Design Project:

Study of Challenges and Design Opportunities for Rural Healthcare

Rural India, Healthcare Infrastructure, Human Behavior, Prabuddh Gram

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Contents

1. Introduction

This project has been carried out in collaboration with the Office of Principal Scientific Advisor to Government of India, Invest India Office, and Bharat Forge Ltd.

1.1 PRABUDDH GRAM INITIATIVE

An integrated village development scheme envisaged being implemented through an inter-ministerial collaborative framework. Leading academic and research institutions are chosen to support ministries in the planning and implementation of this initiative. The National Institute of Design is one of these privileged research institutions, and the students of Strategic Design Management pursuing masters at the National Institute of Design have been involved in the study of the Challenges in Rural Healthcare in the context of Prabuddh Gram.

The scheme would benefit the villages in many ways. Under the project, the village will be built as a model village, with an emphasis on basic facilities, cleanliness, and digitization.

This scheme covers **9 thematic areas,** which are Road Planning, Smart Transport Systems, Village Architecture, Waste Management, Healthcare, Sustainable Water & Energy Utilization, Education, Agriculture, and Local Art/ Craft and Culture.

Healthcare is the focus area of this report:

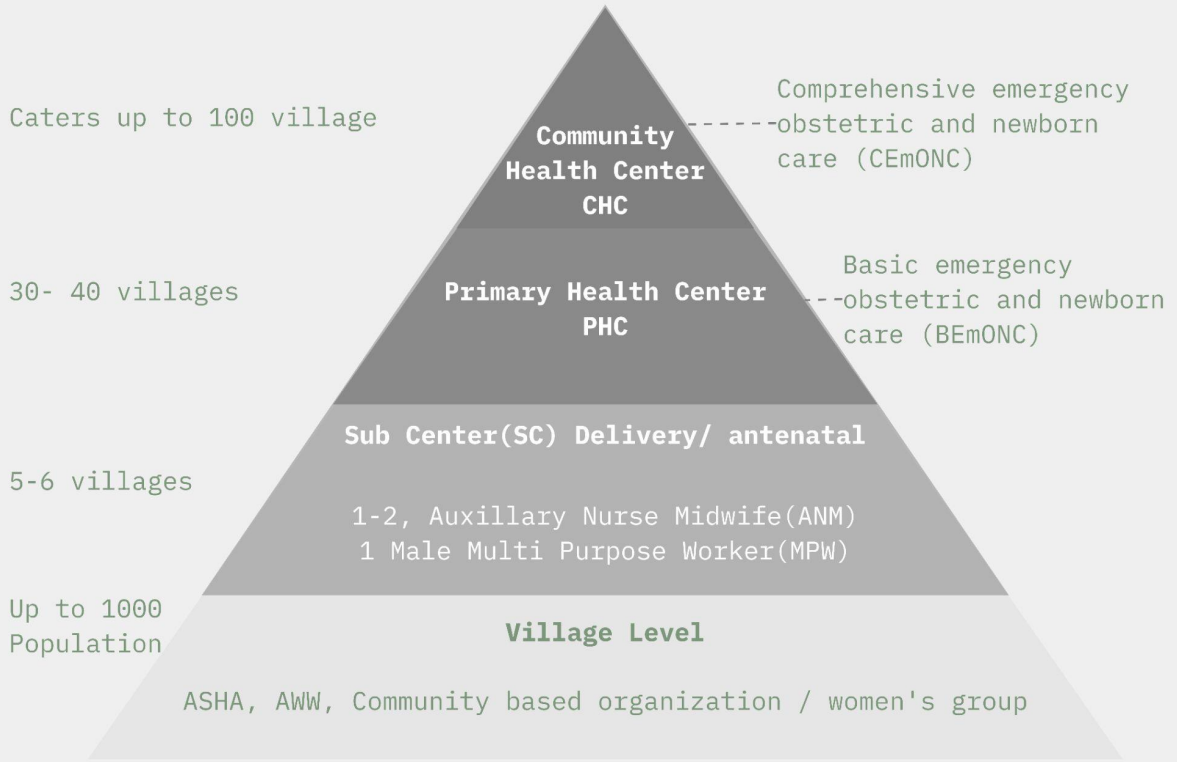
Road planning	smart transport system	Village architecture
Waste management	Healthcare	Sustainable water and energy utilization
Education	Agriculture	Local art/craft and culture

1.2 Bhiura Village, Atraulia Block, Azamgarh District

Bhiura is one of the 5 selected villages where the scheme would be initially implemented and tested, which also served as a field of research for this report. Bhiura is a peri-urban village, located on the Gorakhpur link expressway (under construction) - starting

from Purvanchal expressway near Azamgarh and ending at the city bypass of Gorakhpur, with a population of over 900 people and a literacy rate of 59 %.

This project and research findings centrally focus on Healthcare since It is the central pillar of the rural society and economy hence it is needed to be understood at the behavioral level to get deep insights that help to establish a robust and empathetic healthcare system.



1.3 Rural Healthcare:

The National Rural Health Mission (NRHM) was launched by the Hon'ble Prime Minister on 12th April 2005 to provide accessible, affordable, and quality health care to the rural population, especially the vulnerable groups. The key features to achieve the goals of the Mission include making the public health delivery system fully functional and accountable to the community, human resources management, community involvement,

decentralization, rigorous monitoring & evaluation against standards, the convergence of health and related programs from village level upwards, innovations and flexible financing and interventions for improving the health indicators.

The health care infrastructure in rural areas has been developed as a three-tier system:

1.3a Sub-Center

The primary point of contact, easy to access, Manned with 1 Auxiliary Nurse Midwifery and 1 Multi-Purpose Health Worker (M/ F)

sub-centers are assigned tasks relating to interpersonal communication to bring about behavioral change and provide services concerning maternal and child health, family welfare, nutrition, immunization, diarrhea control, and control of communicable diseases programs.

1.3b Public Health Centre

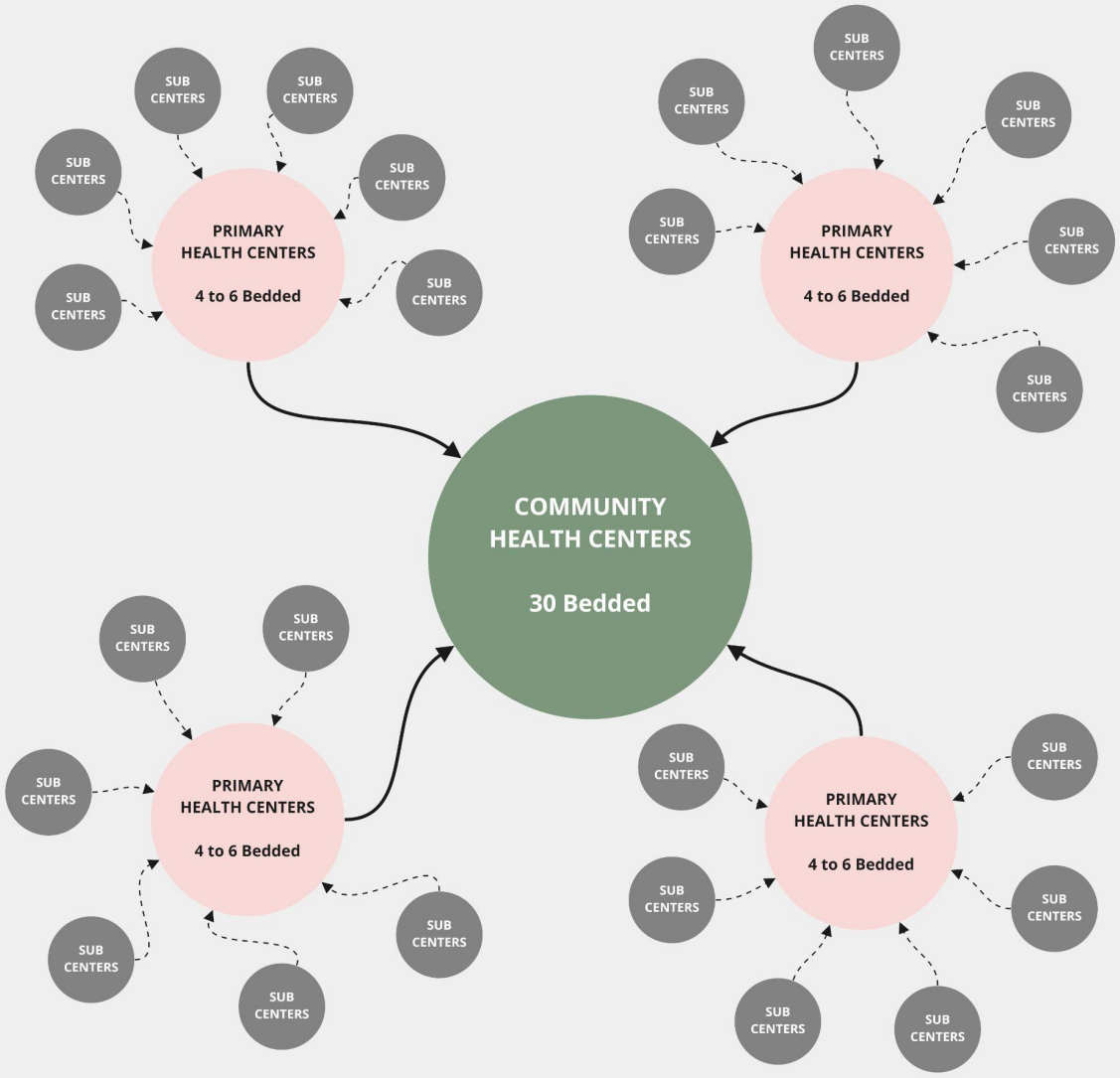
Referral Unit for 6 sub-centers, 4-6 Bedded, Manned with 1 Medical Officer and 14 Subordinate Paramedical Staff.

