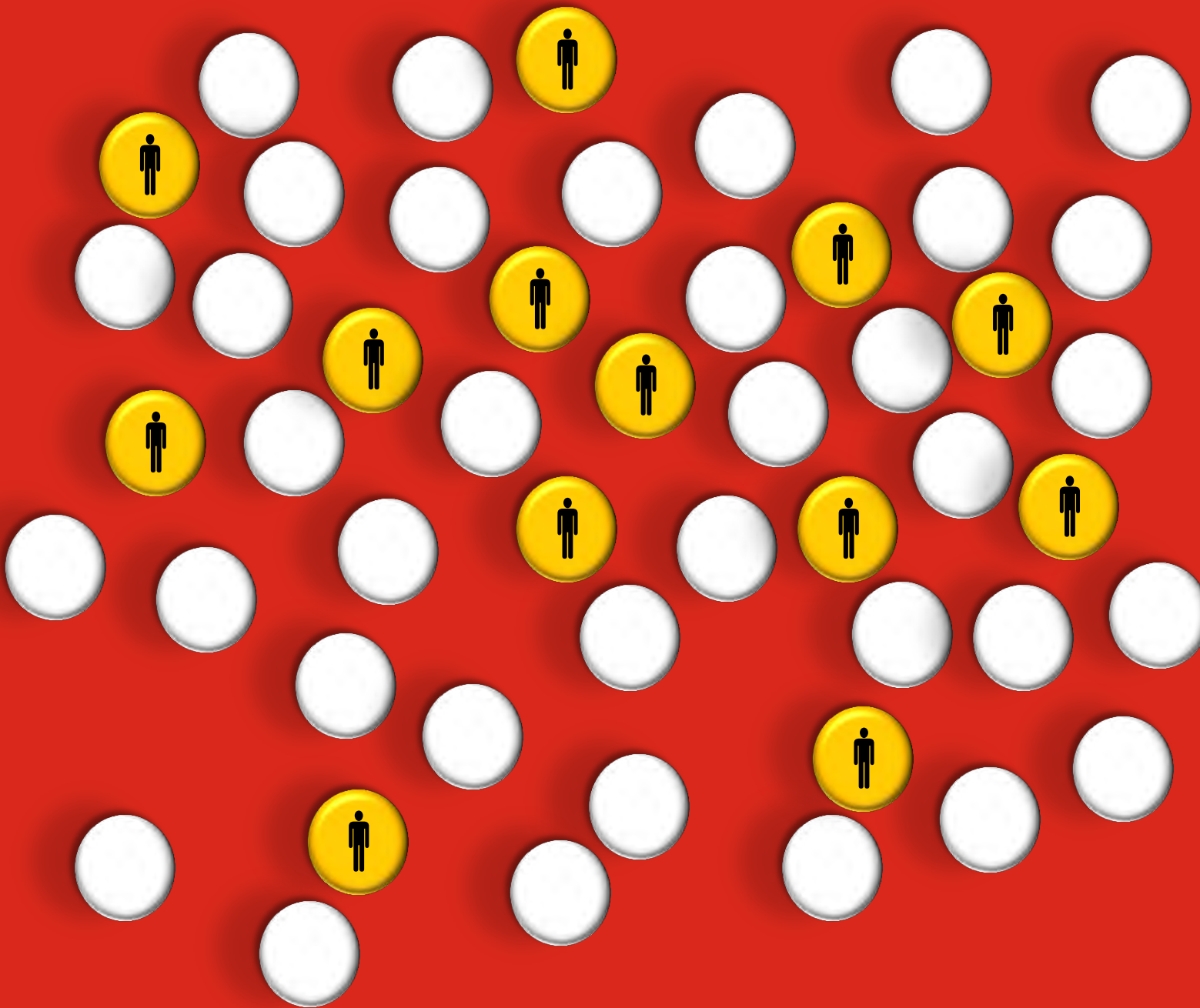




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**Market-based  
Partnerships for Health**



## **Tuberculosis Control and Care Initiative A Baseline Survey Report**

**On Knowledge and Reported Behavior of Chest Symptomatics and Private  
Healthcare Providers Relevant to Urban Slum Populations in Uttar  
Pradesh and Karnataka**



