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A Community-Driven Approach to Rural Healthcare: Lessons from the CHE Model

This case study discusses the need for an additional resource for primary healthcare in rural India, driven by inadequate access to qualified healthcare professionals and reliance on underqualified practitioners. The case study explores the role of Healing Fields Foundations' Community Health Entrepreneurs (CHEs) in bridging this gap, highlighting successful global models and the CHE approach's potential in addressing health challenges.

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Abstract

Meeting the health needs of India's rural population is challenging due to a shortage of affordable, qualified healthcare professionals, and evolving community health needs, particularly in remote areas. This case study explores the evolution of Community Health Workers (CHWs) globally and highlights the Community Health Entrepreneurs (CHEs) model developed by the Healing Fields Foundation (HFF). CHEs, rural women trained in preventive health, data collection, and telehealth, serve as critical healthcare resources. This model bridges gaps in the health system and empowers women as health leaders, improving outcomes through a data-driven approach. CHEs address significant health challenges, limited access to care, and cultural barriers, driving behavior change and facilitating access to services. The case study discusses the need for an additional healthcare resource in rural India, showing how CHEs ensure continuity of care and support long-term health management.

Learning Outcomes

- 1. Gain an in-depth understanding of the roles, responsibilities, and impact of CHWs and CHEs in rural health ecosystems, particularly in addressing gaps in healthcare delivery and access in underserved communities.
- 2. Evaluate the importance of local data collection and community-centric approaches in designing and implementing health interventions that are responsive to the unique needs of rural communities.

- 3. Compare and contrast features of a range of Community Health Worker models.
- 4. Develop critical thinking skills by exploring how CHEs act as convergence points for complex health systems and facilitate continuity of care, particularly in managing non-communicable diseases and other chronic health conditions.

Which Sustainable Development Goals (SDGs) Does the Case Support?

- **Goal 1:** No Poverty This model generates income opportunities for rural, resource poor village women.
- **Goal 3:** Good Health & Well-being Community health workers are crucial in ensuring access to affordable and quality healthcare.
- Goal 5: Gender Equality Elevating women as health catalysts can support equitable access to health knowledge and services, and elevating women as community leaders can result in transformation of agency and empowerment.
- **Goal 6:** Clean Water and Sanitation Community health workers can shift behaviors around clean water and sanitation.
- **Goal 8:** Decent work and economic growth Upskilling local women as health resources represents an opportunity for decent work where opportunities are limited.

The Role of Community Health Workers in Rural Health Systems

Globally, gaps in rural healthcare have been addressed through Community Health Workers (CHWs). Olaniran defines CHWs as "paraprofessionals or lay individuals with an in-depth understanding of the community culture and language, who have received standardized job-related training of shorter duration than health professionals, and whose primary goal is to provide culturally appropriate health services to the community (Olaniran et al., 2017)."

Mor et al. present a four-stage framework that encapsulates the diverse roles of CHWs: (1) Messengers of health behavior change, (2) Extenders of physicians through household visits, (3) Specialists in tasks traditionally handled by doctors, and (4) Providers of comprehensive primary care. This framework helps to understand the progression and impact of CHWs globally and highlights areas for potential improvement in health outcomes and equity (Mor et al., 2023). Across various models that exemplify these stages, data and technology have been employed to improve quality of care or evaluate impact.

The global expansion of CHWs across these stages offers valuable insights. For example, the Living Goods' program of Community Health Promoters (CHPs) in Uganda integrates traditional stage 2 CHW activities – such as household visits, health behavior change, and limited diagnostics – with the entrepreneurial sale of health products. Household visits are utilized for visiting newborns in the first 48 h of life and children under 5 years old to educate families on relevant behavior practices. They also utilize a decision-support smartphone application to diagnose specific illnesses and dispense medicine. CHPs directly purchase products from Living Goods at 30% below market prices, and sell at 10% below market prices (Living Goods, n.d.). This approach not only addresses health needs but also provides CHPs with a source of income. The program focuses on maternal and child health and has achieved significant outcomes: a 27% reduction in child mortality, a 33% reduction in infant mortality, and a 28% reduction in neonatal mortality (Nyqvist et al., 2019).

In Bangladesh, a data-driven, iterative approach has allowed its CHW program to evolve over five decades to meet changing public health needs. CHWs in Bangladesh collect extensive data that continuously informs program priorities and strategies. This model blends government orchestration with diverse training from governmental and non-governmental organizations, addressing both health promotion and targeted service delivery (El Arifeen et al., 2013). As a result, vaccination coverage in Bangladesh has increased dramatically – from less than 5% coverage of key vaccines (measles, DPT3, BCG, etc.) in 1985 to over 90% in 2010 (El Arifeen et al., 2013).

