower the hard-to-reach communities, with enhanced awareness on pneumonia and improved care seeking under the context of COVID-19 pandemic

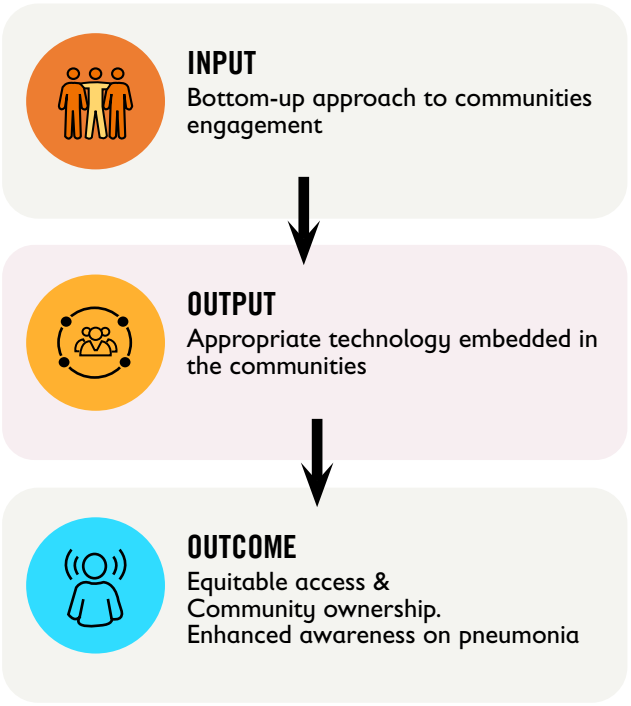
Globally, pneumonia accounts for 16% of all deaths of children under five years old. Research has suggested that community case management of pneumonia, if properly implemented, could reduce under -five deaths from pneumonia by 70%. Project VISHWAAS is an innovative 2-year programme funded by Philips India and Philips Foundation to make a substantial impact on the #1 killer of children under 5 globally, with an aim to reduce under 5 mortality in India from childhood pneumonia. Covid-19 restrictions and lockdown left no scope for face-to-face community meetings and, planned community engagement interventions needed to be adapted to reach the caregivers of under 5 children. Save the Children in partnership with Gramvaani designed digital solutions with the purpose to use appropriate information and communication technologies and people-driven processes to empower communities, especially hard-to-reach (rural, low income, and low digital literacy) through an Interactive Voice Response System (IVRS). This IVRS, mobile based technological innovation, was name as PneumoVaani to disseminate and educate on protect and prevent intervention and information under pneumonia management, educate on sign and symptoms of pneumonia among care givers of under 5 children and community members.

PneumoVaani is the community-driven, participatory media platform using an Interactive Voice Re sponse System (IVRS). It supports communities that are largely socially, economically and geographically excluded from access to mainstream media due to factors such as poverty, gender discrimination, illiteracy, etc. and thus lack agency-driven empowerment to improve their own situation. The platform is available 24X7 and uses a "missed call" approach wherein users place a call using their basic phones or landline to a number, and the server disconnects and calls them back, making the system free of cost for the end-user. Alternatively, conveniently scheduled "call outs" are used to contact beneficiaries and to conduct surveys remotely. On the platform, callers can listen to the audio episodes and the opinions/ experiences recorded by other callers. They can also participate in the discussion by recording their own message, opinion, experience or query. Apart from this, the platform allows liking any particular audio message to access them anytime later (bookmarking), and forwarding the messages to others for whom they find the messages useful.

PneumoVaani: Theory of Change

PneumoVaani leveraged the high penetration of mobile telephony in rural and urban communities for the underserved communities to call in, listen to curated content on pneumonia prevention, protection and treatment, get their questions answered, and record their own opinions or feedback related to the health situation in the communities. Project's mobilization teams organized community meetings in target villages, spread

PneumoVaani Theory of Change



awareness about PneumoVaani, sensitized people on using the platform effectively. This is a critical component since a large majority of our target users are first-generation technology users and a significant portion of them are poorly literate who may need hand-holding to be able to use a phone. During these sessions, the teams also crowd-source user generated content (UGCs) which included feedback, queries, grievances, and impact stories. One of the important tasks for the team has been to liaison with the health officials and experts - for resolution of grievances recorded by the users on the IVR, as well as to answer the queries of the listeners and dispel the myths and misconceptions.