# Tuberculosis Control and Care Initiative

## A Baseline Survey Report

On Knowledge and Reported Behavior of Chest Symptomatics and Private Healthcare Providers Relevant to Urban Slum Populations in Uttar Pradesh and Karnataka

February 2012



### **Disclaimer**

*This report is made possible by the support of the American people through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of Abt Associates and do not necessarily reflect the views of USAID or the United States Government.*



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All the information presented in this report comes from the research efforts of the teams at SRI-IMRB led by Mr. A. V. Surya and ably supported by Mr. Soumya Sinha and Mr. Ashutosh Awasthi. The MBPH team at Abt thanks them for their hard work towards collecting and analyzing the data. The project owes a large debt of gratitude to the numerous individuals who have participated in the baseline studies. By responding to the quantitative study questionnaires they have provided us with valuable information for both improving the design of the pilot and assessing its impact.

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**MBPH Team**  
**Abt Associates**

## Acronyms

ACSM	- Advocacy Communication and Social Mobilization
AFB	- Acid Fast Bacilli
AYUSH	- Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy
BOP/BoP	- Base-of-the-Pyramid or Base of Pyramid
CDR	- Case Detection Rate
CS	- Chest Symptomatic/s
CT	- Computerized Tomography
DOT	- Directly Observed Treatment
DOTS	- Directly Observed Treatment, Short-course chemotherapy
IMRB	- Indian Market Research Bureau
ISMH/ISM&H	- Indian Systems of Medicine and Homoeopathy
ISTC	- International Standards of TB Care
JMM	- Joint Monitoring Mission
KA	- Karnataka
KAP	- Knowledge, attitude and practice
KHPT	- Karnataka Health Promotion Trust
LoP	- Life of Project
LTFQ	- Less Than Fully Qualified
MBBS	- Bachelor of Medicine and Bachelor of Surgery
MBP	- Market-based Partnerships
MBPH	- Market-based Partnerships for Health
MD	- Doctor of Medicine
MIS	- Management Information System
MS	- Master of Surgery
MSPL	- Medica Synergie Private Limited
NSP	- New Sputum Positive
NTP	- National TB Control Program
pHCP	- Private Healthcare Providers
PMP	- Performance Monitoring Plan
PPM	- Public-Private Mix
PPP	- Private-Public Partnership

PPS	- Probability Proportion to Size
PSI	- Population Services International
PSU	- Primary Sampling Unit
pTB	- Pulmonary Tuberculosis
QC	- Quality Control
RNTCP	- Revised National Tuberculosis Control Program
TB	- Tuberculosis
UP	- Uttar Pradesh
USAID	- United States Agency for International Development
WHO	- World Health Organization

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## Market-based Partnerships for Health

In recent years, the expression 'Private-Public Partnership' (PPP) has come into frequent use in global health circles. There is growing recognition that the private commercial sector can, and should, make a greater contribution to improving health systems and outcomes.

A market-based partnership (MBP) for health is one kind of PPP. It is a formal collaboration between the public sector at different levels and the non-public health sector, both commercial and non-profit, to jointly regulate, finance or implement the delivery of health services, products, equipment, research, communications or education. In contrast to some partnerships that are charity, or subsidy, based models, MBPs leverage the revenue generating mechanisms of the private sector. These include distribution mechanisms, marketing and promotion, and product development, to deliver public health goods, services and information to Base-of-the-Pyramid (BoP) populations and in underserved markets.

Well-designed MBPs can generate demand, increase access and enhance the quality of healthcare services and products for important health needs. The ideal MBP for health is commercially viable, improves the health status of lower income groups and requires limited public sector investment for a defined period of time.

Compared to consumers in most other parts of the world, Indian consumers spend a higher proportion of their own money for healthcare in the private sector. This may be due to several factors, including, consumer preferences or to the limitations of the public health sector. Neither the private (including non-profit) nor the public sector alone can address, in entirety, the growing healthcare demands of the Indian population. Resource, manpower, regulatory, capacity and other constraints and factors limit, to varying degrees, all sectors. Partnership of the public sector with the private sector has emerged as an effective, new, strategy to address healthcare needs and it is important that this strategy serve consumer requirements while ensuring that products and services are made available, affordable and accessible.

Funded by United States Agency for International Development (USAID), the Market-based Partnerships for Health (MBPH) project seeks to forge commercially sustainable partnerships with the private sector to improve the health of BoP populations. The project covers a range of public health areas, including reproductive health, family planning, maternal and child health, hygiene, safe drinking water, indoor air pollution and tuberculosis. The focus states of the project are Uttar Pradesh, Uttarakhand, Jharkhand and Karnataka.

