PAKISTAN – Harnessing the Government Lady Health Worker Programme to increase community-based active TB case-finding

CASE STUDY

Implementation dates

Demonstration phase: April 2017–October 2018

Scale-up under Global Fund TB grant: January to September 2019

Coverage

Demonstration phase: 3 districts (Sanghar, Umerkot, Ghotki) in Sindh province (one of the 4 provinces in Pakistan)

Scale-up under Global Fund TB grant: 2 districts (Sanghar and Umerkot) in Sindh province

Total number of people screened for TB

Demonstration phase: 544 717 people were screened by LHWs

Scale-up under Global Fund TB grant: 991 128 people were screened by LHWs and 4383 people were screened through mobile camps in Sanghar and Umerkot districts.[1]

Contribution to TB notification

25% contribution to all TB notifications in selected facilities (1165 people with TB referred by LHWs/4626 people with TB registered in same facilities)

Implementers

- Mercy Corps
- Pakistan Lions Youth Council (PLYC)

1. Introduction

Pakistan is one of the eight countries that account for two thirds of the global tuberculosis (TB) burden. The country accounts for 6% of the total number of TB cases globally. Of an estimated 562 000 people (265 cases per 100 000 population) who fell ill with TB in Pakistan in 2018, 28 000 people (5%) were infected with multidrug- and rifampicin-resistant (MDR/RR) TB *(1)*. Yet, according to the latest WHO Global TB Report, only 369 548 persons with TB were reported, leaving 192 452 people with TB unreached by current services and systems, i.e. over one third (36%) of all TB cases. Pakistan is also one of the 10 countries that account for 75% of the global gap between treatment enrolments and the estimated number of new cases of MDR/RR TB in 2018 *(1)*. According to the latest WHO estimates, approximately 44 300 people (21 people per 100 000 population) died from the disease in 2018 *(1)*. Improving case detection, treatment coverage and adherence is therefore a public health priority in Pakistan, especially in rural communities where case detection is particularly low.

To respond to these challenges, Mercy Corps implemented the Train, Empower and Mobilize Communities to End TB (TEAM) initiative from April 2017 to October 2018, funded through TB REACH, aiming at finding missing persons with TB through community-based screening by "lady health workers" (LHWs) in three rural districts of Sindh province, namely Sanghar, Umerkot and Ghotki districts. Mercy Corps was the implementer in Umerkot and Sanghar. The Pakistan Lions Youth Council (PLYC), a nongovernmental organization involved in community development, health,

1 Chest camps are organized in 19 districts under the Global Fund grant. A total of 41 630 people were screened between January and September 2019.

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human rights and education, was the implementer in the third district, Ghotki. This intervention was later scaled up in two of these districts, Sanghar and Umerkot, through the 2018–2020 grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and was ongoing at the time of writing. This case study covers the activities until September 2019.

In 1994, the Ministry of Health of Pakistan implemented the Lady Health Worker Programme as part of a national strategy to reduce poverty and improve health by bringing health services to the doorstep in underserved communities. Each LHW is associated with a Government health-care facility, where she receives training, a stipend and medical supplies. LHWs are trained for 15 months in the prevention and treatment of common illnesses. The first three months are spent in the classroom and the remaining 12 months are mostly on-the-job training. To be eligible to enter the LHW training programme, women must have a recommendation from the community, at least eight years of education, a middle-school pass and local residency, and must preferably be married and be at least 18 years of age. LHWs visit households to increase awareness of reproductive health and nutrition, facilitate registration of births and deaths, distribute medication for family planning and immunize children according to the national schedule. LHWs provide regular treatment for diarrhoea, malaria, acute respiratory tract infections and intestinal worms, and offer contraceptives as part of family planning. Each LHW is affiliated with either a rural health centre or a basic health unit, where she is trained and to which she refers her clients. In a rural health centre or basic health unit, clients of LHWs can receive basic health-care services. For more complicated conditions, LHWs are trained to refer patients to nearby clinics. Though there were initial concerns that communities would not accept LHWs, they have successfully established themselves as important liaison persons within the primary health care system.

Source: Zhu N, Allen E, Atun R. Lady health workers in Pakistan: improving access to health care for rural women and families. 2014 (https://www.researchgate.net/publication/332171829, accessed 28 June 2020).