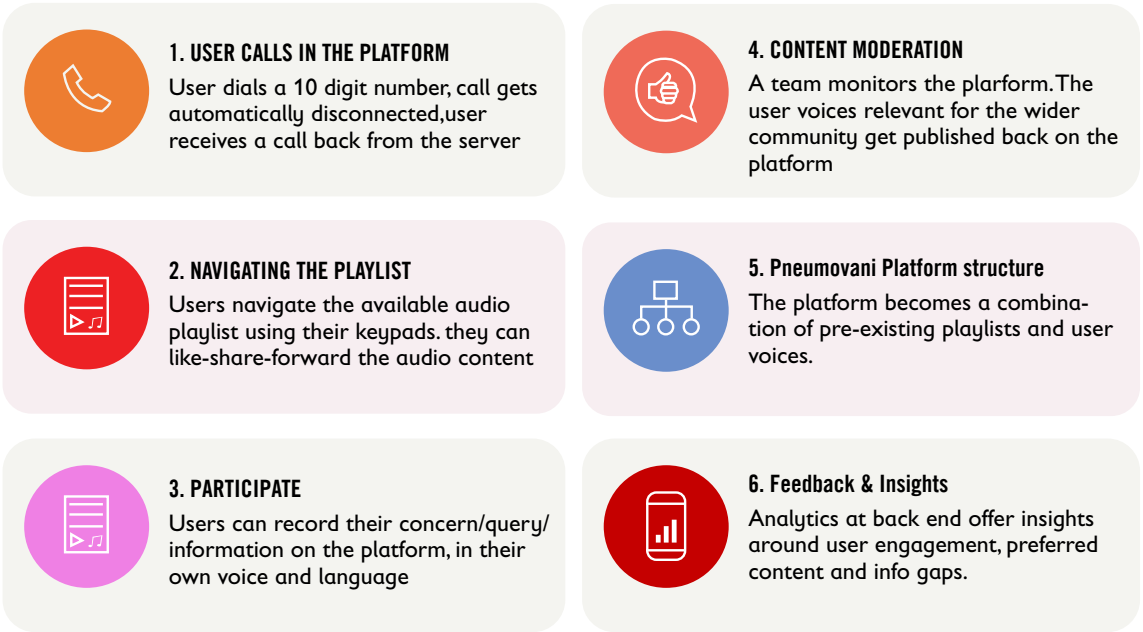
The user generated content (UGCs) is evaluated by team of moderators and published or rejected, based on a jointly formulated editorial policy. All general UGCs (feedback, personal experiences etc.) and impact stories are published on the platform for others to listen to, learn from, and similarly engage more with the platform if they like to. The grievances and queries are shared with relevant officials or experts for their inputs, and accordingly a response is shared back with the user. Any politically or religiously motivated recordings are rejected, and pre-recorded feedback sent to the user about the reason for rejection.

Key Activities

1. **Design and development of mobile audio episodes**: Based on mHealth Pneumonia SBCC package, audio messages and snippets on appropriate care seeking for pneumonia management designed, piloted and developed.
2. **Setting up IVRS platform:** IVRS digital platforms were set up with toll free number and the algorithm of two way interacting with beneficiaries was developed. The system was developed to communicate messages accessible to anyone even with a simple basic mobile phone and free of cost. Out Bound Dialing (OBD) calls were made to community members and frontline workers (ASHAs, ANMs), informing them about the key messages on pneumonia. PneumoVaani IVR service allowed users conveniently place a missed-call to the IVR line for any information

Pushpa Devi, from a subcenter in Prayagpur block shares that ASHA workers are being sensitized to use PneumoVaani for reaching out to wider communities for pneumonia program. PneumoVaani also offers community members an easy option to listen to information about protection, prevention and treatment of Pneumonia and also ask questions on the same, while sitting at homes.

Schematic of PneumoVaani Operational Attributes



regarding protect, prevent and treat interventions and services of pneumonia. Weekly OBDs sent to all those who ever placed a missed call on toll free numbers and the contact numbers available from the project team. Text messages pushed following each call to publicize the PneumoVaani number and included its key features to drive user engagement.

