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Operational Lessons from Mohalla Clinics for Expanding Primary Healthcare Access in Rural and Urban India

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Abstract

The current state of healthcare remains fragile, particularly in rural India, due to shortages in infrastructure, medicines, and human resources. The situation is further aggravated in rural regions by factors such as limited awareness, inadequate road connectivity, and inefficient healthcare delivery models. To address these gaps, the Delhi government in India launched the "Mohalla" Clinics, aimed at delivering basic healthcare services to residents, with a special focus on the urban poor. These clinics provide essential services, including immunizations, family planning, and counselling, staffed with a doctor, nurse, pharmacist, and laboratory technician. Despite a promising start and cost-effective operations, Mohalla Clinics have yet to reach full coverage across Delhi as originally planned. This study examines the operational obstacles faced by these clinics and identifies lessons that could inform primary healthcare strategies in other underserved areas. The analysis draws upon system strengths and limitations (covering infrastructure, facilities, and services) derived from a literature review and qualitative interviews conducted with 55 participants—comprising doctors, nurses, and patients—from 11 Mohalla Clinics, using the SUTD-MIT (Singapore University of Technology and Design–Massachusetts Institute of Technology Industrial Design Centre) Product Service System (PSS) interview framework. Findings suggest that the Delhi Mohalla Clinics model offers valuable insights for other states aiming to strengthen their primary healthcare systems. Achieving Universal Health Coverage (UHC) remains challenging due to multiple constraints within the existing model. Consequently, a novel healthcare delivery framework is needed, with one proposed solution being a mobile Primary Health Center (mPHC)—a collapsible unit that can be transported to remote locations, operate outpatient services for limited hours, and then return to base.

Keywords: Mohalla clinics, Healthcare access, Universal Health Coverage (UHC), India

Introduction

It has been ten years since diseases such as poliomyelitis, yaws, and maternal and neonatal tetanus were eliminated from India's public health landscape [1]. Nevertheless, communicable diseases like tuberculosis and measles persist, along with rising noncommunicable diseases such as diabetes and hypertension, compounded by shortages in healthcare personnel [1]. Access to

healthcare providers, medications, diagnostics, and functional referral systems remains inconsistent. Many individuals continue to be dissatisfied with public healthcare for minor conditions such as fever, cough, or cold due to overcrowding and long waiting times. As a result, even the poorest quintile often prefers private or unqualified providers despite the higher financial burden [2, 3]. Over the past 10–15 years, the National Health Mission (NHM), through government funding, has modestly improved healthcare delivery, but substantial gaps remain. The Delhi government introduced Mohalla Clinics to fill these gaps, attracting attention at both national and international levels [3, 4]. Various political parties across Indian states have expressed interest in replicating these clinics [5, 6]. The healthcare system in Delhi struggles with limited access to professionals,

medications, diagnostics, and referrals to advanced care [7]. Underfunded and overstretched primary care often drives patients to secondary or tertiary facilities for minor ailments [2]. Additionally, a well-developed private sector draws a large portion of the population [8]. Consequently, overcrowding, prolonged wait times, compromised care quality, and high out-of-pocket (OOP) expenses remain barriers for underprivileged populations seeking essential healthcare. Mohalla Clinics represent a potential tool to progress toward UHC and strengthen India's health system. While these clinics have partially succeeded in prioritizing healthcare in political discourse, substantial gaps remain compared with earlier infrastructure initiatives such as Bijli Sadak Pani (BSP) from nearly 15 years ago. As more states adopt health policies, BSP-like initiatives are likely to evolve into Swachchata-Swashthya-Shiksha-Safaai-Saamaajick-shetra programs.

Health system in delhi

Delhi, India's capital, has a population of 16.8 million, with 97.5% residing in urban areas, spanning 1,483 km², and a population density of 11,297 persons/km² (ranging from 3,800 to 37,400/km²). Approximately 1.8 million people (over 10% of the population) [9] live in slums, mostly comprising recent migrants from other Indian states. Delhi ranks as the third-largest metropolitan region globally by population. Healthcare is provided by over a dozen organizations, including three municipal corporations. As of March 31, 2017, Delhi had 88 general hospitals, 1,298 dispensaries, 230 maternity homes and subcenters, 54 polyclinics, 1,160 nursing homes, and 124 specialized clinics (**Figure 1**) [10]. The government also runs 15 allopathic medical colleges. Delhi government facilities include around 12,000 hospital beds, over 200 dispensaries, and multiple polyclinics, accounting for roughly 20% of total healthcare facilities. Each year, government institutions manage approximately 33.5 million outpatients and 600,000 inpatients. Numerous private hospitals and clinics operate citywide. Per capita government health expenditure in Delhi in 2012–13 was 1,753 INR, compared with the major states' average of 737 INR. The government funds 68% of the remaining healthcare costs [11]. Hospital services in urban areas are predominantly private (around 55%), with private outpatient care utilized by 87% of males and 71% of females (national averages: 76% and 73%, respectively) [12].
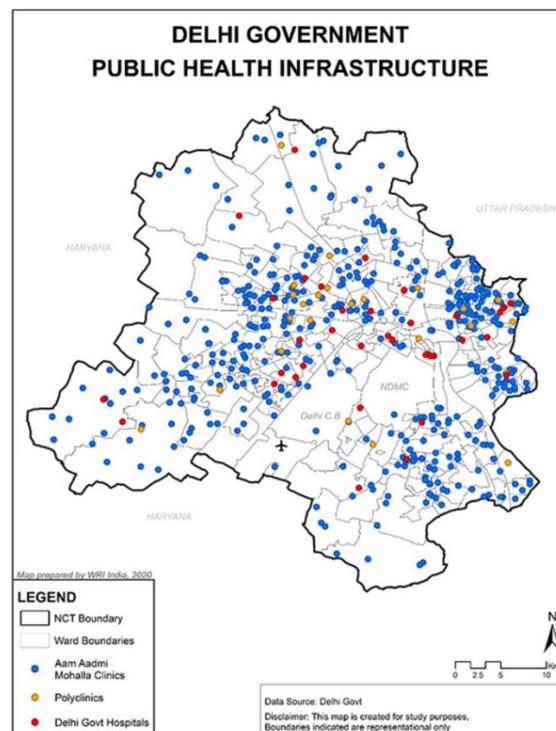