The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care. The PHCs are established and maintained by the State governments under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) Programme.

1.3c Community Health Centre

It serves as a referral center for 4 PHCs and also provides facilities for obstetric care and specialist consultations.

The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care. The PHCs are established and maintained by the State governments under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) Programme.



India is having limelight at the global front not only in terms of its exploding population but its health scenario also. Even after India's Independence, its population is still brewing under the scourge of a degraded health system. **There are nearly 716 million rural people who are constantly battling for basic healthcare services in their habitat.** This condition has been aggravated by worsening living conditions in rural habitats. The unsafe and unhygienic conditions of households, drinking water, living areas promote the behavior of expansion of several diseases in rural areas. **Most rural deaths are caused by communicable, parasitic, and respiratory diseases which are somewhere linked with an unsanitary environment.**

About 2.3 million episodes and over 1000 malaria deaths occur every year in India. An estimated 45 million population are carriers of microfilaria, 19 million of which are active cases, and 500 million people are at risk of developing filaria. **In addition, even agriculture-related injuries like mechanical accidents, pesticides poisoning, snake and insect bites are adding to the existing rural health problems.** This scenario is worsened through existing malpractices going on in rural health care. The archaic beliefs of tribals that any disease may be cured by magic, have dominated over the minds of the rural tribal population of India. Due to this kind of notion, the rural areas are under the influence of various superstitions which ultimately leads to blockade in the advancement of modern pathology there.

One of the significant agents for the downfall of rural health care is inadequate human resources in the health system. The primary level health institutions like Primary Health Centres (PHC), Sub-Centre (SC), and Community Health Centres (CHC) are facing a huge problem of absenteeism of health professionals. The underutilization of human and material resources at all these levels leads to the ineffective functioning of the rural health system. Therefore, it is crucial to upgrade existing rural health systems based on analysis of respective shortcomings [1].

1.4 Rural Healthcare condition in Uttar Pradesh

YEAR		2005	2019
Number of SCs, PHCs & CHCs functioning	SC	20521	20782
	PHC	3660	2936
	CHC	386	679
Health worker [female] / ANM at SCs & PHCs	REQUIRED	24181	23718
	SHORTFALL	6035	surplus
Doctors at primary health centres	REQUIRED	3660	2936
	SHORTFALL	NA	surplus
Total specialists at CHCs	REQUIRED	1544	2716
	SHORTFALL	NA	2232
Radiographers at CHCs	REQUIRED	386	679
	SHORTFALL	NA	597
Pharmacists at PHCs & CHCs	REQUIRED	4046	3615
	SHORTFALL	NA	732
Nursing staff at PHCs & CHCs	REQUIRED	6362	7689
	SHORTFALL	NA	surplus

2. Research Methodology

The study was conducted at Bhiura village for 3 days. This study employed multiple research tools based on requirements and to aid the researcher in digging deeper into the underlying causes/problems. The tools used were Observational Method, Semi-Structured Interviews, Group Discussion, Observe Think & Wonder, and Artifact Analysis.

2.1. Observational Method

To gather more reliable insights by capturing instances/ data on what participants do as opposed to what they say they do.

Researchers observe participant's ongoing behavior in a natural situation.

The researcher will have varying levels of participation in the study. Sometimes the researcher will indulge themselves in the environment, and otherwise, the researcher will not intervene in the setting and observe from a distance.

Subtypes explored were Controlled Observation, Naturalistic Observation, Participant Observation.

2.2. Semi-Structured Interviews

This method opted to draw out more specific inferences by asking repeated follow-up questions. Leading with open-ended questions which are questions that can't be answered with a simple "yes" or "no."

The researcher does not strictly follow a formalized list of questions. Instead, ask open-ended questions, allowing for a discussion with the interviewee.

2.3. Group Discussion

It is a systematic exchange of information, views, and opinions about a topic, problem, issue, or situation among the members of a group who share some common objectives and social setting.

Based on the answers, the interviewer asks follow-up questions to draw out more specific inferences.

To gain an in-depth understanding of social issues and to obtain data from a purposely selected group of individuals.

Sample size: 18 Males and 15 Females.

Age group between 30 to 60.

2.4. Observe Think & Wonder

Kids were asked to sketch on the topic “what you perceive about Cleanliness and Hygiene" within a given time frame of 1 hour and were probed individually based on what they have sketched.

Youths of the village were asked to click photographs of and selfies at places where they believe Cleanliness and Hygiene are missing and share those images by forming a WhatsApp group within a time frame of 1 hour. These pictures were visually confirmed through personal visits.

The Observe-Think-Wonder strategy is an artful thinking routine from Harvard's Project Zero. The purpose of this routine is to allow students time to thoughtfully consider not only what they’re observing, but also what those observations mean.

A critical-viewing strategy to help us in the analysis of visual media captured as part of the research.

Slowing down the thinking process and deep observation with continued probing before concluding.

2.5. Artifact Analysis

A process to better understand how prescribed medicine is being used by its users and the culture in which it typically exists.

It also serves as an opportunity for us to systematically generate insights and inspiration for future product/service designs.

To make the study more effective and efficient other studies performed in support were as follows,

2.6. Secondary Research

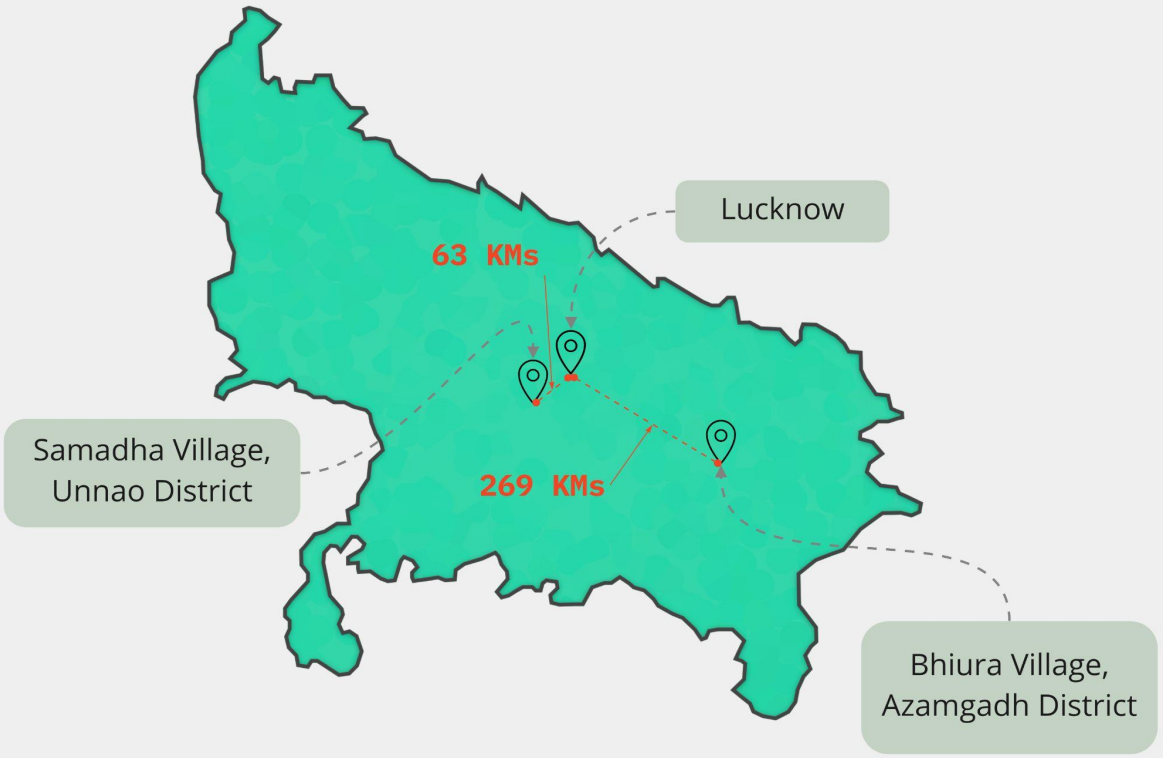
The research started with studying the information already available in secondary sources like newspaper articles, ground reports, official documents, etc. to understand the current scenario of rural healthcare.

2.7. Pilot Study

A few assumptions and hypotheses were drawn according to this secondary research. A pilot study was then conducted in a nearby village to check if these assumptions were right or wrong and to further understand the ground reality in rural areas.

Tools used for the study were the sub-center observation Method and Semi-Structured Interviews.

