Maitree : An Interactive Tab-Based mHealth Application for Accredited Social Health Activists (ASHAs)

September 2015

Background

With 27 million birth annually, India accounts large population growth. However with such a large demand, the number of registered gynaecologist are only 30,000 across India. This gap results in higher MMR , IMR figures and also very poor implementation of government healthcare scheme.

ASHA

 ASHA(**A**ccredited **S**ocial **H**ealth **A**ctivists) are a new cadre of community health workers (CHWs) instituted as part of India's National Rural Health Mission (NRHM) commissioned to effectively to deliver government healthcare programs. These CHWs fills the gap of less number of doctors in the field. The main role of ASHA worker is to mobilize the beneficiary to PHC or government hospitals and work purely on incentive based program for NRHM.

Challenges

 A majority of ASHAs come from a rural background with very negligible education. Hence, conducting routine maternal, newborn, and child health (MNCH) activities and keeping their skills updated poses an operational challenge. The nature of their engagement requires them to use text-heavy reference materials, multiple and bulky counselling flipbooks, complex newborn care checklists, and reporting formats that are not suitable for low-literate ASHAs. Moreover, given their educational background and levels, it is almost impractical to assume a consistent service delivery model.

Solution

Luckily, the onset of mobile infrastructure and low cost tablets in India, has led to the emergence of mHealth applications that are potentially effective tools for supporting these ASHA or other CHWs across a range of activities. These applications are helping in delivering services, reducing the delays in backfilling the information and statuses.

In April 2015 , DEEP (Disease Eradication though Education and Prevention), an NGO in partnership with local MLA and functionaries, rolled out mHealth app called Maitree. This app helps ASHA workers to be more effective in government healthcare program deliveries and reduces the information travel delays between ASHA and functionaries.

What is Maitree ?

Maitree (A Friend in Indian language) is a Tablet based interactive vernacular video-guided application that provides support to ASHAs in:

#1. Registration of ASHA details and connectivity

#2. Registration of Mother and Child

#3. Tracking the ASHA's performed activities for their incentive claims

#4. Videos for conducting HBNC

#5. Videos for counselling

The application has been developed in local language of Andhra Pradesh region i.e. Telugu therefore its usable and understandable quickly by CHW irrespective of their education level. Once the language barrier taken off the table, ASHAs were ready to use the application quickly and forthcoming with their feedback as well.

Maitree has been developed by open source technology, Android, PHP, apache and MySQL and have gone through more than 5 months of user validation successfully.

Simple and intuitive user interface with pictures and local language text, is the key element of the application as it is expected to be utilized by varied education background CHW. This had really helped the rollout wherein 1 week of interactive sessions (spread over a month) were sufficient for all ASHA workers to start using the app. This included taking selfies or Mother's pictures, voice recording of beneficiary names and recording of the activities that they perform.

ASHAs register beneficiaries (pregnant women and/or newborns) by entering basic information such as name, village and Aadhar Card into Maitree. They use the videos of counselling and home visits to messages and services consistently.

The ASHAs' supervisors (auxiliary nurse midwives or ANMs) and PHC Doctors receive the data entered by ASHAs into Maitree, and the data are stored in the Maitree central database, allowing for real-time tracking of both ASHAs and beneficiaries.

The Maitree has been designed to seamlessly integrate with Govt of India application MCTS, or state government application called Mahila Sishu, if required. This integration will really reduce the delays in :

1. Information available to Government System

2. Payment to ASHA workers

3. Last, not the least, all activities that ASHAs performs but they do not get paid for.

Key Findings

Maitree Usage

Maitree data, collected since April 2015 shows that counselling and HBNCs videos are used 23989 times totalling of 568 hours. Average monthly usage per ASHA increased from 10 min start to 90 Min at the end of the 5 month time window. During the audit and in comparison to initial months, more than 60% ASHAs prefer using the Maitree in comparison with manual flip books.