Figure 1. Delhi government public health infrastructure (source: W.R.I. India, 2020)

In their current form, Mohalla Clinics are frequently referred to as a representation of primary healthcare. Primary healthcare includes a broad spectrum of services, ranging from health promotion and disease prevention to treatment, rehabilitation, and public health initiatives. Public health primarily emphasizes disease prevention, whereas clinical services focus on treatment. Some regions prioritize sanitation improvements, while others emphasize nutrition and healthy lifestyle education. Presently, the architecture of Mohalla Clinics gives minimal attention to public health services or broader community needs. Basic necessities such as cleanliness, safe drinking water, personal hygiene, and nutrition education receive limited focus. Mohalla Clinics are largely oriented toward curative services, and in their current state, they do not provide comprehensive primary healthcare. While these clinics mainly deliver curative and diagnostic care, Urban Primary Health Centers (UPHCs) under the National Urban Health Mission (NUHM) [13] can offer both public health interventions and curative care, with well-established referral mechanisms. The integration of UPHCs with polyclinics is also noteworthy. A UPHC, in combination with polyclinics and three to four smaller facilities like Mohalla Clinics, could serve over half a million people. A sustainable healthcare strategy in India requires coordination between state-run programs and the Ministry of Health and Family Welfare (MoHFW), given that healthcare is a state responsibility and the central government provides policy guidance. Together, Mohalla Clinics, dispensaries, UPHCs, and polyclinics form an integrated network to strengthen Delhi's primary healthcare system **(Figure 2).**
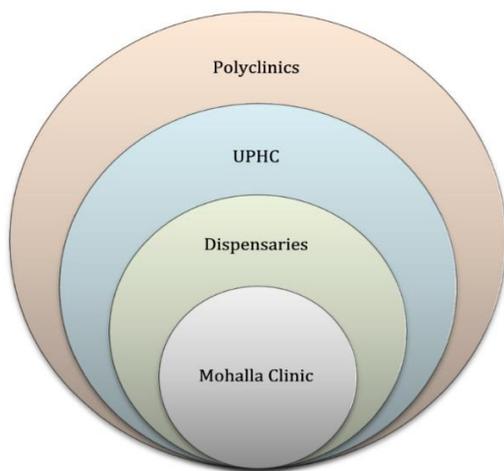

Figure 2. Conceptual hierarchy of existing healthcare delivery services in Delhi

Delhi mohalla clinic—history, vision, design, planning, budget and cost

- *Mohalla clinic—history*

When the newly elected Delhi state government assumed office in February 2014, it committed to providing primary healthcare through "Mohalla" Clinics [7, 8]. Each clinic is staffed with a doctor, nurse, pharmacist, and laboratory technician to offer outpatient consultations, free medicines, diagnostic tests, vaccinations, and family planning counselling, targeting low-income urban populations [7, 14]. With the objective of delivering affordable, high-quality healthcare within communities, the government planned to establish 1,000 clinics across different assembly constituencies, with the first launched in July 2015 [4]. The 2015–16 state budget allocated funds for 500 clinics in the initial year. The first Mohalla Clinic opened on July 19, 2015, in the Peeragarhi area of northwest Delhi. Government plans range from 500 to 1,000 clinics (approximately 14 per assembly constituency). The Peeragarhi clinic is situated within a jhuggi jhopri (slum) cluster and costs around 20 million INR [7].

These clinics brought healthcare closer to residents, especially the urban poor, reducing travel and waiting times. Over 110 essential drugs and 212 diagnostic tests were made available free of cost to those unable to pay [15]. By offering free services, clinics alleviated financial burdens on low-income households. Due to Delhi's high population density, these clinics could operate at a lower per-patient cost than tertiary hospitals, with initial setup costs of roughly 31,000 USD [7] and a treatment cost of approximately 0.4 USD per patient. Abundant healthcare personnel in Delhi facilitated operations. Services also included counselling and referral support, reducing patient congestion in secondary and tertiary facilities [14, 16].

- *Mohalla clinic—vision*

The Mohalla Clinic initiative began with the establishment of a community clinic in a Delhi slum [7, 17, 18], drawing inspiration from Mobile Vans (MVs) and Mobile Medical Units (MMUs). The vision was reinforced by the government's intent to develop systematic healthcare solutions rather than relying on ad-hoc mobile units.

