

Project 2 Report

Designing Antenatal Care Services for the Pregnant Women of Gaduba Tribe

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2. Introduction

2.1 Antenatal care

Antenatal care is the systemic supervision of women during pregnancy to monitor the progress of foetal growth and to ascertain the well-being of the mother and the foetus. A proper antenatal check-up provides necessary care to the mother and helps identify any complications of pregnancy such as anaemia, pre-eclampsia and hypertension etc. in the mother and slow/inadequate growth of the foetus. Antenatal care allows for the timely management of complications through referral to an appropriate facility for further treatment. It also provides an opportunity to prepare a birth plan and identify the facility for delivery and referral in case of complications. As a provider of antenatal care, you are involved in ensuring a healthy outcome both for the mother and her baby. [1]

Globally, an estimated 3,03,000 women died from complications of pregnancy and childbirth in 2015, and over 90% of these deaths concentrated in Sub-Saharan Africa and South Asia. According to the latest World Health Organization (WHO) estimates, 45,000 maternal deaths occurred during 2015 in India and this figure drives India into the home of the second-largest number of maternal deaths after Nigeria.[2]

2.2 Global AID

Global AID is a non-profit organization based in Visakhapatnam, Vizianagaram and Srikakulam Districts of Andhra Pradesh, India. Global AID, brain child of Sai Padma, Founder President and Pragnanand, Founder Secretary was established to explore and identify hidden abilities in differently abled persons, persons with disabilities, nurture, improve and develop them with professional and personal skills, ultimately empowering them.

Global AID has been providing services in the following sectors

Education

- To run schools and hostels to facilitate education in rural areas.
- To organise vocational training centres in the selected rural areas for students and adults.

Health

- To cater health facilities for children and adults in rural areas.
- To introduce telemedicine facilities in the remote areas.
- To organise health awareness camps, check ups, by collaborating with local hospitals and related NGOs.

Livelihood

- To organise agricultural awareness camps on new techniques/practices

Differently abled

- To deal with and represent as an organization on issues pertaining to accessible environments for the disabled people such as accessible workplace, public place and to conduct access audits.
- To carry out community based rehabilitation programs and projects.
- To work actively for disability rights and human rights as a whole.
- To publish works related to disability rehabilitation, in the form of journals, newsletters, poetry, prose etc.
- To provide job oriented training and placement services and sustainable livelihood options to persons with disability/disabilities.
- To provide healthcare and counselling and rehabilitation services to physically, mentally challenged persons and aged persons.
- To network with organizations working with similar objectives. And to give better opportunities for the disabled by using assistive, adoptive and information technology tools, appliances and aids.
- Initiate programs and projects for providing an inclusive environment for the differently abled persons.
- To organize programs to reflect the voice of physically challenged and aged persons and to enter into any sector as the board of trustees may deem fit from time to time.



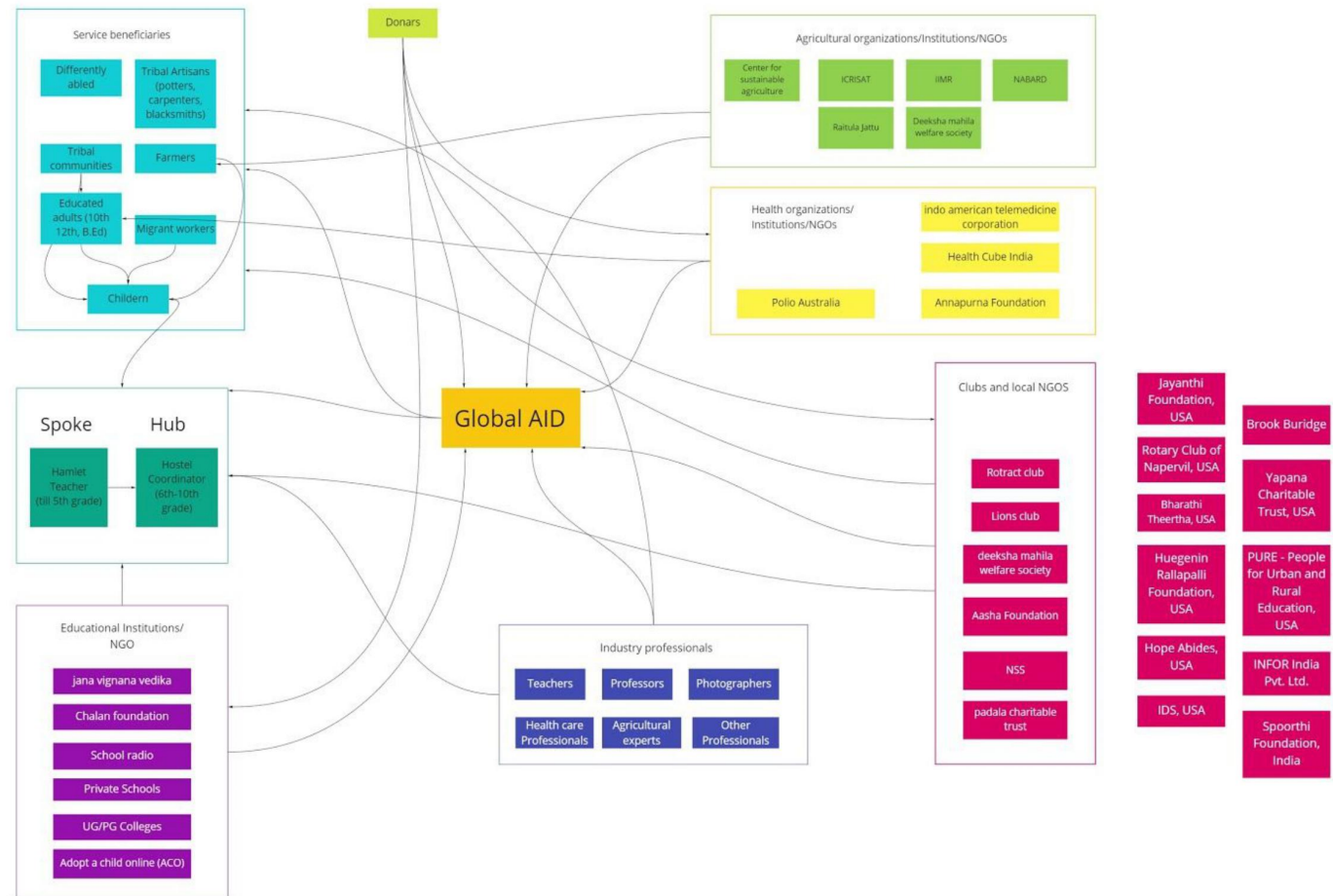
Figure 1: Team Global AID with the students from tribal communities

3. Existing Service Ecosystem of Global AID

Through primary research, multiple stakeholders involved were identified, connected and represented in the form of service ecosystem. Entities which are related to each other are clustered together and categorized into several domains namely Education, Healthcare, livelihood, NGOs, etc.

Figure 2: Existing service ecosystem of Global AID

[Click here](#) for high resolution picture



4. Primary research

Since I was not much aware of the tribal context and how Global AID is contributing in solving their local issues , primary research was done in two phases.

4.1 Phase I

Phase 1 of the primary research is focused towards understanding various pain points in the tribal community and how Global has been contributing to bridge the gaps. The following are the insights from the contextual inquiry.

Locality

- There were no proper roads to reach the hamlets, they were just paths alongside the fields and forest.
- The community has to walk several kilometers to reach the nearest town to access public services and facilities. From here, again the nearest hospital is 10Km away.
- Initially none of these hamlets had government schools, but after establishing the education system in these hamlets by Global AID, the local government / municipality has identified the potential in these areas and started running government schools in three of the hamlets. Now the NGO teachers and volunteers are aiding the government services.
- Few hamlets don't have water storage facilities, and have to walk several kilometers to the nearby lake to get the water.



Figure 3: Gaduba tribal hamlet in Vizianagaram district of AP

Tribal adults

- A well structured hierarchy, where the community head and other men have the power to take decisions for the community.
- The adults of the community take suggestions from the community children as they are educated and more enlightened than other older generations.
- Most of the adults/parents are agricultural labourers and migrant workers. And few are highly skilled artisans (wooden crafts, pottery, bamboo crafts, blacksmithy), but are worried about their livelihood as the consumers of their products have

reduced, most of them are making products only for their personal use and not for selling.

- The whole population in these areas still lives below the national poverty line (earns less than Rupees 150 per day).
- Most of the adults are regular drinkers, consuming locally made liquor, which is unhealthy.
- There were incidents where drunk adults used to create mess at the Spoke even during the day time.
- People are extremely superstitious, In case of any health issues, they still follow traditional methods for curing rather than consulting a doctor. One reason could be the availability and feasibility in reaching them.
- Because of unhealthy habits, beliefs, and unawareness, most of the parents, especially men, are dying (because of consumption of unhealthy local liquor) below the age of 25 - 30 years, leaving their family in a helpless situation.
- The parents, especially fathers are not at all concerned about their children. They leave their children with the elderly at home and leave for work or migrate to other places for a couple of months. The elderly at home make these children do local agricultural works.
- Many times children were sent to work instead of sending them to Spokes, volunteers had to go to the children's house to know the whereabouts of the children and get them back from the work to the Spoke.

Tribal children

- Children are very creative and passionate in learning arts and crafts.
- Most of the children are malnourished. Children come to the Spoke in the morning without even having breakfast, just because they don't have food at home.
- Most of the children don't have fathers. (Died due to over drinking/ following local medication)
- Children lack hygiene and discipline.
- Lack of motivation and interest in education.
- Lack of exposure to the outside world and technology.
- Takes more time to grasp and understand than the children of the same age group who were raised in urban areas.
- Unhealthy household atmosphere could be one the reasons for most of the prior identified problems.



Figure 4: Laxmi, 6 year old girl from the Gaduba tribe who is currently availing formal education through Global AID's educational program

Health care workers

It is impossible to be really healthy if you don't have the basic living conditions. Health is much beyond just absence of a disease or illness, it is about social well being and mental well being. Unfortunately in the current scenario, the health sector is only about building new hospitals and coming out with new disease prevention programs, It is all just centered around providing medical care to the people, which is just curing people from diseases but not promoting health. The three main problems related to the health sector in the tribal/rural areas of India are **Malnutrition, Antenatal care** and **Immunization**, one reason of this issue could be the awareness about modern health care practices and other could be the accessibility to the health care services

4.2 Phase II

Based on the insights from the phase I research, I identified that the awareness about health care services and access to it is a major pain point in the current scenario. After completing the phase I research, I narrowed down the focus to antenatal care services for the community women. The goal in the phase II is to understand the factors affecting the health of the community women during the time of pregnancy. To get more deeper insight in this context I have identified 4 target groups for the user studies.

Mothers (preferably who had recent deliveries), to understand the challenges they faced during the period of pregnancy. The following are the areas which I focused during the user studies:

- What kind of services were available from government / NGOs / other organizations and how did they avail these services
- Support systems; actors who have played a major role in taking care of pregnant women
- Lifestyle of the pregnant woman in the tribal areas (work, eating habits, relationships, leisure activities)
- Healthcare (diet / nutrition / medication / checkups)
- Accessibility to hospitals and pharmacies
- Role of Doctors and health care workers in creating awareness about antenatal care and providing relevant health care services
- Experiences during Antenatal checkups
- Their suggestions to improve existing model

Women who are expecting a child, to understand their awareness about pregnancy. The following are the areas which I would like to focus during the user studies:

- Intra-family relationships
- Family planning
- Awareness about sex education
- Awareness about pregnancy and antenatal care

Gynecologists, local health care workers, to understand various services provided by them. The following are the areas which I would like to focus during the user studies:

- Major complications during pregnancy which are contextual to that specific geographical location
- Doctor's role in resolving such issues
- Types of tests and their significance
- Types of mobile medical kits available and issues with using them in this context
- Services provided by hospitals for pregnant

ASHAs, An **accredited social health activist** is a community health worker instituted by the government of India's Ministry of Health and Family Welfare (MoHFW) as a part of the National Rural Health Mission. Their tasks include motivating women to give birth in hospitals, bringing children to immunization clinics, encouraging family planning (e.g., surgical sterilization), treating basic illness and injury with first aid, keeping demographic records, and improving village sanitation[18]. ASHAs are also meant to serve as a key communication mechanism between the healthcare system and rural populations.

The goal is to understand various services they provide in the rural/tribal areas, especially how they manage large networks of volunteers, the hierarchy in the system, how they manage to gain trust from the local indigenous communities and how they are bridging the gap between the government schemes and the rural communities.

Interview guidelines can be accessed [here](#)

4.3 Insights

Insights from the primary research were categorized into various themes to analyse and ideate efficiently. The major issues were identified in the following areas:

Awareness about ANC and other related services, most of the women are getting awareness through other community women or local medical practitioners, but overall they are very little aware about the complications.

Transportation facilities to reach out the health care services are very minimal as they are not in the vicinity of public transportation services and most of them don't own a vehicle.

Trust and belief system, since they belong to indigenous community, they are very superstitious and follow their own traditions and culture.

Healthcare resources, skilled healthcare workers are quite reluctant to work in such remote areas, but the community healthcare workers are not skilled enough to deal with major complications.

Economical constraints, even though few people are aware about the ANC and complications involved, most of them can not afford such services. Few of them can't even afford a meal sometimes.

Detailed insights and affinity mapping can be seen in the following excel sheet

Affinity mapping							
Themes	Insights						
Transportation and mobility	Monthly visits to hospitals are recommended	Hospitals have ambulance services in case of any emergency	3 scans during the period of 9 months are mandatory	Medical kits are available for home delivery but it is not at all recommended	No transportation facility to the nearest hospitals	Scans and few other tests can be done only in the hospital/lab facility	Few tests can be done remotely using available medical kits
Awareness	Health camps were organized 3-4 times a year by various NGOs and organisations but not specifically on Antenatal care	Lack of family planning	Irregular diet	Lack of awareness about antenatal health care	Would prefer consulting a local experienced women than consulting a doctor, because of trust and accessibility issues	Malnutrition during pregnancy	Rarely visits hospital for antenatal checkup
Beliefs / trust / relationship	Relay on elders in the community to get awareness about antenatal care, diet plans and other health issues	In most scenarios pregnant women depend on other women in the community rather than seeking help from husbands	Unhealthy family relationships	Lack of family planning	Superstitious; believes in locally made medicine and treatment methods	Would prefer consulting a local experienced women than consulting a doctor, because of trust and accessibility issues	Lack of understanding within the family members
Skillsset	Would prefer consulting a local experienced women than consulting a doctor, because of trust and accessibility issues	Health care workers are not enough skilled to perform all the tests					
Medical equipment	Medical kits are available for home delivery but it is not at all recommended	Few tests can be done remotely using available medical kits	Scans and few other tests can be done only in the hospital/lab facility				
Economical constraints	Diet tips were given by doctor but most of the women were not able to follow it	Irregular diet	Laborious work during pregnancy	No vehicles for transportation			
							Insights from doctors

Figure 5.1: Affinity mapping of the insights from the primary research (Part1)

[Click here](#) to access the sheet

Affinity mapping							
Themes	Insights						
Transportation and mobility	Nearest PHC is 15km away	Ambulance service is available from the nearest PHC in case of any emergency	Would prefer consulting a local experienced women than consulting a doctor, because of trust and accessibility issues				
Awareness	Expected to work even during the time of pregnancy	Laborious work even during the period of pregnancy	Doctors and health workers do educate about antenatal care	Not aware of government schemes	Rely on elders in the community to get awareness about antenatal care, diet plans and other health issues	Diet tips were given by doctor but most of the women were not able to follow it	Mostly rely on the community women to get information /tips/ suggestions about antenatal health care.
Beliefs / trust / relationship	Doesn't get support from family	Major decisions in the family is generally taken by the elderly men	Since community adults could see the difference in their children's attitude after getting formal education through the NGO, they gained more trust on NGO and also				
Skillset							
Medical equipment							
Economical constarints							
							Insights from doctors

Figure 5.2: Affinity mapping of the insights from the primary research (Part2)

[Click here](#) to access the sheet

5. Project brief

Designing a service for the pregnant women of Gaduba tribe to create awareness about antenatal care and provide seamless health care services during the period of 9 months of pregnancy by value co-creation within the community. The aim is to leverage the existing resources within the ecosystem and design the services

6. Literature review

The literature review in this report focuses on the concept of service design and various health care systems/models, and how the value is being generated by incorporating service design concepts in the health care sector.