In America, the state of Alaska faces challenges in delivering health care to remote communities. Alaska's Community Health Aide Program trains Community Health Aids to deliver a wide range of primary care. They play a critical role in chronic disease management, with nearly one-third of their practice involving medication assistance. Community Health Aids are similar to CHWs worldwide but differ in their provision of direct patient care. CHAs can provide antibiotic injections, immunization, collect cultures, and dispense medicines. Training and continuing education for these CHAs is more robust than in other CHW models, lending to their role as providers of comprehensive primary care (Golnick *et al.*, 2012; Mor *et al.*, 2023)

Despite these successes, challenges remain in deepening the impact of CHWs globally. High turnover rates, shifting disease patterns, inconsistent quality of care, and limited financing are significant barriers (Exemplars in Global Health, 2024). Furthermore, evidence from large-scale randomized controlled trials shows mixed results, largely due to the challenges of high turnover and low financial incentives (Nyqvist *et al.*, 2019).

Innovations like the entrepreneurial model of Living Goods' CHPs and the data-driven approach in Bangladesh are promising strategies to address these issues. However, most CHW programs in low- and middle-income countries still focus primarily on maternal and child health or communicable diseases like tuberculosis (Olaniran *et al.*, 2017; Nadella *et al.*, 2021; Mor *et al.*, 2023).

Is there a Need for an Additional Resource for Primary Health Care in Rural India?

For rural India, the dual challenges of inadequate access to qualified healthcare and reliance on underqualified practitioners have created a growing need for an additional layer of primary healthcare that is both accessible and effective. Studies examining rural health services in India largely fall into two categories: those that highlight the shortage of qualified healthcare professionals in the overstretched rural health system, pointing to a lack of access, and those that recognize that rural Indians are accessing healthcare, but often through underqualified medical practitioners (such as quacks, non-degree allopathic practitioners, and rural medical practitioners) or expensive private care (Nandan and Agarwal, 2012; Raza et al., 2015; Anand and Fan, 2016; Viramgami et al., 2020; Das et al., 2022; Manapurath et al., 2024).

Among the rural poor, healthcare is sought in 86% of acute illness cases. Of these, 56% rely on non-degree allopathic doctors. In cases of chronic illness, only 70% seek care of any kind, with 30% relying on non-qualified allopathic practitioners (Raza et al., 2015). The low rates of access to care and high reliance on non-qualified practitioners, especially for chronic illnesses, underscore the scarcity of qualified professionals and highlight the financial burden on rural families. Each year, healthcare costs push approximately 63 million Indians into poverty (National Health Policy, 2015, Oxfam) (Fig. 1) (Oxfam International, 2022).

The distribution of healthcare workers further exacerbates these issues. Even when considering a broad spectrum of health workers – including allopathic doctors, midwives, nurses, pharmacists, homeopathic and ayurvedic practitioners, traditional healers, and faith healers – only 40.8% are located in rural areas, which house 72.2% of India's population (Anand and Fan, 2016). This stark disparity emphasizes the need for primary healthcare that is accessible and effective for rural communities.

In eleven states in India, more than 55% of all women in the reproductive age group have anemia. Moreover, this challenge has increased over the past two decades and is skewed toward rural and socially disadvantaged women (Sharif *et al.*, 2023). The prevalence of diabetes in India has grown from 7.1 to 8.9% between 2009 and 2019, but nearly 60% of those with the disease remain undiagnosed (Pradeepa and Mohan, 2021). More than 1 in 5 Indians currently suffer from hypertension, but less than a quarter of hypertensive patients have their blood sugar under control (International Institute for Population Sciences, 2021; Koya *et al.*, 2023). This picture of persistent and evolving health challenges indicates a pressing need for strengthening and expanding primary healthcare services.

Addressing these complex health challenges requires a nuanced understanding of local contexts. Urbanization and healthcare access vary significantly across regions, and existing national health surveys like the National Family Health Survey (NFHS) provide data only at the district level. Considering that the average district in India encompasses approximately 1.86 million people, this data lacks the granularity

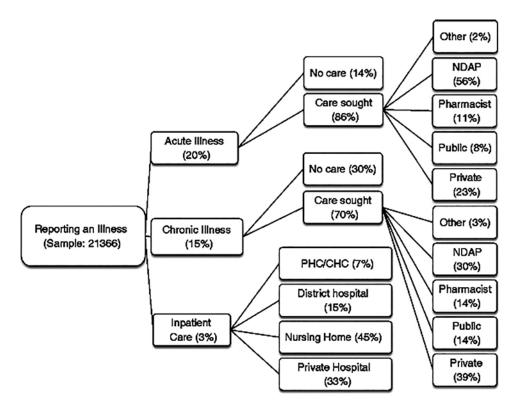


Fig. 1. Health seeking behavior among a sample of self help group members and their families in Uttar Pradesh and Bihar (Raza *et al.*, 2015).

needed to inform targeted interventions effectively. Therefore, collecting and utilizing more localized health data is essential to address specific community needs and empower local stakeholders to take ownership of health outcomes.