2. Description of the problem

The Government of Pakistan created the post of LHW in 1994 to address growing inequalities between urban and rural areas in accessing health care *(2)*. By 2005, about 100 000 LHWs had been recruited and trained to provide essential community-based primary health care services in urban slum and rural areas.[1] However, despite TB being part of the LHWs' training and job description, operational research revealed that there was a general tendency to focus on poliomyelitis (polio), immunizations, family planning and mother and child health, and that TB was not being prioritized *(3)*. As a result, the contribution of LHWs to TB notification has historically been low. Given the size of the TB epidemic in Pakistan, and the large number of people left without diagnosis and treatment in the poorest communities, there was a need to find strategies to harness the full potential of LHWs to increase community-based TB notification and bring services closer to affected individuals and households. Finally, the three target districts in the demonstration phase of this case study in Sindh province are rural areas where communities lack access to TB services, owing to various factors including stigma, a lack of decision-making power among women and the long distances between communities and health facilities.

Verbal TB screening session during visit by a lady health worker to a household in Umerkot district
(Photo: Mercy Corps)

3. Proposed solutions

Mercy Corps piloted the TEAM initiative to encourage LHWs to engage with TB and increase their contribution to the national TB response. In collaboration with the provincial TB control programme, the LHW programme, the Department of Health and the implementing partner (PLYC), Mercy Corps provided LHWs with a one-day training course on active TB case-finding techniques through verbal screening and use of the existing referral mechanism during their routine household visits. The training also focused on the importance of TB treatment adherence and follow-up with TB patients. A total of 806 LHWs were trained during the TEAM initiative, and 957 LHWs have been trained so far under the current Global Fund grant 2018–2020. "Lady health supervisors" (LHS) were also trained by Mercy Corps and PLYC to provide monthly supportive supervision for LHWs. Finally, Mercy Corps and PLYC recruited and trained seven community mobilizers and three field supervisors under the TEAM phase and six community mobilizers and two field supervisors under the Global Fund implementation. They are employees of Mercy Corps and PLYC and receive monthly salaries; they work closely with LHWs and LHSs, conduct regular visits to private and public health facilities and laboratories involved with the project and maintain a

1 Services include support for maternal and child health services, such as family planning including contraception, HIV/AIDS activities and treatment of minor illnesses; health education and promotion of healthy behaviour; antenatal and postnatal care and referral service for mothers; and basic curative care, including essential drugs for treatment of diarrhoea, malaria, acute respiratory tract infections, intestinal worms, etc. The LHWs are trained to identify and refer more serious cases.

separate register of people diagnosed with TB who were referred by LHWs. Community mobilizers also regularly follow up with people with TB, either by phone or in person, to ensure treatment adherence.

Door-to-door active case-finding

During their daily routine visits to five or six households, LHWs conduct verbal screening of all available household members using a simple tool, as well as contact screening of index cases using a contact screening form. The routine visits also provide LHWs with an opportunity to conduct individual counselling sessions. People with presumptive TB are referred to the nearest private or public TB health facility.

Community support group meeting facilitated by LHW in Umerkot district (Photo: Mercy Corps)

Improved referral system

The existing referral mechanism used by LHWs was adapted in consultation with the LHW programme, the provincial TB control programme and the Department of Health, to enable tracking of referrals of people with presumptive TB. LHWs use a set of colour-coded referral slips to record and report presumptive TB patients, giving two copies to the person referred for diagnosis and keeping one copy for their own records. The LHW copy serves as a voucher for LHWs to obtain their financial incentives every quarter. When a person with presumptive TB is diagnosed, one slip is attached to the patient registration card, allowing health-care professionals to track the origin of the referral.

Sputum collection system

When people with presumptive TB are not able to travel to the health facility in person, either LHWs themselves (where possible) or community mobilizers collect their sputum, along with the two referral slips, and transport the sputum directly to the nearest public or private laboratory for microscopy analysis. This service is free of charge in public health facilities providing TB services and in private facilities engaged with the Mercy Corps Public Private Mix intervention. Community mobilizers also transport sputum between health facilities and laboratories, follow up on sputum microscopy results, and then share them with LHWs to maintain a record of all people with presumptive TB, including those identified through contact screening.

Community-based awareness-raising sessions

LHWs organize awareness-raising sessions with both men and women in separate meetings (village health committee and community support group meetings, respectively). The sessions address TB prevention, treatment and care issues alongside other health-related topics, such as family planning and mother and child health. Harnessing existing community decision-making bodies has proved essential to foster community ownership and participation.

Incentives for LHWs

For each person with TB who is registered, LHWs use their referral slips to obtain an incentive of 1000 Pakistan rupees – about US$ 8 at 2018 prices – in addition to their monthly Government salary. This incentive is provided in two instalments: half is paid at the time of patient registration and is validated during quarterly review meetings; the other half is paid after the patient has completed treatment. This ensures that LHWs provide regular follow-ups and treatment adherence support visits. In addition, the best-performing LHWs are awarded a merit certificate based on the number of TB referrals, number of TB notifications and household-based screenings completed each quarter, and on the quality of their reporting.[1] This acknowledges and rewards their efforts and also motivates other LHWs.