3. Observations and Findings



Primary Study: Bhiura Village, Atraulia Block, Azamgarh District

- Population: 900+
- Total Households 200+
- Literacy: 59% Approx.
- Sub-center: NA
- Atraulia CHC: 2KM

Validation Study: Samadha Village, Asoha Block, Unnao District

- Population Size: 1500 +
- Total No. of Houses: 317+
- Total Literacy rate 56.8% Approx.
- Sub-Centre: Yes (Inactive)
- Asoha CHC 1.8 KM

To analyze the context of the Prabuddh Gram village: Bhiura, an on-ground study was conducted. Two students from NID stayed near the village for 3 Days to conduct an Observational Study of the Village, Community Health Center, and nearby market areas where chemists/ pharmacists were located. Personal Interviews and Group Discussions with Kids, Young Adults, and Elders were conducted to get deeper insights regarding their general awareness, health belief, approach towards illnesses and diseases, preventive measures, and general outlook towards the village environment.

Medical workers and Doctors at CHC were also interviewed and observed in uncontrolled natural working conditions to get more insights into their behavior towards patients, fellow medical staff, other staff members, equipment, and infrastructure. CHC infrastructure was closely observed in terms of facilities provided to both patients and medical staff members, spatial arrangements, maintenance, the flow of services, and ambiance. One of the students also acted as a self-participatory patient to generate more insights into the Rural Healthcare system. Management of patients and processes during Covid-19 vaccination day was also observed to identify gaps in the service and get a better understanding of the patient's journey.

The findings and observations are broadly categorized in the following two headers-

3.1. Observations at CHC

3.2. Observations at Bhiura Village

3.1 Observations at CHC

Community Health Centre at Atraulia Block is a 30 Bedded hospital equipped with services like maternity care and delivery, pediatric care, general physician, and OPD. A telemedicine facility was in place, but it was non-functioning. Few services like Dental check-ups, eye-care, and X-ray services were also not in place due to lack of equipment, space, doctors, and skilled technicians. Apart from infrastructure, there was a visible lack of management leading to confusion and chaos in the hospital.

Following are the observations in three broader areas at CHC -

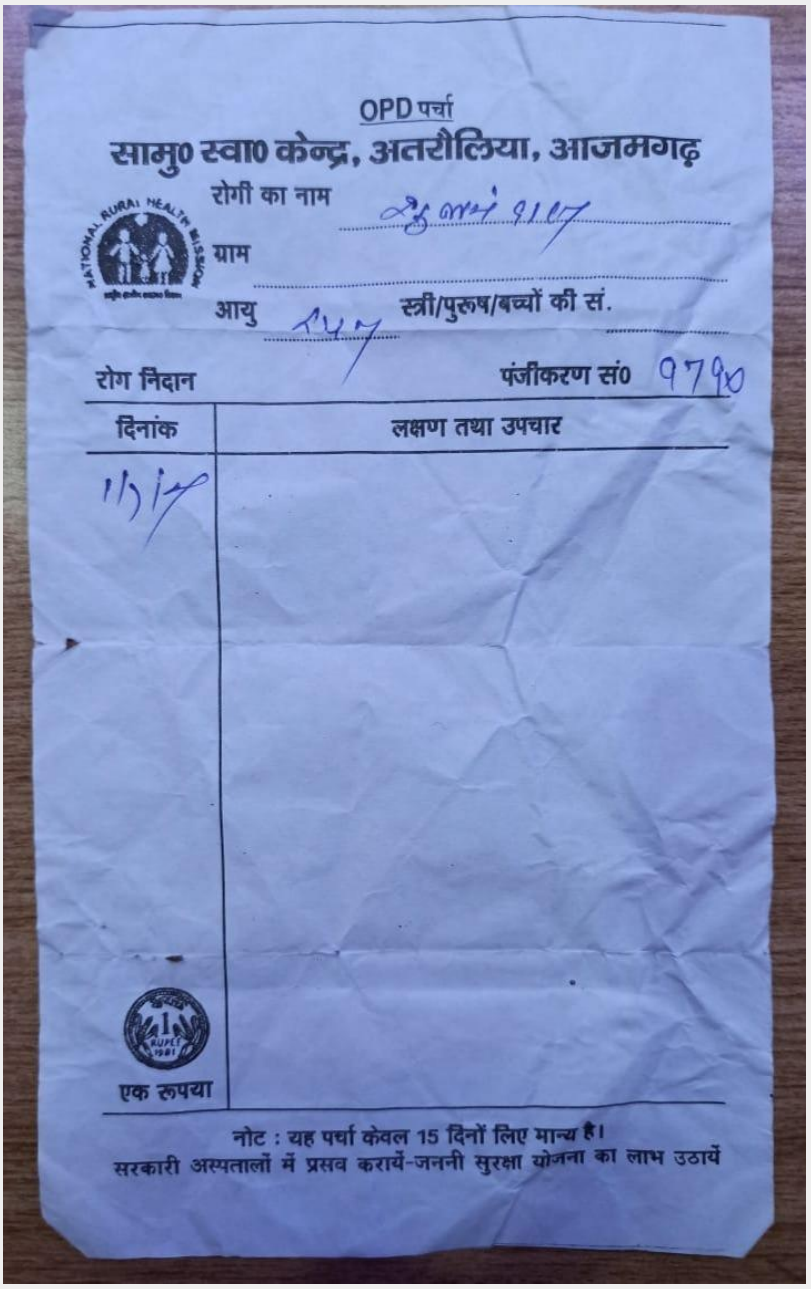
3.1a Hospital Infrastructure

The hospital infrastructure was visibly old and degraded. It was more than 30 years old and constructed based on the now outdated Architectural Layout. The layout was confusing and visible modifications based on requirements were seen which were creating further problems and confusion. Broken window glass, exposed electrical wirings, lack of proper signages, and direction provider were missing. Outdated furniture and non-working equipment at CHC. There was no proper waiting area inside the hospital which was prompting patients to barge into the doctor's cabin to ask about the medical staff availability or enquire about a certain room.

The pharmacy at CHC is a very small space where patients receive subsidized/ free medicines provided by the State Government. A patient after consultation with the doctor gets the prescribed medicine written on the prescription along with a small piece of paper on which the medicine name and patient's prescription number are written. This small piece of paper is then collected by the Pharmacist for the disbursal of prescribed medicine and manual recording. The pharmacist then hands over the medicine to the patient without any packaging/ carrying a pouch. There was no proper storage facility available in the pharmacy for temperature-sensitive behaviors thus limiting the possibility of increased stocking of medicines at CHC.

The Paediatric and Maternity care doctor was taking outpatient's sessions out in the corridor due to lack of ventilation, which was blocking the passage for other fellow patients. This session was happening on the first floor where a patient must reach via stairs or through an inclined ramp. The delivery, maternity & childcare room were also located on the first floor.

The hospital lacked facilities like AV rooms, meeting rooms for large meetings with ASHA workers/ ANMs regarding preparation, digital data collection, and recording, also no locker and changing rooms for staff coming from distant cities. Few staff members and patients had to bring their kids with them and were not able to care for/ breastfeed them at CHC. Kids were seen playing around in the hospital with a potential threat of being contracted with communicable diseases and causing disturbance for other patients and medical staff during work.



OPD पर्चा

सामु0 स्वा0 केन्द्र, अतरौलिया, आजमगढ़

रोगी का नाम

ग्राम

आयु

स्त्री/पुरूष/बच्चों की सं.

रोग निदान

पंजीकरण सं0

दिनांक	लक्षण तथा उपचार

एक रूपया

नोट : यह पर्चा केवल 15 दिनों लिए मान्य है।
सरकारी अस्पतालों में प्रसव करायें-जननी सुरक्षा योजना का लाभ उठायें

Patients get low-quality prescriptions (mostly a one-time usage material) from government facilities at the cost of one rupee as a consultation fee. These prescriptions are used for OPD sessions, and the data is not being recorded properly. **Patients tend to lose these prescriptions or it gets destroyed/ damaged due to excessive folding or sweating.**

3.2b Management of CHC

The CHC, upon entering, presented itself as an ill-managed hospital with medical waste lying in front of it, stagnated water nearby, and staff quarters in a deteriorating state. A stretcher with a visible bloodstain on it was placed near the toilet blocking the way for patients/ attendants. There was no convenient space to keep the stretcher for quick emergency usage. No proper sterilization/sanitization and temperature check were being followed while entering the hospital nor was there anyone to guide the patients to follow COVID appropriate behavior.

Staff Quarter

Medical waste, Damaged Ambulance

The Medical officer is stacked with numerous responsibilities apart from his duty as a doctor. These responsibilities include guiding patients towards the right department/ personnel, counseling, monitoring, deployment of Health Schemes, Covid appropriate behavior, temperature checks/ sanitization, medicine dispensing, feedback, and grievances, etc. He is also responsible for directing other Medical Staff members under his direct chain of command i.e., Doctors, Nurses, Ward boys, ANMs, ASHA, and Sanitization workers.