3. **Training of project staff and frontline health workers:** Project staff and frontline health workers of intervention area were oriented to use of IVR technology and publicize the number to care givers of under 5 children and communities.
4. **Live Dashboard:** Dashboard consisting of progress on calls with type of information seek, call time and quality of call was developed to track the progress in real time

Key Program Insights

Reaching the target communities

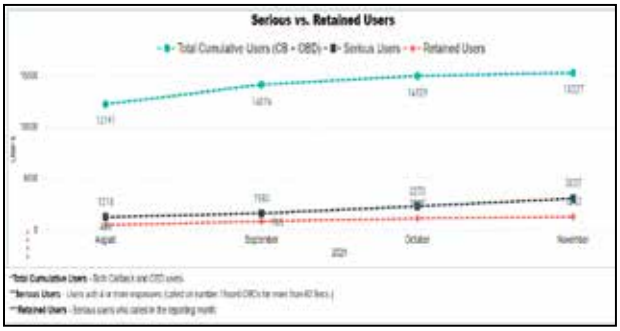
15,000+
community members engaged with PneumoVaani from its launch

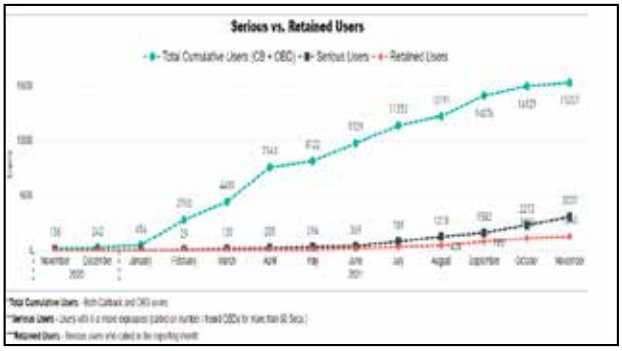
1,19,000 +
calls from project area to PneumoVaani

353
average daily calls

2.1
minutes/call duration

Sustained traction: Data from the dashboard shows that user retention and sustained interaction on the Pneumovaani IVR lines continued to be showing a positive increase in the second phase and overall steady increase from the initial days of the launch of the IVR line.





Equitable reach: Women as primary care-giver often face double burden and exclusion due to social barriers such as literacy, age at marriage as well as digital literacy with lack of phone ownership. Review of gender disaggregated data from PneumoVaani shows good progress in terms of reaching women. Listenership in terms of total calls continued to be higher for women than men

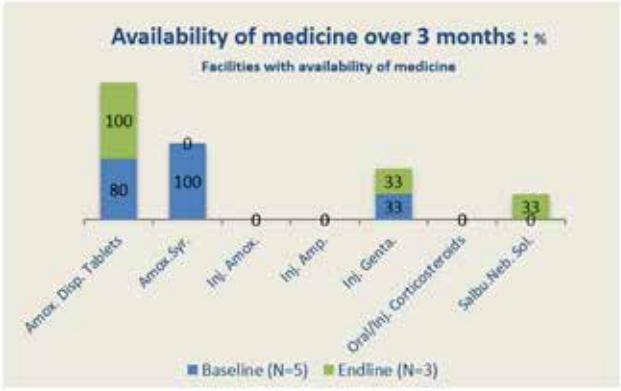
Way Forward

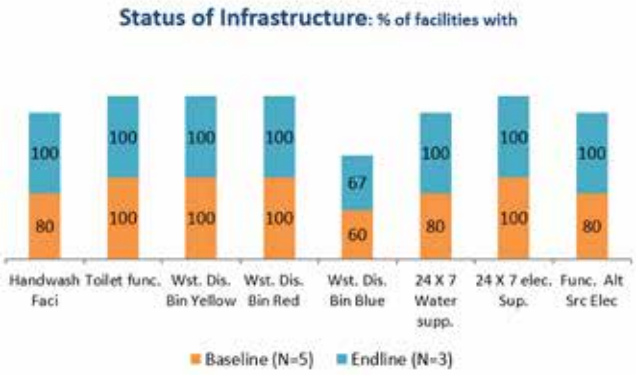
In context of Covid-19 pandemic, PneumoVaani leveraged the high penetration of mobile telephony in rural and urban communities for the underserved communities to call in, listen to curated content on pneumonia protect, prevent and treatment, get their questions answered, and record their own opinions or feedback related to the health situation in the communities. PneumoVaani has positively impacted the lives of hard-to-reach communities. The voice-based service holds potential for scale up to newer geographies as well as can be replicated for broadly all health services.