MMUs and MVs, which are also used in countries such as South Africa [19], Greece [20], Zambia [21], and Saudi Arabia [22], deliver medical supplies, doctors, and staff to underserved areas using adapted vehicles. The Delhi administration expanded the state's MMU network, targeting underserved zones, informal settlements, and migrant clusters, funded by the state

147

Int J Soc Psychol Asp Healthc, 2023, 3:144-157   Rezaei *et al*.

with support from the MoHFW. These mobile units were well-received by communities and generated high demand. However, their services were often unpredictable, depending on vehicle availability, staff, and road conditions, making long-term sustainability challenging. Administrative and procedural hurdles, including vehicle procurement and contract-based staffing, further limited effectiveness. A more permanent solution was required, offering consistent community-based services with guaranteed provider availability, medicines, comprehensive care, and strong community linkages. MVs and MMUs were considered temporary stopgap measures, which ultimately led authorities to endorse the establishment of Mohalla Clinics.

The first Mohalla Clinic in Delhi was inaugurated in Peeragarhi, West Delhi, on July 19, 2015. The rollout of an additional 100 clinics required nine more months. By December 2016, 106 clinics had been established, covering 55 of the state's 70 assembly constituencies and all eleven districts [17]. The Delhi government had originally intended to set up 1,000 clinics across the city. Despite strong political backing, only about 10% of the planned number had been constructed by December 2016 [23, 24]. Delays in achieving the target were attributed to several factors, including inadequate pre-planning (no operational blueprint existed until one year into the project), challenges in selecting sites (as much of the land was not state-owned), bureaucratic approval delays, and frequent changes in technical leadership within the health department.

Initially, Portacabin structures were erected on government land, but land acquisition challenges led to around 100 clinics being set up in rented or rent-free private buildings. Efforts to fast-track clinic openings through government schools encountered administrative hurdles and were only implemented by the end of 2016 after obtaining proper approvals. Most clinics launched in 2016 quickly gained community acceptance [25]. According to official data, by July 2016, approximately 800,000 residents had accessed healthcare services at these clinics, and 43,000 diagnostic tests had been conducted over the preceding five months [26]. On average, each clinic handled 70–100 patients per day. During the dengue and chikungunya outbreaks in September–October 2016, when hospitals were overwhelmed, Mohalla Clinics served as critical entry points for medical care and dengue testing, easing the pressure on major facilities [27]. By the end of 2016, about 1.5 million people had visited the clinics, most of

which had been operational for less than a year [14]. The initiative attracted attention from external experts, media, and opposition parties, who largely praised the concept and recognized the high demand for services. The *Lancet*, in a December 2016 editorial, acknowledged that these neighborhood clinics effectively served populations who otherwise had limited access to healthcare [28]. Numerous studies suggest that Mohalla Clinics align with Universal Health Coverage (UHC) principles, improving healthcare access for the poorest segments and reducing their financial burden [7, 29]. According to Delhi government data, 40–50% of clinic visitors were first-time users of government health services. The lower patient load observed in these clinics has been noted by private practitioners, including unqualified providers. Overall, the clinics have enhanced access to trained healthcare professionals for the city's most disadvantaged populations, though further evaluation and documentation are needed [14].

- *Mohalla clinic—design*

Each Mohalla Clinic provides outpatient consultations, free medications and diagnostic tests, immunizations, family planning, referrals, and counselling services. Plans are underway to include weekly visits by specialists such as gynecologists and ophthalmologists. Clinics occupy approximately 50 square yards and are constructed using prefabricated materials (Portacabin), featuring two rooms, ambulance access, and surrounding green space. Facilities include a doctor's office, pharmacy, laboratory testing kits, a token vending machine, cable TV, a water dispenser, and a fully air-conditioned waiting area with seating [7].

Delhi Mohalla Clinics utilize three types of infrastructure: Portacabin units in three configurations (Hut, Box, and L-shaped), shipping containers (**Figure 3**), and leased spaces. Module selection depends on available space. Hut-type Portacabins are deployed in unused pedestrian parks, Box-type near bus stops, and L-shaped units in open grounds adjacent to schools, colleges, or post offices. Shipping container units, the latest addition, are installed in open public areas like plazas and squares, offering comparable services in roughly half the space (350 sq. ft. versus 600 sq. ft. for Portacabins).

Figure. 3. Shipping container Mohalla Clinic: box type

To gain a broader perspective, literature was reviewed to compare reported outcomes with field observations. The Mohalla Clinic concept demonstrates multiple advantages and some limitations as a health intervention **(Table 1).**

Table 1. Comparative analysis: Mohalla Clinic and existing infrastructure

Existing Health Facilities	Mohalla Clinics
1. Staffing: Limited human resources; dependent on funding; range of guaranteed services is narrow; often understaffed and underutilized by community members; not always situated in areas with high deprivation. Some facilities, like mother and child welfare centers, target small, specific populations rather than broader underserved urban communities.	1. Backed by state government funding, Mohalla Clinics provide a large network with guaranteed access to multiple services and healthcare providers.
2. Mobile Vans or Mobile Medical Units (MMUs): Travel to designated locations to offer services, primarily targeting underserved populations; the type and quality of services can vary widely.	2. Strategically located in underserved areas and slum communities to ensure consistent access to care.
3. Dispensaries and polyclinics: Often housed in large buildings with multiple rooms; can be overcrowded, underutilized, or serve only a small number of patients. Service availability and provider presence may be inconsistent.	3. Offer a range of personal healthcare services accessible to all family members, covering essential medical care.

