Technical Report: Engaging Private Sector Pharmacies in Pakistan to Increase Early TB Case Detection

April 2016

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

This document is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number AID-OAA-A-11-00021. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

Malik M, Rutta E. *Engaging private sector pharmacies in Pakistan to increase early TB case detection.* Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health; 2016.

Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Website: www.siapsprogram.org

CONTENTS

ACRONYMS AND ABBREVIATIONS

ADDO	Accredited Drug Dispensing Outlet
BMU	Basic Medical Unit
CI	confidence interval
DDC	District Drug Controller
DI	Drug Inspector
DOTS	directly observed treatment short-course
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GP	general practitioner
IEC	information, education, and communication
IRD	Interactive Research and Development
MDR-TB	multidrug-resistant tuberculosis
M&E	monitoring and evaluation
MOU	memorandum of understanding
NSP	National Strategic Plan
NTP	National TB Program
PKR	Pakistani rupee
PPM	public-private model
PTP	Provincial TB Program
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
TB	tuberculosis
USD	US dollar
WHO	World Health Organization

ACKNOWLEDGMENTS

We wish to acknowledge the following individuals for their valuable contributions in drafting and finalizing this report—

Dr. Ejaz Qadeer	National Manager, National TB Control Program Pakistan
Dr. Razia Fatima	
Dr. Hussain Hadi	PPM Coordinator, National TB Control Program Pakistan
Chinwe Owunna	Principal Technical Advisor, Management Sciences for Health
Prof. Azhar Hussain	Dean/Director, Hamdard Institute of Pharmaceutical Sciences
Mohammad Ismail	Assistant Professor, Department of Pharmacy, University of Peshawar, Khyber Pakhtunkhwa, Pakistan
Zikria Saleem	Lecturer, Clinical Pharmacy, PUCP, University of the Punjab

BACKGROUND

Tuberculosis Prevalence in Pakistan

Pakistan ranks fifth in the world among the high-burden countries for tuberculosis (TB). The prevalence of bacteriologically (sputum-smear and culture) confirmed pulmonary TB was estimated at 361 per 100,000 persons (with a 95% confidence interval [CI] of 308–414), while the prevalence of smear-positive TB was estimated at 341 per 100,000 (95% CI, 285–402) in the WHO *Global Tuberculosis 2015* report.[1] These figures are in the range of the rate previously estimated by the World Health Organization (WHO) in 2011 (350/100,000, 95% CI 158–618), but with a much narrower CI. Of the 315 TB culture-positive persons, 7.6% were on treatment for TB at the time of enrollment in the survey. Based on the number of notifications reported by the National TB Program (NTP), the estimated case detection rate was 62%. This means that only 62% of the patients with pulmonary TB were notified to the NTP within a period of one year.

Following the revival of the NTP in 2000, the directly observed treatment short-course (DOTS) strategy was adopted in 2001 and Stop TB strategy in 2006 as national policies to control TB in Pakistan. The number of TB cases that have been registered significantly increased from 20,707 in 2001 to 298,981 in 2013 for all TB forms and from 6,703 in 2001 to 111,653 in 2013 for smear-positive TB. However, TB is occurring mainly in young adults and productive age groups. Among notified smear-positive TB cases, 75% is in individuals between 15 and 55 years of age.

The results of the population-based prevalence survey undertaken in 2010/2011 strongly pointed out that nearly half the TB cases that exist within the Pakistani population are detected through the TB care and control services that have been implemented to date in the country. This indicates that a high proportion of TB patients are in the communities and not identified and treated.

The Private Health Care Sector's Contribution in TB Control

In 1994, the WHO initiated the directly observed treatment short-course (DOTS) strategy to address the global TB epidemic. DOTS was primarily implemented through NTPs. However, globally in many resource-poor settings, many patients seek TB care and treatment from providers that are not affiliated with the public sector–based NTPs. In these cases, the private health sector is a key health service provider and is viewed as a more accessible, responsive, and individualized option for patients. In some developing countries, more than half of patients prefer to seek private medical care. However, the private sector has often failed to provide high-quality TB care, which NTPs are well positioned to deliver.

In Pakistan the private sector caters to about 70% of the population's curative primary health care needs in addition to low-cost hospital care. Since 2010, the NTP and Provincial TB

[1] World Health Organization. Global tuberculosis report 2015: 20th edition. Geneva: WHO; 2015. http://apps.who.int/iris/bitstream/10665/191102/1/9789241565059_eng.pdf

Programs (PTPs) in collaboration with its partners are implementing a district-led public-private model (PPM) in almost 50% (62/133) of districts in five provinces of Pakistan. This initiative is supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). The NTP/PTPs are planning to expand the PPM to the entire country by strengthening current partnerships and bringing more partners into the PPM.

Pharmaceutical Sector in Pakistan

The pharmaceutical market in Pakistan was estimated to be 189.2 billion Pakistani rupees (PKR) (2.03 billion US dollars [USD]) in 2012 and is expected to grow to PKR 308.75 billion (USD 2.88 billion) by 2017. This growth can be attributed primarily to growth of its large and aging population. Pakistan has 177 million inhabitants, approximately 4.8 million annual crude births. About 400 pharmaceutical manufacturers are registered in the country, 25 of which are multinationals. The majority of pharmaceutical companies in the country follow Good Manufacturing Practices.

Local manufacturers, including the 25 multinationals, meet approximately 70% of the local demand for finished medicines. Pakistani national companies hold approximately 57.3% of market share while multinationals hold the remaining market share, and the top 15 companies (both Pakistani and multinational companies) hold approximately 56.8% of market share. The leading top 10 suppliers of finished drugs are multinationals. For TB medicines a review of International Marketing Survey data from 2012–2014 indicates that Myrin-P and Vita-6 were the most commonly dispensed anti-TB medicine combinations by community pharmacies.

The Private Retail Pharmaceutical Sector

According to International Marketing Survey data from the last quarter of 2013, Pakistan has 65,535 registered pharmacies. The provincial governments are responsible for licensing and regulating these pharmacies through a mechanism comprising drugs inspectors appointed at the tehsil level, provincial quality control boards, and a special judicial system provided by multiple drug courts working in each province. The federal government (through the Drug Regulatory Authority of Pakistan) is concerned with the licensing of the manufacturing facilities, import of raw materials and finished goods, and ongoing monitoring of manufacturing units for quality assurance.

A recent study reported that private markets in four countries—Pakistan, the Philippines, Indonesia, and India—the largest relative sales volumes; annually, they sold enough first-line TB medicines to provide 65–117% of the respective countries annual incident cases with a standard six- to eight-month regimen.[2] This calls for expansion of PPM, greater reach, flexibility, and regulatory and quality enforcement.

[2] Wells WA, Ge CF, Patel N, et al. Size and usage patterns of private TB drug markets in the high burden countries. PLoS ONE. 2011;6(5):e18964. doi:10.1371/journal.pone.0018964

The National Strategic Plan and Engaging Private Sector Providers in TB Control

The *National Strategic Plan (NSP) for TB Vision 2020* draws heavily from provincial and regional strategic plans and consists of strategic interventions that will be implemented under the purview of the NTP in the health sector devolved context and in the wake of the national TB prevalence survey. The NSP entails developing innovative strategies that will—

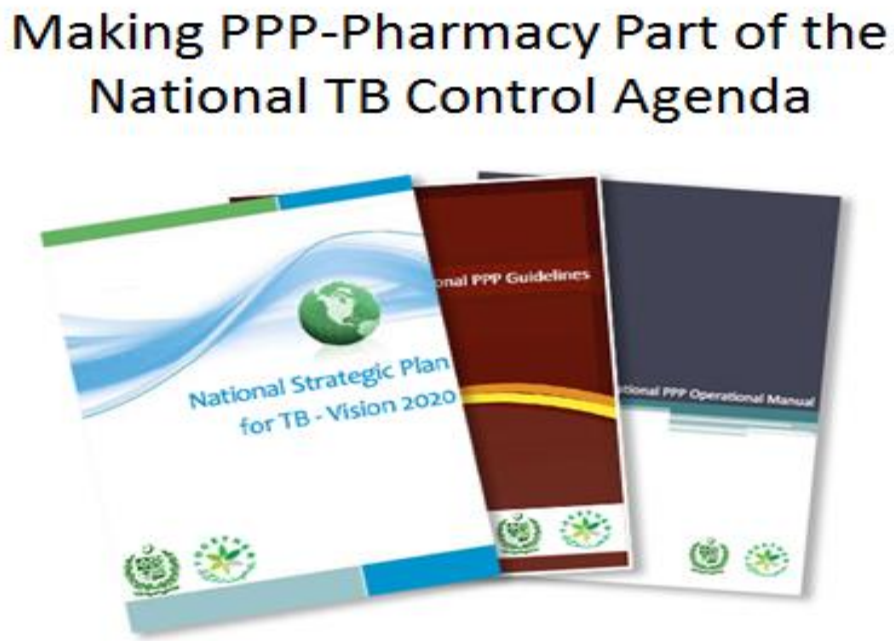
- Improve the performance and impact of TB control by maximizing public sector investment and accountability in TB control activities

- Address sensitivity and MDR-TB by (a) reducing diagnostic delay, (b) reducing the duration and improving the efficacy of treatment, (c) preventing disease, and (d) increasing access to DOTS and drug-resistant-TB treatment

- Invest in new diagnostic and TB management tools and approaches that are less labor intensive, are more cost-effective, and can be delivered close to patients to minimize the health workforce burden and help improve patient access, thereby increasing case detection and enhancing treatment success rates

- *Provide universal access to TB services, which implies expanding TB DOTS through all types of health care providers, including the large and currently unregulated private sector*

- Prioritize research that has the potential to change policy and practice in the country's TB care



Public-Private Models to Increase TB Case Detection

Despite many successes in treatment and prevention, TB continues to kill approximately 1.8 million people every year. WHO and the Stop TB Partnership strongly recommend PPMs to support DOTS implementation. They have provided evidence of the effectiveness and cost-effectiveness of PPMs in TB control along with a generic PPM framework and several useful tools for implementation.[3] According to the WHO, several project evaluations have shown that PPM could help increase case detection (between 10% and 60%), improve treatment outcomes (over 85%), reach the poor, and save costs. However, successful PPM requires building an effective and lasting partnership among all related stakeholders. This entails attention to the "process" of creating and sustaining partnership, as shown by international evidence (table 1).

Table 1. Positive-Tested Smear Microscopy

Indicator	India[a]	Cambodia[b]	Tanzania[c]	Pakistan
Percentage of referred cases from pharmacies that tested positive for smear microscopy	10–30%	9%	13%	18%

a. Gharat M. Communicable diseases and pharmacy based programmes. In: F5-The complexity of health challenges in 2020: Are we ready? Presentation on September 2, 2013.
b. Bell CA, Eang MT, Dareth M, Rothmony E, Duncan GJ, Saini B. Provider perceptions of pharmacy-initiated tuberculosis referral services in Cambodia, 2005–2010. *Int J Tuberc Lung Dis*. 2012;16(8):1086-91. doi: 10.5588/ijtld.11.0669.
c. Rutta E, Mwatawala S, Kanjinga K, et al. Engaging the private retail drug outlets in early TB case finding in Tanzania: concept proposal for scale-up. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health; February 2014.

A survey of provider perceptions of pharmacy-initiated TB referral services in Cambodia, 2005–2010, was conducted. From 76 invitations to participate, 54 pharmacy owners (51% male, 49% female) attended group discussions held in Phnom Penh, January 18–20, 2011. The majority of the participants owned and managed a private pharmacy under license from a qualified pharmacist. Almost all participants had between three and six years' experience referring symptomatic patients.[4] This suggests that involving pharmacies in TB care can increase case detection rate.