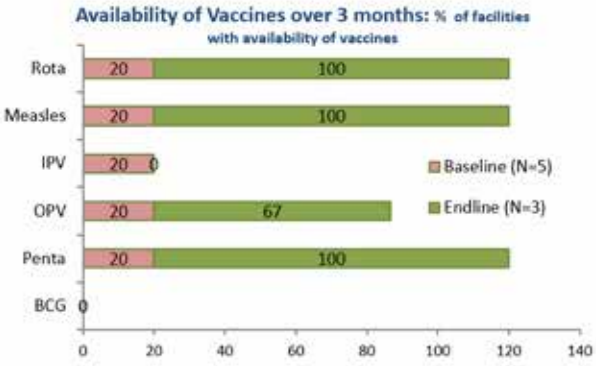
Strengthening Pneumonia Equipment, Supplies And Logistics At Health Facilities

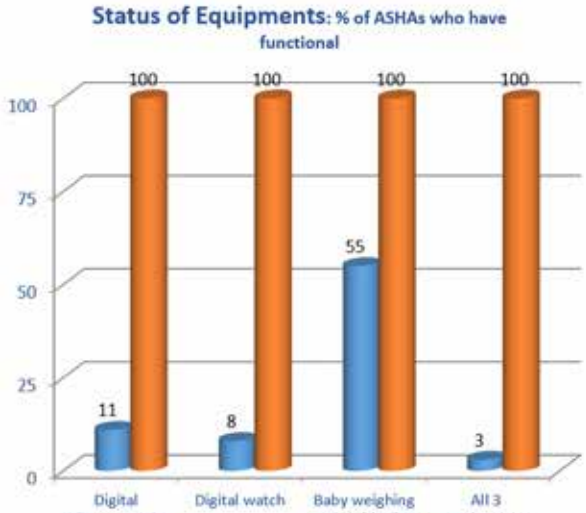
Status of Equipment, Drugs and Supplies at Health Facilities - Urban Tonk

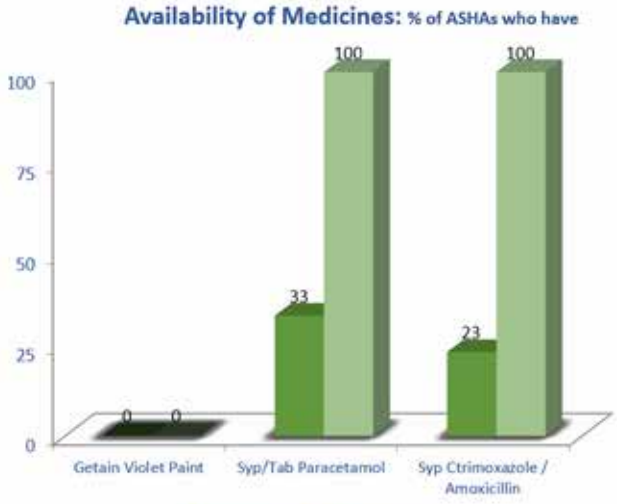
In July, 2020 and Nov, 2021 Project Vishwaas in consultation and support of District Health Society, Tonk conducted assessments of health facilities and frontline health workers on availability of equipment, drugs and supplies for pneumonia management . Key findings of assessment are as follows