An operational research study on the pilot project found that, while monetary rewards were clearly considered an important source of motivation by the majority of LHWs, non-financial incentives, such as social recognition, also played an important part in LHWs' motivation to carry on their activities *(3)*. Ms Rubina, who has been an LHW for over 10 years, shared the following insight about her own motivation to carry out her work: *"Working with the TB Control Programme is especially rewarding because here our services are recognized at so many levels. Our performance is appreciated in the form of shields and certificates, and we also get financial benefits as incentives. But in the end, it is the smile spread across the face of a cured patient which keeps us going."*

Ms Rubina, one of the LHWs involved in the TEAM project (Photo: Mercy Corps)

1 The quality of reporting is assessed by LHS who review LHWs' reports during their monthly meetings. The reports are also reviewed during quarterly data review meetings by LHS, field staff and Government representatives.

Community outreach TB camps

In both the demonstration phase and the scale-up under the Global Fund TB grant, LHW interventions are complemented by "chest camps" intended to find missing persons with TB in areas that are underserved and unreached by regular TB services. Chest camps are conducted away from health facilities, in the most affected communities, to bring TB screening services closer to the most vulnerable people.

During the demonstration phase, chest camps took the form of a general practitioner visiting affected communities and conducting medical consultations in a selected location in the community to identify people with presumptive TB. When people showed signs or symptoms of TB, their sputum was collected on the spot by the community mobilizer, and their specimen was transported to a laboratory for analysis. The yield from the chest camps was unexpectedly high, with an average of four people with TB identified per camp (of about 50 people screened); the target was two people per camp.

Under the current Global Fund grant, chest camps are organized at selected high-burden TB sites to provide X ray screening services for people who have not yet developed TB symptoms and would otherwise be missed in verbal screening by the LHW or a medical consultation. The camps use mobile vans equipped with digital X ray machines and CAD4TB software, which is designed to help technicians detect TB more accurately and cost-effectively. Some of the vans also have Xpert MTB/RIF machines, which allow rapid TB diagnosis and drug resistance detection. All the people attending the camp, except children under 14 years and pregnant women, are screened using chest X rays. People diagnosed with TB are registered with the nearest private or public health facility or provider working with Mercy Corps under their Public Private Mix programme. The yield is currently 2.8 people with TB identified per camp, out of about 50 people screened per camp.

Both types of chest camps use a similar format and selection criteria. They are organized in different communities and last 4–6 hours. About 50 people are usually screened or go through a medical consultation during each session. The selection of the right sites is crucial to ensure that services are provided in high-TB-burden areas, in order to reach the maximum number of missing people with TB in rural communities. Site selection is carried out in consultation with the district TB coordinator, who represents the provincial TB control programme at district level, to ensure that chest camps are conducted in areas with a large TB burden. District field supervisors or community mobilizers review the health facility TB registers to identify TB "hot spots", where the highest numbers of people with TB are expected to be located. A few days before the chest camps, community gatherings are organized by community leaders in mosques, schools or other appropriate public places, in collaboration with the project's district field supervisors and community mobilizers, to raise awareness of TB and to announce the upcoming camp. In addition, chest camps are publicized with leaflets and banners. LHWs are instrumental in referring people with signs or symptoms of TB and in spreading the message about chest camps during their home visits.

4. Outcomes

The TEAM phase demonstrated that strengthening the capacity of LHWs, coupled with supportive supervision and performance-based incentives, was effective in improving TB notification. When comparing intervention notification results with baseline data, there was a 5% increase in TB notification in health facilities where the project was piloted, from 4202 to 4626 persons with TB were notified (source: 2017 and 2018 district data from the provincial TB control programme in Sindh).[1] Comparatively, control districts experienced a 13% decrease in TB notification during the same period, from 3148 persons to 2729 persons.[2] During the implementation phase, a total of 4626 people with TB were registered in the catchment facilities, of whom 1165 were registered by LHWs, making a 25% contribution to overall TB notification in the catchment area (see Table 1 below).[3] As a result, from January 2019 onwards, this approach was scaled up in two districts in Sindh province, namely Sanghar and Umerkot, under the current Global Fund TB grant.