In Tanzania, the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program implemented the Accredited Drug Dispensing Outlet (ADDO) project. A total of 587 clients (482 in Morogoro and 105 in Dar es Salaam) with TB-like symptoms were referred to TB diagnostic and treatment centers by the trained staff of ADDOs. On average, three and two clients with TB-like symptoms were referred per ADDO and per pharmacy, respectively, per

[3] World Health Organization; Stop TB Partnership. Public-private mix for TB care and control: a toolkit. Geneva: WHO; 2010.
[4] Bell CA, Eang MT, Dareth M, et al. Provider perceptions of pharmacy-initiated tuberculosis referral services in Cambodia, 2005–2010. Int J Tuberc Lung Dis. 2012;16(8):1086-91 doi: 10.5588/ijtld.11.0669.

supervision. Of the referral forms for all clients referred with TB-like symptoms, 38% (n = 223 of 587) were tracked and found at the health facilities. Of those, 83% (n = 186 of 223) were sent for sputum investigation. Of the 186 cases sent for sputum investigation, 43% (n = 81 of 186) were confirmed as having TB. District results varied, with Kilosa and Morogoro Urban having higher case notification rates than the other districts. A total of 81 clients referred from ADDOs and pharmacies were confirmed as having TB.[5]

A study conducted in Malaysia mentions that it is strongly recommended that TB suspects in Malaysia should be traced through an adequate prioritization process. The prioritization process can be further enhanced by engaging community pharmacies, which are often the first point of contact for persons with a cough, mild fever, and associated symptoms. Productive cough of more than three weeks can be used as a cut-off value by pharmacists and alternative practitioners for referring the suspects to the DOTS center. All these measures can significantly improve the yield of contact tracing and consequently may result in gradual decrease in the incidence of TB in Malaysia and countries with similar statistics and practices.[6]

Involving the Private Sector Retail Pharmacies in Early TB Case Detection

Because a TB patient's initial presentation is very similar to that of a common flu and chest infection, chances are such patients will approach pharmacies for management of symptomatic relief of fever and cough and can easily be mistaken for flu or other chest infections. In such cases a missed TB diagnosis is a possibility if the patient is not evaluated for TB-specific signs and symptoms. The studies previously mentioned are an indication that that evidence supports full engagement of retail pharmacies as critical for TB control and prevention success.

- Research supports the potential role of pharmacists. In a study published in 2009 to assess the role of pharmacies in developing countries, it was estimated that 8,102 pharmacists are present in Pakistan, of whom 2,836 work in the public sector and 5,023 in private settings, while 243 work in private, nonprofit organizations.[7] Another study published in June 2010 looked into the perception of doctors on the role of the pharmacist in patient education. A majority of doctors (65%) were moderately comfortable with a pharmacist providing patient education.[8] The two studies further strengthen the suggestion that private sector pharmacists should be involved in early case detection of TB.

[5] Rutta E, Mwatawala S, Kanjinga K, et al. Engaging the private retail drug outlets in early TB case finding in Tanzania: concept proposal for scale-up. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health; February 2014.

[6] Atif M, Sulaiman SAS, Shafie AA, et al. Engaging community pharmacists and alternative practitioners: an approach to ative case finding of tuberculosis in Malaysia. *Trop J Pharm Res*. 2013 Dec;12(6):1093-95. http://www.bioline.org.br/pdf?pr13141

[7] Azhar S, Hassali MA, Ibrahim IMM et al. The role of pharmacists in developing countries: the current scenario in Pakistan. Human Resources for Health 2009;7:54. http://www.human-resources-health.com/content/7/1/54

[8] Azhar S, Hassali M, Ibrhim IMM. Doctors' perception and expectations of the role of the pharmacist in Punjab, Pakistan. *Trop J Pharm Res*. 2010;9(3): 215-22. http://www.bioline.org.br/request?pr10026

- Pharmacists' involvement contributes to increased early case detection, which is necessary to fully address the challenges identified in the recent prevalence survey and if Pakistan is to meet the global target of reducing deaths caused by TB by 90% by 2035.[9]

- Inclusion of pharmacists supports NSP innovative strategies for universal access to TB services: the 65, 000 retail pharmacies[10] that are spread all over the country, particularly in urban settings, offer a huge platform to expand access to TB services.

- Fostering synergies with other PPM components and promoting an integrated approach to TB control in the private sector will contribute to the goal of increasing TB case detection and treatment. The NTP has been successful in engaging different cadres of providers under different PPM models. The investment in improving access to TB services has resulted in significant private sector contribution to improved TB care. The PPM pharmacies' engagement has a potential to link pharmacies with a large number of public and private sector facilities working as TB treatment centers and a large network of nongovernmental organization hospitals and clinics, private sector general practitioners (GPs), and laboratories in the country that are already partnering with NTP.

[9] World Health Organization. Global tuberculosis report 2015: 20th edition. Geneva: WHO; 2015. http://apps.who.int/iris/bitstream/10665/191102/1/9789241565059_eng.pdf

[10] Wells WA, Ge CF, Patel N, et al. Size and usage patterns of private TB drug markets in the high burden countries. PLoS ONE. 2011;6(5):e18964. doi:10.1371/journal.pone.0018964

SIAPS STRATEGIC APPROACH

The US Agency for International Development has provided limited funds to the SIAPS Program to support the NTP to develop a PPM strategy and implement an approach that can be scaled up widely in the country with the support of in-country partners. SIAPS's focus is on the implementation of a pharmacy-centric model or "PPM-Pharmacy" through engaging the retail pharmaceutical sector providers (pharmacists, dispensers, and salespersons) and pharmacy professional association as key partners. The pharmacy-centric model was piloted in Tanzania and Pakistan. In both countries, the NTPs have adopted this approach in their national strategic plans as one of the key areas of focus to allocate funds for improving TB care and services.

The SIAPS approach to engaging the retail pharmacy sector combines strategies in the access framework and recommendations from the WHO and International Pharmaceutical Federation joint statement in 2010,[11] which strongly emphasized the importance of pharmacists' contributions to different tasks essential for quality TB care (figure 1). The key overarching strategy is to build broad stakeholder involvement that includes national programs (NTPs), professional associations, and private sector associations and to ensure the International Standards of TB Care are integrated into private sector. At the core of access is the need to provide medicines and services that are safe, efficacious, cost-effective, and of high quality. Availability is only one aspect of ensuring access to medicines—equally important are accessibility, several studies cite private sector providers as geographically accessible and convenient; affordability, that is price and ability to pay, which perhaps remain the greatest barriers to access TB services in the private sector; and acceptability, which concerns cultural and personal preferences.

Figure 1. The access framework

[11] FIP; World Health Organization. The role of pharmacists in tuberculosis care and control. Hyerabad, India, September 4, 2011. http://www.fip.org/www/uploads/database_file.php?id=347&table_id=

INTERVENTION DESIGN

Knowledge, Attitude, and Practices Survey

SIAPS conducted a knowledge, attitude, and practices survey in four major cities of Pakistan—Lahore, Rawalpindi, Islamabad, and Peshawar—to assess dispenser knowledge and practices concerning TB and the presence of anti-TB medicines in shops (figure 2). The studies included 150 chemists (25 each from Islamabad and Peshawar, and 50 each from Rawalpindi and Lahore). Of 150 chemists approached, 129 respondents ended up participating in the study; 100% were male, and the mean age was 31 years (SD = 10.96). Of the 125 participants who responded to the question on professional background, 8.8% (n=11) indicated they were pharmacists, 4.0% (n=5) indicated pharmacy technicians, 4.8% (n=6) indicated pharmacy assistants, and the remaining 82.4% (n=103) identified as high school graduates with no formal training in pharmacy but with qualifications in other areas such as business and arts. Of the 11 respondents who identified as pharmacists, 45.5% (n=5) were based in Rawalpindi, 27.3% (n=3) were based in Islamabad, and 27.3% (n=3) were based in Lahore; none of the pharmacists were based in Peshawar. Of the five participants who identified as pharmacy technicians, 80.0% (n=4) was from Peshawar and 20.0% (n=1) was from Rawalpindi. Of the six participants who identified as pharmacy assistants, 16.7% (n=1) was from Peshawar, 33.3% (n=2) was from Lahore, and the remaining 50% (n=3) was from Rawalpindi. Selection criteria for inclusion in the study included the following: valid annual license with district local authority, the Executive District Officer-Health; the geographical area served by the facility (urban and peri-urban); serving clients in upper and lower socioeconomic strata of the population with proportional representation; and willingness to participate in the study. The study assessed the participant's knowledge on—

- TB transmission, spread, symptoms, diagnosis, and treatment
- Source of TB knowledge and information
- Provider's action and practices on encountering a presumptive TB case
- Record keeping and availability of TB medicines

The study demonstrated a gap in knowledge of TB symptoms, diagnosis, and treatment among the surveyed drug sellers. Most of the providers had no formal training in health or in TB management, and a significant number had limited knowledge about the symptoms, diagnosis, and mode of transmission of the disease. Almost a quarter of the providers had received training during their education in school, while almost 40% had acquired their knowledge from health work colleagues. Despite limited training on TB, most providers were able to identify the common symptoms of TB, such as client having a cough for two or more weeks and the presence of blood in the sputum. The findings also highlighted the potential for dispensers to play a greater role in TB detection and treatment in the future, as evidenced by the willingness expressed by 85% of participants to learn more about TB, its signs and symptoms, and when and where to refer the presumptive cases.

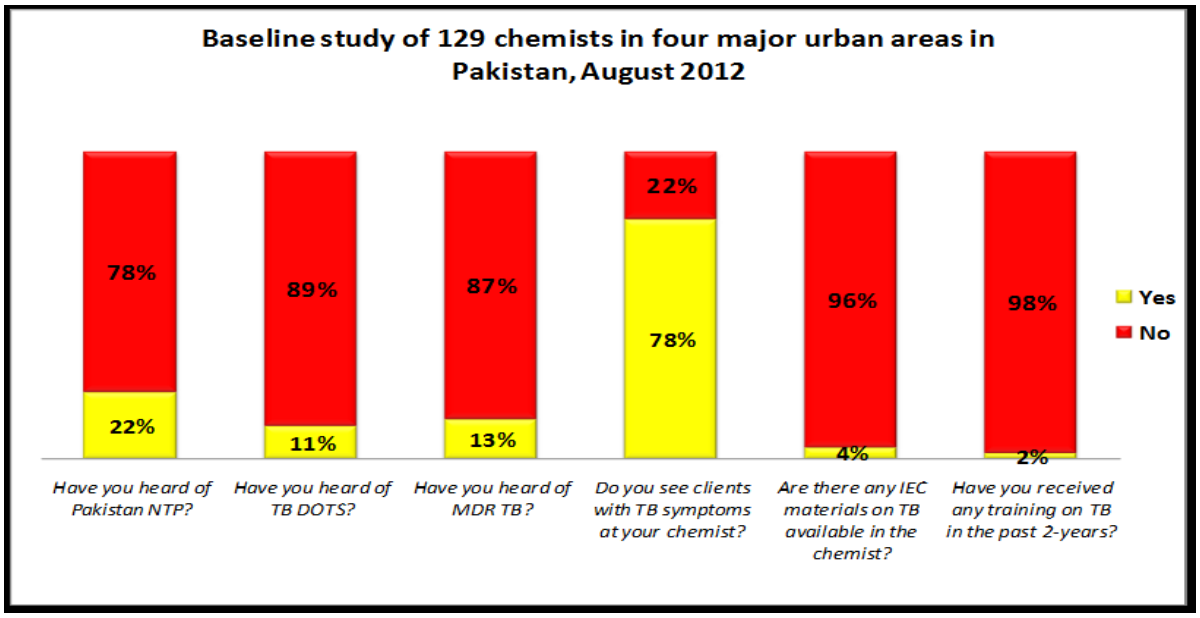


Figure 2. Baseline study of chemists in four major urban areas of Pakistan, Augusts 2012

Piloting the Intervention: Engaging Private Sector Pharmacies in Early TB Case Detection

Pharmacy staff responded as follows during the knowledge, attitude, and practices survey to the the question "Do you see clients with TB-like symptoms?": 78% yes. The finding suggests that clients with TB-like symptoms seek care from private chemists and pharmacies; however, the depth of knowledge of these providers about TB transmission and treatment is limited. Given that many respondents in this survey had never received formal health training, programs developed to enhance the role of private chemists in TB management would likely benefit not only from TB-specific training, but also from general training in health education and communication.