Several Indian states, including Maharashtra and Gujarat, along with municipal bodies such as Pune, have expressed interest in replicating this model [5, 6, 30–32]. There are at least two forms of evidence supporting their efficacy. First, patient utilization reflects high demand. Second, other Indian states have indicated willingness to construct similarly designed facilities. From a health system perspective, these clinics are valued for accessibility, equity, quality, responsiveness, and financial protection, which can be summarized as:

a. **Accessibility**: Expands access to quality healthcare for all.

b. **Equity**: Prioritizes underserved and marginalized populations.

c. **Quality assurance**: Ensures services meet patient expectations and adhere to standards.

d. **Comprehensive care**: Extends beyond a limited service package to cover additional conditions.

e. **Financial protection**: Minimizes patient costs and prevents impoverishment due to healthcare expenses, with no upfront payments required.

f. **Community participation**: Involves local residents in site selection, fostering ownership and engagement.

A range of government-led healthcare reforms coincided with the establishment of Mohalla Clinics, though they received less public attention. These measures included the creation of Delhi healthcare corporations, the provision of free medicines and diagnostic services, and the removal of private beds in public hospitals. Infrastructure-level initiatives involved redesigning the traditional three-tier healthcare delivery and referral system into a four-tier system and launching Mohalla Polyclinics. Human resource-focused measures included centralized accident and trauma service ambulances, free trauma care, engagement of private sector physicians on call for government facilities, elimination of administrative duties for doctors to allow more patient interaction, and appointing technical or subject-matter experts as departmental heads. The government's decisions directly influenced effective resource utilization, expansion of healthcare access, removal of user fees in public hospitals, reduction of out-of-pocket expenses, banning all forms of gutkha and tobacco, and enhancing affordability. Considerable attention was also given to designing these clinics to be user-friendly, with iterative improvements over time **(Table 2).**

149

Int J Soc Psychol Asp Healthc, 2023, 3:144-157   Rezaei *et al*.

Table 2. Design evolution of mohalla clinics

Started As	Changes Over Time
1. Prefabricated portacabins were used as clinic structures.	1. Based on local conditions such as summer heat and security, waiting areas were enclosed, and a third room—sometimes air-conditioned—was added when possible.
2. Initially designed with two rooms and an open seating area for patients.	2. Restrooms were incorporated into the waiting areas, especially in rented or free locations.
3. All clinics were staffed with government-employed physicians.	3. Beyond preventive and curative services, some clinics were designated as fever clinics for dengue during outbreaks.
4. Private doctors were allowed on a fee-for-service basis.	4. Clinic hours were expanded to a minimum of 4–6 hours, with flexible scheduling, including evening shifts when necessary.
5. Weekly specialist visits (e.g., gynecologists, ophthalmologists) were scheduled for basic services.	–
6. Clinics initially opened for 4 hours in the morning.	–

- *Mohalla clinic—planning and implementation*

Mohalla Clinics were planned and implemented with several key objectives:

a. **Accessibility**: Clinics aim to provide free healthcare within a few minutes' walk, operating at least 6 hours daily and offering basic health services, medications, and diagnostics. Referral requirements are expected to reduce by up to 89%. Each clinic is designed to serve 10,000–15,000 people in Jhuggi Jhopri communities.

b. **Minimum staffing**: Each clinic must have at least one certified doctor, one auxiliary nurse midwife, and one pharmacist.

c. **Service provision**: Comprehensive primary care includes first aid, maternal and child health services (immunizations, prenatal/postnatal care), family planning counselling, and referrals to higher-level facilities. Clinics are also expected to support national health programs.

d. **Referrals and continuity of care**: Weekly visits by specialists (pediatricians, gynecologists, ophthalmologists) are planned. A tiered referral system to higher-level facilities has been recommended, though not yet fully functional.

e. **Diagnostics and medications**: Clinics provide 108 approved drugs and over 200 diagnostic tests free of charge. Targeted areas include slums, migrant settlements, and impoverished neighborhoods. The first clinic was located 400 m from the main road in the Jhuggi Jhopri hamlet of northwest Delhi. Site selection involves community input, resident welfare associations, planning department surveys, and verification by health professionals.

f. **Infrastructure and accessibility**: Clinics typically use two or three rooms, either in prefabricated Portacabins or private homes with similar amenities. One room serves as the doctor's office and examination space; another functions as a laboratory, pharmacy, and patient waiting area. If available, a third room or roofed open space serves as an additional waiting area. Facilities include a drinking water dispenser, a restroom, air conditioning, and cable-connected television. Clinics must be on all-weather roads accessible to ambulances and easily reachable by patients. Construction costs per clinic are estimated at around 30,000 USD, although most clinics operated in rented spaces until December 2016. Operational costs have not been formally analyzed.

g. **Technology integration**: Patient queues are managed with token vending machines, medical records are maintained digitally, prescriptions are generated via tablets or software, and several laboratory tests utilize technology-based platforms.

h. **Administration and management**: The Delhi Healthcare Corporation oversees the initiative, under the leadership of the state health minister and senior officials.

i. **Public–private partnership**: Private doctors are contracted on a fee-for-service basis, charging patients 30 INR per consultation and an additional 10 INR if an assistant participates. Outpatient chambers are provided, ready for use within hours.

j. **Working hours and schedules**: Clinics operate a maximum of 6 hours daily, minimum 4 hours, generally in the morning, with flexibility to adjust based on demand. They are open six days a week, excluding public holidays.

k. **Financial protection**: Services reduce patient costs through investment in healthcare infrastructure, ambulance and transport services, and robust referral linkages, emphasizing continuity of care.