The Role of Community Health Workers in India

India has made significant strides in incorporating CHWs into its healthcare system, where they play a vital role in improving access to care, particularly in rural areas. CHWs make up 46% of the national health workforce (Shrestha *et al.*, 2024). The Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs), and Auxiliary Nurse Midwives (ANMs) are key components of this framework, which focuses largely on maternal and child health.

India's ASHA program is effective in driving behavior change when an ASHA engages with a family, but overall penetration remains low (Kumar *et al.*, 2019; Asthana and Mayra, 2022; Mor *et al.*, 2023). Programs such as the Accredited Social Health Activists (ASHAs) program, the Anganwadi Workers (AWWs) program, and the Auxiliary Nurse Midwives (ANMs) program have yielded positive outcomes, particularly in maternal and child health. However, expecting these workers to shoulder the entirety of rural healthcare needs is neither feasible nor fair, particularly regarding the above-mentioned challenges of anemia, hypertension, and diabetes.

Moreover, the existing rural health ecosystem is an intricate web of services, entitlements, and schemes. Navigating these services is a challenge. The complexity arises from multiple government initiatives, each with its own scope – like ASHA and AWW workers for maternal and child health, ANMs, and doctors stationed at PHCs and SHCs. There are over five government schemes for pregnant women and more than six targeting children under 5, implemented across different ministries. This fragmented structure often leads to gaps in service penetration and low health-seeking behavior, exacerbated by barriers such as distance and a lack of awareness of available resources.

Therefore, there is scope for an additional resource to act as a convergence point for these varied resources and schemes, while anchoring long-term behavior and health outcomes and responding to evolving health needs in rural villages.

Community Health Entrepreneurs (CHEs)

To address these challenges in rural health, Healing Fields Foundation (HFF) has developed a unique model with its cadre of Community Health Entrepreneurs (CHEs) that complements the existing CHW ecosystem. CHEs are women from rural, resource-poor areas trained by HFF to become health leaders in their communities. Women are chosen as CHEs because, as primary caregivers and custodians of family health, they are well-positioned to influence community health behaviors, address local health needs, and drive long-term change, while also gaining empowerment, respect, and income. In Uttar Pradesh, Bihar, and Jharkhand, CHEs promote preventive health measures, facilitate healthcare access, and empower their communities with essential health knowledge. This region is the most densely populated in India and progress toward improved health outcomes lags behind other regions of the country (NFHS-5) (Fig. 2) (Das and Guha, 2024).



Fig. 2. Healing Fields' current working states.

These women address local health needs through a combination of entrepreneurship, data ownership, gender empowerment, preventive education, nutrition, behavior change, entitlement facilitation, partnerships with local government stakeholders, and access to quality healthcare and health products. CHEs are empowered to identify and solve local challenges, acting as convergence points within a complex health system. They accompany community members from problem identification to sustained behavior change and are particularly well-equipped to tackle emerging challenges like non-communicable diseases, such as diabetes and hypertension.

Women between 25 and 45 years old from marginalized communities with at least a middle school education are selected for the CHE program in collaboration with local leaders and frontline functionaries.

Training is delivered over 6 months of classroom learning and community projects, followed by 6 months of internship where they are supported to become health leaders in their villages.

CHEs lead preventive education sessions on disease prevention, nutrition, hygiene, maternal and child health, and immunization. They also promote sanitary menstrual health practices and encourage household kitchen gardens to improve nutrition. CHEs refer individuals to healthcare providers and administer basic first aid. They organize health camps with local Primary Health Centers, focusing on those who face barriers to healthcare access, such as women and the elderly. CHEs sell health and hygiene products within the community for a marginal profit. CHEs enhance local resilience by forming village committees that address community challenges. They also use technology to improve their work by implementing community registries, capturing health data for targeted interventions, and tracking their activities (Fig. 3).



Fig. 3. CHE seeding healthy behaviors in children as they learn proper handwashing techniques.

After foundational training and internship, CHEs are upskilled as telehealth facilitators. They are trained in basic vital checks, triage, and primary assessments and are equipped with medical devices to assist patients before connecting them to remote health professionals. CHEs facilitate remote consultations, support chronic disease management, and refer individuals to government services. CHEs can offer high-quality facilitation, with 97% taking correct histories of presenting illnesses, and 99% recognizing and acting on red flags (Khan *et al.*, 2019).