Under the leadership of the NTP, SIAPS organized a dissemination meeting to share the results of the survey with key stakeholders. Discussions were held on the feasibility of engaging private sector pharmacies in early TB case detection. It was suggested that SIAPS in close collaboration with the NTP could start the intervention in six cities by training staff from selected pharmacies and providing information, education, and communication (IEC) material to be kept at these pharmacies, a move that would benefit both the providers and their clients, who see the chemists as trusted members of the community. Formal referral links between private chemists and the NTP should be established and existing ties strengthened, to ensure that patient access to diagnosis through the NTP is expanded.

The flow chart in figure 3 explains the sequence of activities in the intervention.

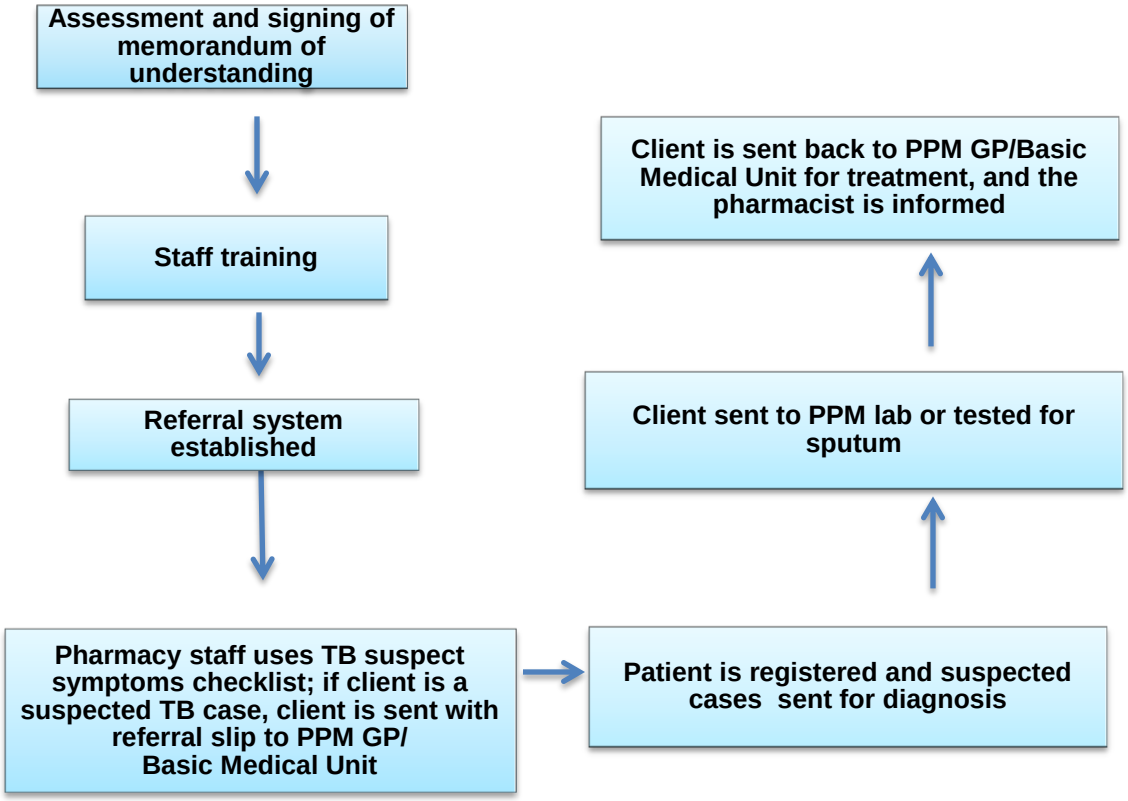


Figure 3. Flow chart of intervention activities

KEY STAKEHOLDERS

The key to the success of pharmacy engagement is well-formulated guidelines and their effective implementation under the leadership of the NTP and PTPs to foster broader participation of stakeholders such as Pakistan Pharmacists Association, academic institutions such as the School of Pharmacy, the Pakistan Chemists and Druggist Association, technical partners, and pharmacies with clearly defined roles. The objective is to prepare for engaging all eligible pharmacies nationwide in a phased manner during the intervention scale-up.

Under the leadership of the NTP, SIAPS conducted a meeting of potential stakeholders to gauge their interest and willingness to be part of this intervention. Follow-up meetings were conducted with those interested to finalize the terms of reference. It was agreed that NTP will take the overall responsibility of coordination and technical oversight for the intervention and SIAPS will lead the pilot implementation. In discussion with stakeholders roles and responsibilities were agreed upon, and memorandums of understanding (MOUs) were signed between organizations and the NTP.

NTP and PTPs

The NTP and PTPs assumed the leadership and coordinated activities at central and provincial levels. The PPM coordinator, Dr. Hadi, was the contact person at the NTP and facilitated SIAPS in coordinating activities with PTPs, universities, the college of pharmacy, and Interactive Research and Development (IRD).

The PTP managers were the lead for their individual provinces and were responsible for resolving issues and coordination between all implementing agencies. The District TB officer undertook regular field visits to trained pharmacies, PPM facilities, and Basic Medical Unit (BMU). Field visit reports from pharmacy schools were regularly shared with the NTP and PTPs.

District Drug Controller

The District Drug Controllers (DDCs) agreed to facilitate recruitment and participation of the pharmacy staff at the trainings, MOU signing ceremonies, and later referral from the pharmacies. The DDC undertook monthly field visits to trained pharmacies to reinforce the message on effective referral, answer any technical questions, and ensure the system is working at the pharmacy level.

SIAPS

SIAPS was responsible for providing financial and technical assistance for the implementation. SIAPS staff visited Pakistan quarterly to ensure smooth implementation and make required changes as necessary for successful implementation. Because SIAPS does not have an office in Pakistan, a local consultant was hired to facilitate day-to-day implementation.

Pharmacy Universities

The following pharmacy universities agreed to be part of the intervention and agreed to sign an MOU with the NTP—

- Lahore: University College of Pharmacy, University of Punjab
- Peshawar: Department of Pharmacy, University of Peshawar
- Rawalpindi, Islamabad: Department of Pharmacy, Hamdard University Islamabad

IRD

Karachi is the largest most populous city in Pakistan with a population of 21 million people. Approximately 50% of the people live below the poverty live in high-population, dense, informal settlements that potentially allow the easy spread of TB and other diseases. SIAPS, in consultation with the NTP, decided to include Karachi in the intervention and approached IRD to collaborate in the implementation.

IRD helped establish the Indus Hospital TB Control Program in 2008. IRD has implemented numerous TB-related grants in Pakistan and other countries, targeting mass screening in the private sector. To test different models, the NTP led the initiative to implement the intervention in Karachi in collaboration with SIAPS and IRD. IRD has a workforce of medical representatives who visited trained pharmacies and followed up on the referred cases.

TRAINING OF PHARMACIES

Review Training Material

SIAPS developed the training curriculum with support of the local consultant for the initial trainings. The curriculum was reviewed by SIAPS headquarters team, and the revised training material was shared with the Pharmacy University and the NTP for final review and endorsement.

Criteria for Selection

The following selection criteria were developed for recruitment of the pharmacies. The DDC for individual districts verified their eligibility for participation.

- Pharmacies should be located in peri-urban or rural areas or densely populated areas.
- Preferably and where possible, the pharmacies selected for training should be at least two or three kilometers from other trained pharmacies.
- Chemists should have a Pharmaceutical Technician or Medical Technologist.
- Registered pharmacies should have a valid license for sale of the medicines and be willing to sign an MOU.
- Pharmacies near the trained GP are preferred. (A list of providers trained under the PPM model was used as a reference for the recruitment.)
- Pharmacies with high sales turnover (sales volume) were preferred, as an indicator of clients using the facility.

Recruitment

SIAPS collaborated with the DDC to facilitate the recruitment process and to ensure trained pharmacies met the selection criteria. SIAPS later supported the DDC supported in follow-up to the pharmacies for monitoring purposes.

- An invitation letter was sent to all the pharmacies through the DDC/Drug Inspector (DI) of the concerned area.
- A reminder phone call was made a day before the training workshop.
- A text message was sent two hours before training workshop on behalf of the concerned DDC/DI about the time and venue of the workshop.

- These measures and the leading role of DDCs/DIs ensured the maximum participation of selected pharmacies.

Training

SIAPS conducted the training for pharmacists. The training material was developed on adult learning principles and translated into the local language. The sessions included general information on TB, such as incidence, morbidity and mortality, signs and symptoms, and information on NTP and PTP roles and responsibilities, diagnostic tests, and WHO-recommended TB treatment. A detailed session on client counseling was included, where the participants were given a chance to practice counseling skills, filling in of referral forms, and how to refer a client and to discuss myths and misconceptions prevailing in the community regarding TB and how to handle such situations.

The list of trained providers was shared with the NTP on a regular basis. At the trainings, representatives from the office of the District TB Officer, the Provincial TB Program Manager, and the DDC participated to answer any specific questions related to their individual departments and their role in this intervention. Two types of training packages were offered, a one-day eight-hour training session and a two-day four-hour training. The venue was selected based on participants' convenience. In a few instances where the pharmacies had space to offer trainings at their outlets and more than 10 staff members to be trained from their outlets across the city (for example, at chain pharmacies in Lahore such as Clinix and Green Plus), the owner provided space for training and the staff working in the morning participated in the afternoon session and those working in afternoon participated in the morning session. Similarly, in Lahore the Pharmacy College, Punjab University, was requested to provide space because participants indicated it was a convenient location.

SIAPS has trained a total of 561 pharmacies in six major cities. Not all trained pharmacies signed the MOU, and to make up for the attrition, additional pharmacies were contacted and those interested were provided on-the-job-training and were requested to sign the MOU.

Training Materials

Table 2 indicates the breakdown of trainings by cities.

Table 2. Trainings by City

City	Total number of participating pharmacies
Rawalpindi	117
Islamabad	45
Peshawar	45
Lahore	185
Karachi	107
Sukkhur	62
Total	561

Signing of MOU

An MOU was designed and signed by the pharmacy staff at MOU signing ceremonies. The MOU included information on roles and responsibilities for the NTP/PTPs and the pharmacy. The MOU copies were signed by pharmacy owners, the District Health Officer, the District TB Coordinator on behalf of the NTP Manager, and a copy of the MOU was provided to the pharmacy.

Certificate

Two certificates were given to all participating pharmacies:

- Certificate of participation for the participant pharmacies to be displayed in their pharmacies to earn the trust of TB suspects

- Certificate of authorization that stated the concerned pharmacy is an authorized point for TB referrals and is part of the PPM

ESTABLISHING A REFERRAL SYSTEM

Directories

District TB office staff provided an update and validated the directories provided by the NTP because some of the contact numbers and addresses were outdated. With following information on PPM providers, public sector BMU directories were developed, and printed copies were placed at participating pharmacies for easy reference—

- Name of trained provider
- Name of hospital
- Contact person at the outlet
- Contact number

The pharmacy staff used these directories to consult and refer the suspected clients to a provider who was either located closer to the patient's residence or to the provider that the client preferred.

Referral Forms

Referral forms were developed with three carbon copies—

- Pink: Patient to take to the service provider
- Yellow: Pharmacy record
- White: To be used by monitoring and evaluation (M&E) team

Each form had an assigned specific code number. It included the patient's demographic information (name, address and contact number along with name and address of referred service provider). In addition, the general complaint is also mentioned for the provider's reference and the reason for referral. The form is now part of the NTP forms used for patient registration.