- *Mohalla clinic—budget and cost*

The Delhi government allocated a total of 30 million USD for the construction of 1,000 Mohalla Clinics. The overall health budget for Delhi in 2016–17 included 784 million USD dedicated to Mohalla Clinics [2]. While the clinics are intended to be operationally and financially sustainable, precise calculations for both initial setup and recurring costs are required. Although the initial investment has been estimated, ongoing expenses for human resources, diagnostics, medications, and other operational costs, which could add roughly 45 million USD annually, have not been fully accounted for. For the program to be effective, users must experience high-quality care throughout the continuum. Delhi planned a four-tier healthcare system: first, Mohalla Clinics; second, polyclinics; third, multispecialty hospitals; and fourth, super-specialty hospitals and medical institutes. Mohalla Clinics are expected to function at a standard comparable to other tiers. While the concept of a "continuum of care" is important, retention in public facilities also depends on the provision of reliable, high-quality services. Delhi currently has around 25 different types of health facilities, making it challenging even for program managers to distinguish between them, as many share similar designs [9]. To an uninformed observer, Mohalla Clinics might appear like any other facility. However, their carefully considered design sets them apart from conventional health centers **(Table 3).** Coordination among diverse health facilities is critical, as fragmentation can make access to care cumbersome, time-consuming, and inefficient. Most facilities focus on curative, clinical, and personal care, leaving public health needs inadequately addressed. By December 2016, 150 polyclinics had been proposed, with 23 already constructed, highlighting the importance of robust referral linkages across all levels.

Table 3. Mohalla clinics concept: strengths and limitations

Strengths	Limitations
1. Strong political commitment: The state government is dedicated to providing quality health services to its citizens. These clinics were launched as a flagship program alongside the education sector, possibly marking the first time an Indian state government prioritized health to this extent.	1. Focus primarily on curative, diagnostic, and limited preventive services, with little emphasis on broader health promotion.
2. Financial robustness: Delhi's fiscal capacity allows alignment between planning, resource allocation, and implementation, benefiting this initiative.	2. Weak community engagement and outreach: Preventive and promotive health services at the community level are limited and should be strengthened.
3. Ability to recruit staff: The state can hire additional physicians (one per clinic), which may not be feasible in other states due to doctor shortages.	3. Limited integration with existing health service mechanisms: Multiple agencies provide basic healthcare in Delhi, and without proper coordination, Mohalla Clinics' effectiveness may be reduced.
4. Service equity: Clinics focus on underserved populations and areas with restricted access to healthcare.	–
5. Referral network: A large network of secondary and tertiary facilities exists to receive referrals, though this system is not yet fully operational.	–
6. Availability of trained personnel: Delhi has a relatively high number of doctors and staff per 1000 population, so staffing challenges are mainly financial and administrative rather than due to lack of trained personnel.	–
7. Targeting high-need populations: Poor and migrant communities represent a large proportion of the population in need of health services.	–
8. Technology use: Token vending machines for medications improve efficiency and responsiveness of the healthcare system.	–

151

Int J Soc Psychol Asp Healthc, 2023, 3:144-157   **Rezaei** *et al*.

The 2022–23 fiscal budget provides funds for expanding Mohalla Clinics and polyclinics, which serve as the foundational pillars of primary healthcare in Delhi. Currently, the city has 520 Aam Aadmi Mohalla Clinics and 29 polyclinics, with plans to establish 1,000 Mohalla Clinics. To date, 5.49 billion patient visits have been recorded at these clinics. Additionally, 20 school health clinics have been launched on a pilot basis, conducting comprehensive monthly screenings and employing psychiatrists for child mental health assessments. The health sector has been allocated 97,690 million INR (13% of the total budget) for 2022–23, slightly lower than the previous year, to support new hospital construction and renovations, which will increase capacity by 16,000 beds. A budget of 500 million INR has been set aside for the Delhi Arogya Kosh program, which provides free treatment, surgery, radiology, and diagnostics at private hospitals when government facilities cannot provide comparable services. The government will also implement a hospital information management system and issue health cards to all citizens, with a 160 billion INR allocation for these initiatives. A 24-hour toll-free hotline will be established for health card holders, enabling guidance on treatment locations and appointment scheduling. A separate allocation of 150 million INR has been designated for providing free yoga and meditation services to the public.