The number of daily responsibilities of a Medical Officer requires juggling between both desk work and fieldwork is enormous and it hampers their decision-making ability at work. During the on-field visit, doctors were becoming impatient as soon as patients started barging inside their cabins due to confusion/inquiry. **Patients expressed that they don't know whom to approach and where to find a certain doctor (when advised by someone) since many of the patients were illiterate and cannot read names painted above the doors.**

Stagnant Water *collected near hospital entrance.*

Bloodstain *on stretcher*

There was no staff/ reception counter to cater to such needs of patients which creates distrust over the service when doctors/ medical staff use harsh tones and ask them to wait. Studies have proven that a person becomes more anxious if the waiting period is prolonged and no feedback is given.[13]

It was also observed that some doctors saw multiple patients during consultation due to chaos and no crowd management. Moreover, patients felt uncomfortable sharing their problems in front of other patients during consultation.

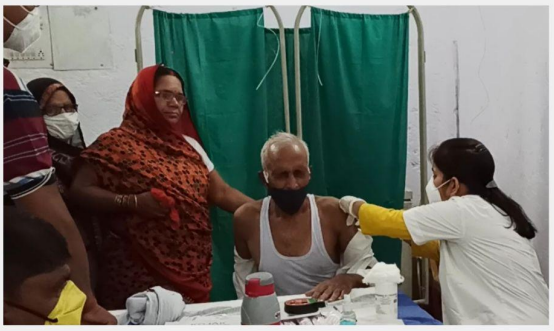
Doctors, nurses, and other medical staff were not in their uniforms. They were hard to distinguish between patients adding up to more confusion for the first-time visitor. Staff nurse's kids were seen playing inside the hospital.

3.3c Study of Covid-19 Vaccination at CHC

CHCs are one of the few institutional public vaccination centers in Rural areas. In India. Vaccines are procured by the state government and distributed for free. During the initial days of Covid Vaccination, people were hesitant due to fear and misinformation in both Urban and Rural areas.




It was found during the CHC visit and quoted as explained by the medical officer and ASHA workers at CHC that there is a rising demand for Covid-19 Vaccines in rural areas partly due to the perception of scarcity and mandatory requirement for outstation travel. The vaccination process at CHC was chaotic and heavily mismanaged which created problems for both staff and patients. The process of registering a person for first-time vaccination is different from the person coming for the second dose, this creates a basic heuristic error and people often get confused over the steps to be followed and information that needs to be shared with the staff at the registration desk.



Due to lack of staff and no proper guidelines/ tools, covid appropriate behavior was not maintained and led to quarrels between patients. A person must stand in a queue for more than an hour to reach the registration desk, where he/ she eventually finds out that some information is not correct or missing or the person is unable to recall the information etc. This leads to line jumping as the wait time has increased for the patients. At CHC, both Covishield and Covaxin were administered to patients in the same room where there was no demarcation of which nurse was administering which vaccine. People were enquiring with the nurse which led to frustration and anxiousness in both people and the nurse.

Key Observations: CHC Atraulia

1. **Hospital Infrastructure**
    - Old infrastructure with patchwork modifications was creating problems such as disturbing the Doctor's workflow, hindrance towards spatial usage and cleanliness, and diminishing the trust factor of patients towards the service.
    - The CHC lacked modern technological infrastructure/testing equipment, and patients had to rely on private players for tests and reports.
    - The patient data recording process at CHC was done manually and was not maintained & managed efficiently.
    - Lack of guidance for directions and waiting areas for patients.
    - The lack of ambient lighting and air conditioning made the hospital environment very unwelcoming for both patients and doctors.
    - Low quality of prescriptions and lack of medicines.

2. **Management at CHC**
    - Poor vigilance towards cleanliness and maintenance for surroundings.
    - Medical staff lacked cultural sensitivity and empathy towards rural patients.
    - Hospital was heavily understaffed and under-equipped.
    - Combined with poor unhygienic infrastructure and lack of services, subconsciously made them feel it's designed with a bare-minimum mentality and lose their trust in the service.

3. **Study of Covid-19 Vaccination at CHC**
    - Preparing/ educating patients before the vaccination process was missing which led to distress and confusion throughout the vaccination journey.
    - Proper demarcation of different vaccination stations was missing and led to the wrong inoculation of the vaccine.
    - The registration process was slow due to a lack of information from the patient's side i.e., vaccination card, mobile no. Aadhar card etc.
    - Lack of vigilance towards following Covid appropriate behavior.

3.2 Observations at Bhiura Village

It is a peri-urban village, located on the Gorakhpur link expressway- starting from the Poorvanchal expressway near Azamgarh and ending at the city bypass of Gorakhpur. The occupation of people in Bhiura is primarily agriculture and daily wage construction work.

This village does not have any State-funded Health care service/physical touch points i.e., a Sub- Center. ASHA workers are presently handling all health-related activities like spreading awareness, advising new mothers, family planning consultation, kid's inoculation, calling ambulances, and supporting ANM. At the grassroots level, ASHA workers are the only touchpoint from the Rural Healthcare service to connect with everyone in the village. ANM, AWW is also actively involved in their respective services related to health and nutrition.

3.2.a Impact of ASHA & ANM:

ASHA workers in Bhiura are known by everyone, primarily for Maternity and Childcare, which is one of their several key responsibilities such as spreading awareness, manual data recording, distribution of common medicines, identification of malnourished kids, leading water sanitation, and other sanitation tasks/ construction of toilets, etc. ASHA has seen a huge success in family planning and first-time mothers. All the recent deliveries in the past 5 years were 100% healthy institutional deliveries. This has created an unshakable trust over ASHA regarding maternity emergency cases. She is the only/trusted way of communication for the state healthcare system for each family in the village, hence acting as a touchpoint.

There are few challenges associated with ASHA acting as a communication channel, i.e., men and women perceive information shared by ASHA differently due to their different perceptions towards general health and gender bias. Women and girls find it very easy to approach ASHA whereas Men, on the other hand, do not believe ASHA can help them with their problems/ diseases rather prefer quick over-the-counter medications. They do not trust State medical services apart from maternity and childcare and also common issues like cold/ seasonal flu. Since there's no institutional touchpoint of State Medical facilities, men shy away from

consulting ASHA/ ANM at their residence/ informal places.

3.2.b General Health Awareness & Perception

Sanitation & Hygiene:

People having lower perceived severity do not seek First Aid help during an accident/ emergency which is a metaphorical indicator of Health Seeking behavior in general. Less value is associated with preventive measures/ techniques as they're unable to justify the cost/ effort factor associated with it. **These preventive measures are positioned with a factor of fear to gain more impact. People tend to associate preventive measures with fear, and they tend to reject them as being afraid of in a social scene is a display of cowardice to them.**

Uttar Pradesh promoted toilets as a protector of dignity and targeted women in this cause. New toilets under Swachh Bharat Mission (Grameen) were named/ branded as "Izzat Ghar" and ASHA workers were deployed to educate the masses. They were given the task of educating people to build toilets and here ASHA's preconceived image of people might have led them to believe that toilets and their benefits are for women and kids. **There is a perception gap formed due to the Gender associated roles of ASHA workers and the men in the village. Since men don't want to involve women in Construction related discussions, ASHA workers being a woman are unable to connect in terms of advice related to septic tanks.** Most of the households having toilets built under the Swachh Bharat Scheme have no pipe water connection leading to the carrying off a bucket full of water for every use. People subconsciously flush the excess water in the toilet even though they don't need to, but the water in the bucket is perceived as dirty or unhygienic for some other use by them. Since during open defecation, a plastic bottle/ lota is enough for the wash, people feel they are using excessive water in toilets leading to fast filling of septic tanks and making them loss-averse hence avoid using it and continue to openly defecate.

Waste Disposal:

Bhiura does not have any proper waste disposal system and drainage system in place. People tend to dispose of their waste in fields or ponds making it a perfect breeding ground for communicable diseases. During interviews and group discussion, both kids and adults were aware of waste segregation and usage of dustbins, but there was an Attitude- behavior Gap observed on the ground. The data collected from the Kids drawing session and Youth Photography session shows that kids are well learned/aware about the shape and size of a dustbin, but when asked if they had one at their home, none of them did. **The perception towards dustbins failed to transcend beyond the confines of pages since they were never taught alternatives of "Use- Me, color-coded dustbins".** Youth of the village were well informed in some areas due to their exposure to social media. This exposure was also misdirecting them towards believing their indigenous practices such as hay Straw collection for thatch roofs, partitions, cow dung manure/ cake making, etc. as waste products and dirty jobs. **Adults on the other hand believe Waste management is a government responsibility and they are not themselves responsible for the state of their village.**

Drinking Water:

The groundwater table in Chiara is very high at 2 meters - 10 meters below ground level and hence available in abundance. Almost every household has a hand pump (India Mark 1) of their own and those who can afford have their own motorized bore water supply. **The villagers at Bhiura are quite accustomed to drinking water directly from the hand pump without any filtration, which is backed by their notion of water which tastes good and looks clean and clear is safe to drink, moreover, they do not store any drinking water since it is available in abundance.** This practice of drinking water directly is leading to many problems such as water-borne diseases and water stagnation. Since open defecation is still practiced and due to the higher water table, there is a huge possibility of water contamination, leading to a risk of water-borne diseases. **Water stagnation is again linked to their drinking habits since the opening of India mark 1 hand pump is bigger and their practice of drinking water directly causes wastage of excessive water which results in stagnation and thus becomes a disease breeding ground.**

3.2.c Health Seeking Behaviour

Covid-19:

No one in the village was wearing masks but a few of them were observed to be wearing one in the marketplace, hospital, etc as they feel Covid-19 has not entered into their village and the environment is natural and pure. People feel loss averse while wearing a mask and perceive them as an obstacle between freedom and social image inside the village and people around them find it odd to wear masks following a normative Conformity Behaviour. With the masks they get/ purchase in the market, hospitals have a hard time blending with their attire and become highlighted. Many women tend to cover their face with a saree as it blends in the social context of the village and somehow acts as a preventive measure.