Service design focuses on arranging entities (i.e. resources and stakeholders and customers) into sets of relations in order to create value for the customers rather than focusing on the artefacts. [5]. In healthcare, there are multiple stakeholders, like the patients, their families, caregivers, doctors, nurses, facilities, housekeeping, pharmaceutical industry, government, etc. The vision of this project is to involve multiple stakeholders to improve the quality of life (QoL) of the families of PlwD. 'The value of services is co-created through a customer's experience through varied, contextualized, service encounters in which interactions with several touch points constituting a coherent ecosystem takes place. Service design calls for multidisciplinary participation that poses challenges due to the diverse backgrounds, skill sets, and experience of the collaborators.' [4]

The digital integrated health information system for primary health care (IHIS4PHC) design was found to be effective in improving Primary Health Care (PHC)-based health services and other health indicators such as mean blood pressure, adherence to antihypertensive medication, intake of dietary salt by hypertensives, intention to quit tobacco, and vitamin A supplementation.. Therefore, IHIS4PHC like

digital solutions should be considered for strengthening PHC services in low- and middle-income countries (LMICs). [6]

Group-based antenatal care appeared to meet parents' needs for physical assessment and screening. Parents identified that the groups helped them prepare for birth but not for parenthood. The group model created a forum for sharing experiences and helped participants to normalise their pregnancy symptoms [3]. Future public health efforts should focus on removing inter- and intra-state disparities in institutional delivery and ensuring at least four ANC visits for pregnant women, to meet the infant and maternal mortality targets set out in the Sustainable Development Goals [8]. Socio-demographic factors play a significant role in determining utilization of maternal health care services in India. Therefore, policymakers and programme administrators should address socio-economic and demographic vulnerabilities of women to improve the use of maternal health care services, which eventually could reduce the risk of maternal morbidity and mortality [7]. There was a significant association between education and the utilization of maternal health care services though other socio-demographic factors also play a significant role if education will increase then all the socio-economic backwardness will be eliminated. So education will be improved among the women mainly the younger or adolescent women so that they can avail or be aware about the knowledge and practices of treatment-seeking behaviour which will create a new World where high fertility, pregnancy complication, maternal mortality as well as child mortality will be reduced.[9]

7. Secondary research

Based on the findings from my primary research and focused areas, I did secondary research to understand solutions for the similar problems. The following are various products and services which I identified during my secondary research:

7.1 ASHA awareness camps

ASHA has taken steps to create awareness and provide information to the community on determinants of health such as nutrition, basic sanitation, and hygienic practices, healthy living and working conditions, information on existing health services and the need for timely use of health services. But all these services are very contextual and based on the resources available. ASHAs also counsel women and families on birth preparedness, importance of safe delivery, breast feeding & complementary feeding, immunization, Contraceptive and prevention of common infections. Mahila Aarogya Samitis (MAS) is one of the key interventions under the National urban health mission (NUHM) aimed at promoting community participation in health at all levels, including planning, implementing, and monitoring of health programs. MAS is expected to take collective action on issues related to health, nutrition, sanitation, water and social determinants at Slum level. Each MAS covers approximately up to 50-100 Households at slum level. In the state of AP, Mission of elimination of poverty in Municipal Areas (MEPMA) is involved in the constitution and training of MAS [10].

Advantages:

- Creating awareness about family planning
- Importance of antenatal care, birth preparedness, importance of safe delivery, immunization,.

Disadvantages:

- Family members not allowing the women to attend such camps
- Lack of trust if the ASHA volunteer is not from the same community
- Since most of the community members are daily wage laborers, it's difficult to make time and attend the camps
- Lack of motivation / incentives to attend the camps

7.2 ASHA medical services

Advantages:

- Door to door service in rural areas
- Regular visits and monitoring
- Creating awareness to family members
- Minimizing the travel costs of the community members

Disadvantages:

- Lack of trust if the ASHA volunteer is not from the same community
- Lack of trust / belief on modern medical practices

7.3 ASHA didi

A mobile application for the service beneficiaries [11]

Advantages:

- Access to the list of available services
- Access to emergency contacts
- Can ask queries regarding any type of health issues
- Access to previous health records
- Access to family member's health data
- Access to the list of available doctors
- Self register family members

Disadvantages:

- Most of the rural user group not being tech savvy
- Not having access to smartphones
- Trust issues with the 3rd party interventions

7.3 mSakhi

A mobile application for ASHA workers [12]

Advantages:

- e-medical record
- Training information for volunteers
- Stay in touch with ASHA supervisor
- Content to teach other service beneficiaries
- Available in regional languages

Disadvantages:

- Not being Tech savvy
- Not having access to smartphone and access to mobile network as it's the rural areas

7.4 ANC Toolkit

A mobile app by Tata Consultancy services for health care workers where the health vitals can be uploaded in the mobile app which can predict the risk factor.[13]

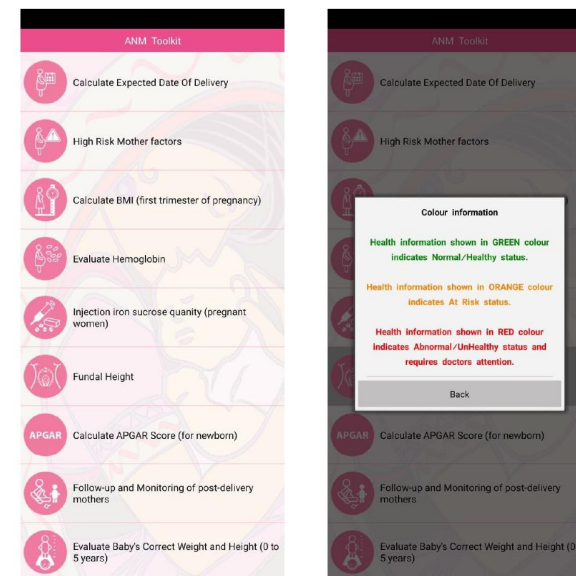


Figure 6: Various health parameters through which risk factor can be calculated

Advantages:

- To measure and analyse various health parameters
- Ro predict risk factor

Disadvantages:

- No provision ro document or record the data
- Adaptance as a touch point in the rural context might be difficult

7.5 Pragati

This is an intuitive and easy to use learning app to educate and train mothers, family members and health workers on all important information on maternal and child health care by IIT Guwahati. It has 3 major components: Learn, share your story and Ask & Answer.[14]

Advantages:

- Network of mothers
- Network of healthcare workers
- Informative videos about ANC
- User can share stories / ask questions
- Available in regional language

Disadvantages:

- Since information gain is happening only through videos, downloading or streaming in rural context is difficult
- Adaptance to new digital touch point in the rural context might be difficult

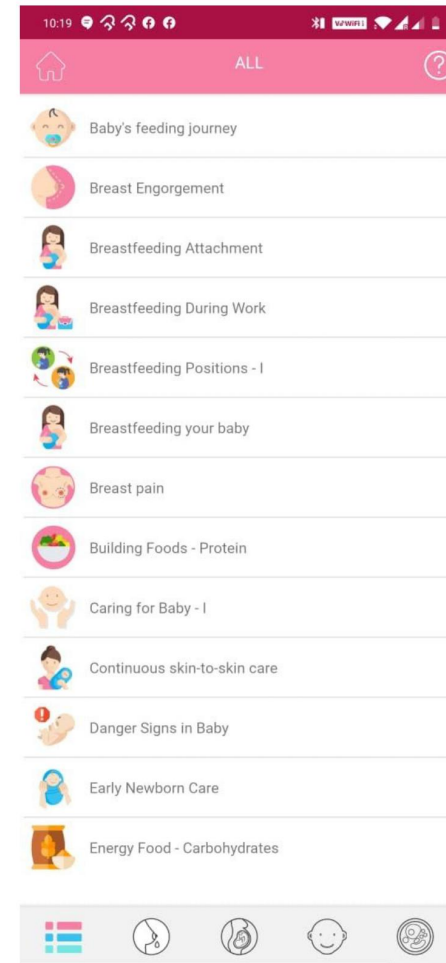


Figure 7: Home page of Pragati where user can browse and access various topics related to maternal care

7.6 Baby center

BabyCenter's pregnancy tracker and baby development calendar app guides you through the countdown to your baby's due date – week by week and day by day – with pregnancy tips and fetal development videos timed for each stage of pregnancy. The BabyCenter app is for every period of the parenting journey: Whether you're just beginning to think about getting pregnant, trying to conceive, already pregnant, or maybe just curious about baby growth and developmental milestones.[15]

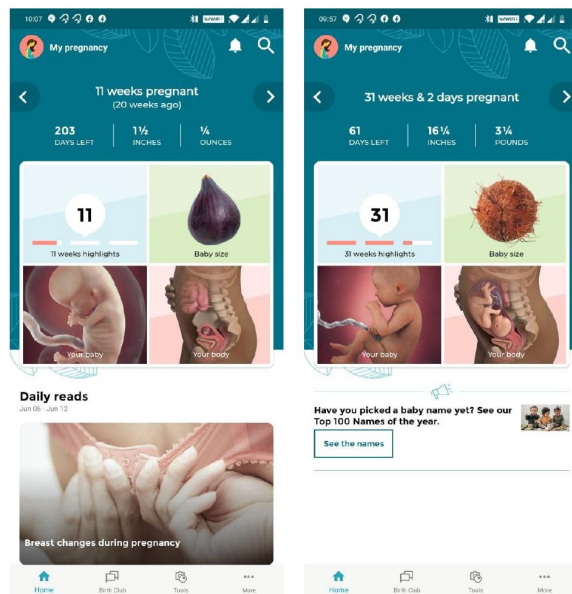


Figure 8: Visualization of fetal growth; Baby center's home page

Advantages:

- Self explanatory visuals
- Quality content
- Well defined microinteractions
- Active community / discussion forum
- Well classified content

Disadvantages:

- Not available in regional languages
- Complex information architecture, might not be user friendly in the rural context

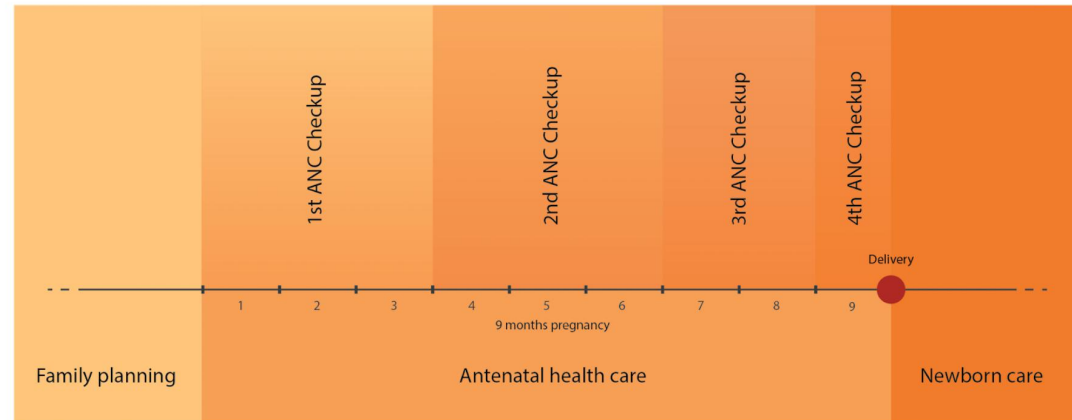
7.7 Conclusion from secondary research

Most of the solutions except ASHA programs are more focused towards urban, educated and tech savvy user groups. The mobile applications like mSakhi, baby center, etc, which I referred to in my secondary research are standalone applications and may not be utilized as a component of the current ecosystem. But these insights helped me to understand the important factors and design the touchpoints in the current rural context. Even the intervention of ASHAs into such indigenous communities is quite difficult because of their belief system.

8. Lifetime trajectory

A lifetime trajectory maps a holistic journey of the user's activities right from the beginning to the end of the services. An ideal lifetime trajectories of pregnant women were mapped based on the insights from the primary research.

Figure 9: Ideal lifetime trajectory of a pregnant women according to the guidelines provided by Ministry of health and family welfare

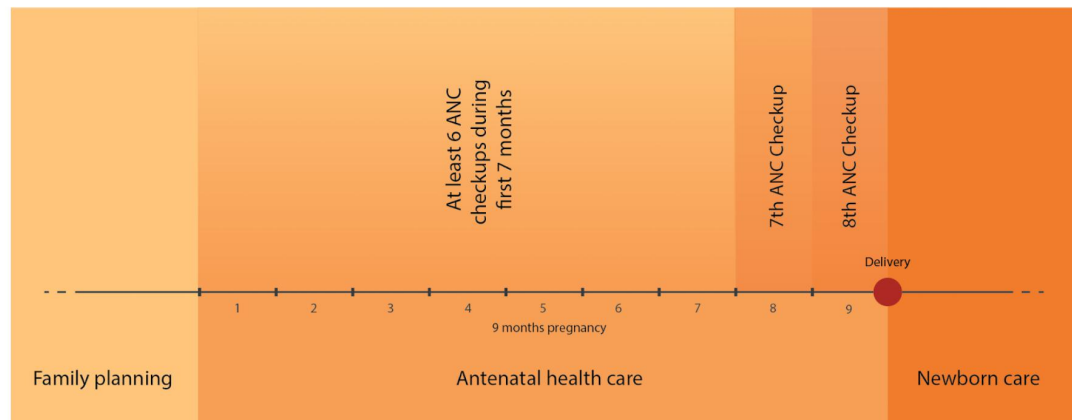


PRE-CORE

CORE ACTIVITIES

POST-CORE

Figure 10: Ideal lifetime trajectory of a pregnant women according to the guidelines provided by WHO, [Click here](#) to access the Image



9. Personas

Persona 1



Lakshmi

Age: 20 years old

Occupation: Agricultural labourer

Education: Uneducated, but can read and write regional language

Likes: Gardening, playing with her pet dog, spending time with her family

Dislikes: family disputes, heavy workload in the farm

Activities: Feeding cattle in the morning, cooking, taking care of elderly, goes to farm work after finishing household work, chit chatting with community women in the evenings.

Objects and devices: Uses her husband's keypad phone, maintains a book to register farm activities

Places: Spends time at the farm during the day time, rest of the time she spends time in the house

She is a newly married who lives with her husband and in laws.

Husband is an agricultural labourer and also a regular drinker, provides monetary support to an extent but doesn't really care about other family issues. She believes in family planning but she doesn't have much control over decision making in the family. She is responsible for cooking and taking care of elderly at home alongside working as a daily wage agricultural labourer at nearby farms. She likes gardening and during her leisure she spends time with other women in the community.