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## Foreword

Tuberculosis (TB) affects everyone in India; it takes its toll on the rich and poor, on young and working adults, and results in enormous economic and social losses. By improving access to Directly Observed Treatment, Short-course chemotherapy (DOTS), to cover the whole country and through achieving the national objectives of curing 85 percent of all new smear-positive (NSP) TB patients and detecting over 70 percent of them, India has done well to rapidly expand the Revised National Tuberculosis Control Program (RNTCP) to the benefit of its huge population. However, in spite of these efforts, the burden of TB in India continues to remain high with about two million new patients and three hundred thousand deaths occurring each year. Delay in the diagnosis and initiation of treatment and the use of non-standard diagnosis and treatment protocols by healthcare providers remain huge challenges that lead to non-compliance by patients resulting in greater morbidity and cost, with higher risk of mortality and drug resistance.

The objectives of the Stop-TB strategy, including achieving universal access, can only be fulfilled in India by systematically engaging the dominant private healthcare sector which is preferred by the majority of health seekers in the country and by scaling up improved diagnostics, social mobilization and demand creation for DOTS.

The vision of private participation in TB control and care, under the USAID-funded MBPH project, is that private healthcare providers are empowered and motivated to practice evidence-based TB management that would ensure the best outcomes for their patients and contribute to TB control in India. The objectives of the MBPH-TB program are to increase consumer demand for DOTS, strengthen the private healthcare provider sector for delivery of RNTCP through the creation of networks of accredited private providers, improve access to high-quality TB management services through third-party facilitation (Interface) and document findings and lessons learnt from service delivery patterns of private healthcare providers and health-seeking behaviors of consumers. To help attain this vision and to reach its objectives, MBPH has designed and implemented initiatives to improve public health indicators for BoP populations in the tuberculosis control space through gainful engagement of private healthcare providers endorsing national and international standards of TB care (ISTC).

This TB program addresses implementation gaps, assists in reducing diagnostic and treatment delays and contributes to universal case detection. MBPH hopes to contribute to reducing the TB burden through the application of lessons learnt and by finding solutions to at least some of the key challenges facing tuberculosis control in the country.

Oommen George

Deputy Chief of Party and Tuberculosis Specialist, MBPH Project

Abt Associates



## Executive Summary

### Introduction

Implemented by the USAID-funded, Market-based Partnerships for Health (MBPH) project, the tuberculosis (TB) control and care initiative is aimed at (i) increasing demand for Directly Observed Treatment, Short-course (DOTS) protocols for the management of TB, (ii) creating and building capacity of private health care providers (pHCP), (iii) providing intra- and inter-sectorial interfaces between pHCP and the public sector and between pHCP and people suspected to have or having TB, and (iv) contributing to the achievement of critical Revised National Tuberculosis Control Program (RNTCP) qualitative and quantitative outcomes.

To enable effective participation as well as to ensure project monitoring and quality assurance, the program focus is on developing a network of pHCP who adopt the key components of the international standards of TB care (ISTC). The network engages a wide spectrum of private medical practitioners including doctors of modern medicine (allopaths) and others, including chemists (non-allopaths).

The program is being implemented in slums of Uttar Pradesh (UP) and Karnataka. In UP, the seven program districts are Ghaziabad, Bulandshahar, Aligarh, Etah, Gautam Budh Nagar, Mathura and Hathras. In Karnataka, the thirteen program districts are, Bagalkot, Belgaum, Bellary, Chamarajnagar, Chitradurga, Davangere, Dharwad, Gulbarga, Yadagiri, Kodagu, Koppal, Shimoga and Udupi.

The need for a comprehensive baseline study was envisaged to aid the development of the capacity building and communication strategies for program implementation, to bridge key knowledge gaps pertaining to TB prevention and management, and to enable evaluation of program performance over time.

### Research objectives

1. To establish baseline values of performance indicators around knowledge, attitude and behavior of chest symptomatic (CS) and private providers relating to health seeking and TB management
2. To establish an evidence base for prioritizing target population segments and key determinants for the adoption of desired behavior among CS and private providers

### Study population and desired behavior

The baseline study was conducted among CS and private providers. CS covered under the study were defined as *'adults in the age group of 18 years or above, residing in slums in the project area, reported to have had persistent cough for two weeks or more, in the three months preceding the date of survey'*.