On weekly basis, data (ASHA, location and need) was shared with local sponsor and they used the information to help ASHA, Mothers and child to take them to hospital and drop them back as a community service. More than 700 records were gathered with various action items including Antenatal checkups and other activities.

Knowledge

In comparison, ASHAs who used Maitree (experimental group) viz a viz who did not (comparison group) from the same cluster but different mandals, showed the knowledge improvements for critical MNCH topics. ASHAs knowledge on the HBNC topic also increased also recipients of messages confirm the consistent and better ways in comparison to CHW who didn;t use Maitree video.

Feedback

Although every ASHA preferred Maitree to use, following caveats are indentified:

#1. Double data entry : Since Maitree is disconnected with government system, ASHA workers had to fill out the same data twice. One for using Maitree and other for claiming their incentives. Sometime ASHA get confused due to disconnected systems realities.

#2. Unpaid activities: Maitree does allow CHW to register activities that they perform , however there is no way to claim those as incentives.

Costing

Following guidelines can be used to further enhance and rollout of Maitree to entire state or other states:

Maitree implementation cost (INR)

Tab	6000 per ASHA
Training (5 Days per year)	2000 per ASHA
Ongoing Technical Support	4000 per ASHA
App Dev and Maintenance	4000 per ASHA

The main cost comes from the Hardware, In-person meeting with ASHAs and field follow ups.

Potential

Maitree started with the objective of connecting ASHAs workers closely to the functionaries and reduce information delays. This reduction finally results in improved numbers for IMR, MMR and U5MRs.

Recently Andhra Pradesh government initiated the change to increase scope for ASHAs workers, for them to play an active part in RBSK (Rashtriya Bal Swasthya Karyakram) program. RBSK initiative aimed at screening over 27 crore children from 0 to 18 years for the 4 Ds - Defects at birth, Diseases, Deficiencies and Development Delays including Disabilities. Children diagnosed with illnesses shall receive follow up including surgeries at tertiary level, free of cost under NRHM.

This increased scope goes beyond what ASHAs have been doing so far. After careful study of the RBSK scope inclusion, The potential to use Maitree to increases manifold as Maitree is:
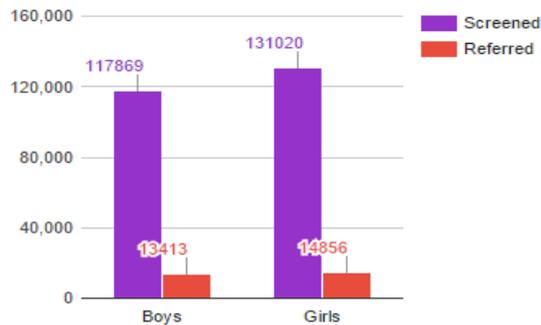
#1 Simple to uptake and understand

#2 Reduces the information delays to government systems

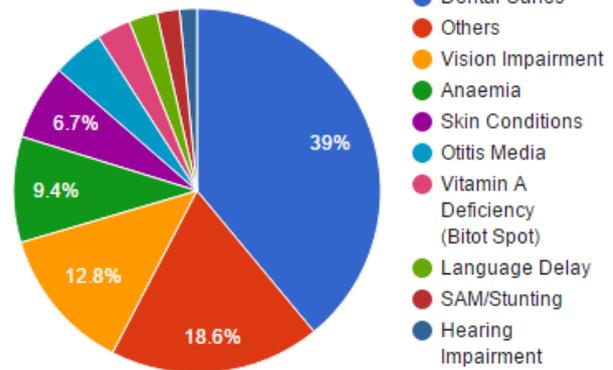#3 Enables consistent ways to manage and message

As per the AP govt data below, effort to improve citizen's health through early screening as part of RBSK program has already showing positive results in reducing child mortality. It can scale faster with mHealth Apps like Maitree.