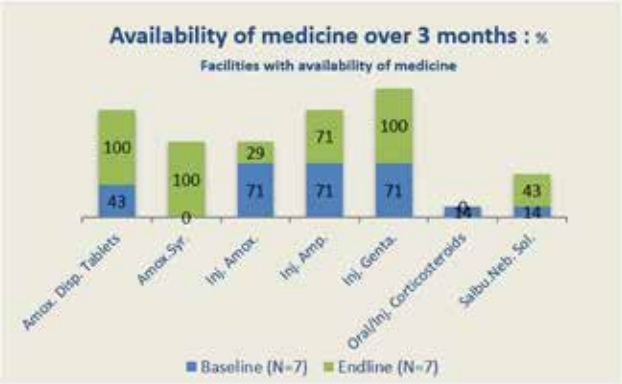


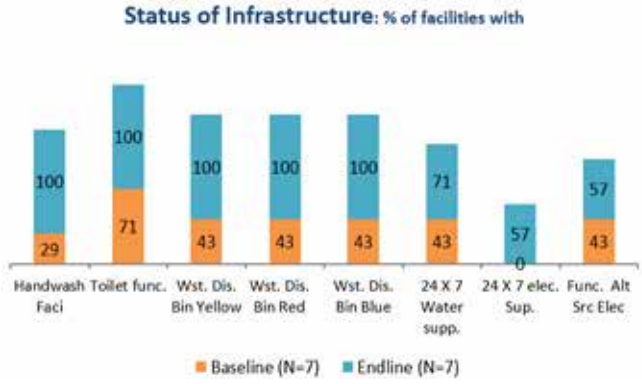
Now 100% of the ASHAs have all three basic equipment's in urban Tonk. All ASHAs now have Amoxicillin drug available with them

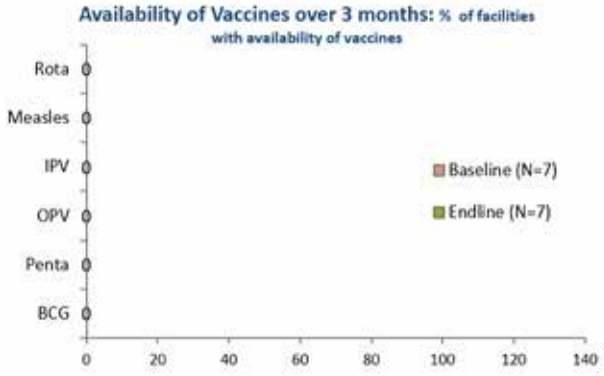
Strengthening Pneumonia Equipment, Supplies And Logistics At Health Facilities

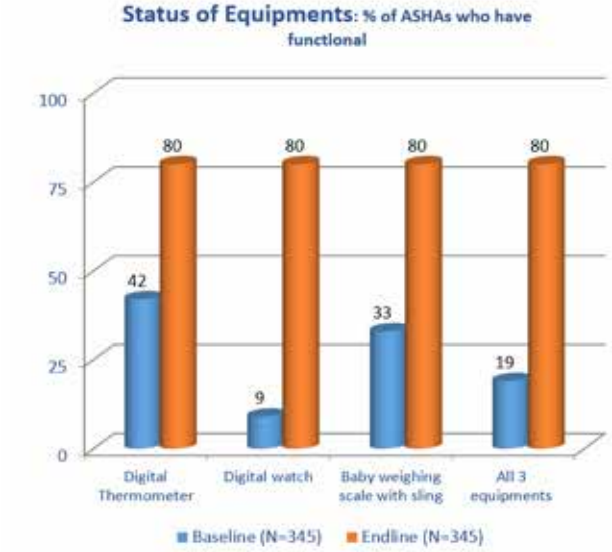
Status of Equipment, Drugs and Supplies at Health Facilities - Bahraich

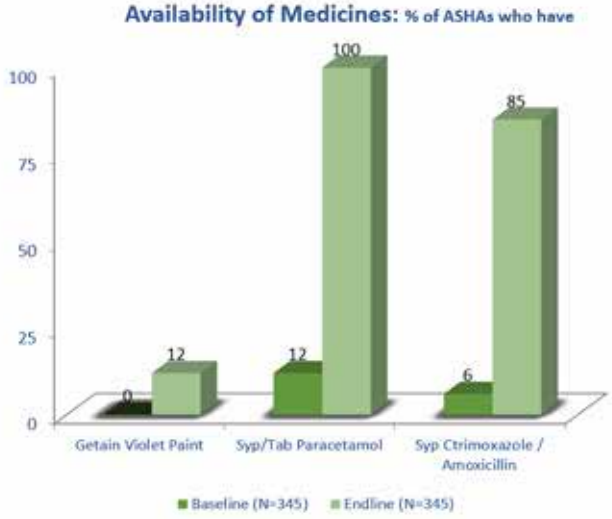
In July, 2020 and Nov, 2021 Project Vishwaas in consultation and support of District Health Society, Bahraich conducted assessments of health facilities and frontline health workers on availability of equipment, drugs and supplies for pneumonia management . Key findings of assessment are as follows











- **80% of the ASHAs now have all three basic equipment's in Rural Bahraich**
- **85% of ASHAs now have Amoxicillin drug available with them**

Save the Children

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