Kids were heavily influenced by their parents and heavily misinformed about the pandemic. During interviews, few of them said they don't believe Coronavirus exists and it's all a myth. One of the respondents said, Covid-19 arrived in India in 2015, and in 2018, it started attacking their village but now everything is normal. As there is no proper communication channel for Kids through which the Government can communicate with them directly. Villagers also were less hesitant towards Covid-19 vaccines and during interviews and group discussions, they displayed a positive response upon getting vaccinated. **ASHA notified that more than 40% of the villagers have taken at least 1 Dose of the covid vaccine.** Although CHC was unable to give detailed information regarding Fully Vaccinated individuals due to lack of data sorting based on village and cross-checking them with manual entries.

First Aid:

In the village, people do not use proper First Aid due to a lack of resources and awareness. They tend to leave cuts/ wounds and animal bites in the open as they believe it will heal faster if it's dry. Tetanus injections are a far cry as there's no sub-center in the village. **People having lower perceived severity do not seek First Aid help during an accident/ emergency which is a metaphorical indicator of Health Seeking Behavior in general.** Less value is associated with preventive measures/ techniques as they're unable to justify the cost/ effort factor associated with it. These preventive measures are positioned with a factor of fear to gain more impact but people in the village tend to reject them as having fear in a social scene is a display of cowardice for them.

Prescription and Medicines:

In the village, when asked to show their medicines and prescriptions, none of the 30 Households surveyed were keeping any Government funded hospital's prescription or medicines with them. They trust private medical facilities and opt for them. Upon further probing, **it was found that people tend to believe since Government facilities are free and usually in deteriorating condition, the medical facilities are not trustworthy.** One of the residents showed us a prescription without any name, details of the doctor printed on it, and a simple piece of paper with medicines written on it.

Key Observations: Bhiura Village

1. Impact of ASHA & ANM

- Since there's no institutional touchpoint of State Medical facilities, men shy away from consulting ASHA/ ANM at their residence/ informal places.
- ASHA is the only bridge of communication between Rural Healthcare and Rural people.
- Institutional Childbirth has hit a huge success because of timely hand-holding and awareness given by ASHA and Govt. facility. A similar kind of effort is lacking in general health care and chronic diseases.
- Men do not trust ASHA and ANMs for their problems and do not seek help from them rather trust quick over-the-counter medicines.
- Women and young girls easily approach ASHA for their problems and needs.
- ASHA workers were given the task to educate people to build toilets and her general image to people might have led them to believe it's a benefit reserved for women and kids.

2. General Health Awareness & Perception

- People in the village tend to associate preventive measures with fear-inducing activities and reject them, as being afraid is a sign of cowardice in rural society.
- Men and women of the village think that toilets have been built for women and children, moreover, women think men shouldn't be using them. This might be due to the involvement of ASHA and the branding of toilets as "Izzat Ghar" (dignity house).
- Kids and adults were aware of waste segregation and usage of dustbins, but there was an Attitude- behavior Gap on the ground. People felt it's the responsibility of the government to get the village clean. Lack of waste management services also confirms their perception.
- Bhiura does not have any waste management/ collection system.
- Due to higher water tables and excessive usage of handpumps, without a proper drainage system, villagers are susceptible to water-borne diseases.

- It was found that kids possessed adequate textbook knowledge towards waste and hygiene but there was a lack of actionable steps to be taken to achieve cleanliness and good hygiene.

3. Health Seeking Behaviour

- Patients are being subconsciously forced to move to private care by positioning Government facilities inferior and cheap.
- The villagers associate the mask as an obstacle between social image and freedom rather than a preventive measure. People felt more comfortable covering their faces with a saree or cotton towel(gamcha) in public spaces.
- Kid's perceptions towards Coronavirus was heavily misinformed due to lack of direct communication channel between kids and rural healthcare providers.
- People in the village lacked awareness of First Aid and low perceived severity of infectious diseases caused due to negligence.
- It was found that people tend to preserve and associate more value towards prescription medicine received from private healthcare services than government healthcare facilities.

Secondary Research Key Points:

The country's rural areas house 895 million people or 66 percent of India's population. However, nearly 60 percent of hospitals, 80 percent of doctors, and 75 percent of medical facilities, are in urban areas [2]. **According to a study published in the Indian Journal of Public Health, in September 2017, it will need 2.07 million more doctors by 2030, if the entire country wants to achieve a 1:1,000 ratio (as per WHO) 60% PHCs in India have only one doctor while about 5% have none.** Uttar Pradesh emerged the worst performers, with less than five percent PHCs following the norms.

Attitudes towards healthcare

- Lack of commitment to the healthcare process and awareness towards health investment. Rural people don't understand that right investments towards health can give high returns.
- Tendency to see something big, tangible as treatment for diseases. Like believing that only I.V. Drips can cure their diseases.
- Vaccine Preventable Diseases is practically free of cost, but it is placed in a less priority zone until it's too late. Taking a day off from work for healthcare is a day worth of economic loss.
- Males make quick decisions on health compared to women.

Trust Factor:

- Covid 19 vaccine hesitancy in rural areas.
- Rural people trust alternative unauthorised healthcare providers more than official healthcare providers.
- People deny, stigmatize Covid-19 Positivity and are ignorant towards prevention & medication.
- See tangible as treatment for diseases.
- Infrastructure plays a major role towards trust building.

Health and hygiene

- Lack of Healthy lifestyle/ condition. Labour intensive work in harsh conditions.
- Lack of a balanced diet. Low availability and Management of nutritious food.

Accessibility of resources

- Unavailability of functioning healthcare centres in few rural areas.
- Rural families lack healthcare facilities in proximity which might act as a barrier towards seeking healthcare facilities, hence making them travel long distances to get proper healthcare treatment.

Healthcare workers

- Health workers lack rural/cultural sensitivity: Lack of connection and empathy between healthcare professionals and rural people.
- Healthcare providers are hesitant to work in rural areas. Eg: Safety and security concerns of medical professionals.
- Low Doctors to Patient Ratio. (India is 1:1456 against the WHO recommendation of 1:1000) 1:19962 in UP.

Awareness and perception

- Lack of healthcare education.
- No proper channel or a generalized channel to convey healthcare information. Hence, information flows through unorganized channels in Rural areas.
- Lack of information and awareness about Covid-19
- Word of mouth, Key tool for misinformation spreading.

Others

- Healthcare decisions in rural areas are highly influenced. Eg: society, politics, myths, perceptions, etc.
- Misinformation from outside sources.
- Systems and Technology are not designed keeping the rural people in mind.

Pilot Study key points: Samadha Village

For the pilot study, Samadha Village was selected based on the above-listed criteria. Visiting a nearby village to test the initial hypothesis and get a better understanding of the overall context was our main agenda. 2 students, based in Lucknow were able to visit Samadha for 1 Day.

The key observations of our study during our study were categorized as follows-

1. **Awareness about Healthcare**
2. **Healthcare Infrastructure**
3. **Economic conditions**
4. **Environmental conditions**

Awareness about Healthcare:

- People in Samadha Village were heavily misinformed about Covid-19 disease and Vaccination. People believe there is a difference between Urban area Covid vaccines and Rural area Covid vaccines.
- Villagers consider posters and banners as an ineffective and age-old way of awareness and communication, instead, TV, social media, and newspapers are a better source of

information.

- Villagers expressed reluctance to take medicines that were given during health campaigns.
- Medical Officer confirmed, "ORS is never seen as a treatment, instead, saline drips are preferred, only then it qualifies as a medical treatment to them"

Healthcare Infrastructure:





- Government medical staff expressed their reluctance towards working in a rural setup.
- Both the sub-center and CHC were not maintained well. Damages on the wall, algae, dampness, and discarded equipment were clearly visible. Very few patients were seen at CHC.
- ASHA workers were considered for maternity and child care only so mostly get ignored for any case apart from maternity and child care.

- The Sub-Centre in the village was supposed to cater to 6 Villages including Samadha Village. For the past 10 years, it was functioning only for the Vaccination of Mothers and Kids by the ANM.

Economic Conditions:

- Villagers gave first preference to over-the-counter medicines for any health-related problem rather than consulting a doctor.
- CHC was 1.8Km away from the village, still, people rushed to private facilities during nighttime emergencies which were more than 5Km away from the village.
- Trust in Government provided Healthcare facilities were missing, during nighttime, people were willing to spend extra 500- 1000 rupees to get treatment in a private facility.
- Almost 50% of the total villagers were employed before the Covid-19 pandemic (as per Gram Pradhan's Office).