She is expecting to become pregnant, if so she would prefer consulting a local non professional health care practitioner (babas) rather than reaching out to a doctor, because since her childhood she believes in the treatment from the local practitioner. In case of any other health related issues, she seeks help/suggestions from her mother or mother in law and other women in the community. She is quite skeptical in reaching out to the doctor because he/she may not be from the same community.

Persona 2



Kanthamma

Age: 32 years old

Occupation: Agricultural labourer, migrant worker

Education: Uneducated, can read but can't write regional language

Likes: spending time with her son, arts & crafts

Dislikes: time she has to spend to go to collect water, leaving her son and going for work

Activities: Cooking, taking care of ealderly and her son, goes to forest to collect timber after finishing household work, chit chatting with community women in the evenings.

Objects and devices: Uses her husbands keypad phone, maintains a notepad to write accounts (income and expenditure)

Places: Nearby forest to collect wood, house,nearby districts of Andhra and Odisha, in case of migration in search of work

She is a married woman who lives with her 5 year old son, and in laws. Her husband is a migrant worker, provides monetary support but most of the time he lives far away from the family. So Kanthamma has the responsibility of the whole family when her husband is not around. Daily she has to cook food and take care of her child and elderly at home, alongside she goes to the forest to collect some firewood and sells it in the nearby town and also works as an agricultural labourer. During her free time, she would love to spend time with her son.

During her earlier pregnancy, she consulted local non professional health care practitioners for medicare and guidance throughout her pregnancy and had her delivery at home under the guidance of a local practitioner, due to which she had some health complications later on. She then realized the importance of doctor and professional health care services. For the next pregnancy, she is planning to consult a doctor and give the delivery at the hospital instead.

Persona 3



Rathalu

Age: 56 years old

Occupation: Local traditional medical practitioner

Education: Uneducated, can read and write regional language

Likes: gardening, helping others, creating awareness about health

Dislikes: when people don't believe in her medicine

Activities: making medicine out of herbs, diagnosing community members when they get sick, travelling to patients' places in case of emergency.

Objects and devices: Uses her keypad phone, maintains a notepad to write accounts (income and expenditure), watches videos on her son's phone

Places: Nearby forest to collect required herbs, does treatment at her house

She lives with her 37 year old son, who is also a local health care practitioner. Her most of the earnings are by providing healthcare services and selling ayurvedic medicine. Since local community members are getting aware of other healthcare, her income has dropped down and afraid that her skills and tradition might get extinct.

Transcending the skill of curing diseases from her ancestors, Rathalu became an expert in recognizing medicinal herbs and other plants available in that region, and using them for curing diseases of her community members. Most of the community members reach out to her in case of any health issues and she also has decades of experience in doing deliveries for community women.

10. Service ecosystem of the Pregnant women

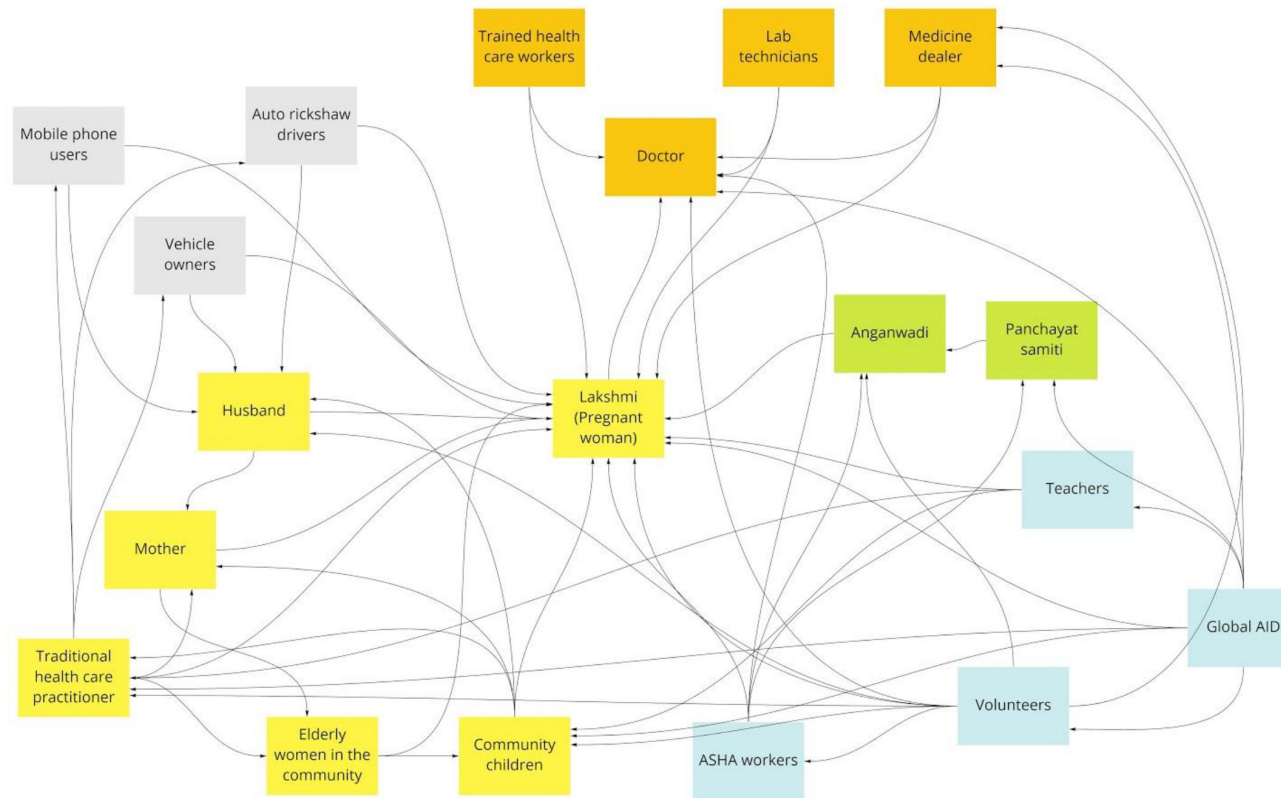


Figure11: New service ecosystem of a pregnant women based on research and personas

[Click here](#) to access the high resolution Image

11. Existing Customer Journey Maps

Stage	conceiving a child	Informs elderly women	Consults local traditional medical practitioner	Regular check ups by the practitioner for 9 months	Delivery
Stage Goal	Confirmation of pregnancy	To convey the information and seek their guidance further	To consult local traditional practitioner and clarify doubts regarding pregnancy and seek his/her guidance	To consult local practitioner and get through all required tests	To deliver a child at home under the supervision of the local practitioner
Thoughts	I should inform other family members about pregnancy	Should I consult doctor or local traditional medical practitioner?	Will it be safe here? Should I consult a doctor instead?	Will it be safe here? Should I consult a professional doctor instead?	Will it be safe here? Should I prefer delivery at hospital
Feelings	Anticipation, Optimism, nervous	Trust, Optimism, Secure	Enthusiasm, Doubtful, Optimism	Trust, optimism, fear	Trust, Responsibility, Pain, optimism, Anticipation, fear
Journey Related Activities	Getting in touch with the loved ones	Seeking support from family members	Inquire about health care, diet, etc.	Inquire about health care, diet, etc	being prepared for delivery
Resources and Enablers	healthy relationship	healthy relationship, awareness about health care	Trust, relationship	Awareness about antenatal health care, trust, relationship	Awareness about delivery, trust, family support

Figure12: Ideal existing customer journey map of persona 1

[Click here](#) to access the sheet

Existing CJM of Pregnant women who follows modern medical practices					
Stage	conceiving a child	Informs elderly women	Travels to nearest PHC	Consults doctor	Visits panchayat samiti and applies for the scheme
Stage Goal	Confirmation of pregnancy	To convey the information and seek their guidance further	To arrange transportation and reach nearest PHC	To consult doctor and clarify doubts regarding pregnancy and seek his/her guidance To know about government	To know about the available schemes and apply
Thoughts	I should inform other family members about pregnancy	Should I consult doctor or local traditional medical practitioner?	Will the Doctor be available?	Will it be safe here? Should I consult local traditional medical practitioner instead?	Will I be eligible? Will it be beneficial?
Feelings	Anticipation, Optimism, nervous	Trust, Optimism, Secure	Doubtful, Optimism, Anticipation	Enthusiasm, Doubtful, Optimism	Trust, Interest, Optimism
Journey Related Activities	Getting in touch with the loved ones	Seeking support from family members	Arranging travel through community members / outsiders	Inquire about health care, diet, schemes, services available, etc.	Inquiring about available/eligible schemes and services
Resources and Enablers	healthy relationship	healthy relationship, awareness about health care	Awareness about PHC, Transportation facility, availability of doctor, Monetary support	Trust, monetary support, awareness about health care	Transportation, Awareness about schemes and services, Trust

Figure13.1 :Existing customer journey map of persona 2 (Part 1)

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Existing CJM of Pregnant women who follows modern medical practices					
Stage	Avails scheme benefits from anganwadi	2nd antenatal health care checkup (4-6 months)	3rd antenatal health care checkup (7-8 months)	1st antenatal health care checkup (9th month)	Delivery
Stage Goal	To access the benefits	To consult doctor and get through all required tests	To consult doctor and get through all required tests	To consult doctor and get through all required tests	To deliver a child at hospital under the supervision of a professional healthcare worker
Thoughts	How and where to access the benefits How can I travel to anganwadi regularly	Will it be safe here? Should I consult local traditional medical practitioner instead?	Will it be safe here? Should I consult local traditional medical practitioner instead?	Will it be safe here? Should I consult local traditional medical practitioner instead? Where should I plan my delivery?	Will it be safe here? Should I prefer home delivery like my mothers and other community women
Feelings	Enthusiasm Trust, Interest, Optimism	Trust, optimism, fear	Trust, optimism, fear	Trust, optimism, fear	Trust, Responsibility, Pain, optimism, Anticipation, fear
Journey Related Activities	Reaches anganwadi and avails services	Inquire about health care, diet, etc	Inquire about health care, diet, etc	Inquire about health care, diet, and delivery	getting admitted in the hospital
Resources and Enablers	Transportation, Awareness about schemes and services, Trust	Awareness about antenatal health care, transportation facility	Awareness about antenatal health care, transportation facility	Awareness about antenatal health care, transportation facility	Awareness about delivery, transportation facility

Figure13.1 :Existing customer journey map of persona 2 (Part 2)

[Click here](#) to access the sheet

12. Ideation

Based on the insights from user studies, affinity mapping and identifying the pain points in the customer journey, I have come up with the following design interventions to aid the existing services and create greater value by value co-creation.

12.1 Influencers in the community

The goal is to design Antenatal care services leveraging the active players in the ecosystem, because such indigenous communities have their own traditions and belief systems, introducing foreign entities might not be an efficient approach to provide seamless experiences throughout the lifetime trajectory of the service. In such cases there might be some friction between the community and the third parties, which can further lead to the failure of the system. To resolve this issue, the value co-creation can happen within the community members. The following are various influences which I identified during my research:

Community children:

It's been more than 10 years since Global Aid has established the education system in these hamlets. The community members have recognized the change in the attitude of their children after getting this kind of formal education and exposure through the NGO's programme. Since their children are now educated, community elders started considering their suggestions and opinions. These educated children are currently playing a major role in eliminating misbeliefs and superstitions in these hamlets.

Traditional medical practitioner:

The community members do not prefer consulting a doctor as there is no PHC in the vicinity and no transportation available. Instead they would prefer consulting local traditional practitioners who are much

aware of the local diseases and how to cure them using locally available medicinal herbs. This led to a trust-relationship between them.

Community women:

Women in this community get more knowledge and exposure through other women in the community. They usually discuss the work, family issues, personal issues, etc. In case of any general issues, they prefer reaching out to other community women than husband or in-laws because husbands in the community are not much bothered or responsible with family issues.

Educated adults:

These individuals have been playing a very important role in shaping their communities so far. Global Aid has already identified these adults and trained them to establish an education system in the hamlets. Currently these individuals are responsible for teaching the community children till fifth grade and also identifying and reporting community level issues to the NGO stakeholders. Since these individuals have been looking after these issues in the community, they act as a major touchpoint between the community and the NGO.

12.2 Service Design Interventions

1. **Awareness camps** to educate the community members about the benefits of healthy relationships within the family of a pregnant woman, sex education, antenatal care and importance of modern health care practices.
2. **Network of vehicle owners** in the community to facilitate the travel during the time of emergency. As the location is isolated, very few personal vehicles and no public transport available.
3. **Home delivery services** to deliver the mid day meal / monthly ration and other amenities to the pregnant women from the Anganwadi which has been provided by the government as a part of YSR Sampoorna Poshana scheme [16]. Hence **co-creating value with the government schemes**.
4. **Contextual antenatal care chart**: Currently the government has been providing Mother Child Protection card (MCP card) to pregnant women in rural India which provides information about antenatal care, diet, suggestions, major complications during the time of pregnancy and how they can be resolved. But information in this booklet is very generalized, the main goal is to provide **Contextual** information through the chart. This chart can also provide information about various government schemes and the list of emergency contacts
5. **Mobile app**, for the service providers to track and monitor all these activities throughout the lifetime trajectory of the service. The same app could be used by the healthcare workers to document and digitize the patient data.
6. **Community Kiosk**, considering the demographics of the user group, many might not have access to the smart phones to access the services through a mobile app, in such cases the kiosk could be a replacement of mobile apps.
7. **Speed dial**, considering the demographics of the user group, many might not be tech savvy to use mobile apps or the community kiosk. In such cases **IVR** with regional language support could be an ideal solution. But still **IVR** might be confusing to many users considering the context.
8. **Monthly monitoring by service providers** to check the health status of the pregnant woman and the functionality of other services
9. **Incorporating existing apps** which can digitize the vital data of the pregnant women for documentation purpose. The app could also be designed to predict the risk factor from the data available.

12.3 Leveraging local influencers

The NGO can not directly go ahead with the healthcare professionals to conduct awareness camps as it might not work efficiently, because such indigenous communities have their own traditions and belief systems, introducing foreign entities might not be an efficient approach to provide seamless experiences throughout the lifetime trajectory of the service. In such cases there might be some friction between the community and the third parties, which can further lead to the service failure. To resolve this issue, the value co-creation can happen within the community members by leveraging the power of influencers.

Community children as a camp organizers:

As adults in the community started listening to the children who are educated, this relationship with the children could be leveraged in organizing the awareness camps. If these community children could play an important role in spreading the news about the awareness camps and organizing them, it would be easier to conduct these camps by attracting all the community members with less friction.

Roles of community children:

- To create awareness among the community adults about the importance of attending the awareness camps
- To organize the awareness camp with the help of NGO officials and health care workers

Educated adults as the Community Volunteers:

Since they belong to the same community and have been working with/for the community members since more than a decade, they have better understanding on the contextual factors on what works and what not. So they could play a major role in dealing with logistics for the Antenatal care services.

Roles of volunteers:

- Registering pregnancies in the community
- Documenting the health status of pregnant women in the community
- Connecting the pregnant women to doctors and mentors
- Arranging transportation facility for community members to reach out to nearest PHCs
- Creating awareness about Antenatal health care
- Creating awareness about government schemes and services
- Collaborating with other social workers to bring in more value to the antenatal health care services

Traditional medical practitioners as the Community Mentor

Since the local community members already have a healthy relationship with such practitioners, this trust relationship can be leveraged in the ecosystem by training such actors and assigning them as a community health mentor. The Community mentor could be responsible for creating awareness about Antenatal health care among the community members and encourage them to seek modern health care practices during the time of pregnancy.