Among pHCP, catering to the selected slum areas, the study included:

- Practitioners of modern medicine<sup>1</sup> (private allopaths)
- Practitioners of Indian systems of medicine and homeopathy (ISMH<sup>2</sup>)
- Unqualified or less-than-fully-qualified practitioners (LTFQ<sup>3</sup>).

The desired behavior for CS, as promoted by the program, is that they should seek medical care from providers who are qualified to make a diagnosis when managing a patient suffering from persistent cough of two weeks or more and be able to categorize and prescribe internationally recommended anti-TB medicines when managing a patient diagnosed to have TB. Similarly, providers should recommend sputum microscopy for all CS and refer them to healthcare providers/centers that use the DOTS strategy to manage TB. The additional desired behavior for private allopaths is that they themselves practice DOTS and adopt ISTC for managing (diagnosis and treatment) TB suspects and patients.

## Study Area

The MBPH project area comprises of seven districts in UP and 13 districts in Karnataka. Of these, two districts in UP (Etah and Ghaziabad) and four districts in Karnataka (Kodagu, Gulbarga, Udupi and Chitradurga) were selected for the baseline study. These districts were selected based on new smear positive (NSP) Case Detection Rate (CDR) reported in 2008 and geographical dispersion.

## Methodology

In November and December 2010, Abt Associates commissioned Indian Market Research Bureau (IMRB), an international market research agency with extensive experience in social research, to carry out a survey among CS and pHCP catering to urban, intervention slum populations. A total of 1,515 CS and 888 providers, including 266 allopaths, 331 ISMH, 291 LTFQ were interviewed in UP. In Karnataka, a total of 1,526 CS and 520 providers, including 255 allopaths, 193 ISMH and 72 LTFQ were covered.

The total sample sizes of CS and pHCP were proportionally distributed to the project districts and towns. A three-stage sampling methodology was adopted for the selection of CS. All providers catering to the selected intervention slum population were listed and the required number of providers was selected using systematic simple random sampling for the survey.

The sample data was weighted and then analyzed using bi-variate and multi-variate techniques (binary logistic regression) and the key findings are presented in multiple ways including percent, adjusted proportion, mean scores and odds ratio.

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<sup>1</sup> To consist mainly of general practitioners, family physicians, chest physicians and other allopathic providers diagnosing and treating TB patients.

<sup>2</sup> ISMH providers are those who are qualified to practice the medical systems of Ayurveda, Siddha, Unani and Homoeopathy, and therapies such as Yoga and Naturopathy (AYUSH).

<sup>3</sup> LTFQ are present in large numbers in low socio-economic urban and rural communities. Some LTFQ are known as RMP (Registered Medical Practitioner). LTFQ are generally accepted by the communities they serve and are often the first point of contact for urban and rural BoP populations; most practice modern as well as alternative medicine and many run their practices illegally.



## Key findings and Recommendations

The key findings from the survey and specific recommendations for program implementation are summarized below and presented separately for Uttar Pradesh and Karnataka.

### A *Uttar Pradesh:*

#### ***Key findings from survey among CS***

In UP, the majority (75 percent) of CS visited a provider as a first action when they noticed persistent cough of two weeks. The remaining either resorted to self-medication or did nothing. Most CS, who visited a providers, visited a qualified<sup>4</sup> provider (79 percent).

Majority of CS reported that blood tests (66 percent) and X-rays (57 percent) were recommended by qualified private providers with only 16 percent reporting the recommendation of sputum test (microscopy). Most CS followed provider advice on tests and treatment and did so within two days of the advice being given (86 percent).

Very few CS reported that they had seen the RNTCP logo (39 percent) and of them, the majority did not know what it stood for (65 percent).

The key determinants of desired CS behavior was ‘suspicion of suffering from TB when first noticed persistent cough’ as this had a strong association with the desired behavior and greater scope for change. The data shows that male CS, those who belonged to lower socio-economic strata and those that had two or less adults in the household were less likely to visit a qualified provider.