Environmental Conditions:




- Drainage channels were present at some parts of the village and grey water was being directed towards ponds. There was no proper drainage system present during the pilot study, however, new drainage channels and the concrete road were under construction.
- Accumulation of garbage all around the village. There was no proper garbage collection system in the village. Water bodies were getting polluted with plastic waste.
- Most of the toilets were built in front of their homes and were left abandoned or used as storage rooms. Open defecation still prevails in this village.

1. Insights: Health Perceptions and Awareness

1.1 Insight: Perceived susceptibility towards First Aid

People in villages tend to leave small cuts/ wounds/ animal bites without any treatment since they lack First Aid materials and awareness. This can lead to severe complications.

People having lower perceived severity do not seek First Aid help during an accident/ emergency which is a metaphorical indicator of Health Seeking behavior in general.

Opportunity Area

There is a need to establish the value of First Aid treatment and make people aware of susceptible illnesses caused by small injuries, animal bites, etc.

1.2 Insight: Low perceived susceptibility towards waterborne disease

Villagers collectively consider it to be safe to consume directly without filtration since groundwater visually appears to be clean and clear and tastes fine due to which, waterborne diseases are highly inevitable. There's a Low perceived susceptibility towards General Health due to their belief of having strong immunity against diseases.

Further Study

- More data is required on per day water consumption
- Research on groundwater contamination levels

Opportunity Area

There is a need to devise a solution in such a way that it could alter their excessive water usage behavior and practice safe drinking water.

1.3 Insight: Hindrance towards internalizing/normalizing toilets

People feel that toilets branded as Izzat Ghar (Dignity House) are made for women and kids which further humiliates men when they use it. Open defecation, in contrast, is seen as promoting purity and strength, particularly by men, who typically decide how money is spent in rural households and make decisions for building toilets.

Those who have toilets built at home do not use it often because of the fear of septic tank filling and cleaning effort/ cost associated with it.

Further Study

- More behavioral study on IZZAT GHAR branding.
- Village Architecture Research for contextual toilet positioning.

Opportunity Area

There is a need to ignite a sense of pride and purity by using toilets not only in women and kids but in men too.

1.4 Insight: Designing solutions for integrating masks in day-to-day rural attire

The look and feel of a mask as an equipment of preventive measure is associated with fear in rural society and they tend to avoid it to reject the conformity of fear. This creates a trickling down effect of multiple problems like social conformity by other people and contracting and spreading of coronavirus.

Opportunity Area

There is a need to devise a solution/s to make sure that the mask becomes a basic utility part of their life as an attire statement.

2. Insights: Trust Factor towards Rural Healthcare

2.1 Insight: Perception towards Government provided prescriptions

People place higher subjective value and associate a sense of ownership with medicines & prescriptions received from private healthcare since they had paid a premium for the treatment resulting in devaluing of prescription and medicines received from government healthcare facilities as they cost only 1 rupee.

Further Study

- Digital prescription as data recording
- Prescription as Health Seeking behavior mapping tool.

Opportunity Area

There is a need to instigate a sense of ownership and value addition towards government-provided prescriptions and medicines.

2.2 Insight: Inclusion of contextual awareness and empathy towards rural patients.

Rural healthcare service lacks empathy towards rural patients. This deters patients from seeking help and counseling from medical staff. Value system of Rural healthcare and care factors needs to be projected and revamped by incorporating building trust with patients first attitude.

Further Study

- The expectation of health seekers and service providers from health care facilities.
- Perception towards medical counseling at government health care facilities.

Opportunity Area

Rural Health Care Service Redesign and including Healthcare service with empathy towards staff, patients, and contractual health/ sanitation workers, etc. Better management techniques need to be designed for the complete satisfaction of patients.

2.3 Insight: Tapping into the Health Seeking behavior of First-time Mothers

First-time mothers when compared to experienced mothers tend to visit CHC more often for health check-ups (Antenatal Check-ups) as they perceive it as an explorative and recreational activity.

Further Study

- Types of activities they involve at home during pregnancy period.
- Impact assessment of their visit to doctors and interaction with ASHA and ANM

Opportunity Area

There is a potential to tap into the Health Seeking behavior of the mothers to spread more awareness and foster their trust and ownership towards state medical Healthcare facilities.

3. Insights: Rural Healthcare Service

3.1 Insight: Lack of targeted communication strategy and channels in Rural Healthcare service

Awareness programs fail to produce the desired optimal behavior because they are not propagated through proper channels and target specific age, gender, and community.

Communication materials are too ambiguous and don't communicate proper step-by-step prevention. Give them a sense of progress.

Further Study

- Research on communication channels in rural India.
- Research collaboration with dietitians and chefs to design recipes.

Opportunity Area

There is an opportunity to design communication strategies defined by its target audience and propagate through proper channels leaving no person/ kid behind.

3.2 Insight: Building physical touchpoints for Rural Healthcare

Due to no tangible Healthcare service touch points in the village tend to avoid consulting with ASHA/ ANM at their residence for Health-related consultations because of social stigma and shyness. This results in infrequent visits to healthcare facilities and people become more susceptible to illnesses.

Further Study

- Institutional touchpoints design guidelines
- Design Research on Rural Healthcare Service.

Opportunity Area

There is an opportunity to build an infrastructure which caters as a Sub Center-cum-Multi

Utility Space, to externally trigger villagers to visit this place frequently. Gradually anchoring the need to seek Healthcare services via designed awareness programs.

3.3 Insight: Providing automated mask dispensing solutions and integration of masks in daily attire.

There is no denial of service to patients at CHC for not wearing a mask thus there was no motivation/reason for them to wear a mask, neither was the Mask dispensed at the government dispensary.

Opportunity Area

There is a need to devise a solution to make sure that the mask becomes a basic utility part of their life and external reminders are required and also How do we add value to the mask for its regular usage and proper disposal.

3.4 Insight: Reimagining Rural Healthcare infrastructure as a leader in the society

Rural healthcare infrastructure paints a picture of outdated and disorganized services upon which rural people find it hard to trust. The system works on providing bare minimum facilities to both patients and doctors. Poor infrastructure is one of the major causes of inefficiency in rural healthcare service. Rural Healthcare service on ground does not function as per the given guidelines (2012) due to varying context of Rural areas in India, one size fits all model fails to create the desired impact and foster positive optimal behavior in both staff & patients.

Further Study

- Guideline/process for revamping the government health infrastructures.
- Design Audit for complete system redesign.

Opportunity Area

Provide/ Upgrade infrastructure, materials and devices with state-of-the-art technologies and ease of usage for both rural people and doctors.

4. Insights: Other areas

4.1 Insight: Integration of child daycare service with Rural Healthcare

Medical staff tends to bring their kids to CHC/ workplace due to the absence of any caretaker at home. This can potentially expose kids to various communicable diseases and disturbs other doctors and patients.

Further Study

- There is a need to study the societal acceptance of daycare facilities.

Opportunity Area

There is a need for a facility which could assure staff mothers of their kid's well being and enable them to render their work with full efficiency.

4.2 Insight: Reimagining wayfinding inside Community Healthcare Centre (CHC)

People tend to avoid spaces where they find it hard to navigate or create a mental map of the space. CHC is not navigation friendly due to lack of proper directional signage and staff who could guide which makes people anxious.

Further Study

- Study of Rural Hospital and its psychological impacts
- Functional Literacy and its behavioral impacts.

Opportunity Area

There is a need to equip health centres with appropriate and easy to recognize signage boards which could ease and enhance the experience of visitors.

Short Term Solutions

1. New Improved Prescription Design

The new prescription design will simplify directions for pills consumption by simple coding where doctors must fill it like an OMR sheet and patients can grasp the information. On the back side, a variable reward like fun games related to health, health awareness and information or healthy seasonal fruits- vegetable information etc. will be placed every month. All of this on good quality paper which enhances the sense of ownership.

The prescriptions will also mention the total amount which people availed at CHC for free, provided/ subsidised by the state government. This will remove the concept of cheap facilities from the mind of patients and instil a sense of achievement.

2. Healthcare Booklet-cum-Passbook

The people of Bhiura will be given a customised Healthcare Booklet composed of New Prescription Design (mentioned earlier) as pages with other Health related information. This booklet will act as a personal record device for both patients and doctors and they can quickly check the medical history of the patient briefly. The Booklet can also consist of visible incentives e.g. After 10 consultations/ check-ups, the patient will get some other benefits. Also, this booklet will encourage people to get more check-ups as the record is building up towards good health.

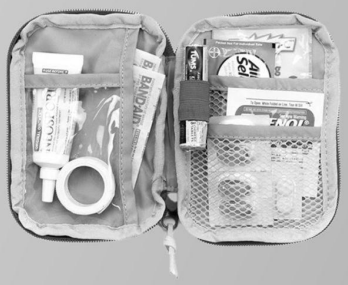
This booklet can also be used in private consultations where the doctor must stamp/ sign the pages so that other doctors can check their past medications. This booklet can also work similar to a bank passbook, which will consist of Bar-Code scannable pages which can be used for data entry at CHC which will help in analysis and prediction of disease outbreaks, long term chronic diseases etc. in long run by recording each visit of the patient as a digital document which can be accessed pan India. This could be a collaborative effort between different health schemes and Prabuddh Gram: Bhiura could be the torch bearer in Uttar Pradesh.