CHEs generate supplementary income through health product sales, checking vitals like blood pressure and blood sugar, and teleconsultation fees. This income, combined with their leadership roles, helps to sustain the local health ecosystem. A total of 82.5% of trained women report increased income (Abel and Rajaratnam, 2022). Similar to the CHP program in Uganda, this aligns income incentives with community health to unlock greater impact.

This model meets the criteria of primary care. CHEs are responsible for a defined population, offer a comprehensive range of services, ensure continuity across providers and over time, and are accessible by the people the CHE serves (Starfield, 1998). Below, we explore core program elements that meet local challenges while representing scalable solutions.

Data-Driven Community Health: Empowering CHEs to Tackle Local Challenges and Support Vulnerable Groups

A defining feature of the CHE model is the focus on the use of data to shape community priorities and target education.

As a first step to understanding her community's health, the CHE undertakes a community registry, where families in their village are surveyed on key socio-demographic features, behaviors, conditions and recent health experiences. This household-level data allows the CHE to target families and individuals who require support or referral. Understanding the low prevalence of toilets and limited use can lead a CHE to prioritize local sanitation as a community health priority. Low uptake of government services for supplementary nutrition can instigate the CHE to collaborate with local government functionaries to improve service delivery. Pregnant women identified in the community registry will receive specific nutrition counseling and referrals to local primary health centers for antenatal checkups. This hyper-local data has allowed the CHE to understand and respond to her community's needs (Fig. 4).



Fig. 4. CHE collecting community data on her phone.

As an example of data use to improve community health, CHE Kalawati Devi in Uttar Pradesh identified and resolved a local sanitation challenge with data-driven problem-solving. Through her local data capture, she discovered that one cluster of 120 households had frequent gastrointestinal infections. Upon investigating, she found that the shared water source was contaminated. She stepped in to educate these houses on how to properly treat water for safe consumption and took steps to fix the problem at the source.

A benefit of this hyper-local data approach is the intentional inclusion of vulnerable groups, like women, children, and the elderly. Instead of relying on health-seeking behavior often limited in these groups due to lack of autonomy, time or money, the CHE can proactively support these groups to receive the care, knowledge and services they need. Facilitated access is especially relevant for these vulnerable groups. By opting for teleconsultations, women can overcome geographical, logistical, financial, and patriarchal barriers that may hinder their ability to seek medical assistance. In addition, these vulnerable groups often have specialized health needs that programs can evolve to address. Usage data from Healing Fields' telehealth application from January 2022–June 2024 data shows 83% of telehealth patients are women and a significant portion of these cases are related to genito-urinary conditions. To address genito-urinary conditions, Healing Fields recruited a gynecological specialist to address these needs. The spread of conditions for women and men can be found in the Fig. 5.

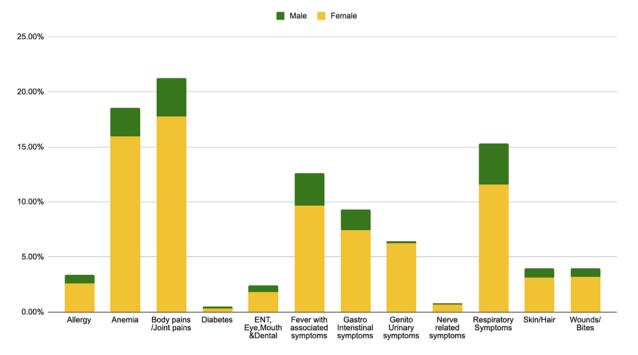


Fig. 5. Spread of conditions treated through telehealth for males and females.

Holistic Community Health: Driving Preventative Behavior Change and Overcoming Social Barriers

Community health refers to the health and well-being of individuals in a geographical area – in this case, the Indian village. Community health influences individual health, including behavior, risk of diseases, and shared environmental and economic conditions. A community health approach is essential for preventative behaviors that can greatly diminish risk of both communicable and non-communicable diseases (Mathias et al., 2023; Muthukumaran et al., 2024).

By leveraging hyper-local data, CHEs can identify health patterns, target interventions, and empower communities to adopt healthier behaviors, creating sustainable improvements in overall health outcomes for the community as a whole. A core pillar of the CHE model is its focus on a community-driven approach to health, emphasizing collective well-being and preventative measures to address health challenges at the grassroots level.

Data collection allows the CHE to find patterns and understand behavior, so that she can lead appropriate preventative education. Community preventative health behavior can reduce the need for reliance on an already stretched health system. This data-driven approach has proven to be powerful, unlocking improved community health behaviors. According to third-party evaluations of the CHE program, 98% of community members demonstrate improved health knowledge, and 88% demonstrate improved health behaviors (Deloitte, 2016; Muliyil, 2016; Parasuraman et al., 2017).