#### ***Key findings from survey among private providers***

Knowledge of the steps to be followed under the DOTS strategy was poor among allopaths and LTFQ. While 48 percent of allopaths reported having recommended sputum test (microscopy) to patients presenting with persistent cough, 21 percent of allopaths reported having referred patients with TB to DOTS. Among LTFQ, 21 percent reported referring patients with persistent cough to government providers or DOTS centers.

Knowledge that DOTS treatment should be initiated as appropriate emerged as a key determinant for referring CS for sputum test and TB patients to DOTS among qualified provider (allopaths) based on stronger positive association with the desired behavior and greater scope for change as compared to other factors.

Among LTFQ, the key determinant for DOTS referral was the belief that referring patients to another provider does not raise a question about his competency as a health provider.

#### ***Recommendations***

Based on the above findings, the following recommendations are proposed by the research team for program implementation in UP:

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<sup>4</sup> Practitioners of modern medicine (allopaths)

- The program should focus resources on improving provider knowledge and changing provider behavior:
  - Emphasize the need and motivate allopath practitioners to inculcate the value of sputum test for diagnosis of TB
  - Reassure LTFQ that referring CS enhances their image in community and explore the feasibility of giving incentives to LTFQ for referring CS
- Communication activities should focus on targeting CS who do not visit qualified providers as first action to increase treatment seeking behavior
- Communication messages should emphasize risk-recognition, i.e. recognize that a person suffering from persistent cough of two weeks or more may be suffering from TB.

## **B Karnataka**

### ***Key findings from survey among CS***

In Karnataka, the majority (58 percent) of CS visited a provider as a first action when they noticed persistent cough of two weeks. However, large proportions of CS also reported to have done nothing (18 percent) or self-medicated (24 percent).

Among those who visited a provider, 99 percent reported going to a qualified provider as a first action; 55 percent visited private qualified providers and 44 percent, public qualified providers.

The majority of CS reported that blood tests (52 percent) and X-rays (78 percent) were recommended by qualified private providers and only 48 percent reported the recommendation of sputum test (microscopy). Most of CS followed provider recommendation on tests and treatment within two days (79 percent).

Few CS reported that they had seen the RNTCP logo (25 percent) and of them, the majority did not know what it stood for (77 percent).

The key determinants of desired CS behavior were perceived 'quality of care' and 'knowledge that one can confirm TB through sputum test'. The data shows that the CS who belonged to households which have two or less adults and male CS were less likely to visit a qualified provider.

### ***Key findings from survey among private providers***

Knowledge of the steps to be followed under the DOTS strategy was poor among allopaths and LTFQ. In addition, 41 percent of allopaths reported recommending sputum test (microscopy) to patients presenting with persistent cough and the same proportion reported referring patients with TB to DOTS.

The key determinants of referring patients for sputum test by allopaths were 'knowledge that DOTS treatment should be initiated as appropriate' and 'knowledge that patients should be referred to appropriate allopathic practitioners for diagnosis'. In addition, the key determinant of referring TB patients to DOTS, among allopaths, was 'knowledge about determining the client's preference for DOT provider'.

### **Recommendations**

Based on the above findings, the following recommendations are proposed by the research team for program implementation in Karnataka:

- The program should focus resources on improving provider knowledge concerning DOTS and changing provider behavior:
  - Allopaths should be encouraged and motivated to inculcate the value of sputum microscopy for diagnosis of TB
- To improve health-seeking behavior, communication activities should focus on targeting CS who did not visit qualified providers as first action
- Communication messages should emphasize improving perceived quality of care and knowledge of sputum test as a test for diagnosis of TB sputum test.



## Chapter I: Introduction

### About the MBPH Project

Funded by USAID and implemented by Abt Associates, the MBPH project is an initiative aimed at successfully fostering private sector partnerships and strategies for creating sustainable solutions for India's public health challenges. The project is intended to nurture and demonstrate sustainable models that can be taken to scale. It provides technical assistance to address a wide range of health issues in the areas of Family Planning, Reproductive Health, Maternal and Child Survival, Water, Hygiene Promotion, Hand Washing, Indoor Air Pollution and TB.

The TB Control and Care initiative under MBPH is mandated to increase the involvement of private healthcare providers in the RNTCP using the DOTS strategy. The objective is to identify opportunities, determine feasibility, design the model and demonstrate it to obtain proof of concept and hand the model over to RNTCP for further scale up.