Roles of mentors:

- Create awareness about antenatal health care
- Regular monitoring of the pregnant women's health in the community
- Creating awareness about the importance of modern health care practices
- Skilled at using the modern medical test kits and perform various essential tests on pregnant women
- Create awareness about the risk factors during pregnancy

Risks involved in including local traditional medical practitioners:

Since the local traditional medical practitioners are much inclined towards traditional methods and approaches, they may not do justice in creating awareness about modern medical practices and might resist using medical kits to perform various tests on the community. Capacity building programmes and awareness camps for these practitioners could solve the issue to an extent.

Community women as a go-to person:

As community women are emotionally connected and supportive to each other, they could play an important role in enlightening about the best practices and helping the pregnant women during the period of nine months.

Roles of community women:

- Active participant during regular meetups with the pregnant women, mentor and other community mentor where they share knowledge
- Creating awareness about contextual factors such as local diet, local healthy practices during the period of pregnancy
- Being able to take care of pregnant women in case of any emergency

12.4 Prioritizing design ideas

All the design interventions are plotted against value vs frequency to prioritize. The same was presented to the NGO stakeholders and then the feasible high impact concepts were detailed out.

As the user group is not tech savvy and doesn't have access to smartphones, we realised contextual charts/booklets could be a touchpoint for pregnant women rather than a mobile app.

From the primary research it is clear that the community women are a major support system and also a source of awareness for other women, this has high potential to be leveraged.

And throughout the process. The volunteers and mentors play a crucial role in monitoring, managing and documenting the activities.

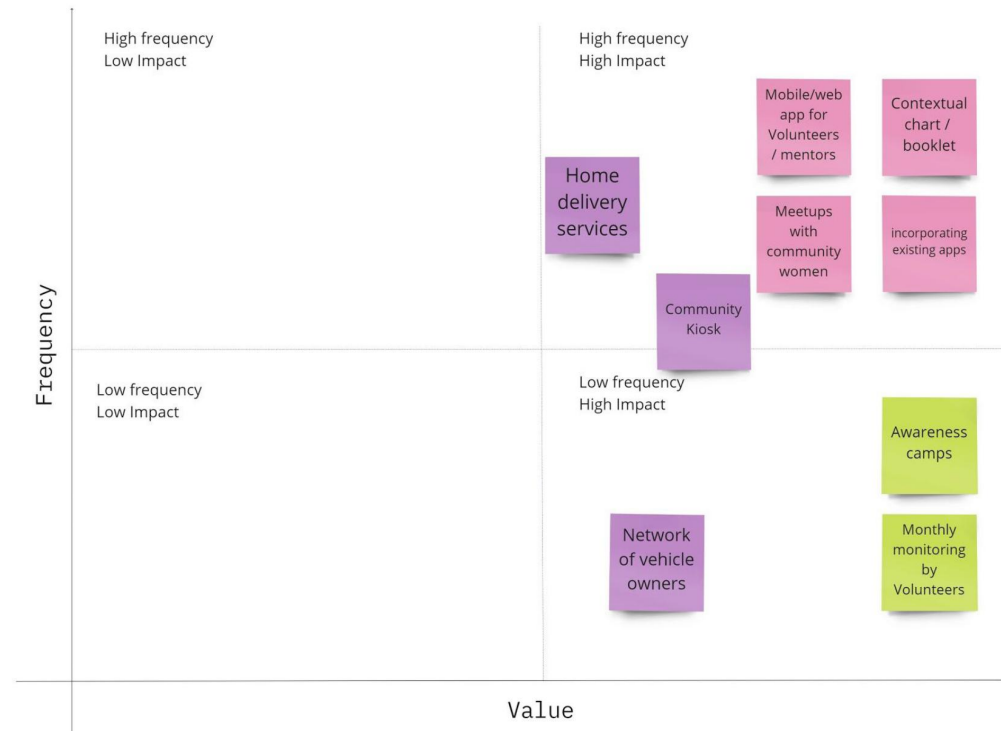


Figure 14: Plotting design ideas against Value vs Frequency to prioritize

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13. Proposed Customer journey Maps

A new customer journey map (CJM) throughout the lifetime trajectory of the pregnant women was made by intervening in the new design interventions to get a holistic understanding of the whole process. The new complete customer journey map is divided into 4 sections:

Section 1:

This involves the precore activities like getting aware about the ANC camps and attending them

Section 2:

First month of pregnancy; which involves identifying the pregnancy, informing the volunteer and getting through the registration process and Visiting PHC for the first ANC checkup.

Section 3:

Since most of the activities are repetitive during every month, all the activities during Month 2 to month 8 are clubbed together and shown in this section.

Section 4:

The last month of the pregnancy; which includes the last ANC checkup, getting admitted in the hospital or nearest PHC and giving birth under the supervision of healthcare professionals.

NEW CJM	Pre Core	
Stage	Awareness about camps	Attending Antenatal health care camps
Stage Goal	To understand what the camp is about through the community children	- To get awareness about antenatal health care - To get awareness about services available
Thoughts	- How does children know about this? - Does children know whether its good or bad? - Can I trust the NGO? - Will it be useful? - Will my husband's family	- Can I trust the organisers? - Will it be useful? - Annoyed / proud of the community children for organizing such camps
Feelings	Suspicious, Anticipation, Hope, Doubtful	Anticipation, Optimism, hope
Journey Related Activities	Inquiring about the health camps	Inquiring about the services, getting contacts
Resources and Enablers	Announcements, brochures, stalls, posters, trained children, active volunteer and mentor participation	- Acceptance from family to attend such camps - Camp organisers, volunteers, doctors, educators - Permission to set up the
Service Design Interventions	- Training program for children - Posters across the village - Announcements - Stalls - House to house visits - Brochure distribution (Could be organized and handled by the community children, educated adults of the hamlets to remove the trust/belief barrier)	- Awareness about family planning - Importance of Antenatal care - Importance of Modern medical practices - Awareness about existing services/Govt schemes - Introduction to new services and touch points - A booklet/ brochure/ pamphlet about services and emergency contacts (Could be organized and handled by the community children, educated adults of the

Figure 15: An ideal CJM in the pre core

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NEW CJM	CJM of pregnant women (1st month)					
Stage	conceiving a child	Informs elderly women in the community	calls and Inform community Volunteer/Mentor	Takes appointment at PHC	Arranges Transportation to visit PHC with the help of Volunteer and travels	Registers at the PHC and consults doctor ANC check up I (1-3 month)
Stage Goal	Confirmation of pregnancy	To convey the information and seek their guidance further	- To register - Guidance on how to avail services - To receive the kit - To get introduced to the go to	To check the availability of the doctor/Gyno	To arrange transportation to visit PCH	- To register at hospital - Avail various services at hospital - MCP Card - 1st Antenatal checkup
Thoughts	Am I ready for the future?		- Can I trust the volunteer? - Can I trust their services? - Why should I trust them? - Should I consult a doctor or local practitioner	Will the Doctor be available?	How will I reach the PHC? Can the volunteers help in arranging the travel?	- Will it be safe here? - Should I consult local traditional medical practitioner instead? - Can I trust their services?
Feelings	Optimism, Doubtful	Optimism, Anticipation, secure, trust	Enthusiasm, Doubtful, Optimism, trust, anticipation	Enthusiasm Trust, Interest, Optimism	optimism	Trust, optimism, fear, hope
Journey Related Activities	Informing the loved ones	Seeking support from family members	Inquire about health care, diet, schemes, services available, etc.	Contacts PHC directly, Contacts volunteer for the help	Inquire about health care, diet, etc	Inquire about health care, diet, schemes, services available, etc.
Resources and Enablers	Experienced women	healthy relationship, awareness about health care	Trust/belief, awareness about services, awareness about health care	Awareness about PHC, Transportation facility, availability of doctor, Monetary support, contact details	Hospital services, local transportation facilities, monetary support	Awareness about antenatal health care, transportation facility
Service Design Interventions			- A TP for pregnant to contact volunteer/ mentor (phone call) - A TP for Volunteer to register the case (Mobile app) - A TP/artifact to provide information about services and emergency contacts (Poster/chart) - A TP to track health status for pregnant women (Poster/chart)	- ATP to provide information about nearest PHC/Gyno (Poster/chart) - A Human TP to guide them	- A TP to provide information about Transportation services (Poster/chart) - A Human TP to guide them	- A TP to document to health vitals (MCP card, poster/chart)

Figure 16: An ideal CJM during the first month of the pregnancy

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NEW CJM	Monthly CJM of pregnant women (2nd - 8th month)						
Stage	ANC check up II (4-6 month) ANC check up III (7-8 month)	Receives daily home delivery from anganwadi	Monthly visits by the community mentor	Monthly meetups with the community women	Request for home delivery of medicine	Contacts Volunteer/Mentors in case of any emergency	Monthly visits by Volunteers
Stage Goal	- To arrange travel - ANC check up	To avail mid-day meals, ration from anganwadi	To get checked (Antenatal care related diagnosis)	- To have a small gathering with the community women - Share knowledge and experiences - Cook and have food together	To receive required medicines via door delivery service	To receive help	To get checked (logistics)
Thoughts	- Will it be safe here? - Should I consult local traditional medical practitioner instead? - Can I trust their services?	- Can I trust the delivery person? - Am I getting good food? - Hope I get required essential diet	- Hope the baby is fine is healthy - Hope all the essential health parameters are normal	- can I share my issues and experiences with other women and seek their help and guidance - would they mind spending time with me and helping me	- hope I get all the required medicines	- Can they solve the issue? - Hope they will resolve this issue	- Hope they can resolve the existing issues
Feelings	Trust, optimism, fear, hope	trust, hope	Hope, Optimism	Hope, Optimism, trust	Hope, optimism	Hope, optimism	Hope, optimism
Journey Related Activities	guidance and tips from health care workers	Picks up the package from the delivery boy	guidance and tips from health care workers	- Arranging the space for the meetup - checking the availability of other women	Picks up the package from the delivery boy	Contacting volunteers/mentors	Receives information about services
Resources and Enablers	Transportation, availability of Doctor	Transportation, delivery boy, linking with the government schemes	Medical kits, skillset of the mentor, documentation	- Mentor or volunteer to guide the meetup - Community women - Healthy relationship within the community	Transportation, delivery boy, Pharmacy, medicines, patient requirements	Transportation, contact details, rapid response	Logistics, handling, maintenance, management, documentation
Service Design Interventions	- A TP to document to health vitals (MCP card, poster/chart)	- A human TP to provide delivery services	- Mobile health care kits - Documentation of health vitals (Mobile app, poster)	- Mentor organising monthly meetups, preferably at pregnant woman's house. - Discuss about the pregnancy issues - share knowledge about the contextual factors (local food, healthy practices during pregnancy) - Cook local cuisine for pregnant and eat together	- Providing relevant contact details (Poster/chart/booklet) - A TP to document transactions (Mobile App / physical register book) - A human TP to provide delivery services	- Providing relevant contact details (Poster/chart/booklet) - A TP to document transactions (Mobile App / physical register book)	- A TP to document transactions (Mobile App / physical register book)

Figure 17: An ideal CJM during 2nd to 8th month of the pregnancy

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NEW CJM	CJM of pregnant women (9th month)			
Stage	ANC check up IV (9th month)	Contacts Volunteer/Mentors in case of any emergency	Admits at the hospital	Delivery
Stage Goal	- To arrange travel - ANC check up	To receive help	- To avail services/ medical help in case of emergency	- To deliver baby with help of health care workers at hospital
Thoughts	- Will it be safe here? - Should I consult local traditional medical practitioner instead? - Can I trust their services?	- Can they solve the issue? - Hope they will resolve this issue	- can they take care of me and my child properly?	- can they take care of me and my child properly?
Feelings	Trust, optimism, fear, hope	Hope, optimism	Hope, optimism, nervous, fear	Hope, optimism, nervous, fear
Journey Related Activities	guidance and tips from health care workers	Contacting volunteers/mentors	- Inquiring about the possible risks	- Inquiring about the possible risks
Resources and Enablers	Transportation, availability of Doctor	Transportation, contact details, rapid response	Transportation, contact details, rapid response	Infrastructure, skilled healthcare workers
Service Design Interventions	- A TP to document to health vitals (MCP card, poster/chart)	- Providing relevant contact details (Poster/chart/booklet) - A TP to document transactions (Mobile App / physical register book)	- Access to transportation facility in case of any emergency	

Figure 18: An ideal CJM during the last month of the pregnancy

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13.1 Major encounters throughout the lifetime trajectory



Figure 19:
As parents/adults started listening to the community children, the awareness about the camps could be created by leveraging these educated children. Community children will be going to every house and explains about the importance of attending the camp.

Possible failures: Children might fail to convince the elders to visit the awareness camps

Recovery: Training sessions for the children, posters, brochures, announcements, etc

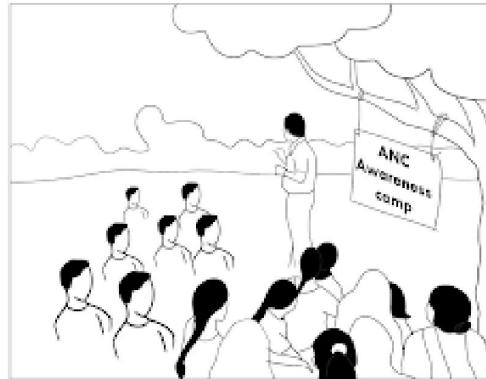


Figure 20:
Community adults attending the awareness camp to know about the services provided by the NGO

Possible failures: Lack of cooperation from the community members, lack of organisation, lack of engaging content

Recovery: A team with a well defined job roles, visually rich and engaging content.

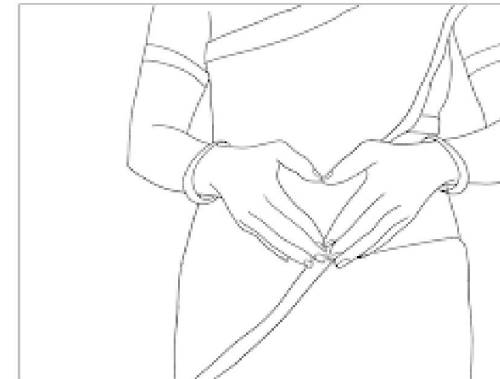


Figure 21:
Lakshmi tests positive for pregnancy



Figure 22:
The community volunteer visits Lakshmi's house to explain about the importance of ANC and services available.

Possible failures: Volunteer's lack of knowledge about the context

Recovery: Training programs, regular inspections by the supervisors



Figure 23:
Once the registration is successful, the volunteer hands over the Mother child protection card (MCP) and ANC care chart to document and keep track of the pregnant health and educate the family on how to make use of it.



Figure 24:
Sets up speed dial of emergency contacts in the user's mobile phone.



Figure 25:
Mentor Visits the house and performs necessary check ups.

Possible failures: Malfunction of health kit

Recovery: Regular maintenance / monitoring / inspection

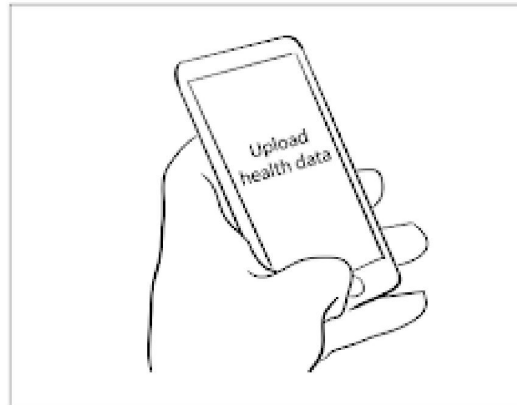


Figure 26:
Mentor uploads the health data using the mobile app.