These referral forms were also used by the M&E staff for tracking patients, and the data were compiled at the district level on patients who—

- Reached the facility, tested positive
- Reached the facility, tested negative
- Did not reach the facility

In cases where the referred presumptive case did not reach the facility, the patient's information on the form was used to track the patient. The follow-up visit to the patient offered a second chance of counselling by pharmacy school students who were working as part of the M&E team.

Geo Mapping of the Participating Pharmacies

The participating pharmacies were geo mapped, and it was ensured each participating pharmacy had either a PPM provider or a BMU within a 5-mile radius.

Referral Process

The pharmacies were trained to evaluate clients coming to the pharmacy to purchase over-the-counter cough syrup and take the necessary next step for referral (figure 4).

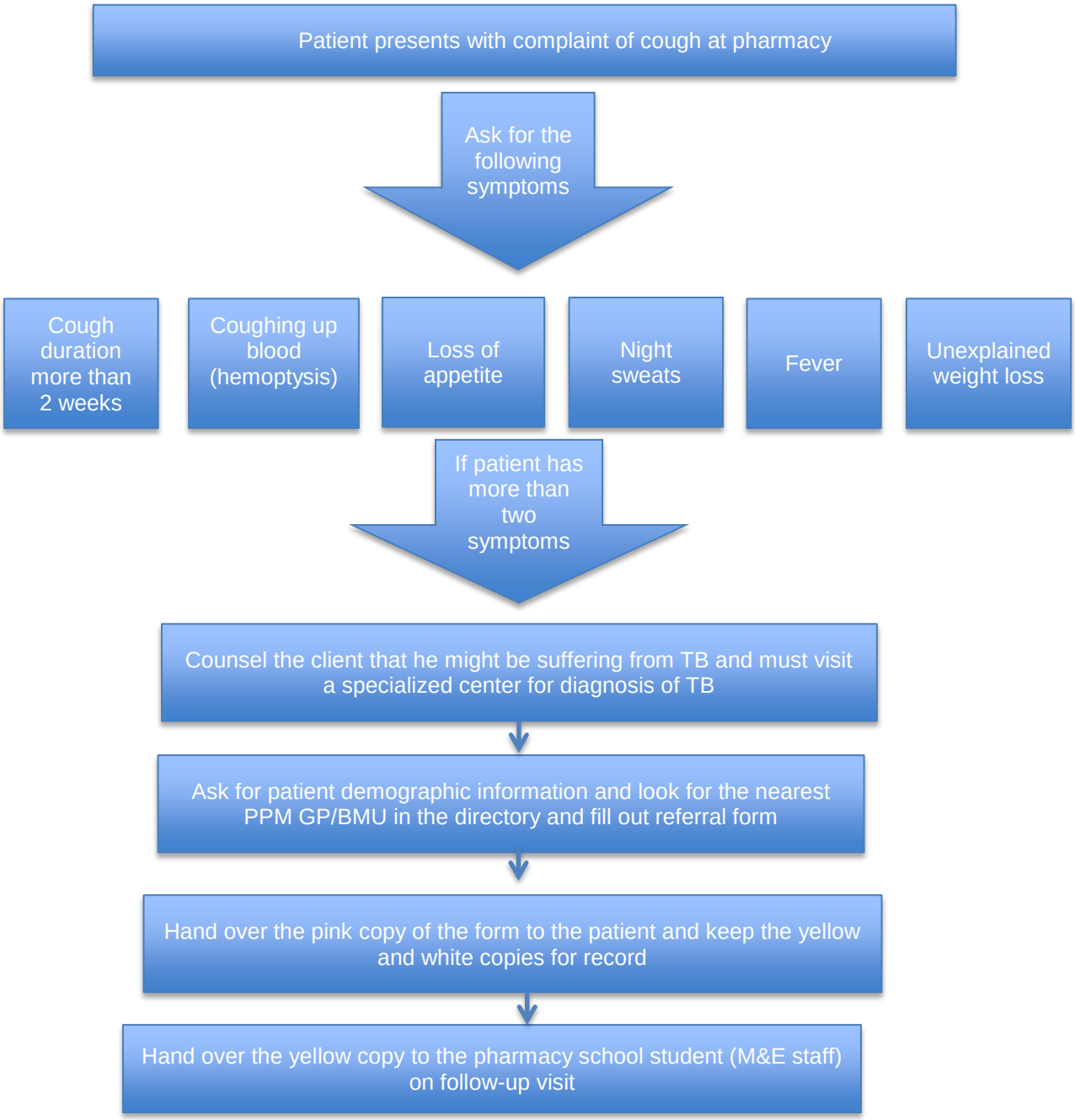


Figure 4. Referral system flow chart

MONITORING AND SUPERVISION

Three different models were tested in different geographic areas to assess feasibility of the best possible intervention for monitoring and supervision of trained pharmacies with the ultimate goal of generating referrals—

- Pharmacy school model
- Dedicated community health officer model
- Partnering with IRD–medical representatives model

Pharmacy School Model: Rawalpindi, Islamabad, Lahore, and Peshawar

The monitoring and supervision role was assigned to the pharmacy universities. In accordance with the agreed roles and responsibilities at the stakeholders' meeting, the pharmacy school signed an MoU (copy of MoU attached as Annex A) and agreed to provide the following staff for the purpose of monitoring and supervision—

- A faculty member of the pharmacy school to serve as coordinator and supervisor for the pharmacy students

- Final-year pharmacy students

Role of Coordinator

The coordinator's responsibility was to nominate final-year students and put them on a roster to ensure each participating pharmacy received a fortnightly student visit as well as the PPM providers to collect patient information. The data were centrally entered in the online system and reviewed by SIAPS on regular basis. The results and findings were shared with the NTP. The coordinators were also responsible to perform random follow-up visits to the participating pharmacies with and without students. These visits provided a second layer of monitoring the field activities.

Role of Students

Thirty students were included to be part of the intervention in four cities. The students were responsible for day-to-day follow-up to participating pharmacies and referred patients. For students to effectively perform their duties, they received classroom and on-the-job training through the SIAPS consultant and the coordinators from their individual universities.

Table 3. Number of Students by City

City	Pharmacy school	Number of participating pharmacies	Number of students
Rawalpindi	Department of Pharmacy, Hamdard University Islamabad	117	8
Islamabad		45	5
Lahore	University College of Pharmacy, University of Punjab	185	12
Peshawar	Department of Pharmacy, University of Peshawar	45	5

Training of Students

The students were trained by master trainers who included the pharmacy school coordinators using the same curriculum that was developed for training the pharmacy staff. In addition, special training was provided to them on—

- Follow-up to trained pharmacy staff, presumptive TB cases
- Handling queries from pharmacy staff
- Providing on-the-job training to those who signed an MoU later and did not attend a formal training session

Material Developed for Students

The students were provided with the following documents—

- Copy of directory for their district
- Document containing the geographic location of the pharmacies shown on a map to help them easily locate the designated pharmacies
- All material for replenishment at trained pharmacies, including IEC material, referral form booklets, and directories

Stipend for Students

The students were provided with a monthly stipend for travel and communication. Depending on the geographical distance between the pharmacies and the proximity to the residence of the student, each student was assigned between a minimum of 9 and a maximum 15 pharmacies in a specific geographic area. This method decreased the travel cost for the students. The daily stipend for each student was PKR 150 per visit.

Follow-up Activities

As a first step in their follow-up to each trained pharmacy, students had to confirm the address and availability of the staff trained. If a discrepancy was found, the address and other details were updated. At the same time, nearby pharmacies were visited to gauge their interest and to provide on-the-job training and MoU signing at their location to make up for attrition. The final list of participating pharmacies was tabulated, and subsequent visits focused on monitoring and supervision and collecting patient data forms. A flow chart listing the sequence activities is in figure 7. The following activities were performed at each visit.

Observing Counseling Skill

Staff members were observed while interacting with patients, preferably while interacting with a presumptive TB case if one presented during the visit. Alternatively, general counseling skills were observed. The staff was told to follow the GATHER (greet, ask, tell, help, explain, and repeat) approach while communicating with general patients presenting at the pharmacy.

Updating Knowledge on TB

The students' reinforced messages provided during the training program: TB signs and symptoms, filling of referral forms, clearing up any myths and misconceptions, diagnostic tests, and correct treatment of TB. Students emphasized that staff members' role was to refer presumptive cases presenting with cough and fever for more than two weeks to trained physicians instead of selling over-the-counter cough syrups or antibiotics.

Collecting Forms of Referred Patients

The students collected a copy of the referral forms and confirmed the patient presented at the facility where he or she was referred. If the patient presented, the following information was collected on the outcome—

- Sputum positive
- Sputum negative
- Treatment started

For instance, where the patient did not present at the referred facility, the students used the patient information (name, contact number, and address) of the patient to follow up. During the visit, after obtaining verbal consent from adult patients or their parents/guardians for minors, students counseled patients again on the importance of TB diagnosis and treatment and the fact that TB is a treatable yet communicable disease. Patients were informed that if TB goes undiagnosed, the patient might be a source of spreading the disease to family and community members.

In Peshawar, the students along with the coordinator conducted a client satisfaction survey for the referred clients. Figures 5 and 6 highlight the major findings from the survey.

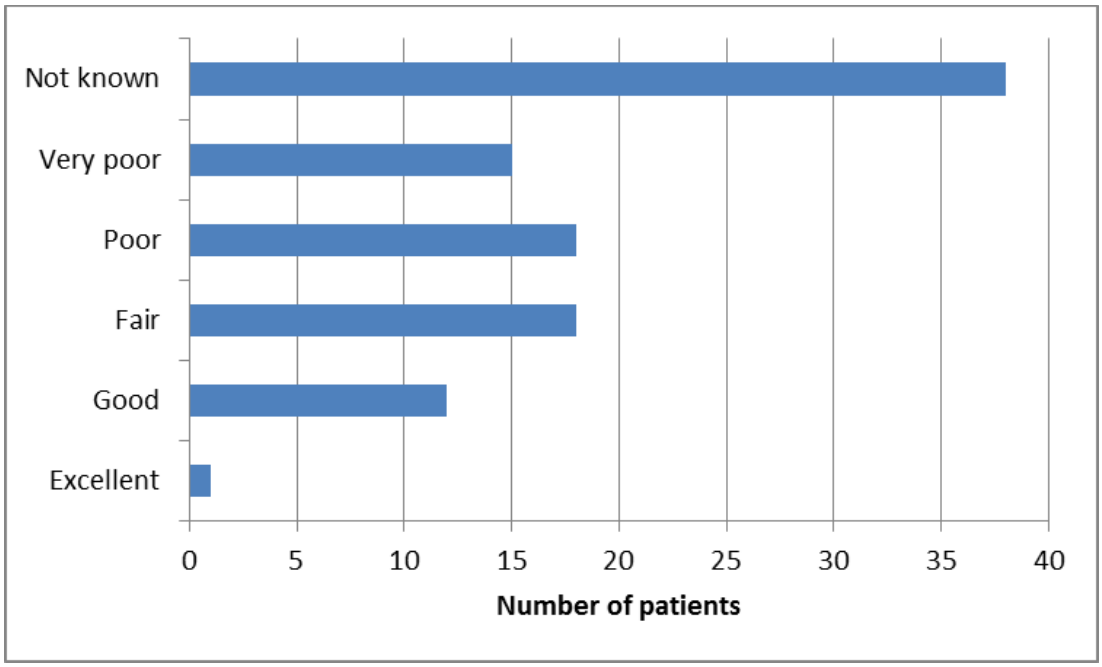


Figure 5. Referred patients' satisfaction with DOT center response

They also conducted an analysis of the outcomes of the referrals.