### About TB and the DOTS Strategy

India is the highest TB-burden country, accounting for about one fifth of the global incidence (estimated at 9.4 million cases globally and 1.98 million cases in India). India is 17th among 22 High Burden Countries in terms of TB incidence<sup>5</sup>.

RNTCP, India's national TB control program (NTP), is based on the implementation of the World Health Organization (WHO) recommended, DOTS strategy. Begun as a pilot in 1993, it was launched as a national program in 1997, covering the entire country by March 2006.

The goal of NTP is to decrease the mortality and morbidity due to TB and to cut the transmission of infection until TB ceases to be a major public health problem. This goal is intended to be achieved through two objectives:

- To achieve and maintain a cure rate of at least 85 percent among New Sputum Positive (NSP) TB patients, and
- To achieve and maintain case detection of at least 70 percent of the estimated NSP cases in the community

### MBPH-TB Control and Care Initiative

A scan of the TB control, treatment and care environment in India carried out by MBPH and the 2009 Joint Monitoring Mission (JMM) recommendations highlight the need for a PPM that interlinks various private sector elements, so as to improve the quality of care and treatment outcome for TB patients, thereby contributing to TB control in India.

Therefore, the felt need was to carry out a PPM-DOTS initiative that:

- Is comprehensive

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<sup>5</sup> TB India 2011, RNTCP, Annual Status Report

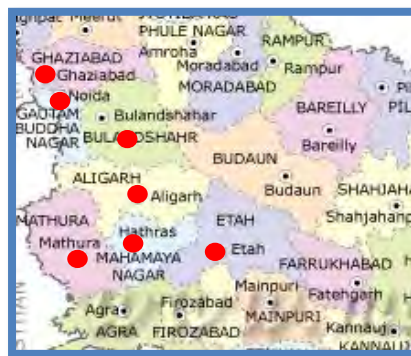
- Generates demand for DOTS services
- Creates and builds the technical capacity of pHCP, and
- Provides intra- and inter-sectorial interfaces between pHCP and the public sector, between pHCP and CS/TB patients to achieve the critical RNTCP qualitative and quantitative outcomes.

The MBPH-TB Control and Care Initiative will conceptualize a framework that addresses all these concerns.

## Project Geography

The project areas in UP comprised of urban slums in seven districts, namely, Ghaziabad, Bulandshahar, Aligarh, Etah, Gautam Budh Nagar, Mathura and Hathras (Figure 1.1).

**Figure 1.1: MBPH-TB program intervention districts in Uttar Pradesh**



In Karnataka, the project works in thirteen districts (the original number was twelve, however Yadagiri district was later carved out from Gulbarga). These are listed and shown in Figure 1.2.

**Figure 1.2: MBPH-TB program intervention districts in Karnataka**



### Karnataka

Total Population in 12 Districts – 231 L

Urban – 59 L; SEC C&D – 29L

1. Bagalkot
2. Belgaum
3. Bellary
4. Chamarajanagar
5. Chitradurga
6. Davangere
7. Dharwad
8. Gulbarga (+Yadagiri)
9. Kodagu
10. Koppal
11. Shimoga
12. Udupi

The need for a comprehensive baseline study was envisaged to aid the development of the capacity building and communication strategies for program implementation, to bridge key knowledge gaps pertaining to TB prevention and management, and to enable evaluation of the program performance over time.

### **About this Report**

Chapter 2 provides the study objectives and methodology of the two studies. Chapters 3 and 4 of this report present the findings from the two surveys among CS and private providers carried out in UP. The next two chapters, 5 and 6 present findings from similar surveys conducted in Karnataka.



## Chapter 2: Study Objectives and Methodology

### Survey among Chest Symptomatic

#### Survey Objectives

The survey focused on providing insights on questions arising from the following issues:

1. Establishing baseline values for performance indicators around knowledge, attitudes and behavior of CS pertaining to TB.

*MBPH expects that the knowledge, attitudes and reported behaviors of the target populations will change as a result of the interventions being implemented and promoted by the program.*

2. Establishment of evidence base for prioritizing target population segments.

*It is important for program and communication activities to focus on segments of the target population that are most at risk and most likely to adopt the desired behavior/s.*

3. Identification and prioritizing key determinants to the adoption of desired behaviors.

*Potential target populations do not adopt desired practices, even though they reflect the desired attitudes, due to a variety of reasons. An in-depth understanding of these reasons or barriers to behavior change will help the MBPH project design effective and comprehensive behavior change strategies and activities. Further, the findings of this study will help with key management decisions regarding prioritization of activities that address effective management of resources.*

#### Survey Group

The respondents for the study were identified as ‘adults in the age group of 18 years or above, residing in slums in the project area, reported as having a persistent cough for two weeks or more, in the three months preceding the date of survey’.