Possible failures: Malfunction of mobile app or server issues

Recovery: Maintaining a physical log

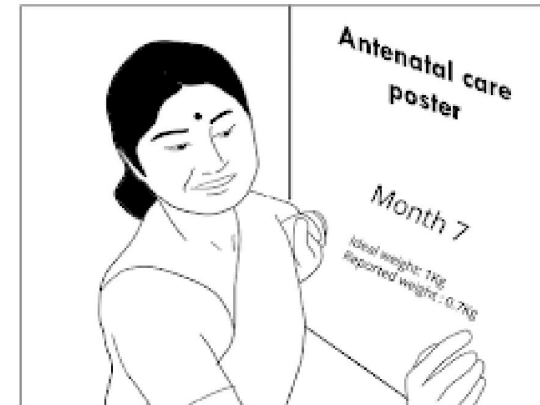


Figure 27:
As the mentor writes down the health vitals on MCP and ANC chart, the chart which is stuck to the walls could act as a source of motivation for the pregnant woman.



Figure 28:

Case 1: Daily home delivery of mid day meal from anganwadi

Case 2: Home delivery of ration provided by the government for the pregnant women

Case 3: Home delivery of the medicines when request by speed dial

Possible failures: What if every family member has to travel and there is no one at house to receive the delivery

Recovery: A system to inform the delivery person in prior to cancel the delivery for the day. This could be through a phone call or an SMS.



Figure 29:

Monthly meetups with the community women, where community women come and discuss how to cope with several issues during the time of pregnancy, also cooks and eats seasonal food which is good for the pregnant woman

Possible failures: Irrelevant conversations between the community women

Recovery: Guidelines for the mentor to monitor the meetup



Figure 30:

Volunteer visits the house and inquires about the functioning of various services

Possible failures: Pregnant not having access to booklet or poster

Recovery: Mentor having a digital repository / database of health vitals

13.2 Detailed Customer Journey Maps of the major encounters

NEW CJM	CJM of Pregnant during the registration process						
Stage	Finds out the volunteers number	Calls and informs about the pregnancy to the volunteer	Volunteer visits the house	Gets awareness about importance of ANC checkups	Gets awareness about the services available	Gets inquired about the demographics for the registration process	Gets introduced to the community women
Stage Goal	To find out the contact of the volunteer or mentor	To call and inform about the pregnancy	To inquire whether the person is volunteer or not	To understand the importance of ANC	To understand the available services	Gives required data for the registration process	To connect with the neighbouring community women
Thoughts	- Will I find it in the awareness camp booklet? - Should I ask other community women?	- can I trust the volunteer/mentor/ NGO?	- Can I trust the volunteer?	Will it be useful?	Will it be useful?	Will it be useful?	would they be helpful?
Feelings	Optimism, Doubtful	Optimism, Anticipation, doubtful	Enthusiasm, Doubtful, Optimism, trust, anticipation	optimism, hope, enthusiasm	optimism, hope, enthusiasm	Trust, optimism, fear, hope	Trust, hope, optimism
Journey Related Activities	Inquiring about the contact details	Making a phone call	Invites the volunteer	Listens, clarifies doubts	Listens, clarifies doubts	Provides data to the mentor	interacts with the neighbouring community women
Resources and Enablers	Availability, access of contact details	Access to phone	Transportation, Healthy relationship	Interest, healthy relationship, access to resources	Interest, healthy relationship, access to resources	Interest, healthy relationship, device to record data	Community women who are interest to help and take care of the pregnant women
Service Design Interventions	- Brochure / pamphlet distribution at awareness camps - Posters across the hamlets			- can distribute booklets, posters with better visualizations to explain or create awareness	- can distribute booklets, posters with better visualizations to explain or create awareness	- A registration form with standard template - A mobile app to input data, upload and register a case	- Making a list of interested community women - Training program for these women on how to respond in case of any emergency - Interaction guidelines for community women/ mentor

Figure 31: An ideal detailed CJM during the registration process

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NEW CJM	CJM of Pregnant during monthly check up by the community Mentor						
Stage	Received phone call from the mentor	Confirms the availability	Mentor visits the house	Inquires about the health	Performs essential tests	Mentor records the data	Gets suggestions / recommendations / tips from the Mentor
Stage Goal	Pick up the call and respond	Confirms the availability	To Invite the mentor	To explain about health and related complications if any	undergo essential monthly tests	To provide sufficient data	ask doubts / listen
Thoughts		- When will I be available for the check up?		- Should I tell everything single issue?	- can I trust? - will it be safe?	- Is it Ok to give personal data?	- Do I really need to follow these suggestions?
Feelings	Hope, Optimism	Hope, Optimism, trust	Hope, Optimism, trust, doubtful	Hope, Optimism, trust, doubtful	Hope, Optimism, trust, doubtful	Hope, Optimism, trust, doubtful	Hope, trust
Journey Related Activities		Checks the schedule		Recollects the incidents			notes down the information
Resources and Enablers	Availability of phone	Free time	Transportation facility for Mentor	Awareness about ANC	Awareness about ANC, Tools and equipment	Awareness about ANC, tools to record the data	Understanding, healthy relationship,
Service Design Interventions	- Calendar/schedule on mobile app with reminder	- Books/reserves a slot in the app		Documents the insights using mobile app	Standard well maintained tool kit	- Documents the insights using mobile app - Documents on users Booklet/Poster	- Can write comments on the booklets/poster

Figure 32: An ideal detailed CJM during the monthly checkup by the mentor

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NEW CJM	CJM of Pregnant during the monthly meet up with the community women					
Stage	Finalizes the monthly meetup date	Community women visits the house	Discussion with the community women	Talk by the mentor	Having lunch / dinner / snacks together	Adjournment
Stage Goal	To communicate with the community women and finalize a date based on everyone's availability	To arrange space at home to sit and spend some quality time together and receive the women	To share any personal or pregnancy related issues and get suggestion / tips from other women	To listen to the mentors about the significance of the monthly recipe	To have food cooked by other community women with them	To thank everyone for their contribution in the meetup
Thoughts	- Will everyone come? - Did I miss anyone to invite?	Are they comfortable at my house?	- Do they really help me out? - Am I bothering them? - Did they come here willingly?	Will this information be helpful for me?	Is it ok to eat this food?	- did they like spending time here? - would they come here again?
Feelings	Hope, Optimism, doubtful	Hope, Optimism, trust, doubtful	Hope, Optimism, trust	Hope, Optimism, trust	Thankful, happy, trust	Thankful
Journey Related Activities	Communicating with other community women	Arranging the space for meetup	sharing the experiences	Listening	eating food	send off
Resources and Enablers	Healthy relationship within the community women	Space to conduct the meetup	healthy relationship	healthy relationship	healthy relationship, space to eat	healthy relationship
Service Design Interventions	Mentor or volunteer could guide / monitor the communication to minimize misunderstanding	- Could be at pregnant woman's house - Common / public space in the hamlet	- Ice Breaking sessions - There could be some games conducted - Card games on ANC - Let other women share their pregnancy experiences and gives some suggestions	- Mentor moderating the conversations by the women - Talking about the significance of "today's meal" - clarifying doubts and giving suggestions		Interaction guidelines

Figure 33: An ideal detailed CJM during the monthly meetups with the community women

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NEW CJM	CJM of Pregnant during monthly visits by the community Volunteer							
Stage	Received phone call from the mentor	Confirms the availability	Volunteer visits the house	Inquires about the health	Shows booklet and other records	Volunteer inquires about the services	Gives feedback on services	Explains about the new services if any
Stage Goal	Pick up the call and respond	Confirms the availability	To Invite the Volunteer	To explain about health and related complications if any	To show health records	To provide information about availing services	Give feedback about the services	To know about the new services
Thoughts		- When will I be available for the check up?		- Should I tell everything single issue?	- can I expose the data?	- Is it Ok to share such details?	- Will they consider my feedback?	
Feelings	Hope, Optimism	Hope, Optimism, trust	Hope, Optimism, trust, doubtful	Hope, Optimism, trust, doubtful	Hope, insecure	Hope, optimism	hope, optimism	Hope, optimism, anticipation, trust
Journey Related Activities		Checks the schedule		Recollects the incidents		Recollects the incidents	Recollects the incidents	
Resources and Enablers	Availability of phone	Free time	Transportation facility for volunteer	Awareness about ANC	trust, access to booklet/poster	Record of Past experiences	Tool to note down feedback	Interest, trust - relationship, resources
Service Design Interventions	- Calendar/schedule on mobile app with reminder	- Books/reserves a slot in the app		Documents the insights using mobile app	Documents the insights using mobile app	Documents the insights using mobile app	Documents the insights using mobile app	- Booklet / brochure / pamphlet to explain

Figure 34: An ideal detailed CJM during the monthly visit by the Volunteer

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14. Touch point design

14.1 Antenatal care chart

Antenatal care chart / poster is one of the touch points with which the user can be interacted directly. ANC chart could be a supplement or aid the existing Mother child protection card which is a booklet given to pregnant women by the government. All the hospital visits and the health vital are usually documented in the MCP card throughout the period of pregnancy. Even though the MCP card is very informative, pregnant women use it mostly during the hospital visits to document the data but not when they want to clarify doubts. Whereas the ANC poster is given to the family by the volunteers once they register the pregnancy and the poster will be stuck on one of the walls.

The poster is divided into 4 main segments:

Dietary, this section shows information about a well balanced contextual diet consisting of a variety of food that is available locally which helps the development of the baby and prevents complications during pregnancy.

Health complications, this section talks about various health complications during pregnancy and whom to contact incase of emergency

Emergency contacts, this section shows the emergency contacts and linked speed dial numbers. This section also contains a unique QR code which contains the digitized data of the pregnant women which can be accessed by other volunteer healthcare workers.

Fetal growth chart, this shows visual representation of fetal growth during the 9 months of pregnancy with respective ideal weight of the baby. During the monthly visits, the community mentor measures the weight and writes it down on the chart across the ideal weight. Looking at this could motivate the pregnant woman and the family members to take proper care of the growing baby.

14.2 Mobile app

A Mobile app is another touch point in the service for the community volunteer and the mentor for documentation and communication purposes. The community volunteers can use this app for the registration process, maintaining and monitoring the repository of all the important actors and their activity. Whereas the community volunteers can use this mobile app to upload the health data of pregnant women during the monthly visits. This way the data can be documented and monitored easily.

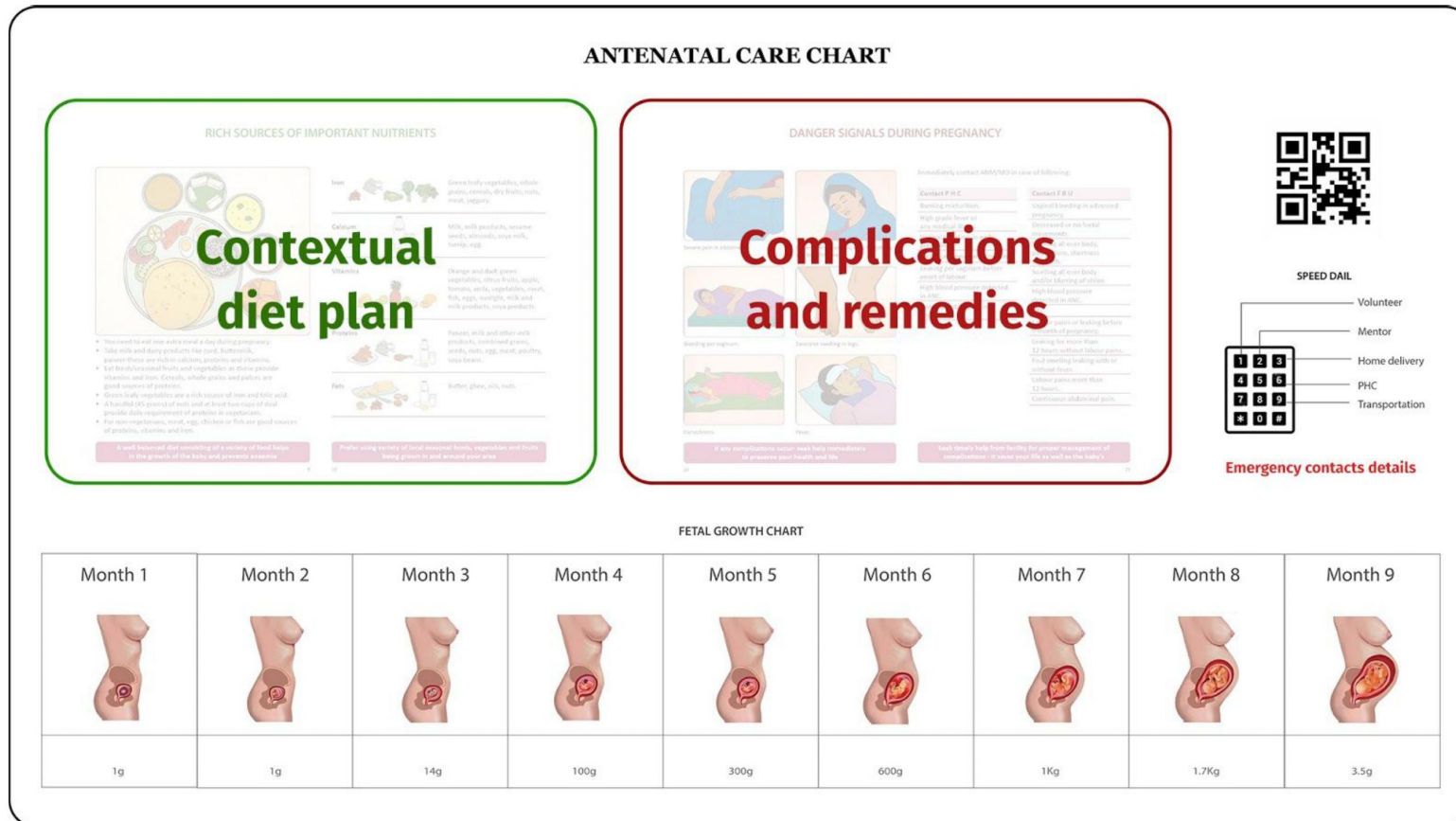


Figure 35: Antenatal care chart Concept

[Click here](#) to access the high resolution image

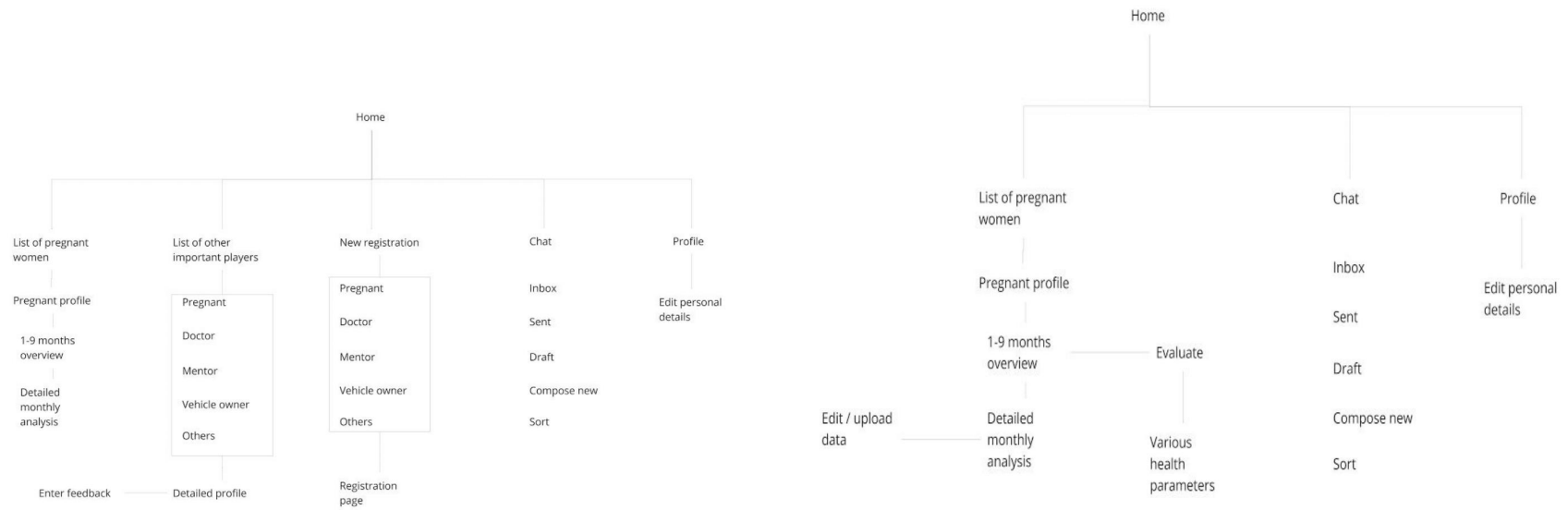


Figure 36: Information architecture of mobile app: Volunteer's interface (Left) Mentor's interface (right)