Study design
Eleven Mohalla Clinics across four zones were purposively selected for the study: Noor Nagar, Jamia Nagar, Jasola Vihar, and Shaheen Bagh **(Figure 4).** Two clinics each in Noor Nagar and Jasola Vihar, three in Shaheen Bagh, and four in Jamia Nagar were sampled. At each clinic, interviews were conducted with one doctor, one nurse, and three patients, yielding a total of 55 participants.
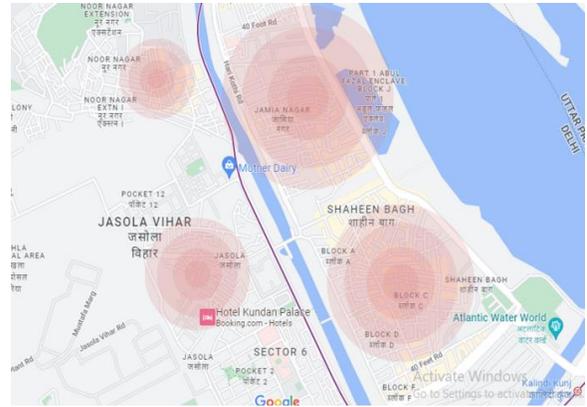

Figure 4. Mohalla clinics study zones

Qualitative interviews focused on infrastructure, facilities, and services. The SUTD-MIT interview template **(Figure 5)** was used to examine the Product-Service-System. Author 1 conducted the interviews, identifying participants through passive observation and obtaining verbal consent. Interviews began with questions on available services, staffing, and facilities. Participants were then asked to describe a typical day at the clinic, with patients narrating their routine during visits. They were also asked about the aspects they liked or disliked and for suggestions to improve services. Participant quotes were recorded, and the interviewer noted observations on cleanliness and hygiene. Standardization was maintained by using the same SUTD-MIT template across all participants, and data were cross-checked before, during, and after analysis by Author 2. Interviews with doctors and nurses were conducted inside the clinics, while patient interviews took place outside post-consultation. Doctors and nurses were interviewed in English (occasionally Hindi), whereas patients were interviewed in Hindi. Responses were recorded in English.

Interview Template

Figure 5. SUTD-MIT interview template for Product-Service-System (PSS)

Results and Discussion

Interviews were conducted with eleven doctors, eleven nurses, and thirty-three patients using the SUTD-MIT template. All participants were asked about daily activities at the Mohalla Clinic, aspects they liked or disliked, and recommendations for improvement. Responses varied due to the perspectives of the three distinct user groups.

Regarding infrastructure, each Mohalla Clinic features a waiting area with an average capacity of 20 people, a doctor's consultation room, a reception, a pharmacy, and a toilet. Nine out of eleven clinics also have a storeroom. Operating hours run from 8 a.m. to 2 p.m. daily. Doctors, recruited on a volunteer basis, hold a minimum qualification of Bachelor of Science and Bachelor of Medicine (MBBS), with preference given to experienced practitioners. Upon arrival, patients proceed to the reception, where the receptionist captures their photograph using a tablet. This information is synchronized with the doctor's tablet via a government-designed mobile application to maintain the patient's database. All consultations are recorded for each visit, saving approximately 10–15 minutes per patient,

enabling doctors to see roughly 25% more patients daily. Detailed analyses of responses from all three user groups are discussed below.

On a 1–5 Likert scale (1 = highly dissatisfied, 5 = highly satisfied), two nurses and six patients expressed dissatisfaction. Nineteen out of thirty-three patients (57.5%) indicated concerns about traveling to more distant Mohalla Clinics, often due to preferences for particular doctors. Three out of eleven nurses (27%) were dissatisfied with clinic locations within inner neighborhoods (Mohallas), citing difficulty commuting during mornings and late afternoons, suggesting potential workforce dissatisfaction.

Figure 6 illustrates the number of doctors and nurses dissatisfied with four key factors: incentives, work environment, work-life balance, and travel time to the nearest Mohalla Clinic. Among the staff, 2 out of 11 doctors (18%) and 3 out of 11 nurses (27%) were dissatisfied with incentives; 3 out of 11 doctors (27%) and 2 out of 11 nurses (18%) were dissatisfied with the environment; 4 out of 11 doctors (36%) and 3 out of 11 nurses (27%) expressed dissatisfaction with work-life balance; and 2 out of 11 doctors (18%) and 3 out of 11

nurses (27%) were dissatisfied with travel time to reach their designated clinics.
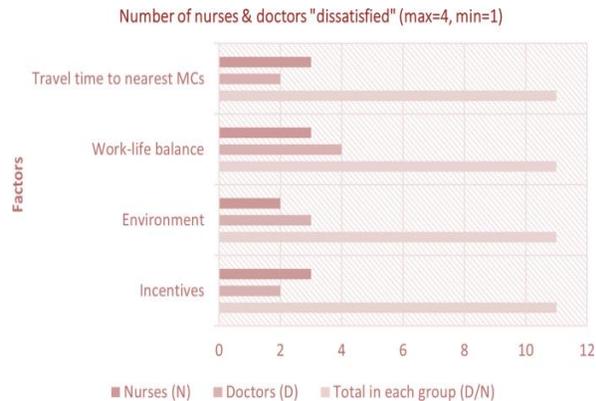

Number of nurses & doctors "dissatisfied" (max=4, min=1)

Figure 6. Horizontal bar graph illustrating staff dissatisfaction with Mohalla Clinics across four factors

Figure 7 presents patient dissatisfaction across the same four factors. Among patients, 12 out of 33 (36%) were dissatisfied with expenses, 8 out of 33 (24%) with the environment, 6 out of 33 (18%) with work-life balance, and 9 out of 33 (27%) with travel time to the nearest clinic.