#### Study Area

Two districts in UP and four districts in Karnataka state were selected for the baseline study based on NSP-CDR reported in 2008 and on geographical dispersion.

In UP, the project districts were divided into two strata. The first stratum represented NSP-CDR of 106 percent to 100 percent. Ghaziabad and Gautam Nagar fall into this stratum. Ghaziabad was selected from the first strata as the population of Ghaziabad is more than that of Gautam Nagar. The second stratum had NSP-CDR of 81 percent to 73 percent. The second stratum included the remaining five project districts; Mathura, Bulandshahar, Etah, Hathras and Aligarh. In these five districts, eleven towns were selected for program

implementation based on size (population of 50,000 and above). Of the eleven towns, the median population town was selected for the baseline study, i.e. Etah. .

In Karnataka, the project districts were divided into three strata based on NSP-CDR. The first stratum had NSP-CDR of less than 40 percent. Only Kodagu falls under this stratum and was included in the study. The second stratum represented NSP-CDR of 40 percent to 70 percent. Eight project districts fell under the second stratum, of which five districts fell in north Karnataka (Gulbarga, Belgaum, Dharwad, Bagalkot and Bellary) and three districts fell in south Karnataka (Udupi, Shimoga and Davanagere). Gulbarga was selected to represent the north and Udupi to represent the south from the second stratum. The third stratum had NSP-CDR of more than 70 percent with three project districts (Chitradurga, Chamrajnagar and Koppal). The median population district, Chitradurga was selected for the study.

### Sample Size and Design

Table 2.1 shows the sample size for each state. Overall, a sample size of 1500 CS for each state was determined on the basis of the following considerations:

- A change of 5 percent was assumed during the intervention period at 95 percent confidence and 80 percent power
- Baseline value assumed to be 25 percent
- Design effect considered to be 1.5

**Table 2.1: Sample parameters and numbers for UP and Karnataka**

Parameters	Total Proposed (Each State)	Total Achieved (UP)	Total Achieved (Karnataka)
Number of respondents who reported persistent cough	1,500	1,526	1,515

### Methodology Employed for Sample Selection

The total sample size was proportionally distributed to the project districts and towns. A three-stage sampling methodology was adopted for the selection of eligible respondents. In the first stage, project slums were selected using probability proportion to size (PPS) from the project towns in each district. The primary sampling unit (PSU) was the selected slum. In the next stage, selected slums were divided into natural segments and 20 percent of the natural segments were selected using systematic random sampling from each PSU. In the final stage, every household of the selected segment was screened and selected if there was a CS present in the household.

In UP, all the 18 project slums in Ghaziabad and Etah were included in the study. In Karnataka, 79 slums were selected; 60 slums from Gulbarga, 12 slums from Chitradurga, 2 slums from Kodagu and 5 slums from Udupi. Within each PSU, a total of 10-20 eligible respondents, based on the population size of the selected slum, were surveyed. The sample selection process in selected PSUs is discussed below:

- The selected slum was divided into natural segments of 150-200 households. A total of 20 percent of segments were selected using systematic random sampling.



- A complete household listing was carried out in each selected segment to identify households with at least one eligible respondent (CS). The listing exercise provided the necessary framework to select eligible respondents.
- From each segment, 10-20 eligible respondents were covered.
- In the selected households with more than one eligible respondent, a respondent was randomly selected using the Kish table method. In case an eligible respondent was not available at the time of listing, follow-on visit to the same households were conducted for interviewing selected respondents (a maximum of three revisits were made).

Male interviewers interviewed male respondents, while female interviewers interviewed female respondents.

## Survey among Private Healthcare Providers

### Survey Objectives

The survey focused on the providing insights to the following questions:

1. To establish baseline values of performance indicators around knowledge of DOTS protocols and behavior pertaining to recommending sputum test (microscopy) to CS and advising DOTS to TB patients.
2. To identify and prioritize key barriers for the adoption of desired behavior among private providers.