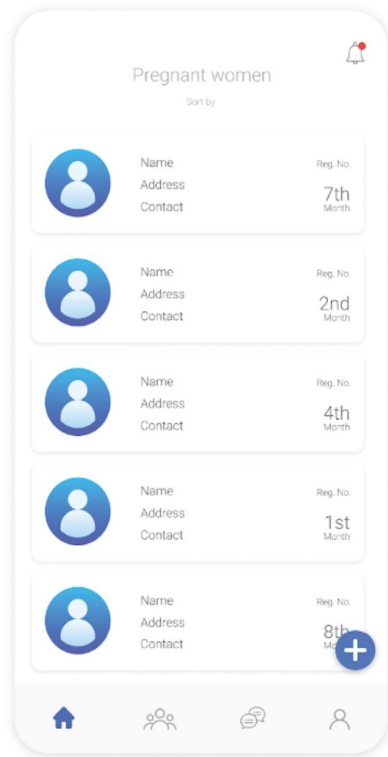


Figure 37:
The home screen of the mobile app shows the list of pregnant women who has already registered.

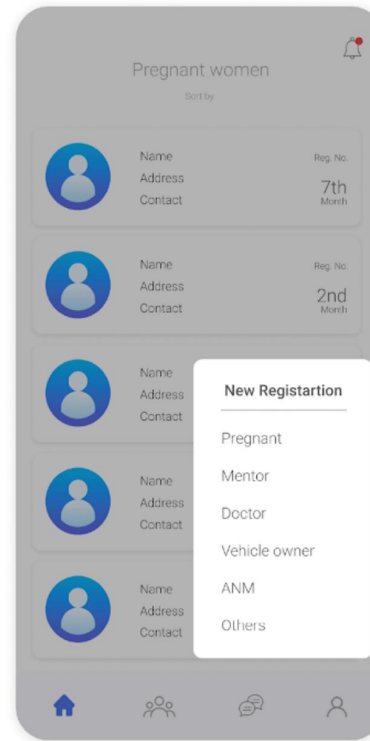


Figure 38:
On clicking the plus button on the home screen, a new registration of the actors can be made.

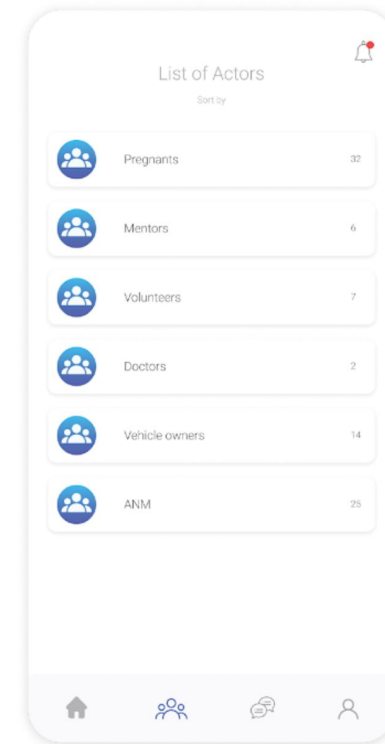


Figure 39:
When clicked on the group icon on the bottom navigation bar, categories/list of all actors in the ecosystem will be shown. More details of the actors will be shown on navigating further

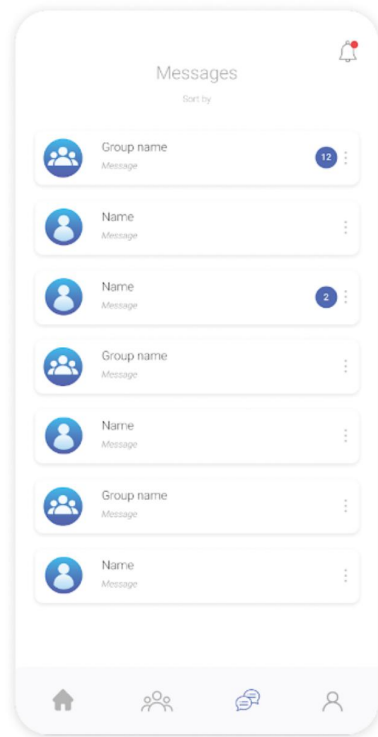


Figure 40:
When clicked on the messaging icon on the bottom navigation bar, the user will be navigated to a screen where the he/she can message or contact other actors

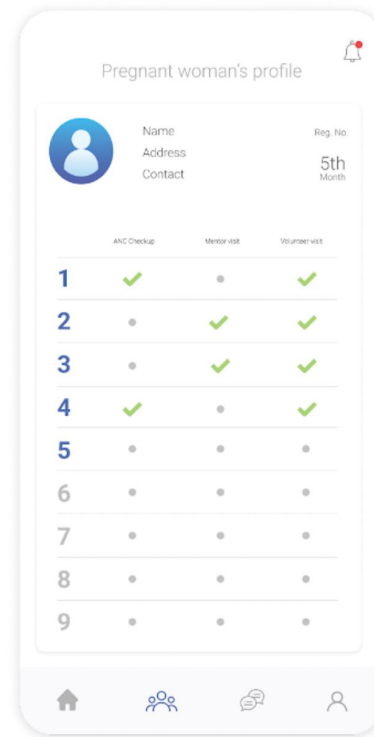


Figure 41:
A detailed 9 months timeline with a checklist will be shown on clicking specific patient's profile

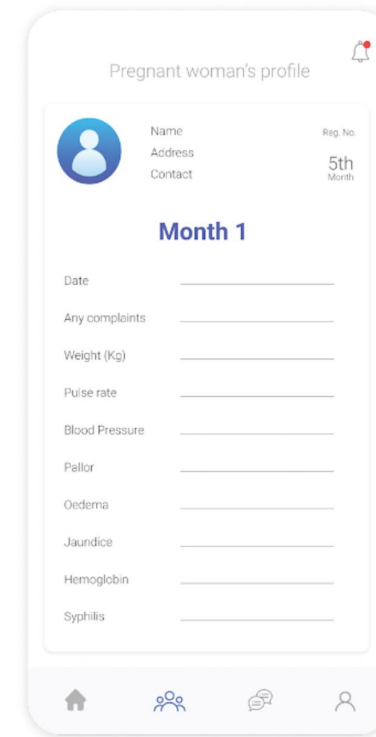


Figure 42:
- On further clicking specific month, a detailed health report can be seen
- Every month, it's the community mentors responsibility to update the health report after performing the monthly checkup

15. Service Blueprints

ENCOUNTER	Blueprint - Registration process				
STEP	Contacts volunteer	Gets awareness about importance of ANC checkups	Gets awareness about the services available	Registration process	Receives pregnancy tracking kit
STEP GOAL	To inform the volunteer about the pregnancy	To understand the importance of ANC	To know about the available services	To finish the registration process	To receive booklet and poster
USER ACTION	Making a phone call to the volunteer	- listen and understand - ask doubts	- listen and understand - ask doubts	Gives required data for the registration process	To receive and understand the use of the kit
LINE OF INTERACTION					
TOUCH POINT ACTION	Checking the availability and confirming the visit for registration	Explains about the importance of Antenatal health care and advantages of modern medical practices	Explains the services and schemes available for the pregnant women to avail during the time of pregnancy	- Inputs the data in the mobile app and submits	- explains how the kit can be useful during the 9 months of pregnancy
LINE OF VISIBILITY					
BACKSTAGE ACTIONS	Checking the schedule and updating it in the mobile app			- Data gets uploaded into the server and registers as a new case	Keeping the kits ready
LINE OF INTERNAL INTERACTIONS					
SUPPORT ACTIVITIES AND PROCESSES	Well maintained database			Well maintained Database / repository of addresses	Availability of kits/ resources management
TOUCH POINT	- Volunteer - Phone	Volunteer	Volunteer	Composite touch point - Volunteer - Mobile App	Composite touch point - Volunteer - Mobile App - Booklet & poster
POSSIBLE FAILURES		Volunteer's lack of knowledge about the context	Volunteer's lack of knowledge about the context	a) Mentors lack of knowledge about the registration process b) Malfunction of the mobile App	a) Mentors lack of knowledge about the kit b) Malfunction of the mobile App b) Unavailability of Kits
RECOVERY		- Training programs - Regular inspection / monitoring	- Training programs - Regular inspection / monitoring	a) Training programs b) Maintaining a physical record	a) Training programs b) Maintaining a physical record c) Regular inspection / monitoring

Figure 43: Service blueprint of registration process

[Click here](#) to access the sheet

ENCOUNTER	Blueprint – monthly check up by the community Mentor			
STEP	Confirm Appointment	Inquires about the health	Performs essential tests	Gets suggestions / recommendations / tips from the Mentor
STEP GOAL	To give an appointment to the volunteer	To explain about health and related complications if any	undergo essential monthly tests	Create awareness about current health status
USER ACTION	To check the availability and confirm	- Gives feedback - ask doubts	Undergo essential tests	ask doubts / listen
LINE OF INTERACTION				
TOUCH POINT ACTION	Confirms and updates in the mobile app / calendar	- Inquires about health status - Checks previous health records in booklet and poster	- Perform tests using health kit	- Explains the current health condition - necessary precautions to be taken - Reminds of next hospital visit / vaccination due
LINE OF VISIBILITY				
BACKSTAGE ACTIONS	Checking the schedule and updating it in the mobile app	Documents the required data	Documents the required health data in - Mobile app - Booklet & Poster - Log book	
LINE OF INTERNAL INTERACTIONS				
SUPPORT ACTIVITIES AND PROCESSES	Updated database	Updated database	maintenance of the testing kits	
TOUCH POINT	Mentor	- Mentor - Booklet and Poster	- Mentor - Medical Equipment	- Mentor
POSSIBLE FAILURES		a) Pregnant not having access to booklet or poster b) Malfunction of mentor's mobile app	a) Malfunction of health kit b) Malfunction of mobile app	- Mentors lack of awareness about the ANC - Lack of Pregnant women / family's interest
RECOVERY		a) Mentor having a digital repository / database of health vitals b) Maintaining a physical log book	a) Regular maintenance / monitoring / inspection b) Maintaining a physical log book	- Capacity building for mentors - Counselling for the Pregnant and family

Figure 43: Service blueprint of monthly checkups by mentor

[Click here](#) to access the sheet

ENCOUNTER	Blueprint – monthly visits by the community Volunteer			
STEP	Confirm Appointment	Inquires about the health	Volunteer inquires about the services	Explains about the new services if any
STEP GOAL	To give an appointment to the volunteer	To explain about health and related complications if any	Volunteer to understand the functioning of various services	To know about the new services
USER ACTION	To check the availability and confirm	- Gives feedback - ask doubts	- Gives feedback	- Gives feedback - ask doubts
LINE OF INTERACTION				
TOUCH POINT ACTION	Confirms and updates in the mobile app / calendar	- Inquires about health status - Checks previous health records in booklet and poster	- Inquires about home delivery services - Monthly check ups by Mentors - transportation services	- To explaining about new schemes and services if any
LINE OF VISIBILITY				
BACKSTAGE ACTIONS	Checking the schedule and updating it in the mobile app	Documents the required data	- Documenting the feedback	
LINE OF INTERNAL INTERACTIONS				
SUPPORT ACTIVITIES AND PROCESSES	Updated database	Updated database		
TOUCH POINT	Mentor	- Volunteer - Booklet and Poster	Volunteer	Volunteer
POSSIBLE FAILURES		a) Pregnant not having access to booklet or poster b) Malfunction of mentor's mobile app	- Volunteers lack of awareness about the Services and schemes	- Volunteers lack of awareness about the Services and schemes - Lack of Pregnant women / family's interest
RECOVERY		a) Mentor having a digital repository / database of health vitals b) Maintaining a physical log book	- Capacity building for Volunteers	- Capacity building for Volunteers - Counselling for the Pregnant and family

Figure 43: Service blueprint of monthly monitoring by volunteer

[Click here](#) to access the sheet

16. Interaction Guidelines for human touch points

A. Registration process

1. When the pregnant woman calls for Registration
 - a. Greet
 - b. Mention where the user has called
 - c. Introduce yourself
 - d. Ask why did the user call?
 - e. If it's for the registration of new pregnancy, ask when would the women be available for registration process
 - f. Take down the name and address of the pregnant woman
 - g. Check your schedule and inform the user when you will be visiting their house for the registration process.
2. After visiting the house for registration
 - a. Greet
 - b. Introduce yourself
 - c. Ask the name and confirm the user
 - d. Ask when and how did they identify pregnancy

- e. Explain about the importance of Antenatal care with help of visuals in the poster for better understanding and to grab the attention
- f. Explain about the available schemes / services and how they will be benefited from it.
- g. Enter the essential details in the mobile app and finish the registration
- h. Handover the pregnancy tracking kit (Booklet and poster)
- i. Educate the women and her family on how to use the booklet and the poster

B. Monthly visit by mentor

1. When the mentor makes a phone call to confirm the visit
 - a. Greet
 - b. Introduce yourself
 - c. Ask how is their health
 - d. Inquire about the recent hospital visits and checkups
 - e. Ask when will they be available for the monthly check
 - f. Confirm the date and time of visit
 - g. Ask them to keep the booklet readily available by that time
2. When the mentor visits the house
 - a. Greet
 - b. Introduce yourself
 - c. Ask how is their health
 - d. Inquire about the recent hospital visits and checkups

- e. Perform the following tests recommended by the doctor
- f. Upload the test values in the mobile app, physical log book, booklet and poster
- g. Give suggestions based on the current health condition
- h. Remind / inform about the next antenatal checkup at hospital
- i. Educate the family members in case of any complications in understanding

C. Monthly meetups

1. **While talking to other community women to schedule the date and time**
 - a. Greet
 - b. Introduce yourself
 - c. Ask whether it is the right time to talk or not
 - d. Ask when would they be available for the meetup
 - e. Ask whether they would be able to cook this time
 - f. Confirm the date and time
2. **During the meetup**
 - a. Welcome everyone
 - b. Inquire about the health of pregnant women
 - c. Conduct games and ice breaking sessions if needed
 - d. Let other women talk and give health tips and suggestions based on her current health
 - e. Let other women share their personal experiences

- f. Moderate the conversation and don't let the women to deviate their discussions towards unhealthy topics
- g. Explains the significance of *"today's dish"*
- h. Resolve their doubts on it
- i. Have lunch together
- j. Plan for the next meetup and Thank everyone at the end

D. Monthly visit by volunteer

1. **When the Volunteer makes a phone call to confirm the visit**
 - a. Greet
 - b. Introduce yourself
 - c. Ask how is their health
 - d. Ask when will they be available for the monthly monitoring
 - e. Confirm the date and time of visit
 - f. Ask them to keep the booklet readily available by that time
2. **When the Volunteer visits the house**
 - a. Greet
 - b. Introduce yourself
 - c. Ask how is their health
 - d. Ask about the functioning of various services they are availing
 - e. Note down the feedback in mobile app or physical log book
 - f. Explain about new services available if there are any.