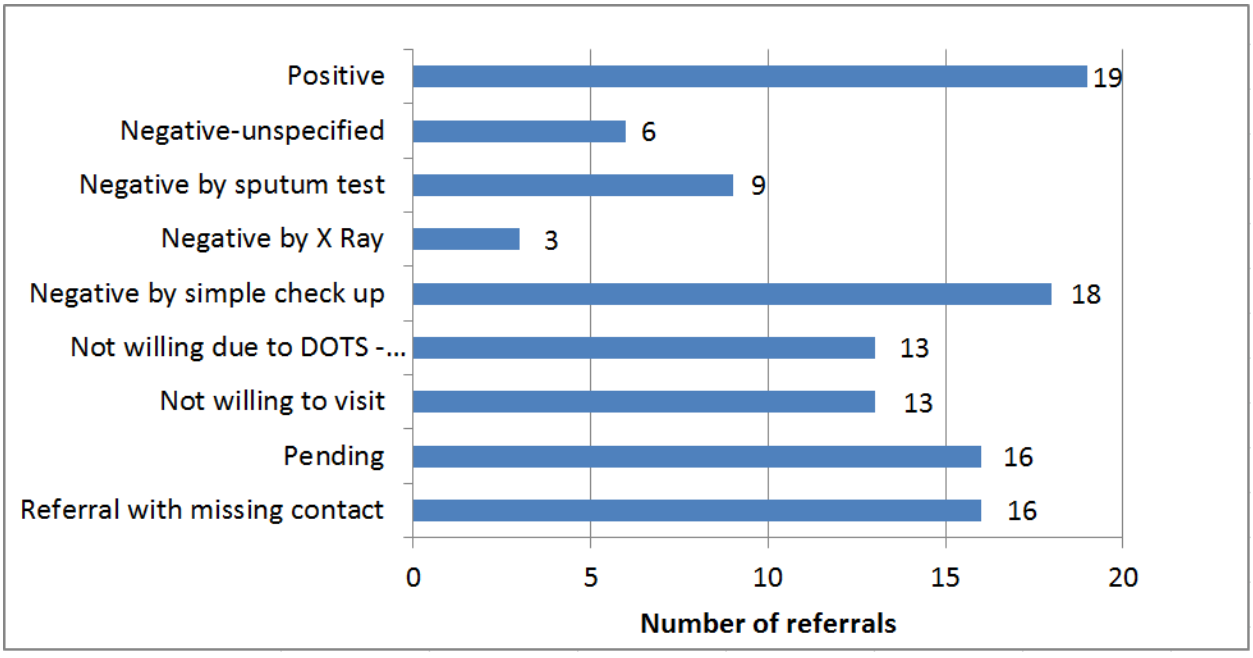


Figure 6. Referral outcomes

Entering Data in Google Tracking Sheet

The students were required to fill in the patient information and outcome on the Google data sheet. These tracking sheets include the following data fields—

- Date of visit to pharmacy
- Pharmacy information (name, address, and contact number of pharmacy)
- GP/BMU information (name of center [public or private], name of the physician or DOTS facilitator, and the contact number of the concerned person)
- Feedback information about the referral, including the date of referral, referral slip number, name and contact number of the patient, description of symptoms with which the patient presented to the pharmacy, and the status of the referral
- Tracking date (date when the M&E officer tracked the patient after the referral to determine status)
- Supervisor remarks, which incorporates the instructions and comments from the supervisor to the field team, if any

In case of a visit without collection of any referral information, the reason for not having referral or feedback from the pharmacy is then written in the "Description" column.

The data are color coded. A positive case is highlighted in red and a negative case in green for quick reference. After each follow-up call to the patient, the tracking date is updated, while the date of referral remains the same. This difference between the date of referral and tracking date allows determination of time spent following a particular case. The Google tracking sheets were assigned to each field officer according to assignment of pharmacies to them. In Peshawar, Islamabad, Rawalpindi, and Sukkhur, each tracking sheet was assigned to a single field officer; for Lahore, one tracking sheet was assigned to two field officers.

A summary sheet was generated fortnightly and circulated to all stakeholders. The summary included the cumulative number of total referrals, referrals with missing information, total referrals traceable, positive cases, negative cases, and cases in process. This summary sheet had data on percentage of positive, negative, and in process cases, both for the city and cumulative figures. It also includes the number of pharmacies and thus the percentage in each city that are generating referrals.

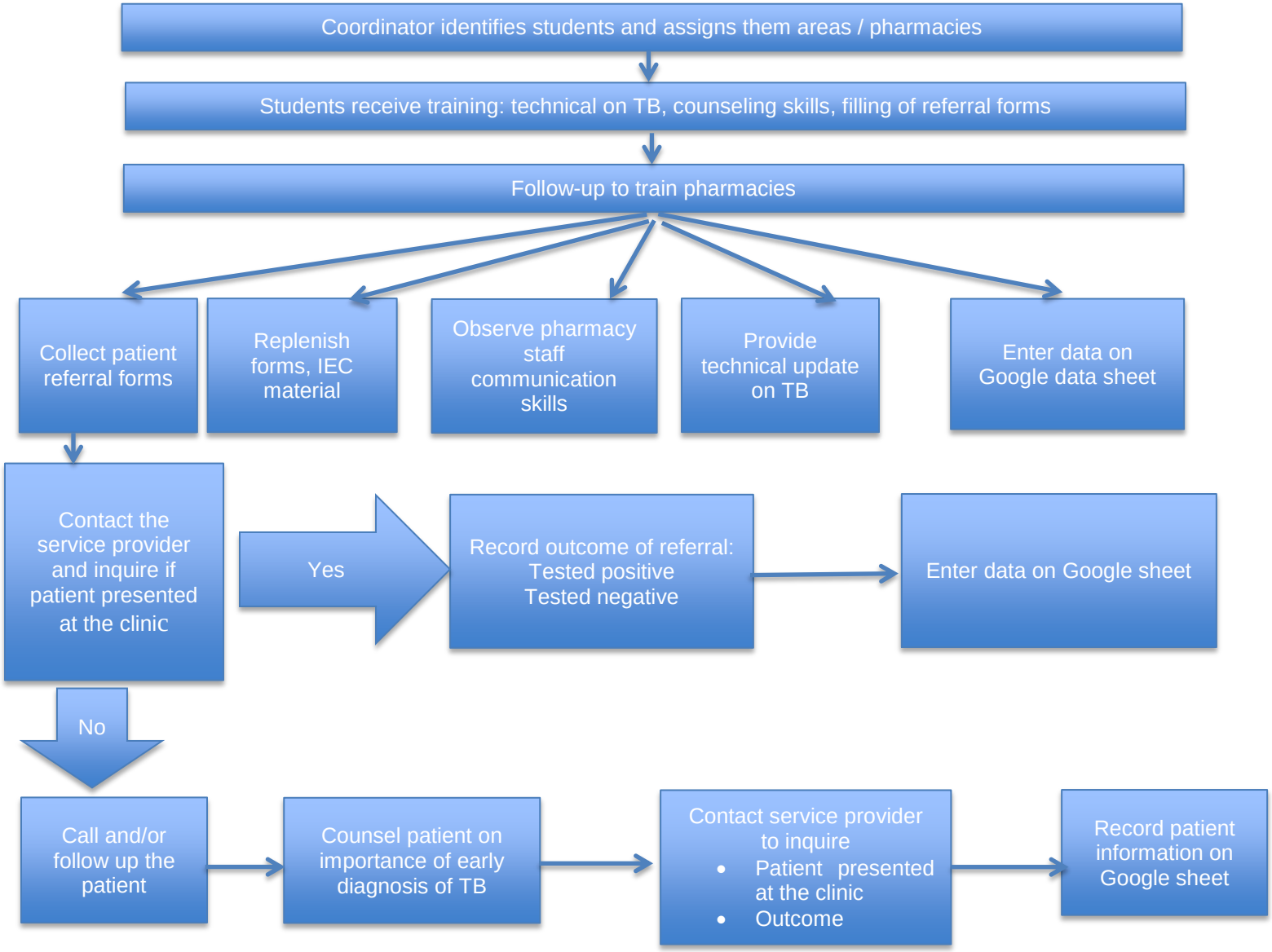


Figure 7. Pharmacy school model flow chart

Dedicated Community Health Office Model: Sukkhur

Because most selected cities had an urban/peri-urban setting, the NTP requested SIAPS to include Sukkhur in the pilot to test feasibility of the intervention in a rural context. Including Sukkhur offered two benefits—

- Testing implementation and record challenges faced in a rural setting
- Testing the dedicated community health office model

In Sukkhur, a total of 62 pharmacies were enrolled to be part of the intervention. The absence of a pharmacy school in Sukkhur posed a challenge to follow-up of trained pharmacy staff the referred patients. In consultation with the NTP and PTP Sind, it was decided to test the dedicated community health officer model. A community Health Officer who was a local of the area and could communicate in the local language was employed by SIAPS, and he received his training through the SIAPS consultant. With support from the District TB Officer, the Community Health Officer performed the follow-up tasks for trained pharmacies and patients. The city was divided in five subzones for effective weekly follow-up to all trained pharmacies.

The activities performed by the Community Health Officer were the same as those the pharmacy school students performed to ensure a uniform implementation strategy.

Medical Representatives Model

Karachi being a big metropolitan city offered an opportunity to test the medical representative model. In consultation with the NTP it was decided that SIAPS will partner with IRD for the activities in Karachi. The collaboration not only offered an opportunity to test a different approach but also facilitated the area selection. Currently IRD has operations in six areas of Karachi: region 1 Korangi, Landhi, and Shah Faisal Colony and region 2 Nazimabad, New Karachi, and Orangi. It was agreed that the IRD intervention areas would be selected for this initiative. IRD has a team of medical representatives who are supervised by field managers; Management Sciences for Health and IRD agreed to use this workforce.

The SIAPS consultant trained the team of IRD staff, including medical representatives and field managers, on the same curriculum used for training the pharmacy school students in other cities.

Because IRD uses Gene Expert for diagnosis, it was agreed to use same model in Karachi. The following activities were performed in Karachi.

Follow-up and Referrals

IRD/Community Health Solution medical staff regularly followed up with participating pharmacies to remind and encourage them on referrals for diagnosis to help improve the referral process and replenish referral coupons and materials, as needed. Two strategies were promoted in the different regions. The first stressed the public health importance and contribution that pharmacies can make by participating in the program, and the second stressed the public health

component but also offered financial incentives or referral fees to assess if these significantly increase in the referrals.

Diagnostics and Treatment

All clients were referred to CHS's *sehatmand zindagi* centers, which are conveniently located in the two regions of the project area and equipped with digital x-rays with CAD4TB software for TB diagnosis and Gene Expert machines. These centers also have capacity for case notification and treatment for all Mycobacterium TB-positive patients. Any patients identified with TB resistant to both rifampicin and isoniazid were referred to Indus Hospital, the Global Fund/NTP Subrecipient for Sindh. Gene Expert testing was provided free of charge as cost sharing for this project, and x-ray fees are waived for clients.

INFORMATION, EDUCATION, AND COMMUNICATION MATERIAL DEVELOPMENT

SIAPS in consultation with the NTP, PTPs, and other stakeholders developed IEC material to be displayed at the pharmacies to increase awareness. The pharmacies were also consulted for their feedback on contents and size of the IEC material that would be user-friendly and easy to display. The following materials were developed (attached as Annex B)—

- Brochures included basic information on TB and its symptoms. The pharmacy staff handed out brochures to patients coming to purchase cough syrup.

- Charts to be displayed outside the pharmacy and the on the sale counter for customers and passing pedestrians. The purpose of these charts was again to create public awareness about the disease and the importance of the role and involvement of the community pharmacy in reducing the TB burden.

- Pamphlets to be placed on the cash counter for the distribution to referred patients. These pamphlets were designed for the awareness of family members of suspected and confirmed TB cases to make them aware of the importance of screening tests for the family members of TB suspects.

RESULTS

Overall Achievement

The pharmacies were followed up from January 2015 to August 2015, and during the eight months improvements in referrals and positive cases have been achieved in the project focus cities. During the life of project, 561 pharmacies were engaged; however, only 398 cases were referred in any month, yielding a total of 1,071 referrals. Of them, 198 were tested positive (18%).