The CHE works across a comprehensive range of topics to build a holistic approach to community health and ensure sustainable change by building community rather than individual behavior changes. Health issues are so deeply interconnected that developing solutions requires navigating multiple layers of engagement within the community. Nutrition, hygiene, sanitation, maternal health, child health, disease, gender, and caste all play interconnected roles in community health outcomes. Moreover, taboo topics like menstruation and age of marriage for girls often require community norms to shift for behavior to follow.

One example of this community-first approach to behavior change comes from Meera in Bihar. She recognized the urgency of spreading awareness in a community adhering to traditional practices. Meera began health education sessions on menstrual hygiene, highlighting the risks of using unhygienic, old cloth rags. However, she initially faced resistance and discomfort. Older women perceived the use of old cloth rags as cost-effective, choosing them without understanding the potential health risks and infections. Adolescent girls were uncomfortable discussing menstruation in front of their mothers, which limited their

ability to learn about other methods and gain access to sanitary pads. Many girls dropped out of school as they did not have access to sanitary napkins and they did not feel safe using cloth with no toilets or water in school.

Meera conducted education sessions in local schools, engaging young girls in conversations with their peers and teachers. She ensured sanitary pads were accessible during these sessions. Over time, Meera's persistent efforts yielded results. She effectively fostered a safe environment to talk about menstrual hygiene, increasing girls' comfort in purchasing pads from her. Teachers also prioritized menstrual health, becoming regular customers and facilitating contact between students and Meera for product replenishment (Fig. 6).



Fig. 6. CHE Meera leading sanitary napkin discussions in school.

CHEs as Convergence Points for Health Services in Rural India

The Community Health Educator (CHE) plays a pivotal role as a convergence point for the multiple health services we described above. The CHE acts as a local navigator, identifying and referring patients to the appropriate health services or supporting government health workers in meeting their targets. By coordinating these efforts, the CHE unlocks synergies between various health schemes and services. For instance, while one scheme may provide water pumps to improve sanitation, another addresses diarrheal diseases in children caused by unsafe drinking water. The CHE ensures these programs work together effectively, leading to comprehensive solutions.

An example of such convergence comes from Kaushalya, from Uttar Pradesh, who intervened in the case of Sunita, a pregnant woman with a history of miscarriages. After discovering Sunita's anemia through collaboration with the village ANM, Kaushalya worked with the local ASHA to ensure Sunita received Iron and Folic Acid tablets. Kaushalya worked with Sunita's family to incorporate iron-rich foods into her diet and manage her nutritional intake. By coordinating these services and behaviors, Kaushalya ensured that Sunita received the care needed from multiple sources, resulting in a healthy delivery. This case demonstrates

how a CHE's ability to converge different services – such as nutritional counseling, anemia management, and antenatal care – can improve outcomes for pregnant women.

The CHE acts as a convergence point by bridging the gap between the community and the broader health system. The CHE strengthens the local health ecosystem by building strong relationships with health workers such as ASHAs and ANMs. This collaborative approach ensures that the community has continuous access to healthcare services and is equipped to handle long-term health challenges. Additionally, the CHE's role in facilitating telehealth services brings qualified care directly to rural villages, helping to create a more resilient health system.

During the COVID-19 pandemic, rural vaccination rates lagged behind urban areas due to misinformation, fear, and barriers of travel and cost (Tiwari, 2021; Senjam *et al.*, 2024) CHEs stepped in to support ASHAs by identifying families in need of vaccines and offering on-the-spot counseling. They facilitated access to vaccination camps or coordinated transportation, motivating over 400,000 vaccinations. This coordination not only helped achieve vaccination targets but also showcased the CHE's ability to bring services closer to the community, bridging gaps in the health system.

In summary, the CHE's role in converging various health services ensures that communities receive comprehensive and coordinated care. Whether addressing maternal health, sanitation, or pandemic vaccination efforts, the CHE acts as a central figure in connecting rural populations to essential healthcare resources, enabling long-term utilization and resilience in local health ecosystems.

Ensuring Continuity of Care: The Critical Role of CHEs in Managing Non-Communicable Diseases in Rural India

Even in cases where care is accessible, non-compliance is a major hurdle to improved health outcomes. Non-compliance can arise from lack of understanding, inconsistent or disaggregated care, or barriers like cost that prevent adherence to medicine. The CHE provides continuity in a patient's journey that can address these challenges. As an embedded change agent she closes the loop between knowledge, awareness, utilization, and change over time. As a health champion and community resource, she can walk hand in hand with patients as they navigate long-term health needs.