17. Scenarios and branches

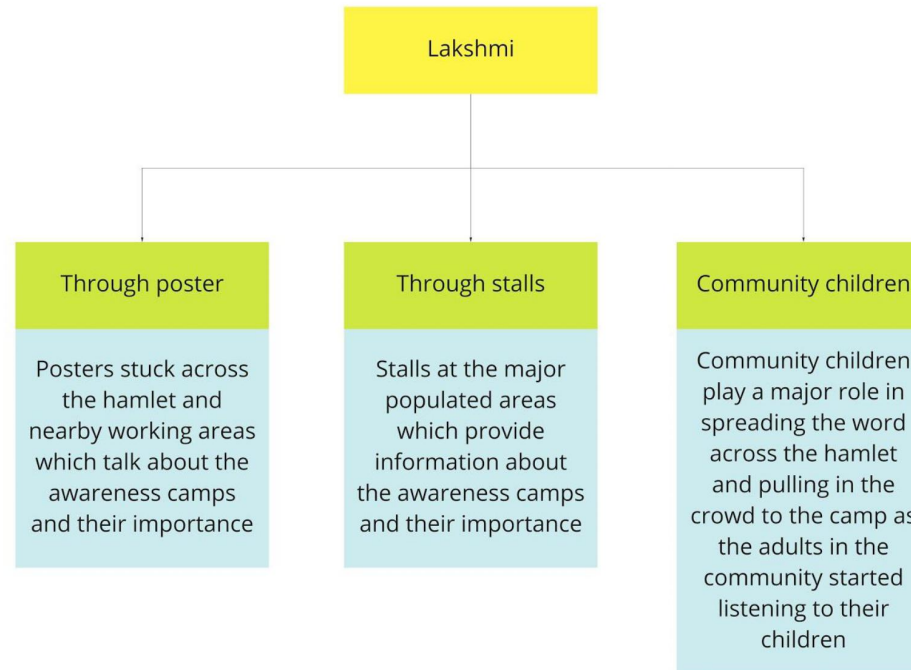


Figure 44: Multiple sources for Lakshmi to know about awareness camps

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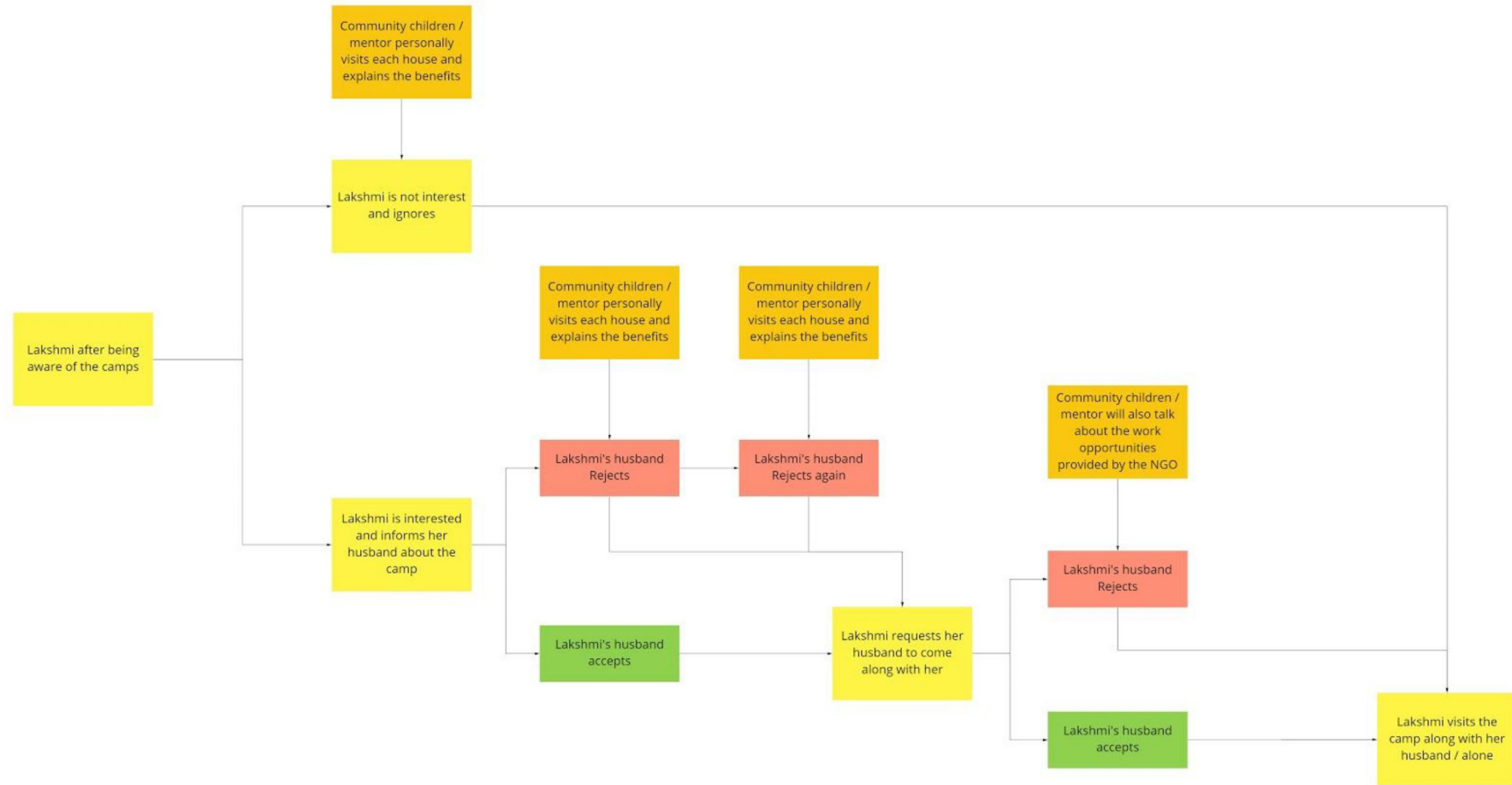


Figure 45: Journey to the camp

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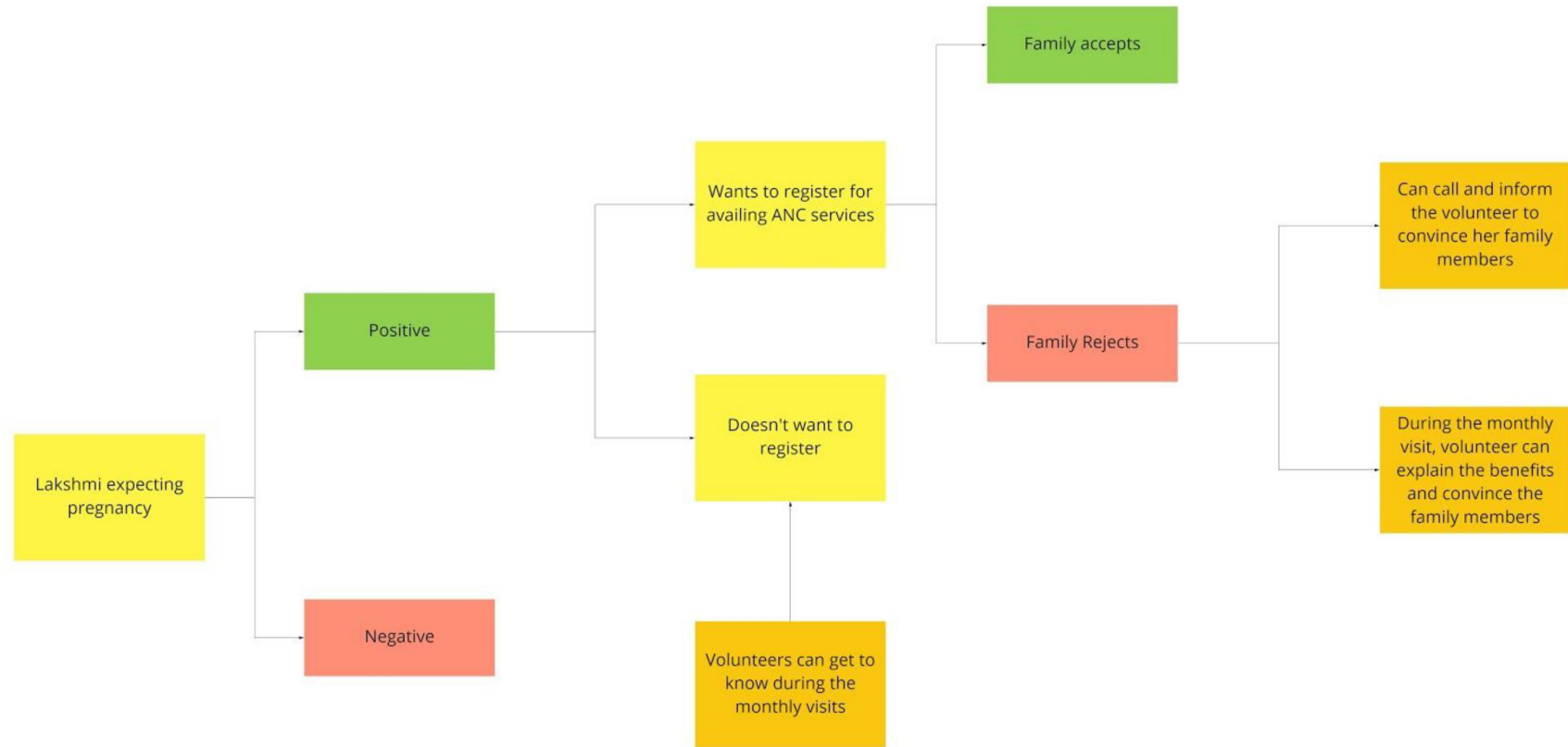


Figure 46: Connecting to the volunteer for the registration

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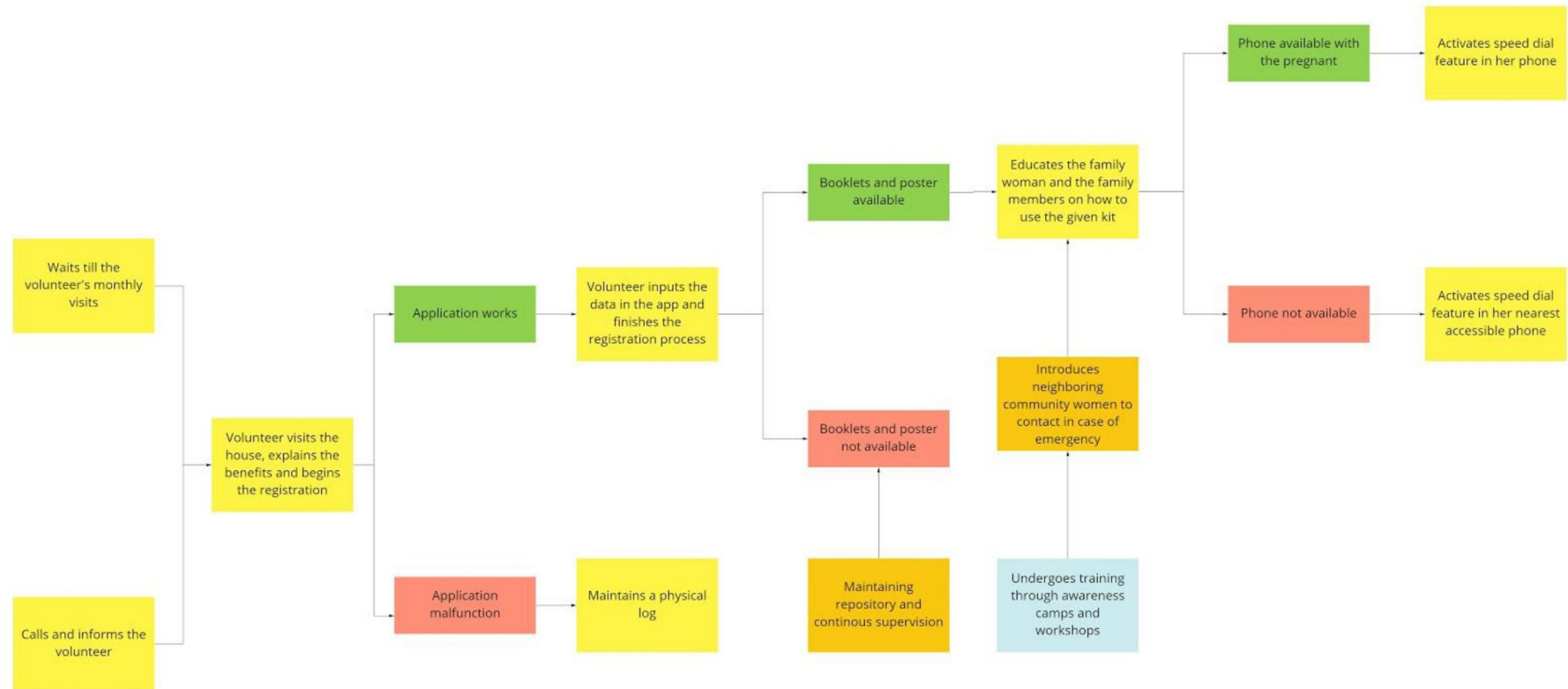