Estimates

At the start of the project, a conservative estimate based on the national average for smear-positive cases from total clients screened was done for the project, and it was estimated that 5% of referred clients would test positive. However, as the project progressed it was observed that despite a limited number of pharmacies referring clients on a continued basis, the number of positive cases exceeded the set target—with an 18% sputum-smear-positive rate.

The following set of data was collected from each of the trained pharmacies—

- Number of presumptive TB cases screened per chemist per month
- Number of presumptive TB referrals made per chemist per month
- Of the total referred
  - Number of presumptive cases reaching the service delivery outlet
  - Number of referral cases testing positive
  - Number of cases reaching the health facility because of follow-up

An overview of the achievements in the six project focal cities is shown in figures 8 and 9.

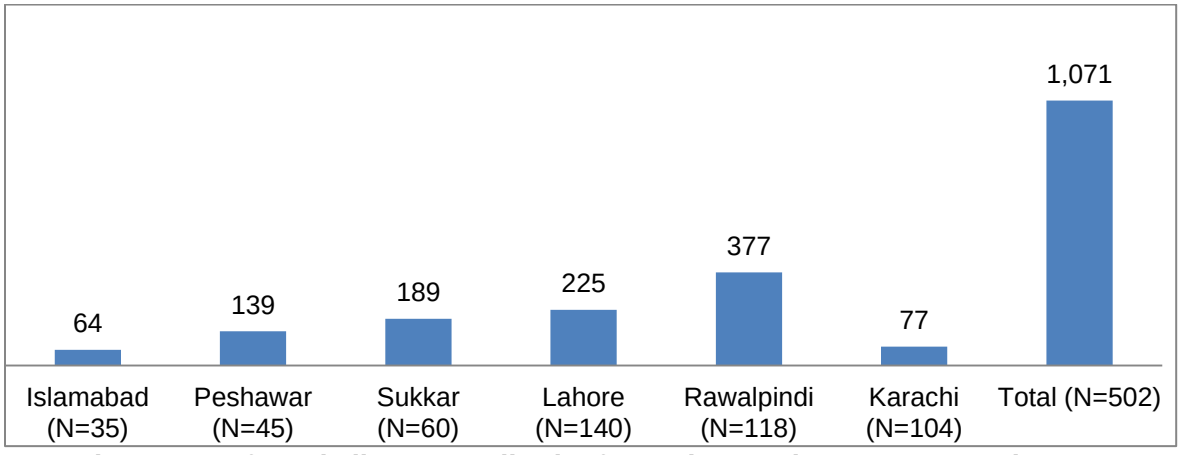


Figure 8. Referred clients per district from pharmacies, January–July 2015

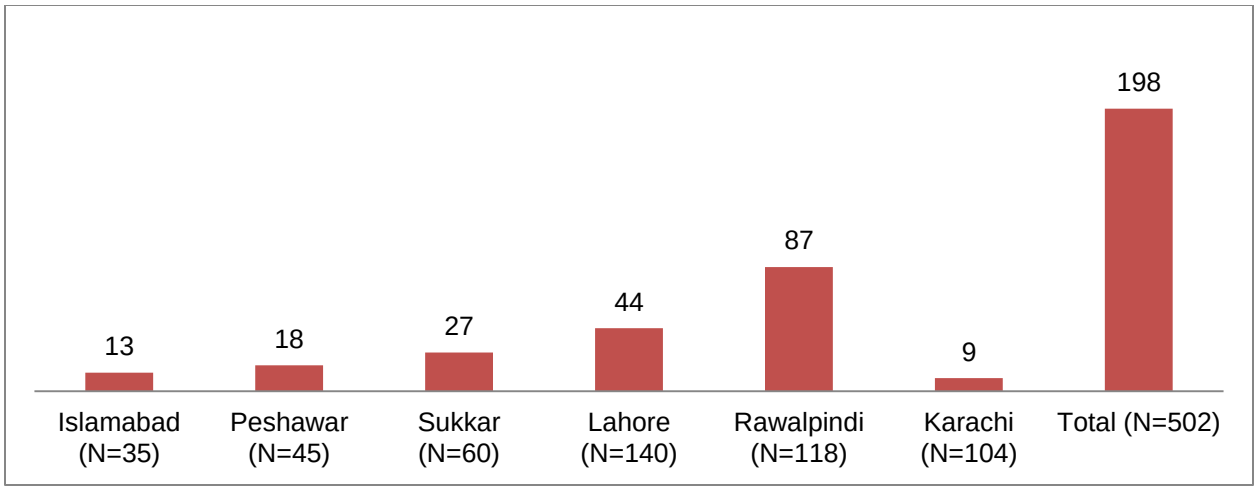


Figure 9. Smear-positive TB cases

Though throughout the project implementation a few pharmacies faced challenges, overall a steady increase in number of referrals and smear-positive cases is seen over time. Challenges included noncooperation of the PPM GP when referring clients to them, missing client information, pharmacy persistence to sell over-the-counter cough syrup.

Over the course of the project, SIAPS followed the number of referred cases and pharmacies that were actively engaged and referred these clients in each implementation district. It was noted that only 50% of the total pharmacies engaged remained active. This outcome will serve as guidance when planning the expansion, and the NTP will have to make arrangements to train additional pharmacies to account for the attrition rate. Table 4 shows results per district on percentage of pharmacies that referred clients and of those referred the percentage that could be tracked (complete and updated information on phone number and addresses of patients).

Table 4. Indicators by District

Indicators	Overall	Lahore	Rawalpindi	Peshawar	Islamabad	Sukkhur	Karachi
Percent of referred clients tracked	83	78	87	84	100	74	Not applicable
Percent of pharmacies that referred clients	56	45	61	66	62	61	50

Both the numbers of referrals and positive cases were higher in the metro cities of Rawalpindi, Lahore, and Islamabad, followed by cities with a predominantly rural background, Sukkhur and Peshawar. Among metro cities in Lahore, the participating pharmacies included mostly bigger chain pharmacies, and in Rawalpindi mostly individually owned pharmacies were involved in

addition to chain pharmacies. In Sukkhur and Peshawar, almost all the participating pharmacies were individually owned.

Of the cases referred, the staff involved in the follow-up also kept a track of the number of cases that could be traced using the phone number or address on the referral forms, number of cases that received services, and their diagnostic outcome. This served as a feedback to the pharmacies to better evaluate and assess clients who needed referral, and the staff involved in referral used this information for reinforcement of criteria to be used by pharmacies for client referral. Table 5 shows results of the referrals made per district and the outcome for the referred patients that could be traced.

Table 5. Total Referrals by District

District	Total referrals	Referrals with missing contact info	Total referrals traceable	Positive cases	Negative cases	Total pharmacies enrolled	Pharmacies generating referrals	%
Lahore (N = 140)	225	48	177	44	101	140	68	49
Rawalpindi (N = 118)	377	42	335	87	110	118	77	65
Peshawar (N = 45)	139	25	114	18	54	45	38	84
Islamabad (N = 35)	64	1	63	13	32	35	22	63
Sukkhur (N = 60)	189	49	140	27	53	60	41	68
Karachi (N = 107)	77	NA	NA	09	NA	107	NA	NA
Total (N = 505)	1,071	165	829	198	350	505	246	55

Note: NA = not applicable.

Each tested model—engaging the pharmacy school, the medical representative model, and the dedicated community health officer model—had its own pros and cons. However, based on the number of referrals and the cost for implementation, it was observed that engaging the pharmacy school and its students proved to be the most effective strategy.

LESSON LEARNED

Involving the Pharmacies in Early TB Case Detection

The concept of referrals from pharmacies to increase TB case detection has been tested in other countries; however, for Pakistan, it was a new concept. With a good collaboration among major stakeholders, the intervention proved to be a success. As the pharmacy owners and sales staff were provided the training on knowledge of TB signs and symptoms and counseling, a gradual pick-up in referrals occurred. The intervention would have worked better if more pharmacies could have been involved and if an incentive was attached to each positive referral.

Ms. Malik from SIAPS visited pharmacies in Rawalpindi with the students from Hamdard University, Islamabad. Malik Medical store on Peshawar road was visited, and the owner was interviewed regarding his experience working on the project. The owner, Mr. Abid, informed the team that in general he had a good experience working on the project; however, he suggested for a continued motivation there should be some incentive for the pharmacy staff working on this activity to compensate them for their time and efforts. He also suggested collaboration from the private sector physicians is necessary when the clients have been referred. He encountered problems in a few instances when he referred clients to private providers. The patients were charged extra fees and in a few cases were refused any service. He said most pharmacies receive patients who request over-the-counter medicines for general ailments, and it is an excellent initiative involving pharmacy staff in such initiatives because this not just increases their knowledge about diseases but also helps them guide the patients to a service provider who treats the patients.

Trained pharmacy


Mr. Abid, a trained participant

Collaboration with the Pharmacy School

Using pharmacy school students and faculty members for interventions at the pharmacy level offers a cost-effective and efficient system for the project. It also provides an opportunity for the students to experience working at a community pharmacy, and they can explore careers in the field of community pharmacies. The M&E role assigned to the students under this intervention worked well, and they were able to follow up and counsel presumptive TB cases for diagnostic testing and starting treatment.

Trained staff at pharmacy; Muhammad Awais (right), pharmacy student

Mr. Muhammad Awais told about his experience working on the project. He is a pharmacy school student at Peshawar University School of Pharmacy. Mr. Awais has been involved in the follow-up to participating pharmacies and has learned a lot from working on this initiative. He thinks this initiative has a lot of potential, and he enjoyed working with SIAPS and the NTP. According to him, "This was a new initiative and such opportunities provide students to have on-job-training and build their capacity to do additional field work and research."

Referrals at PPM GPs

This posed a challenge and a few referred patients complained about the quality of service delivery received. The lists provided to SIAPS were outdated and had to be reworked in consultation with PTP managers. If the project is to be taken to scale, the addresses and contact numbers of the trained providers must be updated regularly to avoid missed referrals. Some sort of introductory meeting must be held between pharmacy staff and the physicians to build rapport. Likewise, it would be beneficial to develop a list of participating pharmacies, similar to the directories made for pharmacies, to be kept at service delivery outlets and labs.

Duration of the Project

SIAPS implemented a pilot, and although the NTP is eager to take this initiative to national scale, a lot of advocacy is required to ensure that funding is available to continue this work. The referral process picked up at a slow pace, and it would have been good if the initiative could have continued without interruption. The break in the implementation will have a negative influence on the referral process and discourage those pharmacies who have started to refer patients and are willing to be part of this initiative.

Experience in Metro City, Karachi

The project did not yield as much results in Karachi as expected; however, after the four-month implementation, the lesson learned from Karachi directed the way forward for IRD.

In Karachi mostly chain pharmacies were selected on the assumption that these pharmacies have a higher clientele and therefore will be able to refer more presumptive TB cases. However, during follow-up visits, pharmacists frequently cited busy schedules in dealing with patients, limited available time for counseling patients, and limited capacity to support the initiative. Overall the motivation of the staff at the pharmacies did not appear to be sufficient to substantially increase the number of referrals. Time spent on counseling was perceived to be distraction from the operations of the business. This was also evident in the poor turnout for classroom training organized by the Drug Inspector and the SIAPS consultant and is considered particular to a more commercial bias in Karachi compared with other cities. Poor awareness of TB as a major public health issue in general was also a factor as well as the low motivation of pharmacists.

Another factor that contributed to lower referrals was that these pharmacies are already known in the community and so did not feel that this work added value to their rapport in the community. Patients were unwilling to visit public sector sites because of perceived poor quality of services and the need to pay for X-ray screening.

IRD has decided to move with its own resources. It has opted to—

- Involve community pharmacies
- Undertake branding of the involved pharmacies by installing a sign board that will serve two purposes: increasing demand and creating neighborhood recognition

The current incentive scheme did not appear to be sufficient to motivate pharmacies to dedicate time for this initiative. A higher incentive package that will allow a pharmacy to cover a part of a staff members' cost is likely to generate more referrals.