Overall, the proportion of dissatisfaction among nurses, doctors, and patients was relatively low compared to the level of satisfaction. Nevertheless, there is room for improvement to enhance healthcare delivery and move toward achieving Universal Health Coverage (UHC). Few complaints were noted about the Mohalla Clinic system, making it a state-of-the-art model with potential for adaptation to low-resource settings.
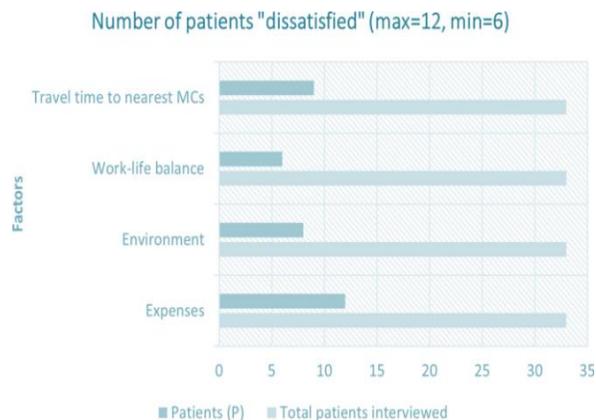

Number of patients "dissatisfied" (max=12, min=6)

Figure 7. Horizontal bar graph illustrating patient dissatisfaction with Mohalla Clinics across four factors

Healthcare in Delhi is delivered through more than 25 types of facilities, including apex or super-specialty hospitals, specialty hospitals, tertiary care centers (including medical college hospitals), referral hospitals, district and sub-district hospitals, primary health centers, dispensaries, maternity homes, nursing homes, polyclinics, specialized clinics, chest clinics, sexually transmitted disease clinics, mobile mother and child welfare units, mother and child welfare centers, India Population Project clinics, postpartum departments, urban welfare centers, urban health posts, urban primary health centers, mobile medical teams or vans, maternity centers, school health clinics, and mobile dispensaries. Even program managers often find it difficult to differentiate among these facilities in terms of service delivery, as most share nearly identical structures [9]. To an outsider unfamiliar with the system, Mohalla Clinics may appear indistinguishable from other healthcare facilities. Nevertheless, the carefully planned design of Mohalla Clinics sets them apart from conventional health facilities **(Table 3).**

Harmonizing the functions and converging services across multiple types of health facilities managed by different agencies is critical. Without this coordination, accessing health services becomes complicated, time-consuming, and cumbersome for the public. Most existing facilities prioritize curative or clinical services, often neglecting the broader public health needs of the community.

Role of mohalla clinics in the primary healthcare scenario

Mohalla Clinics are strategically located within communities, making them more acceptable to residents who value clinical services. Community responses to public health services can vary, highlighting the potential role of the Mahila Arogya Samiti (MAS) under the National Urban Health Mission (NUHM) [13]. An effective primary healthcare system can improve service delivery and reduce costs by managing 80–90% of common ailments, thereby freeing up higher-level hospitals to provide specialized care. Efficient healthcare delivery requires integration of both clinical and public health services.

In Delhi, measures such as employing doctors on "pay-for-service" contracts, utilizing rented spaces for clinics, and implementing flexible working hours have been adopted to enhance service delivery. Additional strategies include engaging medical college interns and

postgraduate students in staffing selected facilities. Information technology plays a key role, exemplified by pharmaceutical vending machines [33, 34]. Mohalla Clinics help eliminate untrained caregivers, decongest higher-level healthcare institutions, provide specialist access when needed, and improve overall efficiency. These advantages are applicable nationwide, as most Indian states face similar health system challenges. Permanent clinics ensure that residents can access medical care locally. Preventive and promotional health services for emerging and re-emerging noncommunicable diseases—such as diabetes, hypertension, cancers, and ophthalmic conditions—require community education and timely medical referral. The government is encouraged to continue efforts to improve school health services through these clinics, given Delhi's student population of nearly 40 million [9], highlighting the importance of collaboration between Mohalla Clinics and educational institutions to improve child health.

Focusing on Universal Health Coverage (UHC) and strengthening primary healthcare is crucial to accelerating health system improvements. Expanding community clinics is an effective strategy to reform healthcare services and advance India toward UHC, achieving key goals of the National Health Policy [31]. Comprehensive primary healthcare should combine clinical care with public health, preventive, and promotional services. Global experience suggests that single reforms are rarely sufficient, and a series of coordinated reforms is more effective. Swift implementation of federal policies and reform initiatives is necessary to achieve meaningful healthcare improvements. **Table 4** compares population coverage, quality of health services, and financial protection to analyze Mohalla Clinics from a UHC and health systems perspective.