3. Medical Pouch- cum- First-Aid

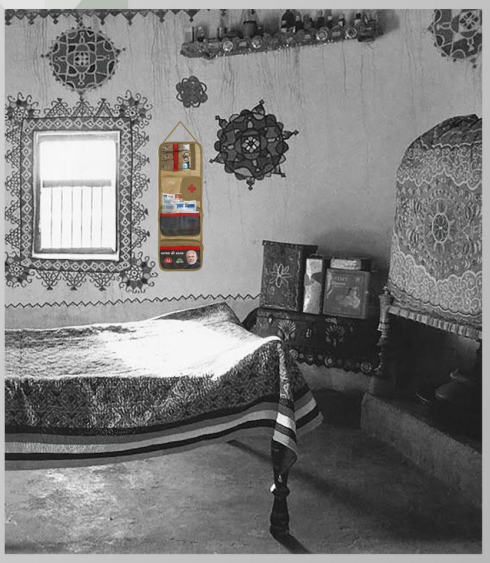
Medical Pouch-cum-First Aid kit

Benefits

Patient can put his/her medicines inside, also it is easy to carry, hold and highly durable Khadi pouch.



Wall hung-cum-foldable medical pouch



Benefits

Easy to carry first aid-cum-medicine pouch which can be unfolded to be used as a wall hung medical kit and act as a constant reminder for a rural family to seek for help and medical assistance.

This medical kit will be provided to each household in Bhiura, which will act as a First-Aid kit too. The earlier mentioned booklet and prescriptions could be kept inside it and this vibrant coloured pouch will act as a trigger to Health Seeking. The wall hanging feature will act as a constant reminder for people to seek medical help and prevent 'out of sight out of mind cognitive bias'.

People can take this pouch to hospitals which will also help them carry their medicines proudly. Various NGOs/ CSRs can pitch in where NID will be providing support for production and deployment of these pouches to Bhiura.

The medical pouch will be exclusive to Prabuddh Gram for some time to make them feel valued in the Healthcare System and instil the feeling of pride with every trip to a doctor for check-ups and consultation. This pouch will be made from Khadi to boost the khadi sector and encourage people to explore more towards new directions of usage.

4. Nutrition Awareness-cum-Recipe Book

In one of our observations, we saw that women find it very easy to talk to ASHA workers and discuss other topics such as food and recipes. Men also showed interest in talking about food and culture with us. Cashing on this insight, we believe that food can be an interesting bridge between health awareness and nutrition.

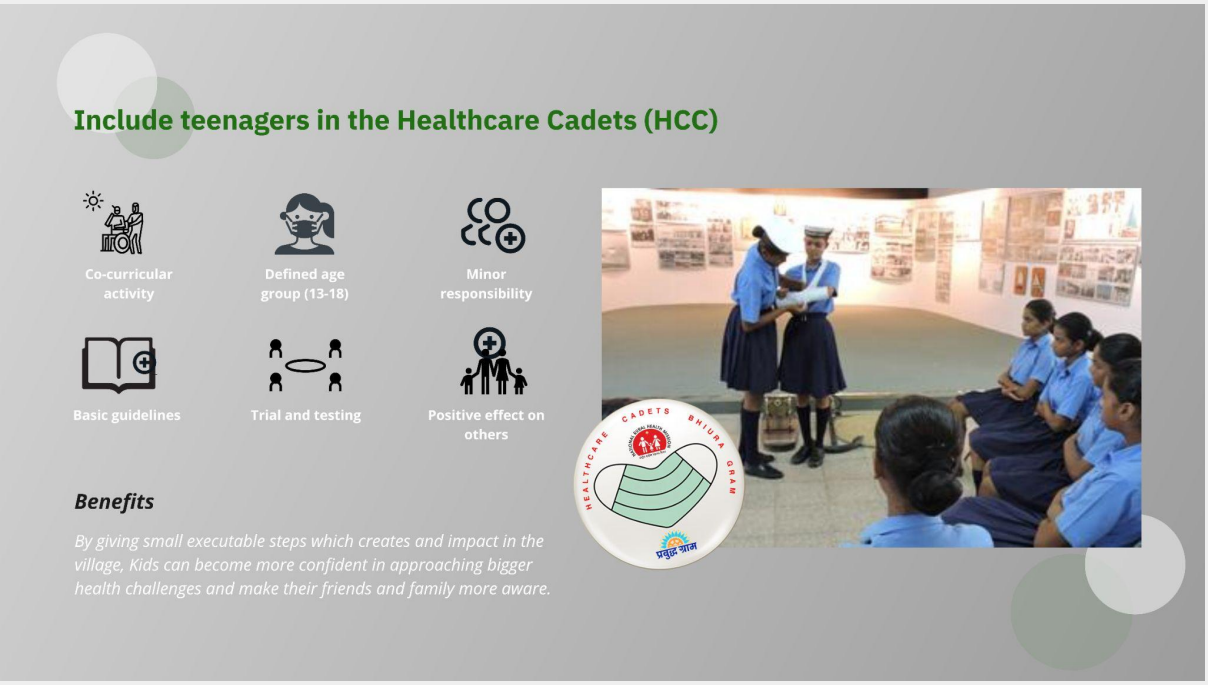
This booklet will be designed in collaboration with local people, chefs, nutritionists, and designers to allow ASHA workers to impart knowledge regarding nutritious food while discussing new recipes with women. These women in return will try out and discuss these food recipes with their family, friends and neighbours leading to curiosity and awareness.

5. Awareness through monthly Comics/ Story books

This awareness material will be distributed to the kids in the form of comics, written in simple language and more pictorial representation. The comic book also comes with an inbuilt do it yourself (DIY) kit in order to make sure they don't just learn but also implement it practically hence imbibing a practice of making things on their own to solve day to day problems and empower kids with authentic information.

NGOs, Organizations, Institutes etc. can join hands in creation, publishing and distribution of these comics and kits to Bhiura village and map results. NID can take the lead in designing and publishing these comic books and map results for incremental updates in the format. This can be done in both Rural and Urban areas and will act as a direct channel of communication of Government to reach kids directly.

6. Healthcare Cadets (HCC)



This is an initiative which will train/ guide kids to take charge in Health-related issues in their village. By giving small executable steps which creates an impact in the village, Kids can become more confident in approaching bigger health challenges and make their friends and family more aware. Kids will be recognised and honoured with a badge for their good work and a chance to work at CHC as a volunteer.

Making the teenagers part of health care activity could eventually develop a consciousness towards health and they would start feeling themselves as a part of the healthcare system, moreover, act as ambassadors to better healthcare practices in their village.

7. Disinfection of Water

People use hand pumps as their primary source of water for drinking and other household usage. Since in Bihura the groundwater table is very close to the surface, untreated water from water collecting pits and ponds could easily mix up and cause mass level water borne diseases. Handpumps are a major threat in rural areas which needs to be resolved quickly.

To reduce water borne diseases and water wastage, we propose general disinfection of water via pipe water supply under "Har Ghar Nal Yojna" and while it happens, we can treat water at an individual household level by the usage of water filters. One which could be directly attached to the hand pump along with a water flow regulator and the other is earthen pot water storage filters.

This needs to be done in two steps. First by spreading awareness about water contamination by practical demonstration and second by distribution of earthen pot filters. These filters can also be taken up by local potters under MSME schemes.

8. Relooking at mask

Design a mask distribution scheme at CHC, PHC, SC, Pradhan office, where masks will be date stamped and upon return, get cashback or new masks. This will help in collection of masks and less environmental pollution. Also works as an incentive for people to realize the value of mask since they can return used masks.

Design a mask which goes by default with villager's normal attire. This could be specially designed piece of attachment for Saree or a Gamcha(Neck towel) designed to act like a mask.

It was observed that wearing a mask was considered as an additional task and something to be reminded of, hence they avoided or forgot to wear a mask. Furthermore, it was observed that villagers were using veils and scarves, which could be doubled up as a mask with minor upgrades and hence being forgetful of the mask wouldn't be an issue since it would be part of their daily wear.

Long Term Solutions

1. Revamping Rural Healthcare Infrastructure

Rural Healthcare needs to be revamped under the following three main categories-

1.1 People

- Training of staff with cultural sensitivity.
- Awareness programmes for proper hospital etiquettes.
- Appointment of staff via PPP model to fulfill the understaffing challenges.
- Catering needs of both service providers and service consumers.