A few pharmacy staff suggested simplifying the reporting recording forms because most pharmacies are busy and the staff filling out the forms have limited time to capture important information necessary for tracking the clients. Because of this time constraint, the staff at times miss entering necessary information or make errors in recording information.

SUCCESS STORIES

Zuhaib, a 12-Year-Old Patient, Peshawar

This patient along with his uncle visited the pharmacy to purchase medicines because he had a cough for more than two weeks. He was also suffering from weight loss, fever, and appetite loss. The patient's uncle was told about the project and was provided a referral slip to take his nephew to the nearby DOTS center. The patient's family was initially reluctant to visit the DOTS center and unsure if a small child can have TB. The pharmacy school student visited the family and spoke to the parents of the child and explained why the child could be suffering from TB and the importance of getting diagnosed. On having a second counseling session, the parents agreed to take their child to a PPM GP and get his sputum test done.

When the patient visited the DOTS center, he was diagnosed as TB positive. Now the patient has successfully completed treatment, and he is completely healthy. He is fully satisfied with the outcome from the project.

Yousuf, a Two-Year-Old Child, Peshawar

The father of a two-year-old child visited the pharmacy to purchase medicines. The trained personnel at the pharmacy asked about the history of cough and told the patient's father that the child's symptoms are suggestive of TB and that he can help him get the child's tests done. The father said that his son was also suffering from fever, loss of appetite, night sweats, and weight loss. A referral slip was provided for his son. Next day when the patient visited the DOTS center with referral slip, he was checked and was declared as having positive TB. He was given TB medicines. Patient's therapy is in completion stage. His condition has improved. They are fully satisfied with the outcome from the project.

Dissemination Meeting

SIAPS conducted a project dissemination meeting on the pilot. On December 10, 2015, a national-level dissemination meeting was held; 25 participants from donor agencies, implementing partners, the NTP, PTPs, and pharmacy schools attended the meeting. Mr. A Q Javeed, Director Ministry of Health Services regulations and coordination, chaired the meeting. Ms. Malik from SIAPS presented the design and results of the pilot project. Pharmacy school faculty members involved in the pilot from Lahore and Peshawar presented on field experience and challenges faced during the pilot project. The research study conducted by SIAPS in collaboration with Hamdard University School of Pharmacy evaluated barriers and opportunities for retail pharmacies to be effectively engaged in DOTS for TB patients in Pakistan. The study results were presented by Professor Azhar, DG, and Dean of the Hamdard University School of Pharmacy. The group discussed the feasibility of expanding the project to a national scale. Based on the findings from the pilot project and the discussions held at the meeting, the group strongly favored a national-level expansion.

Follow-up

The successful implementation of the pilot has led to discussions of taking the activities to a national scale under the leadership of Ministry of Health services regulations and coordination and implemented by the NTP. SIAPS has been requested to provide technical assistance during the expansion phase. It has been estimated that in phase 1 of expansion about 5,000 pharmacies will be engaged in the activities.

ANNEX A. UNIVERSITIES' MEMORANDUM OF UNDERSTANDING

TB DOTS Implementation at Private Pharmacy

Memorandum of Understanding
Between
Provincial TB Control Program
And
_____ University

1. **Back ground:**

Tuberculosis (TB) continues to be a major public health challenge in Pakistan. Pakistan ranks 5th amongst the 22 High Burdon Countries and 5th among 27 Multi-Drug Resistant high burden countries in the world. The estimated incidence of sensitive cases is 276/100,000 and prevalence for all type is 385/100,000. Approximately 420,000 new TB cases emerge annually out of which about 60,000 die of TB, with the mortality of 33/100,000. The impact of TB on socio-economic status is substantial as about 75% of TB cases fall in productive age (15-45) group. TB is responsible for 5.1% of the national disease burden in Pakistan.

Recognizing the enormous socioeconomic implications of the disease, the Government of Pakistan responded to the situation by endorsing the WHO recommended DOTS (Directly Observed Treatment Short course) Strategy and achieving 100% DOTS coverage in health facilities within the public sector health delivery system in 2005. The impact targets are "to halt and begin to reverse the incidence of TB by 2015, and to reduce by 50%, prevalence and mortality rates by 2015, relative to the 1990 levels." The ultimate goal of eliminating TB, defined as the occurrence of less than 1 case per million population per year by 2050, was stipulated by the Stop TB Partnership.

TB services have been integrated into the primary health care system and are delivered by chest clinics in tertiary hospitals, district hospitals and BHUs. The NTP has leveraged the support of the private sector in TB diagnosis and care, and has engaged 2300 private providers, NGO's networks, a few large private & other public sector such as Army, Social security, Wapda, PTCL, prisons and the police force.

There is growing body of scientific evidence from around the world which supports engagement of the retail pharmacies for TB control and prevention success in Pakistan. This Memorandum of Understanding identifies roles and responsibilities of the partners for this purpose.

2. **Parties**

Provincial TB Control Program, Punjab hereinafter referred to as **"PTP"**, & _____ University, Islamabad, hereafter referred to as **"the University"**, agree to cooperate in the implementation of TB control activities in the selected private retail pharmacies as provided in Annex "A"

3. Period of cooperation

One year from the date of signing of this MOU.

4. Objectives

The objective of the partnership is to enhance referral of presumptive TB cases to diagnostic centers for TB control.

5. Terms, conditions, for the period of this agreement

5.1 The PTP shall:

i. Facilitate training of Master Trainers to the University faculty engaged in the program.
ii. Provide technical support in the development of awareness material for TB care.
iii. Provide technical support in development of the referral mechanism for presumptive TB to the TB DOTS centers
iv. Facilitate between the stakeholders for smooth functioning.
v. Provide available IEC materials for clients
vi. Facilitate the University in TB related research.

5.2 The University shall:

i. Ensure:
   a) continued and appropriate referral of presumptive TB cases from the community pharmacy to the TB DOTS centers
   b) that the diagnosed TB patients get counseling service for continuation of treatment for six to eight months
ii. Periodically inform NTP /PTP about the efforts in TB Control
iii. Generate monthly report according to agreed formats and mechanisms for validation by PTP/NTP
iv. Engage in TB related research and advocacy in consultation with the PTP/NTP

6. Termination of MoU

Either party shall have the right to terminate the memorandum of understanding at any time with 30 days' notice in writing indicating reasons for the same to the other party.

7. Program monitoring and evaluation

The PTP/NTP shall monitor and evaluate the implementation of program activities periodically in order to ensure appropriate support for the implementation of this memorandum of understanding and to assess the need for technical support.

Signed by:

PTP Manager.

Name:_____

Signature:_____

Date:_____

Dean, _____University.

Name:_____

Signature:_____

Date:_____

Witnessed by:

Vice Chancellor, _____ University.

Name:_____

Signature:_____

Date:_____

National TB Control Program, Manager

Name:_____

Signature:_____

Date:_____

Annexure "A"

List of private pharmacies:

ANNEX B. IEC MATERIALS

TB DOTS Implementation at Private Pharmacy

Memorandum of Understanding
Between
Provincial TB Control Program
And
M/S _____ Pharmacy

1. **Background:**

Tuberculosis (TB) continues to be a major public health challenge in Pakistan. Pakistan ranks 5th amongst the 22 high burden countries and 5th among 27 Multi-Drug Resistant high burden countries in the world. The estimated incidence of sensitive cases is 276/100,000 and prevalence for all type is 385/100,000. Approximately 420,000 new TB cases emerge annually out of which about 60,000 die of TB, with the mortality of 33/100,000. The impact of TB on socio-economic status is substantial as about 75% of TB cases fall in productive age (15-45) group. TB is responsible for 5.1% of the national disease burden in Pakistan.

Recognizing the enormous socioeconomic implications of the disease, the Government of Pakistan responded to the situation by endorsing the WHO recommended DOTS (Directly Observed Treatment Short course) Strategy and achieving 100% DOTS coverage in health facilities within the public sector health delivery system in 2005. The impact targets are "to halt and begin to reverse the incidence of TB by 2015, and to reduce by 50%, prevalence and mortality rates by 2015, relative to the 1990 levels." The ultimate goal of eliminating TB, defined as the occurrence of less than 1 case per million population per year by 2050, was stipulated by the Stop TB Partnership.

TB services have been integrated into the primary health care system and are delivered by chest clinics in tertiary hospitals, district hospitals and BHUs. The NTP has leveraged the support of the private sector in TB diagnosis and care, and has engaged 2300 private providers, a few large private & other public sector such as Armed Forces, Social security, Wapda, PTCL, prisons and the police force.

There is growing body of scientific evidence from around the world which supports engagement of the retail pharmacies for TB control and prevention success in Pakistan. This Memorandum of Understanding identifies roles and responsibilities of the partners for this purpose.

2. **Parties**

The District TB Coordinator, hereinafter referred to as "DTC", of the Provincial TB Control Program and M/S_____, hereinafter referred to as "**Private Pharmacy**", agree to cooperate in the implementation of TB control activities as laid out below.

1

3. Period of cooperation

One year from the date of signing of this MOU.

4. Objective

To enhance referral of presumptive TB cases to diagnostic centers for TB control program.

5. Terms, conditions, and Role of partners

5.1 The DTC shall:

i. Organize training for one pharmacy technician of the Private Pharmacy in collaboration with EDO-H, District Drugs Controller and the project training team.
ii. Provide monitoring and supervisory support to the Private Pharmacy
iii. Ensure regular supply of referral forms provided by the project.
iv. Provide technical guidance and updates.
v. The DTC/DTO will be assisted in M&E by designated member(s) of the faculty and students of_____ University.
vi. Review and validate monthly and quarterly reports prepared by M&E team at the College of Pharmacy.

5.2 Private Pharmacy shall:

i. Ensure participation of one senior pharmacy sales staff for trainings and periodic district meetings.
ii. Refer TB presumptive cases to DOTS facility for diagnosis and treatment as per the Guidelines
iii. Maintain record of the referred cases by keeping copy of the referral slips.
iv. Ensure that the trained staff is retained on longer term and in case of staff's departure, indicate a replacement for training.

6. Renewal/Termination

i. The MoU will be signed for one year from the date of signing. It will be renewable subsequently on mutual consent of the parties for the next year(s).
ii. Either party shall have the right to terminate the memorandum of understanding at any time with 30 days' notice in writing indicating reasons for the same to the other party. In-kind goods provided by NTP/PTP must be returned at the point of termination of this agreement.
iii. If the other party wishes to continue the contract, it must respond in writing within 30 days of receipt of the termination notice.

iv. If a resolution between the two parties is not possible, then the provincial Manager TB Control Program shall attempt to resolve the dispute.

v. Failure to implement the project as agreed upon in in the MoU will lead to termination of this agreement.

Signed by:

District TB Coordinator

_____

Name:_____

Signature:_____

Date:_____

Owner/representative of

_____**Pharmacy**

Name:_____

Signature:_____

Date:_____

Witnessed by:

PTP Manager_____

Name:_____

Signature:_____

Date:_____

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

List of Govt. & Private Clinics, Islamabad.