Children Screened in Andhra Pradesh

Screened	248889
Referred	28269

Top 10 Health Conditions

- Dental Caries — 39%
- Others — 18.6%
- Vision Impairment — 12.8%
- Anaemia — 9.4%
- Skin Conditions — 6.7%
- Otitis Media
- Vitamin A Deficiency (Bitot Spot)
- Language Delay
- SAM/Stunting
- Hearing Impairment

Maitree's scope can be expanded as :

Sr No	RBSK Scope	Potential in Maitree
1	Neural tube defect	No
2	Down's Syndrome	Yes
3	Cleft Lip & Palate / Cleft palate alone	Yes
4	Talipes (club foot)	Yes
5	Developmental dysplasia of the hip	No
6	Congenital cataract	Yes
7	Congenital deafness	Yes
8	Congenital heart	No
9	Retinopathy of Prematurity	No
10	Anaemia especially Severe anaemia	Yes
11	Vitamin A deficiency (Bitot spot)	Yes
12	Vitamin D Deficiency, (Rickets)	Yes
13	Severe Acute Malnutrition	Yes
14	Goiter	May Be
15	Skin conditions (Scabies, fungal infection and	Yes

	Eczema)	
16	Otitis Media	Partially
17	Rheumatic heart disease	No
18	Reactive airway disease	No
19	Dental conditions	Yes
20	Convulsive disorders	Yes
21	Vision Impairment	Yes
22	Hearing Impairment	Yes
23	Neuro-motor Impairment	Yes
24	Motor delay or Cognitive delay	Yes
25	Language delay	Yes
26	Behaviour disorder (Autism)	Yes
27	Learning disorder	May Be
28	Attention deficit hyperactivity disorder.	May Be
29	hypothyroidism, Sickle cell anaemia	No
30	Beta Thalassemia based on epidemiological situation.	No

The above list has been validated by practicing doctors and clearly shows that if Maitree scope is to be expanded then government can really get the information of 50% diseases from RBSK without any delays. This inclusion to ASHAs program will bear meaningful fruits as Maitree leaning and delivery requirements are already validated with ASHA workers.

Lessons Learned and Recommendations

1. Maitree improves ASHAs efficiency

Maitree does improves ASHAs efficiency as its simple and intuitive to use, Audio/Video for key activities, and reduces the information delay to functionaries.

2. Maitree does improve Knowledge of ASHA workers and enables a consistent Delivery of messages

Beneficiary gets the consistent messages from Videos, ir-respective of ASHAs background.

3. Simple, Intuitive and usable application is necessary for CHWs

Follows the simplistic design principals of usability. Uses lot of pictures, audios and focuses on ASHAs activities.

4. Sustained support is the key to the success of the Maitree

The actual benefits of the maitree can only be leveraged when its connected with health eco system and does not cause confusion for ASHA by having her to enter data multiple times.

5. Perceived cost of Maitree is very low vs the benefit it delivers

The main cost of the Maitree is in hardware. Once its be tackled and managed, software and support is very low. The benefits that it delivers by connecting beneficiaries, ASHA by reducing the information delays in far high in comparsion to perceived cost.

6. Potential to expand to other diseases or RBSK programs

The benefits of Maitree increases manifolds if government decides to expand ASHAs role to other activities and help her to delivery government health programs through simple application as Maitree.

Conclusion

The initial rollout and comparative study shows that, compared with existing paper-based job aids, Maitree is more simple, intuitive and effective ASHA job aid for entire range of activities that they are responsible for. As Maitree includes video based HBNC and counselling, there is a consistency in delivering government messages to beneficiaries irrespective of ASHA's education and background.

Moreover, it is the potential of Maitree that makes it very powerful as we move forward in newer state and connected healthcare world. 1.24 Cr state population is going to be touched under RBSK and technology like Maitree can utilized in this effort of Child Health Screening and Early Intervention Services.

Population (0 - 18 Yrs) 1.24 Cr 46% 54%

Potential to use in RBSK or expanding beyond for tracking TB or HIV makes Maitree very valuable asset. The positive findings, and potential make a case for implementing Maitree to entire state and let the people of state benefit.

http://www.deepindia.org