Key results:

Approaches	People screened for TB	People with presumptive TB referred to health facility	People who visited health facilities	People tested for TB	People diagnosed with TB, all forms	% of total TB cases, all forms, referred by LHWs
LHW interventions in TEAM demonstration phase	544 717	7698 (1.4%)	6391 (83%)	6391 (100%)	1165 (18%)	25%
LHW interventions under Global Fund grant (ongoing)	991 128	4798 (0.5%)	3790 (79%)	3790 (100%)	841 (22%)	N/A

1 The baseline is the number of people notified with TB in relevant health facilities during the four quarters preceding implementation.
2 This percentage is calculated by comparing baseline and intervention district data. Baseline and endline data for control districts are provided by the provincial TB control programme in Sindh.
3 Total all-forms cases registered by TEAM intervention were divided by all-forms cases registered by all interventions in selected facilities. At the end of every quarter, the consolidated data of selected basic management units were provided by the provincial TB control programme.

TEAM demonstration initiative

During this phase, 806 LHWs screened 544 717 people for TB symptoms over 12 months. They identified 7698 people with presumptive TB, 6391 (83%) of whom attended a health facility for testing. Of the people tested, 1165 (18%) were diagnosed with TB and registered for treatment (source: Grantee annual narrative report to TB Reach, TEAM project, Mercy Corps, 2018).

A total of 50 chest camps were conducted between September 2017 and October 2018, during which 4127 people were screened, 2124 (51%) of whom were identified with presumptive TB. A total of 1988 people attended a health facility for testing, and 189 (9%) of them were diagnosed with TB (all forms).

Importantly, the demonstration phase was pivotal in bridging the gap between the LHW programme and the provincial TB control programme, by strengthening the relationship between the two programmes at the provincial and district levels. A significant outcome of the intervention is the establishment of a Provincial Inter-programme Coordination (PIPC) Committee, chaired by the Director General Health Services Sindh, with members from the Department of Health, the Stop TB Partnership, World Health Organization, provincial TB control programme, provincial LHW programme and PLYC, which helped secure high-level commitment for LHW engagement in TB prevention and care.

During the demonstration phase, a cross-sectional study conducted by Mercy Corps in the three intervention districts demonstrated that the engagement of LHWs resulted in earlier diagnosis of people with TB in comparison with the Public Private Mix intervention *(4)*. The study concluded that "LHW intervention is an active case-finding approach that can potentially reduce diagnosis delay, hence chances of infection transmission can be reduced and severity of disease can be avoided".

Scale-up under Global Fund TB grant

A total of 957 LHWs screened 991 128 people for TB symptoms between January and September 2019. The LHWs identified 4798 people with presumptive TB, 3790 (79%) of whom attended a health facility and were tested for TB. A total of 841 (22%) people tested were diagnosed with TB and registered for treatment.

The percentage of people with presumptive TB referred to health facilities was comparatively low at the beginning of scale-up; this is partly explained by the fact that a large number of new LHWs were recruited who did not have previous experience of TB screening.

A total of 73 chest camps were conducted between January and June 2019 in the districts of Sanghar and Umerkot. A total of 4383 people were screened for TB through digital X-ray, resulting in 158 (4%) people receiving a confirmed TB diagnosis.

5. Lessons Learned and Challenges

Coordination

It was essential to ensure ongoing close coordination with, and between, the provincial TB control programme and the LHW programme through the PIPC Committee in order to guarantee smooth implementation, sustainability and scalability of the initiative. Bringing the two programmes (provincial TB control programme and LHW) together on one platform was a significant challenge, which was addressed through strong coordination and advocacy efforts. From the beginning of the initiative, the project team worked closely with both programmes, which were actively engaged in jointly designing technical guidelines, tools and referral mechanisms. Regular project updates were shared with the two programmes and support and ownership were further strengthened through PIPC meetings.

Supervision

It appeared necessary to follow up regularly with LHWs and LHSs to ensure that they followed the guidelines, e.g. recording people diagnosed with TB after referral by LHWs, keeping track of people with presumptive TB who were referred by LHWs to the health facility but did not attend the facility, ensuring that LHWs conducted follow-up visits to households where people had been diagnosed with TB. **Therefore, smooth** collaboration between LHWs, LHSs, community mobilizers and district field supervisors was one of the essential elements which contributed to the success of this initiative.

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TB stigma reduction

LHWs played an important role in raising communities' awareness in order to reduce the stigma associated with TB and in improving community members' health-seeking behaviour.

Incentives

The results of an operational research study on LHW engagement in finding missing people with TB, conducted by Mercy Corps during the demonstration phase, showed that the provision of incentives for LHWs to carry out active TB case-finding activities were a source of motivation and did not have a negative impact on their commitment to other routine tasks such as polio and mother and child health *(3)*.