(for referring clients with TB presumptive symptoms)

District TB Coordinator
Dr. Imtiaz Memon
Ph. 0345-5273139

Humdard University Focal Person
Dr. Azhar Hussain
Ph. 051-2604391

Govt. Clinics / Doctors					
S.No.	**Name of Doctor**	**Name of clinic/ BMU**	**Street address**	**Name of contact person**	**Ccontact Number**
1	Dr. Javed Khan	RHC Tarlai	Tarlai	Mr. Abdul Latif	0306-5526159
2	Dr. Mohammad Najam Younis	RHC Sihala	Sihala	Mr. Ghulam Nabi	0334-5456304
3	Dr. Asad ullah	PIMS Hospital	G-8 Islamabad	Ms Siara	0300-5271435
4	Dr. Ashan ullah	F.G Polyclinic	G-6/2 Islamabad	Mr. Rashid Hussain Shah	0300-5161325
5	Dr. Mir Hussain Billau	Federal General Hospital NIH	NIH Chak Shahazad	Mr. Mohd Saeed	0345-8560151
6	Dr.M, Ashraf Awan	Al-Nafees Hospital	Sulatana Foundation	Mr. Sardar Hussain	0333-9198119
7	Dr. Khalid Hussain	RHC Barakau	Barakau	Mr. Sajjad	0334-8888508
8	Dr. Zeenat Mehtab	CDA Medical Center F-11/4	F-11 /4 Markaz	Mr. Mubasahar Hussain	0334-5154136
9	Dr. M Anwer	Shifa Hospital	H-8 Islamabad	Mr. Waqas Hussan	0312-3337759
10	Dr. Imtiaz Paracha	CDA Hospital	G-6/2 Islamabad	Mr. Hakeem Ulfat Hussain	0334-9593264

Private Clinics / Doctors						
#	Name of Doctor	Name of clinic/ BMU	Street Complete address	Name of 2nd contact person in clinic	Contact No. of 2nd contact person	Adjacent functioning lab
1	Dr Tanvir Afsar Malik 03335219921	Momin Medical Centre	Main Road Bunny Gala, Chaudhary Bostaan Plaza, Ground Floor, Islamabad	Muhammad Bashir	03455254674	Pioneer Lab, Alipur Farash. Imtiaz Khan 03345085984
2	Abdul Naeem Mian 03335135282	Begum Jaan Hospital	Main Road, Alipur Farash, Lehtrar Road, Islamabad	Khizar Hussain	03465426394	Pioneer Lab, Alipur Farash. Imtiaz Khan 03345085984
3	Dr Yousaf Ali Yousafzai 03335205064	Nissa Hospital	Main Road, Alipur Farash, Lehtrar Road, Islamabad	Inayat		Pioneer Lab, Alipur Farash. Imtiaz Khan 03345085984
4	Dr Farah Zulfiqar 03236098373	Trueworth Foundation	Mohallah Kund Raajgaan, Chatha Bakhtawar Islamabad	Raja Farrukh Rasheed	03468555804	Trueworth Lab Ehtesham Ejaz 03450320249
5	Dr Ikramulhaq Minhas 03005129409	Sana Family Clinic	Faizabad Main Highway, Iqbal Town Islamabad	Sanaullah	03335111431	Pioneer Lab, Alipur Farash. Imtiaz Khan 03345085984
6	Dr Javed Akhtar Hashmi 03125030302	Maryam Hospital	Main Road, Alipur Farash, Lehtrar Road, Islamabad	Farrukh Wasti	03349177521	Pioneer Lab, Alipur Farash. Imtiaz Khan 03345085984
7	Dr Muhammad Irfan Khilji 03005212522	Family Clinic	I-9/4, Chaudhary Market, Islamabad	M Munir	3475783738	Rahat Lab G-9 Markaz Waseemullah 03479042698
8	Dr Asif Tauseef 03335137045	Ali Family Clinic	Nadir Plaza, G-9 Markaz, Islamabad	Wajid Ali	3455281106	Rahat Lab G-9 Markaz Waseemullah 03479042698
9	Dr Almas Idrees 03345486055	Ayesha Clinic	New Aabpara, Pervez Market, G-6/1/1, Islamabad	Obaid Ahmed	03125132627	Rahat Lab G-9 Markaz Waseemullah 03479042698
10	Dr Asif Siddiqui 03225301066	Hamza Clinic	Basement Abdullah Mosque, G-9 Markaz, Islamabad			Rahat Lab G-9 Markaz Waseemullah 03479042698
11	Dr M Tariq 03005810091	Healthcare Center	Bilal Arcade, Simli Dam Road, Bara Kahu ISlamabad	Amjad Ali	03455547855	Healthcare Lab, Bara Kahu Islamabad Naveed Ahmed 03459192533
12	Dr Abdul Wahab Khalil 03145207696	Khalil Medical Center	Attal Chowk, Simli Dam Road, Bara Kahu Islamabad	Shabbir Ahmed	03005145727	Healthcare Lab, Bara Kahu Islamabad Naveed Ahmed 03459192533


TOGETHER
بلا جہت زندگی
نیشنل ٹی بی کنٹرول پروگرام
ٹی بی ایک خطرناک
لیکن
قابل علاج مرض ہے۔
اگر آپ یا آپ کے آس پاس کسی بھی شخص میں
دو ہفتے سے زیادہ یا غیر معینہ مدت کی کھانسی
کے ساتھ
بلغم میں خون آنا
بھوک نہ لگنا
وزن میں کمی
ہلکا بخار رہنا
رات کو سوتے ہوئے پسینہ آنا
میں سے کوئی ایک یا زیادہ علامات ظاہر ہوں تو قریبی سرکاری مرکز صحت یا منتخب پرائیویٹ کلینک سے بلغم کا مفت
معائنہ کروائیں اور ٹی بی تشخیص ہونے کی صورت میں مفت ادویات حاصل کر کے 6 ماہ تک مسلسل علاج یقینی بنائیں
بلغم کے مفت معائنہ اور علاج کی معلومات کیلئے ابھی اس فارمیسی/میڈیکل اسٹور کے سٹاف سے رجوع کریں
یہ پیغام نیشنل ٹی بی کنٹرول پروگرام کے پراجیکٹ "پاکستان میں ٹی بی کی روک تھام اور علاج میں پرائیویٹ فارمیسیوں کی شمولیت" کی طرف سے ہے
معاون ادارے:
DEVNET
USAID
FROM THE AMERICAN PEOPLE
SIAPS
Systems for Improved Access
to Pharmaceuticals and Services


اور جس نے ایک انسان کی جان بچائی گویا اس نے تمام انسانیت کی جان بچائی۔ (القرآن۔5:32)
ٹوگیدر
فیشنل ٹی بی کنٹرول پروگرام
ٹی بی کے ممکنہ مریض کا بروقت ریفرل
اس خطرناک مرض کو کنٹرول کرنے میں مددگار ہوسکتا ہے
آیئے اس کارِ خیر میں آپ بھی شامل ہوں
۱۔ جو بھی شخص کھانسی کی دوا خریدنے کیلئے آئے اس سے مریض کی کھانسی کی مدت اور ٹی بی کی دیگر علامات کے بارے میں دریافت کریں۔
۲۔ اگر دو ہفتے سے زیادہ یا غیر معینہ مدت کی کھانسی کے ساتھ
i۔ بلغم میں خون ii۔ رات کو ہلکا بخار اور پسینہ iii۔ بھوک کا نہ لگنا اور وزن میں کمی
میں سے کوئی ایک یا زیادہ علامات ہوں تو ایسے مریض کو بلغم کا ٹیسٹ کروانے کا مشورہ دیں اور ریفرل فارم بھر کر قریبی ٹی بی مرکز بھیجیں۔
۳۔ فارم بھرنے کیلئے مہیا کی گئی ڈاکٹروں اور ہسپتالوں کے ناموں اور رابطہ نمبروں کی ڈائریکٹری سے مدد لیں۔
اگر کاؤنٹر پر رش ہو تو اپنے کسی ساتھی کو کہیں کہ وہ مریض کو ریفرل فارم پُر کر کے دے۔ مریض کا نام اور رابطے کا نمبر ضرور درج کرے۔
یہ پیغام نیشنل ٹی بی کنٹرول پروگرام کے پراجیکٹ "پاکستان میں ٹی بی کی مدد کے تمام ادارہ جات میں پرائیویٹ شعبہ خدمات کی شمولیت" کی طرف سے ہے
معاون ادارے:
USAID FROM THE AMERICAN PEOPLE
SIAPS Systems for Improved Access to Pharmaceuticals and Services


ٹی بی کے علاج کے متعلق چند ضروری ہدایات
ٹی بی 100% قابل علاج ہے۔
علاج کا عمومی دورانیہ 8 ماہ ہے۔
دوا ہمیشہ ڈاکٹر کی تجویز کردہ مقدار کے مطابق استعمال کریں۔
دوا ہمیشہ مفت مہیا کی جاتی ہے۔
دوا کسی ذمہ دار فرد کی نگرانی میں استعمال کریں۔
معائنے کے لئے باقاعدگی سے ڈاکٹر کے پاس جائیں۔
ڈاکٹر کی ہدایت کے بغیر علاج ہرگز نہ چھوڑیں۔
یاد رکھیے!
دورانِ علاج ڈاکٹر کے مشورے کے بغیر دوا چھوڑنے سے ٹی بی کا مریض "مزاحمتی ٹی بی" کا شکار ہو سکتا ہے جو ٹی بی کی خطرناک ترین شکل ہے۔
مریض کے مکمل صحت یاب ہونے کا یقین کرنے کے لئے اپنی ضروری ہے۔ دورانِ علاج سپرٹیل کی جانب سے فراہم کردہ ٹیسٹ کی جانچ کرواتے رہیں۔
علاج کے دوران ماں بننے کا ارادہ ہو سکتا ہے۔
ٹی بی کی مفت تشخیص اور علاج کے لیے اس نشان کو یاد رکھیں
ٹی بی کی مکمل معلومات سے ٹی بی کا مکمل خاتمہ
معاون ادارے:
USAID
SIAPS
Systems for Improved Access to Pharmaceuticals and Services
ٹی بی کے علاج کے دوران ہونے والی جزوقتی تبدیلیاں


ٹی بی کا مرض کیا ہے؟
ٹی بی کا مرض کیسے پھیلتا ہے؟
ٹی بی کو پھیلنے سے کیسے روکا جا سکتا ہے؟
مرض کی ابتدائی علامات کیا ہیں؟
مسلسل دو ہفتے یا اس سے زائد کھانسی
بلغم یا بلغم میں خون آنا
رات کو پسینہ آنا اور بخار ہونا
بھوک کا نہ لگنا اور وزن میں کمی
ٹی بی کے مفت علاج کی سہولیات کہاں دستیاب ہیں؟
ٹی بی کی تشخیص اور علاج کا طریقہ کار:
ٹی بی کی علامات ظاہر ہونے کی صورت میں اپنے قریبی سرکاری مرکز صحت یا منتخب پرائیویٹ لیبارٹری سے بلغم کا مفت معائنہ کروائیں۔ اگر ٹی بی کا مرض ہو جانے تو گھبرانے کی ضرورت نہیں۔ عالمی ادارہ صحت کے متعارف کردہ ڈاٹس (DOTS) کے ذریعے مسلسل علاج سے ٹی بی کے مکمل طور پر صحت یابی ممکن ہے۔
ٹی بی کی مفت دوائیں کہاں سے حاصل کی جا سکتی ہیں؟
ڈاٹس (DOTS) یا زیرِ نگرانی طریقہ علاج کیا ہے؟

REFERRAL SLIP

(private pharmacies referring clients with TB presumptive symptoms)
(Please fill in all information in triplicate)

No. _____

Client Copy

Date of Referral: D D M M Y Y Y Y

Referred by (Name of Pharmacy): _____

To (BMU/Clinic Name & Address): _____ ☐ Govt ☐ Private

Name of the contact person at BMU/Clinic: _____ Phone # of contact person: _____

Name of client referred: _____ Father's / Husband's Name: _____

CNIC # _____ - _____ - _____ Sex: ☐ Male ☐ Female

Patient's Address:

House No. _____ Street No. _____ Sector / Mohalla: _____

City / Village: _____ Tehsil: _____ District: _____

Phone No. (Land line): _____ (Mobile): _____

Symptoms: ☐ Cough (2 weeks) ☐ Blood stained sputum ☐ Fever usually at night ☐ Night Sweats ☐ Weight Loss

☐ Poor appetite ☐ Others (if any) _____

CERTIFICATE

This is to certify that

M/S. _____

is an approved outlet for referring TB presumptive cases to approved diagnostic and treatment facilities.

_____

National/Provincial TB Control Program Manager

USAID

SIAPS

Systems for Improved Access to Pharmaceuticals and Services