Table 4. Mohalla clinics: analysis from a universal healthcare and health systems perspective

Increasing population coverage	Increasing availability of quality health services	Financial protection and efficiency
1. Shorter travel and waiting times due to expanded geographic access, reducing opportunity costs.	1. Delivery of a quality-assured healthcare package by trained professionals.	1. Lowered healthcare expenses through guaranteed free medications and diagnostics, which make up almost 70% of healthcare costs for the general population.
2. Convenient clinic hours encourage people to seek care during early stages of illness.	2. Choice of healthcare provider enables reduction of unqualified practitioners.	2. Improved affordability for low-income populations: reduced transportation costs and waiting times decrease opportunity costs.
3. Enhanced access for hard-to-reach and underserved populations, including Jhuggi Jhopri (J.J.) clusters, resettlement colonies, and migrant settlements.	3. Integrating underserved individuals into the mainstream health system can positively influence health-seeking behavior.	3. Reasonably priced interventions: effective referral linkages can manage 80–90% of health issues at the community level, reducing strain on higher-level facilities.
4. Use of appropriate technology for local needs: token vending machines for patient queues (promoting equity) and electronic maintenance of patient health records.	4. Addressing non-medical needs: provision of drinking water and carefully designed waiting areas including token vending reflects attention to patient experience.	–

Limitations
While this study introduces Mohalla Clinics into Delhi's healthcare landscape—covering their history, scheme details, implementation, and potential benefits—the sample size was relatively small. This limitation arose because participation was voluntary, and not all users could provide feedback on likes, dislikes, or improvement suggestions. Recording responses in real-time may have influenced the flow of interviews and caused minor data loss. Additionally, the research environment presented challenges, as Mohalla Clinics are always busy public spaces, with people queuing from early morning, creating less-than-ideal conditions for conducting structured interviews.

Conclusion

This study examined Delhi's healthcare system through the lens of its Mohalla Clinics initiative, which aims to deliver essential healthcare services to underserved urban populations. The case study highlights both the strengths and limitations of the Mohalla Clinics, particularly in terms of achieving the overarching goal of Universal Health Coverage (UHC).

A detailed analysis of Mohalla Clinics' operations demonstrates their benefits when integrated with dispensaries, Urban Primary Health Centres (UPHC), and polyclinics in urban settings. Based on these insights, the following recommendations are proposed to strengthen primary healthcare and move toward UHC:

a. **Develop a comprehensive roadmap and operational plan:** This should cover technical, financial, and administrative dimensions. The government may consider making this plan publicly accessible, with clearly defined indicators and timelines.

b. **Implement performance monitoring and evaluation mechanisms:** Utilize real-time data from these facilities to track performance and inform decision-making.

c. **Avoid service duplication:** Even if politically attractive, overlapping services should be minimized. Existing dispensaries could be integrated as Mohalla Clinics or polyclinics, with careful assessment of their operations to define their role within Delhi's health system. While Mohalla Clinics focus primarily on clinical care, other NUHM facilities, such as UPHCs, should provide complementary public health services.

d. **Ensure political and financial support:** Engage key stakeholders—including political leaders, community representatives, and councilors—to build consensus and secure sustainable financing.

UHC emphasizes equitable healthcare access at an affordable cost. However, rural India remains largely underserved, with primary healthcare concentrated in urban areas. Factors such as financial constraints and poor road connectivity continue to limit access for remote populations. To address this gap, the study proposes a **mobile Primary Health Center (mPHC)** as a collapsible, transportable unit capable of extending healthcare to underserved regions **(Figure 8)**.

"Healthcare on Wheels—Mobilizing healthcare to the doorstep of remote populations: Lessons from the COVID-19 pandemic. The Indian healthcare system urgently requires a new delivery model to enhance access and health outcomes for marginalized populations. Remote communities face significant barriers in reaching traditional PHCs. The proposed model aims to design, develop, and deploy a cost-effective, collapsible mobile PHC (mPHC) unit suitable for low-resource settings. Core PHC functions are decentralized into modular units for rapid deployment and accessibility." —Author
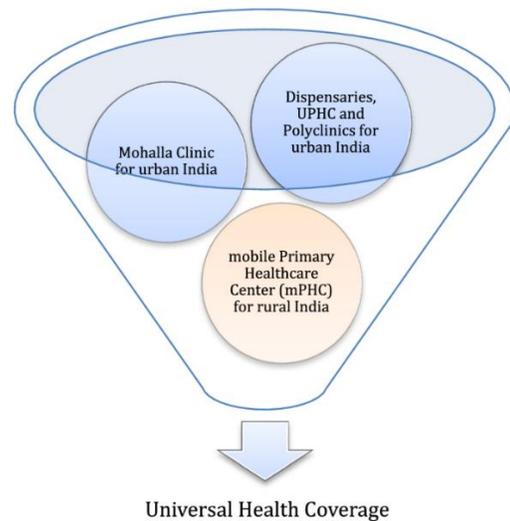

Figure 8. Conceptual model of the proposed mobile Primary Health Center (mPHC) as the missing component for achieving Universal Health Coverage (UHC)

The envisioned mPHC is designed to be portable, deployable within 60 minutes, operate an Outpatient Department (OPD) for 4–6 hours, and then be collapsed and returned to base. Its design emphasizes patient-centered care, bringing healthcare directly to underserved communities. All system components are modular and collapsible to minimize transport space. These conclusions are derived from analyzing the strengths and limitations of Mohalla Clinics and provide recommendations for future healthcare models aimed at advancing India's goal of UHC. The findings are intended to guide the development and implementation of similar mobile healthcare solutions in low-resource environments.

Ethics Statement: None

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157

_Int J Soc Psychol Asp Healthc, 2023, 3:144-157   Rezaei *et al*.

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