Figure 47: Registration process

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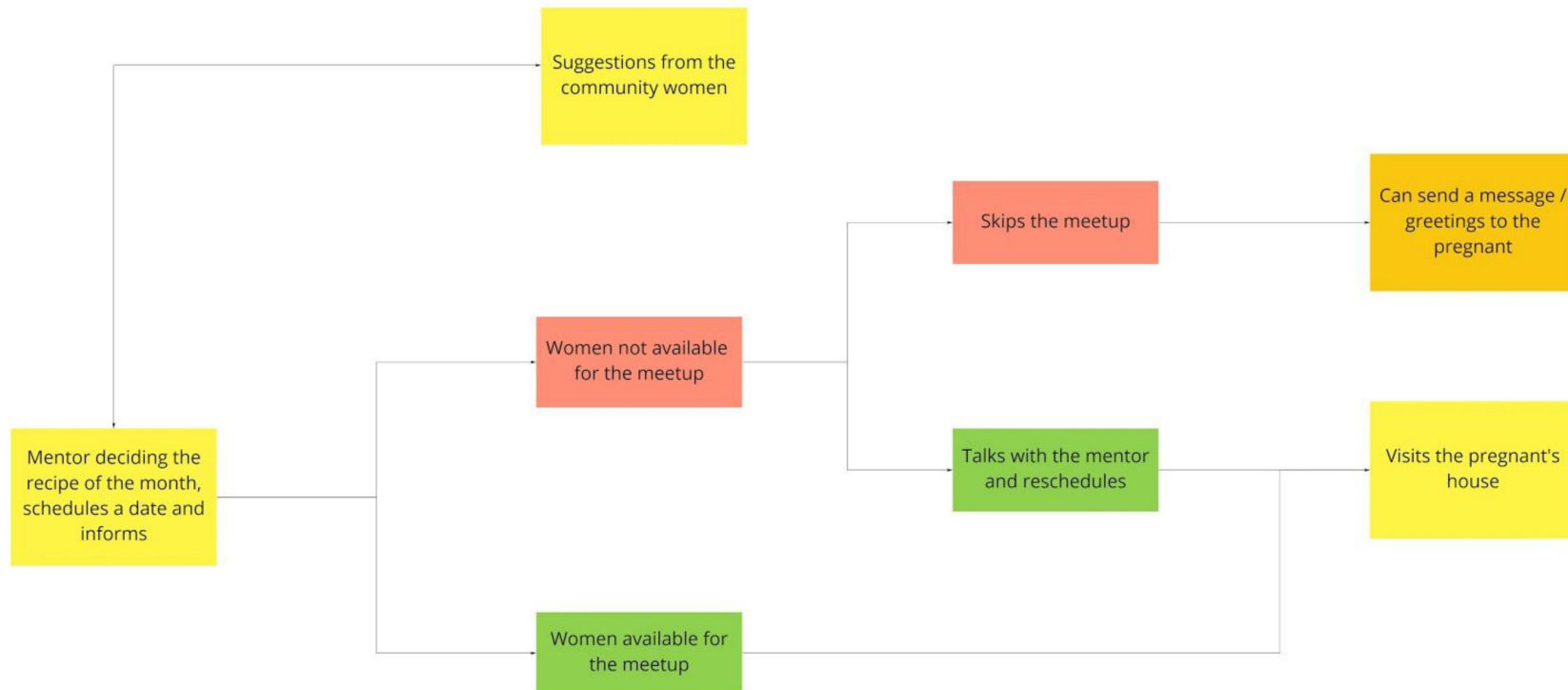


Figure 48: Arrangement for monthly meetup

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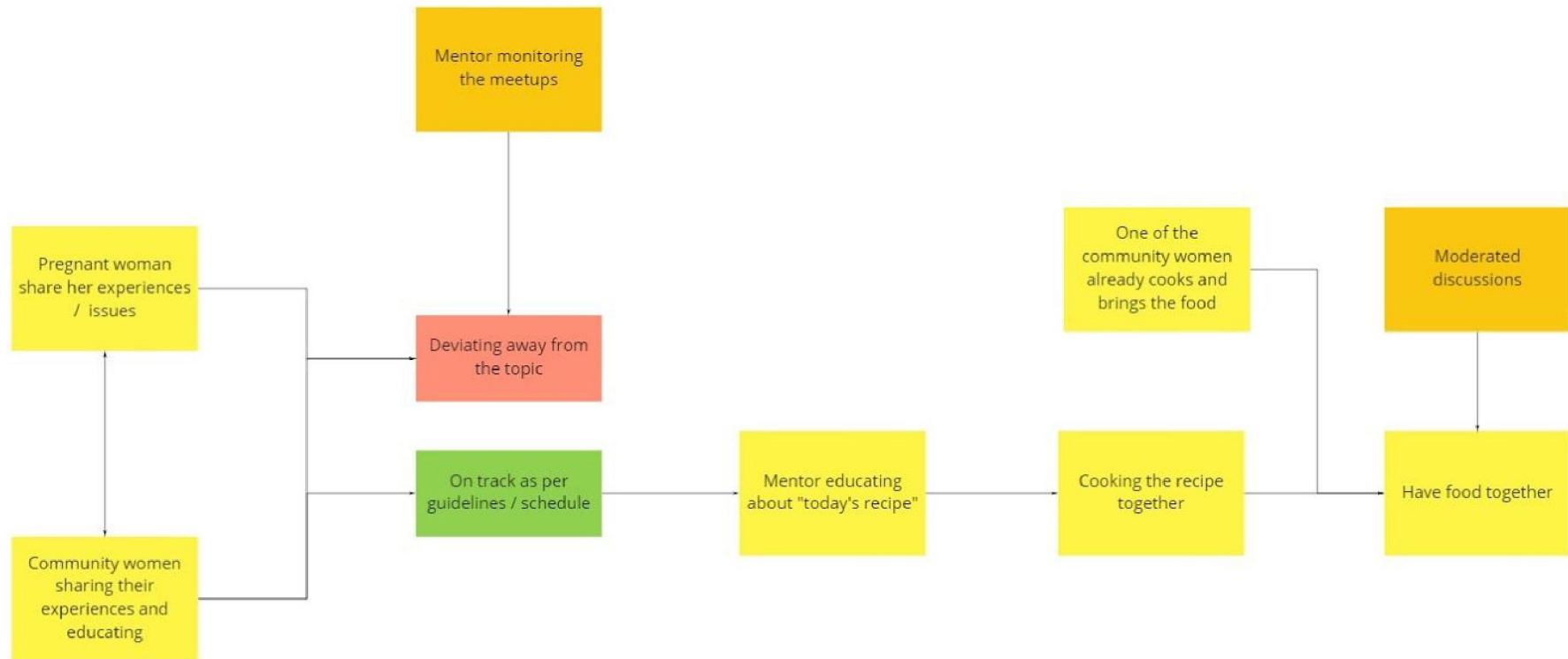


Figure 49: At monthly meetup

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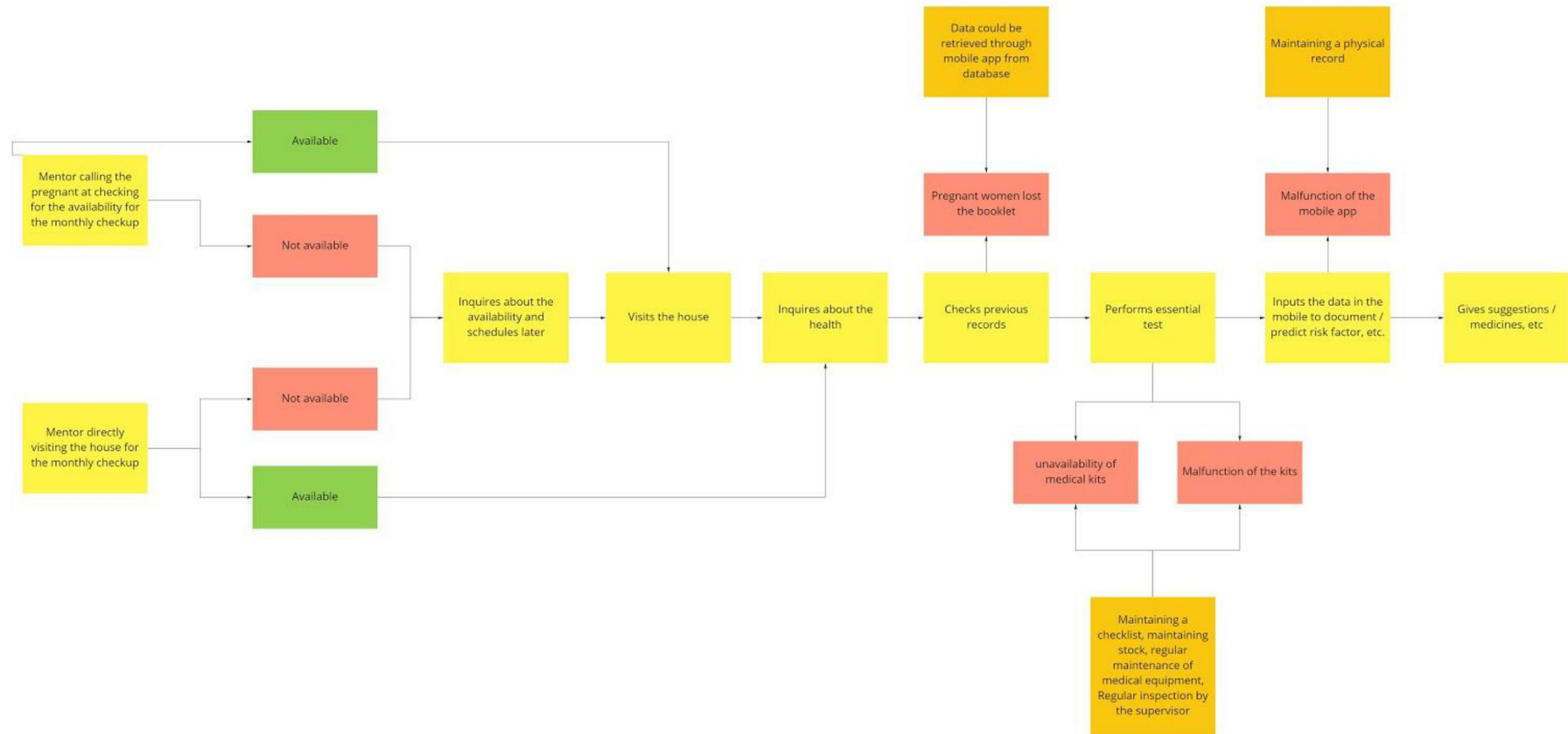


Figure 50: Monthly checkup by the mentor

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Figure 51: Incase of any emergency

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18. Evaluation

18.1 Plan of evaluation

The evaluation of the project was based on Delphi - like technique of expert review. The Delphi technique is a way of obtaining a collective view from individuals about issues where there is no or little definite evidence and where opinion is important. The process can engender group ownership and enable cohesion among individuals with diverse views. It is an iterative questionnaire exercise with controlled feedback to a group of panellists who are anonymous [17]. Here the expert could be an individual with relevant knowledge and experience of a particular topic. According to Delphi technique, the evaluation process has to be done in at least 2 or more rounds, but because of the time constraints I was able to do only one with the panel of 5 experts.

Experts Identified: 1 Doctor, 2 co-founders of Global AID and 2 Venture capitalists

Because of logistical issues, only the first round was conducted where the whole project was presented to each expert individually over video calls and feedback was asked for the same. After the discussions and getting feedback, a questionnaire has to be filled by the experts.

18.2 Feedback from experts

1. How much do you think we need or do not need this service considering the current scenario?

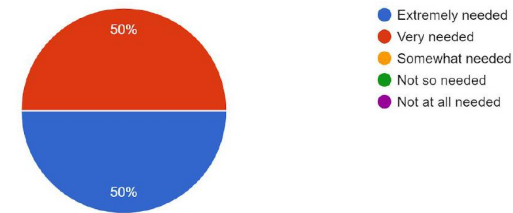


Figure 52: Feedback - Q1

2. How easy or difficult do you think it would be to start implementing these services in the current system?

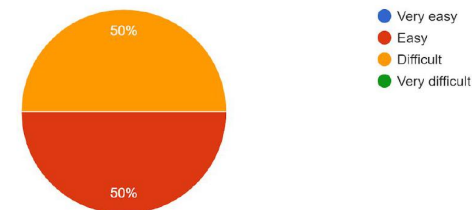


Figure 53: Feedback - Q2

3. What would be the reason for the above answer?

- Antenatal services are well available already in all the hospitals, the most important thing is people should be well aware of the services through better communication systems like volunteers, etc.
- Technology implementation at the primary user end i.e pregnant women is tougher than it looks as there are multiple constraints from the society's point of view. the cost barrier, learning curve and patriarchal view point on technology in these areas would be a major challenge
- Technology & Network of NGOs. Access to these villages is more easy now than ever before
- It needs a lot of resources: financial, human (time, energy, skills, knowledge, coordination) and government support.

4. Which encounters according to you create the most value for the whole system?

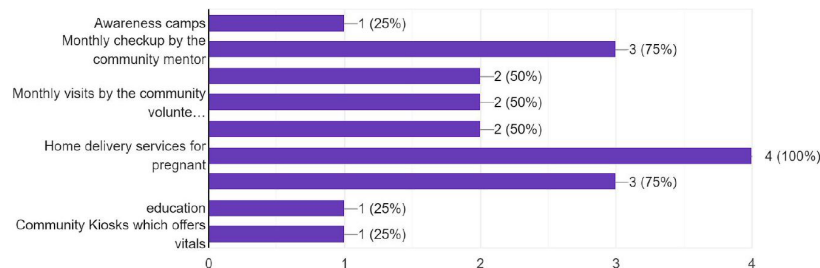


Figure 54: Feedback - Q4

5. What would be the reason for the above answer?

- They don't know about the complications of the delivery and should be well educated regarding this.
- All of the above could be implemented without bringing in much change into the existing system and results could be measured within weeks
- These are highly needed but not available currently. Every woman deserves these basic essential services when she is pregnant irrespective of the location
- Community empowerment is the crux.

6. Which encounters according to you might experience failures?

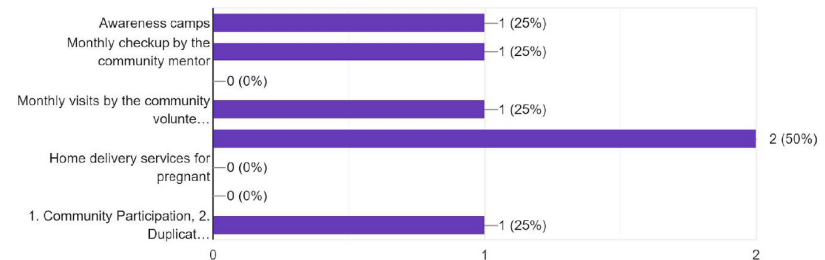


Figure 55: Feedback - Q6

7. What would be the reason for the above answer?

- The community mentor can divert the patient to other false practices and as the people of that community are not well educated they may fall into the false beliefs. Mobile apps can be tough for them to understand and difficult to use.
- Awareness camps need incentives as most of these women work on a daily wage and without proper incentive or trigger it is really hard to convince them to be onboard for an awareness camp.
- Sometimes educated children acting as camp organizers might not work in few areas because of lack of commitment from the children as they don't understand the depth of the problem
- Volunteers might not be motivated if not rewarded well
- Lack of coordination among stakeholders.

8. Do you think this service leverages the multiple players in the ecosystem like the other community members, other organizations, healthcare workers, etc?

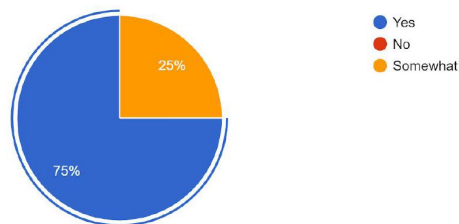


Figure 56: Feedback - Q8

9. Areas of Improvement

- Awareness regarding complications of pregnancy.
- More focus on Community mentor up skilling
- More focus on Common community utilities
- More focus on assessing the potential risks while implementing technology at the pregnant women end
- Incentive Structure, Emergency Care, More dependency on technology using CSR than depending a lot on human efforts
- Institutional (Faculty Guide) inputs need to be included.

19. Conclusion

The first phase of primary research has established the context of tribal communities and how Global AID is contributing to them. The second phase of primary research is more focused on pregnant women and their ecosystem. Secondary research was more focused on understanding the ASHA programmes for the pregnant women, and also few other standalone mobile apps were studied and analyzed. Various service design tools like mapping the ecosystem, lifetime trajectory map and the customer journey map were utilized to structure and design the service better. The service encounter blueprint was designed with thorough details for the major encounters. Multiple scenarios and branching of encounters were considered and incorporated in the service. The project was evaluated based on the Delphi method, 5 experts have analyzed the project and given the feedback.

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