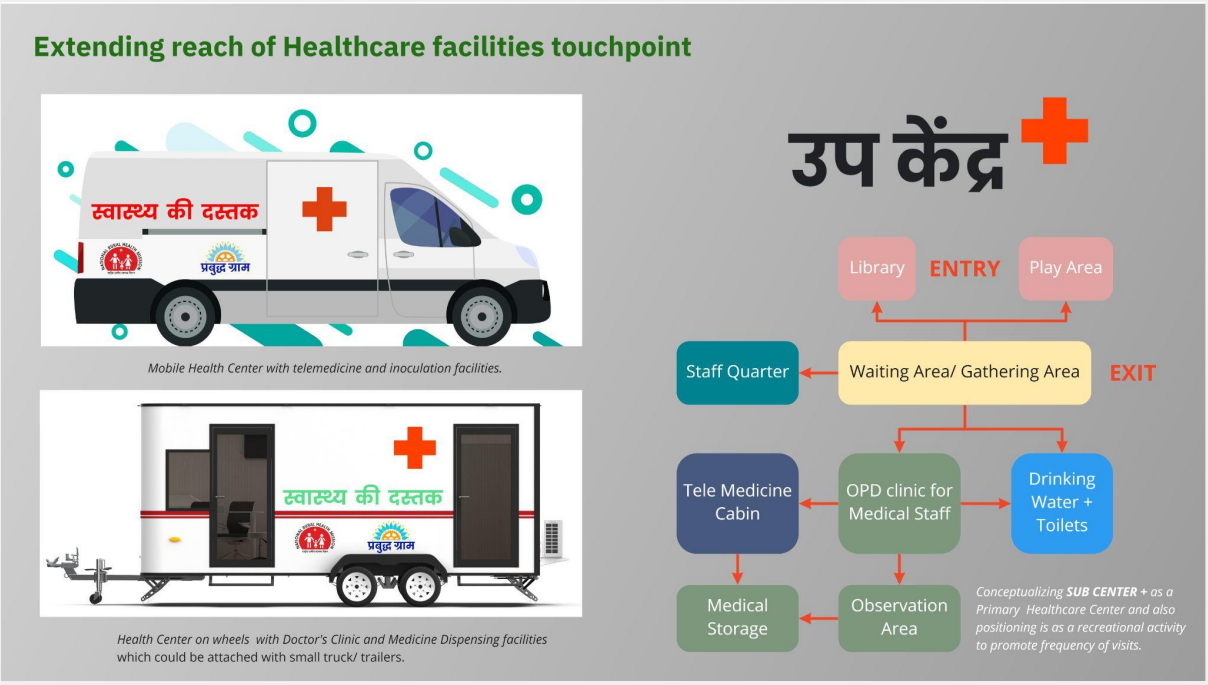
1.2 Products

- Improving the aesthetics of the physical touchpoint keeping easy maintenance and future growth in mind.
- Provision of state of the art medical facilities and data management systems.
- Catering needs of rural patients keeping their comfort and ease of access in mind. Universally design hospital furnitures and infrastructure. Improvement in overall ambience and keeping their mental model in mind.
- Improving the quality and functionality of all physical and digital handouts eg, Medicine packet, Prescriptions etc.

1.3 Process

- Upgradation of Rural Healthcare after proper systems and design audit.
- Positioning care first attitude within medical staff at every stage of service checkpoints .
- Designing services which are inclusive of patients, their family members and medical staff for holistics development of the Rural Healthcare system with constant feedback and iterative loop.

2. Sub-Center + (Healthcare on Wheels)



Sub-Centre under National Rural Health Mission were designed to cater 6 villages at a time and may consist of a delivery room if the village is in a remote location of CHC is far away from the village. Bhiura and neighbouring villages do not have access to Sub-Centres of Primary Healthcare Centre, so they heavily rely on CHC which is 2KM away.

The proposal is to build a standalone sub-center based on new architectural design and planned for future growth too. This new Sub-Center+ will consist of extra facilities such as staff quarters, tele-medicine, OPD, drinking water and recreational areas like library and indoor play area for kids. Healthcare Cadets can also use this as their base of operations and meetings.

Since constructing a Sub-Centre is a long shot, a vehicle can be modified to cater a Doctor's clinic, telemedicine, medicine storage and also acts as a vaccination centre.

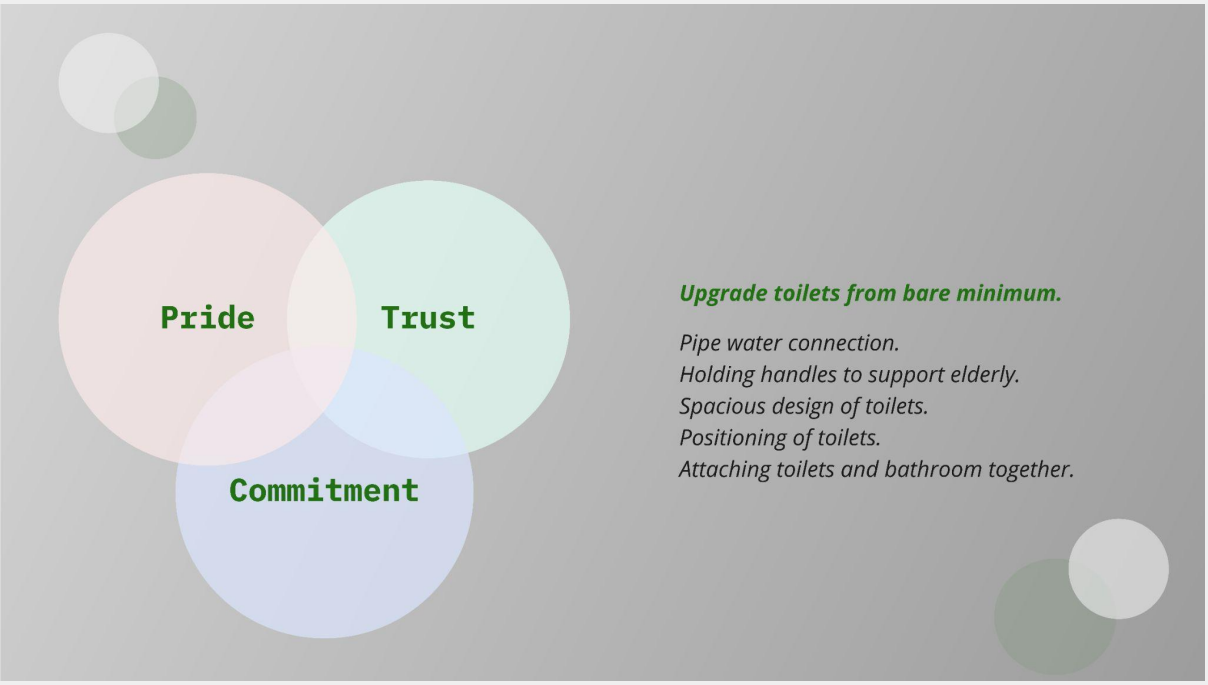
3. Automatic Kiosk Facility

A fully automated KIOSK integrated with medical electronics facility which will be easy to use without any external guidance. Its primary task is to register visiting patients and provide them with a slip which would contain the user's basic health details like registration number, patient's image, body weight, temperature and pulse rate. Furthermore it doubles up as a mask vending machine and as a platform or touchpoint to spread health awareness and promote health activities/schemes.

4. New Improved Signage System

By using functional literacy, we can propose easy to interpret and follow signages for wayfinding and approaching doctors, spaces and navigation inside CHC. These will be colour coded strips with very minimal and simple to understand graphics will be placed right at the entry point. Along with it, proper lighting is also required inside CHC for these coloured strips to be effective. This will reduce confusions and disturbances for doctors and other patients.

5. Shauchalaya V-2.0



The government funded toilets display the bare minimum effort and materials used to build them. Cleaning and maintenance are challenging for people due to its design. The location of the toilets is also placed in front of their homes which doesn't inculcate the sense of pride and they feel disgusted. Also, the lack of awareness of toilets built only for Women and Kids needs to be resolved by discussing with men in the village. A higher authority figure such as a doctor, politician can play an important role. People also fear the fast filling of septic tanks and are unaware of the various NGO schemes working towards cleaning toilets with pumps in a very clean way. This could be done by staging a few Septic Tank cleaning sessions in the village as a drill which will help them know whom to contact and when to contact.

We feel proud when we use products that reflect our distinctive identities. The branding of "Izzat Ghar" in Uttar Pradesh needs to be thoroughly researched and its impact on increment of male open defecation.

6. Wellbeing sessions for New Mothers

To promote better health and regular health check-ups during pregnancy, wellbeing sessions could be conducted at the healthcare facilities and health supplements could be given at the same premise which would help in safer and healthy delivery of babies. It is also advised to provide awareness in audio visual formats which would help them prepare mentally.

7. Day Care facility

Day care facilities for staff and patients at CHC

Benefits

Prevents children from disease prone areas.
Better utilization of children's time.
Extension of AWW service.
Reduced stress level in staff mothers regarding their kids.
Extended service to all working women's.

Many parents and medical staff members face a challenge to either leave their kids with their neighbours or take them along while visiting CHC. This creates disturbances and chaos for both staff and patients. For this kid's day-care centre is proposed after carefully auditing the Architectural Layout of the CHC.

This could be in collaboration with NGOs, Anganwadi etc and can also incorporate breastfeeding rooms/ stations inside. This will also act as an extended service for working women to drop their kids and in return insure their frequency of visits at CHC.

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