Training

Identifying and training over 800 LHWs was a complex and time-consuming process. It was achieved through initial training of trainers, with master trainers who then conducted LHW training sessions. However, LHW training was dependent on the availability of district officials, which caused some delays.

TB integration

LHWs have multiple priorities, and keeping them fully engaged in TB active case-finding has been a significant challenge. As an example, the anti-polio campaign usually keeps LHWs busy for at least two weeks a month almost every month. However, as mentioned above, capacity-building, performance-based incentives and supportive supervision can motivate LHWs to include screening people for TB in their routine tasks.

Monitoring and evaluation

Timely reporting of community-based TB screening-related data can sometimes be challenging for LHWs and LHSs. During the demonstration phase, reporting challenges were mostly overcome by increasing the collaboration between LHSs and district TB coordinators and by engaging community mobilizers and field supervisors, who played an important role in filling monitoring and evaluation gaps. For example, district coordinators were invited to attend quarterly review meetings with LHSs, where data were jointly reviewed and validated.

Human resources

Retention of Mercy Corps field staff was a challenge at the beginning of implementation, with a high turnover that disrupted implementation of activities in the first year because of the need to recruit new key staff. The high turnover occurred partly because some staff found better employment opportunities, but also because some staff members came from outside the districts of implementation, which made it difficult for them to fulfil their duties. Hiring local staff resolved the issue.

Collaboration between LHWs and the formal health sector

In a few instances, there was a lack of supportive attitudes from health facility doctors, who refused to see people referred by LHWs. This was because, according to them, LHWs were not adequately trained to refer presumptive people with TB. To address this issue, health-care providers were invited to take part in the training of LHWs and deliver training on technical issues, which laid the foundation for better collaboration. In addition, Mercy Corps field staff started providing programme orientation for health-care providers in selected health facilities to ensure that they were aware of the LHW protocols and the fact that LHWs would be referring people with presumptive TB.

Laboratory workload

The increase in people with presumptive TB referred to health facilities by LHWs generated a sizeable increase in the workload of public laboratories. This challenge was addressed by involving private health-care providers in TB service provision, as part of Global Fund-supported interventions, which relieved some of the workload of the public sector.

LHWs and stigma

Ms Rubina, the LHW mentioned above, shared some of the challenges related to her role as an LHW in TB screening. Because of the strong stigma associated with TB, community members did not always want to disclose whether they had the disease. Others refused to open their doors to her because of her association with TB. Her own family also often prevented her from carrying out her duties. According to Ms Rubina, the lack of knowledge, the misconceptions around TB and the difficulties in accessing health facilities are contributing factors in the challenges faced by LHWs in their daily work.

6. Conclusions

Engaging LHWs in community-based TB screening has proved instrumental in improving early TB diagnosis and finding missing people with TB. This experience demonstrates that creating relevant and sustainable community services for TB response involves integrating TB into local community systems that are already in place. Although no cost-effectiveness study has been conducted to date, this community-based approach has the potential to be highly cost-effective, since it uses existing workers and integrates TB active case-finding into their current tasks. LHWs come from the communities they work in and, as a result, they often have the best interests of their fellow community members at heart and are accountable to them. This has proved to be a source of motivation and personal satisfaction. Finally, another key lesson is that collaborating with health facilities by setting up a functioning referral system for community-based TB services is essential to measure their impact. The system allows for tracking of notifications that come from community-based active case-finding and their contribution towards overall TB notification; it demonstrates the added-value of community-based TB services in areas where the public and private health sector have traditionally been the only service providers.

1 Global tuberculosis report 2019. Geneva: World Health Organization; 2019 (https://www.who.int/tb/publications/global_report/en/, accessed 22 June 2020).

2 WHO and Global Health Alliance. Country case study: Pakistan's lady health worker programme. Geneva: World Health Organization and Global Workforce Health Alliance; 2008 (https://www.who.int/workforcealliance/knowledge/case_studies/CS_Pakistan_web_en.pdf, accessed 28 June 2020).

3 Khan MS, Mehboob N, Rahman-Shepherd A, Naureen F, Rashid A, Buzdar N et al. What can motivate lady health workers in Pakistan to engage more actively in tuberculosis case-finding? BMC Public Health. 2019;19:999. doi:10.1186/s12889-019-7326-8.

4 Engagement of lady health workers leading to early diagnosis: a cross-sectional study. Islamabad: Mercy Corps; 2018 (https://www.mercycorps.org/sites/default/files/2020-01/Diagnosis_delay_LHW_Intervention_June2018_Final.pdf, accessed 28 June 2020).

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