This approach is central to the CHE work on non-communicable diseases like hypertension and diabetes. Non-communicable diseases represent one of the fastest-growing health challenges in India, and rural areas are poorly prepared to handle the increasing burden (Pradeepa and Mohan, 2021; Koya et al., 2023). Low awareness of prevention, identification and management leads to expensive and damaging health outcomes in the long run, increases the burden of disease for the country, and increases health burdens on families (Chauhan et al., 2021).

The CHE anchors a continuum of care between risk assessment, screening, diagnosis, consultation with qualified doctors, follow-up, behavior change and long-term management. CHEs facilitate screening camps, provide family counseling and preventative community education, connect patients to qualified doctors, and support long-term lifestyle changes that are essential to NCD management and prevention.

For example, CHE Anita, from Bihar, learned to take BP readings as part of telehealth upskilling and the kit provided by Healing Fields. She began practicing the skill during a supervised application session in her village. Many members of her community were curious and approached to have their BP taken. One community member was found to have extremely high BP, so CHE Anita immediately referred him for telehealth facilitation. After consultation, he learned to manage his blood pressure by taking his medication regularly and coming to CHE Anita for regular BP checks. Another CHE, Madhu, hosted a health camp in her village in Mirzapur, conducted by two doctors from the local Government Primary Health Center. Out of 36 participants, 20% received a diagnosis of diabetes or hypertension. Diabetic individuals were referred to the local government hospital. They are now on medication. Madhu also assists with hospital visits and provides dietary counseling to reduce sugar intake and encourage fresh vegetables and a balanced diabetic diet (Fig. 7).

An important element of ensuring continuity of care is maintaining records and a continuity of data. Data tracking by a health catalyst over the long term allows continuity of outcome management, both for individuals and the community. In some contexts, data tracking for long-term health outcomes can be



Fig. 7. CHE using BP machine. Photo credit to Catherine Davison.

done through wearable personal technology devices or online applications. However, CHEs work in areas with low digital penetration, especially for women. Only 30% of the rural population uses the internet, and only 46% of women have a smartphone (Oxfam, NFHS-5) (Oxfam, 2022). Instead of expecting individuals to manage and interpret this data on their own, this data management has to be done by a CHE, who acts as custodian.

In another 10 villages in Bihar, we tracked data on anemia through the CHEs. Through the Community Registry in their villages, the CHEs found that less than 15% of women who knew they were anemic were getting regular check-ups or taking iron supplements. To address this, the CHEs organized health camps with local health centers, where 86% of women tested had low hemoglobin. The CHEs then took action by holding over 150 education sessions on nutrition, promoting 100+ kitchen gardens, and connecting anemic women to telehealth services. Kitchen gardens play a role in supporting anemia recovery by improving access to fresh, nutrient-dense vegetables. They yield a variety of vegetables rich in essential nutrients like iron, vitamin C, and folate, which are crucial for anemia prevention and recovery. CHEs teach communities about low-cost nutritious recipes using garden produce during education sessions (Fig. 8).

Through this effort, the CHEs helped to ensure that women received continuous care, from identifying the problem to changing behavior and accessing health services.

Conclusions

There is an urgent need for enhanced primary healthcare in rural India, addressing both the shortage of qualified medical professionals and the reliance on underqualified practitioners. The CHE model from HFF offers a solution through community engagement, data-driven approaches, and service integration. This model supports and complements the existing network of health services and programs, including other CHWs like ASHAs, by creating a cadre of community resources that can offer convergence and continuum of care, enabled by local data.

CHEs learn to use hyper-local data to identify health challenges, enabling preventative behaviors and supporting families in rural communities. The CHE's role in navigating the fragmented rural health ecosystem is vital. Whether facilitating maternal health, managing non-communicable diseases, or driving COVID-19 vaccination efforts, CHEs bridge gaps between health resources and the people who need



Fig. 8. CHE and two community women in a kitchen garden.

them. This convergence ensures comprehensive care, fostering synergies between health programs for more effective outcomes. Through follow-up, long-term support, and community education, CHEs anchor the continuum of care for chronic conditions like hypertension, diabetes, and anemia.

Exercises/Group Discussion Questions

- 1. Why is an additional layer of the primary health system necessary in rural India?
- 2. How do Community Health Entrepreneurs (CHEs) differ from traditional Community Health Workers (CHWs) in their approach to healthcare delivery? What is the significance of local data in designing community health interventions? How does the CHE model utilize local data to address specific health challenges within communities?
- 3. How do CHEs facilitate the convergence of various health services and schemes within their communities? Why is this convergence essential for effective healthcare delivery, and what are the potential benefits and drawbacks of such a model?
- 4. How do CHEs contribute to the continuity of care for managing non-communicable diseases (NCDs) in rural areas? What strategies do they use to ensure long-term adherence to treatment and lifestyle changes among patients?

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Conflict of interest

The authors have no conflicts of interest to declare.

Further Reading

Rao, S. (2020) Do We Care?: India's Health System. Oxford University Press.

Roberts, M.J., Hsiao, W.C., Berman, P.A. and Reich, M. (2019) *Getting Health Reform Right: A Guide to Improving Performance and Equity*. Oxford University Press.

References

Abel, R. and Rajaratnam, J. (2022) (rep). Participatory Impact Evaluation of CHE Programme.

Anand, S. and Fan, V.Y. (2016) *The Health Workforce in India*. World Health Organization, Geneva, Switzerland.

Asthana, S. and Mayra, K. (2022) India's one million accredited Social Health Activists (ASHA) win the Global Health Leaders Award at the 75th world health assembly: Time to move Beyond Rhetoric to action? *The Lancet Regional Health – Southeast Asia* 3, 100029. DOI: 10.1016/j.lansea.2022.100029.

Chauhan, S., Gupte, S.S., Kumar, S. and Patel, R. (2021) Urban-rural differential in diabetes and hypertension among elderly in India: A study of prevalence, factors, and treatment-seeking. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 15(4), 102201. DOI: 10.1016/j.dsx.2021.102201.

Das, T. and Guha, P. (2024) The puzzle of public health expenditure and healthcare infrastructure in India: An empirical investigation. *Regional Science Policy & Practice* 16(2), 12710. DOI: 10.1111/rsp3.12710.

Das, J., Daniels, B., Ashok, M., Shim, E.-Y. and Muralidharan, K. (2022) Two Indias: The structure of primary health care markets in rural Indian villages with implications for policy. *Social Science & Medicine* 301, 112799. DOI: 10.1016/j.socscimed.2020.112799.

Deloitte (2016) (rep.). End-Term Impact Assessment Report.

El Arifeen, S., Christou, A., Reichenbach, L., Osman, F.A., Azad, K. *et al.* (2013) Community-based approaches and partnerships: Innovations in health-service delivery in Bangladesh. *The Lancet* 382(9909), 2012–2026. DOI: 10.1016/s0140-6736(13)62149-2.

Exemplars in Global Health (2024) How did Bangladesh implement? Available at: https://www.exemplars.health/topics/community-health-workers/bangladesh/how-did-bangladesh-implement#datadriven (accessed 14 August 2024).

Golnick, C., Asay, E., Provost, E., Van Liere, D., Bosshart, C. et al. (2012) Innovative Primary Care Delivery in rural Alaska: A review of patient encounters seen by Community Health aides. *International Journal of Circumpolar Health* 71(1), 18543. DOI: 10.3402/ijch.v71i0.18543.

International Institute for Population Sciences, National Family Health Survey (NFHS-5), India, 2019–21 (2021). Mumbai.

Khan, A., Sebok-Syer, S.S., Linstadt, H., Storm, M., Modan, N. et al. (2019) An electronic-based curriculum to train acute care providers in rural Haiti and India. *Journal of Graduate Medical Education* 11(4s), 152–157. DOI: 10.4300/jgme-d-18-01019.

Koya, S.F., Pilakkadavath, Z., Chandran, P., Wilson, T., Kuriakose, S., Akbar, S.K. and Ali, A. (2023) Hypertension control rate in India: Systematic review and meta-analysis of population-level non-interventional studies, 2001–2022. *The Lancet Regional Health – Southeast Asia* 9, 100113. DOI: 10.1016/j.lansea.2022.100113.

Kumar, G., Choudhary, T.S., Srivastava, A., Upadhyay, R.P., Taneja, S. *et al.* (2019) Utilisation, equity and determinants of full antenatal care in India: Analysis from the National Family Health Survey 4. *BMC Pregnancy and Childbirth* 19(1). DOI: 10.1186/s12884-019-2473-6.

Living Goods (n.d.) The Living Goods Approach. Available at: https://livinggoods.org/what-we-do/the-living-goods-approach/ (accessed 20 August 2024).

Manapurath, R., Raran Veetil, D. and Kamath, M.S. (2024) Use of modern technologies for promoting health at the population level in India. *The Lancet Regional Health – Southeast Asia* 23, 100338. DOI: 10.1016/j.lansea.2023.100338.

Mathias, E.G., Dhyani, V.S., Krishnan, J.B., Rani, U., Gudi, N. and Pattanshetty, S. (2023) Community based health literacy interventions in India: a scoping review. *Clinical Epidemiology and Global Health* 22, 101310. DOI: 10.1016/j.cegh.2023.101310.

Mor, N., Ananth, B., Ambalam, V., Edassery, A., Meher, A. *et al.* (2023) Evolution of community health workers: The fourth stage. *Frontiers in Public Health* 11, 1209673. DOI: 10.3389/fpubh.2023.1209673.

Muliyil, J. (2016) (rep.). An Independent Evaluation of the CHF Program Conducted in UP, Bihar, and Assam.

Muthukumaran, A., Ranjan, A., Pandey, S., Kumar, P. and Rao, R. (2024) Open defecation among adults having household toilets and factors associated with it: An analytical cross-sectional study from rural Bihar, India. *Clinical Epidemiology and Global Health* 25, 101486. DOI: 10.1016/j.cegh.2023.101486.

Nadella, P., Subramanian, S.V. and Roman-Urrestarazu, A. (2021) The impact of community health workers on Antenatal and infant health in India: A cross-sectional study. SSM - Population Health 15, 100872. DOI: 10.1016/j.ssmph.2021.100872.

Nandan, D. and Agarwal, D. (2012) Human Resources for Health in India: Urgent need for reforms. *Indian Journal of Community Medicine* 37(4), 205. DOI: 10.4103/0970-0218.103464.

National Health Policy. (2015) Draft, Ministry of Health and Family Welfare Government of India. Available at: http://www.mohfw.nic.in/showfile.php?lid=3014 (accessed 1 September 2024).

Nyqvist, M.B., Guariso, A., Svensson, J. and Yanagizawa-Drott, D. (2019) Reducing child mortality in the last mile: Experimental evidence on community health promoters in Uganda. *American Economic Journal: Applied Economics* 11(3), 155–192. DOI: 10.1257/app.20170201.

Olaniran, A., Smith, H., Unkels, R., Bar-Zeev, S. and van den Broek, N. (2017) Who is a community health worker? – A systematic review of definitions. *Global Health Action* 10(1). DOI: 10.1080/16549716.2017.1272223.

Oxfam (2022) (publication). India Inequality Report 2022: Digital Divide.

Oxfam International (2022) India: Extreme Inequality in Numbers. Available at: https://www.oxfam.org/en/india-extreme-inequality-numbers (accessed 20 August 2024).

Parasuraman, S., Sundararam, T. and Kumar, V. (2017). (rep.). Evaluation of Community Health Facilitator Project and Water and Sanitation Programme in Ballia, Buxar and Sasaram. TISS.

Pradeepa, R. and Mohan, V. (2021) Epidemiology of type 2 diabetes in India. *Indian Journal of Ophthalmology* 69(11), 2932–2938. DOI: 10.4103/ijo.ijo_1627_21.

Raza, W.A., Van de Poel, E., Panda, P., Dror, D. and Bedi, A. (2015) Healthcare seeking behavior among self-help group households in rural Bihar and Uttar Pradesh, India. *BMC Health Services Research* 16(1). DOI: 10.1186/s12913-015-1254-9.

Senjam, S.S., Manna, S., Goel, G., Balhara, Y.P., Ray, A. et al. (2024) Vaccination coverage against covid-19 among rural population in Haryana, India: A cross-sectional study. *Plos One* 19(3), e0299564. DOI: 10.1371/journal.pone.0299564.

Sharif, N., Das, B. and Alam, A. (2023) Prevalence of anemia among reproductive women in different social group in India: Cross-sectional study using nationally representative data. *PLOS ONE* 18(2). DOI: 10.1371/journal.pone.0281015.

Shrestha, P., Afsana, K., Weerasinghe, M.C., Perry, H.B., Joshi, H. et al. (2024) Strengthening Primary Health Care through community health workers in South Asia. *The Lancet Regional Health – Southeast Asia* 28, 100463. DOI: 10.1016/j.lansea.2024.100463.

Starfield, B. (1998) *Primary Care: Balancing Health Needs, Services, and Technology*. Oxford Academic, New York. DOI: 10.1093/oso/9780195125429.001.0001.

Tiwari, S. (2021) Rural Areas Lag Much Behind Urban in Covid Vaccinations. Times of India. Available at: https://timesofindia.indiatimes.com/city/gurgaon/rural-areas-lag-much-behind-urban-in-covid-vaccinations/articleshow/82814136.cms (accessed August 28, 2024).

Viramgami, A., Upadhyay, K. and Balachandar, R. (2020) Catastrophic health expenditure and health facility access among rural informal sector families. *Clinical Epidemiology and Global Health* 8(4), 1325–1329. DOI: 10.1016/j.cegh.2020.05.005.