### Survey Group

All pHCP catering to the selected slum areas were included in the study. Specific pHCP covered under the study were:

- Private practitioners of modern medicine ( private allopaths)
- Practitioners of Indian systems of medicine and homeopathy (ISMH)
- Unqualified or less-than-fully-qualified practitioners (LTFQ).

### Study Area

The study area for the provider survey is the same as covered under the consumer study. The study areas comprised of two districts, namely Etah and Ghaziabad, in UP and four districts, namely Kodagu, Udupi, Chitradurga and Gulbarga, in Karnataka state.

### Sample Size and Design

The main assumptions and considerations in sample size calculation were:

- A change of 10 percent was assumed during the intervention period at 95 percent confidence and 80 percent power
- The baseline value was assumed to be 5 percent
- The design effect was considered to be 1.5

A total of 888 healthcare providers were interviewed in UP and 520 providers were interviewed in Karnataka. Distribution by provider type in each of the two states is shown in Table 2.2 below:

**Table 2.2: Types of Private Healthcare Providers Interviewed**

Details	Total Achieved (UP)	Total Achieved (Karnataka)
Allopath	266	255
ISMH	331	193
LTFQ	291	72
<b>Total</b>	<b>888</b>	<b>520</b>

The total sample size for providers was proportionally distributed to the size of project slums in each of the project towns. All providers catering to selected intervention slum populations were listed. Information about the providers catering to project slums was collected from key informants such as chemists and key stakeholder of the slums. Appointments were taken from each of the selected providers. In case a provider was not available at the time of listing, a follow-on visit to the same provider was scheduled for interviewing. A maximum of three re-visits were attempted for completing an interview with a provider.

## Survey Instrument

A pre-coded structured interview protocol was designed for a face-to-face interview in a private setting, where the interviewer would code responses given by the respondent. In addition, multi-items with Likert scales responses were used to measure the CS and providers' knowledge, attitude and beliefs on TB. The questionnaire was translated to the local languages, namely Hindi and Kannada, and pre-tested before finalization. Responses to open-ended questions were translated and coded appropriately.

## Data Management (Collection, QC, Entry and Verification)

A well trained and experienced field team from IMRB conducted face to face interviews in a private setting with appropriate data quality checks. The field supervisors carried out back-checks, accompaniment and spot checks for the listing and interviews to ensure quality of data and proper adherence to the processes. Visits were made by the executive in charge in their respective states to monitor the quality of the field work.

All filled questionnaires were scrutinized by the field supervisor and editor before data entry. The process of double data entry was followed on the basis of which error logs were generated. The discrepancies in the data entered were manually verified with the questionnaires. In order to minimize the errors at the time of entry, a test data consisting of 10 percent of the records was first checked for consistency, routing and logical checks by the analyst. All the inconsistencies noted at this point were communicated to the data entry team.

Data received in SPSS format for analysis was checked for consistency by analyzing the data and identifying the doubtful cases based on the understanding of the research tools and project objectives. These cases were manually verified and corrected by referring to the actual filled tools. The cases which could not be resolved by referring to the filled up tools were sent back to the field office for reconfirmation through revisit to the respondent. The information received from the field office was then entered into the dataset. In case of consistency errors related to the logical filter checks, the syntax in the cleaning program was rechecked and the whole data was rerun to get clean error-free data.

## Statistical Analysis

The sample data was weighted and then analyzed using bi-variate and multi-variate techniques (binary logistic regression). A multivariate technique (binary logistic regression) was used to control for socio-demographic characteristics of respondents and providers and identify triggers and barriers for desired behavior. The results of multivariate analyses are presented as odds ratios, adjusted proportion and mean scores with statistical significance level defined as p-value less than or equal to 0.05 in this report.

## Ethics Approval

The study was approved by the Institutional Ethics Committee of Abt Associates. Respondents were informed in their mother-tongue about the purpose of the study and assured of confidentiality of data and their right to withdraw from the study at any time.

## Limitations of the Study

The limitations of our study are i) possible interviewer bias and recall-bias on the part of respondents, with regard to the type of symptoms, care-seeking and type of health providers consulted ii) possible misclassification of type of providers visited by the CS and iii) possible applicability of study findings only to slum areas with similar socio-demographic characteristics.



## Chapter 3: Findings from the Survey among Chest Symptomatics in Uttar Pradesh

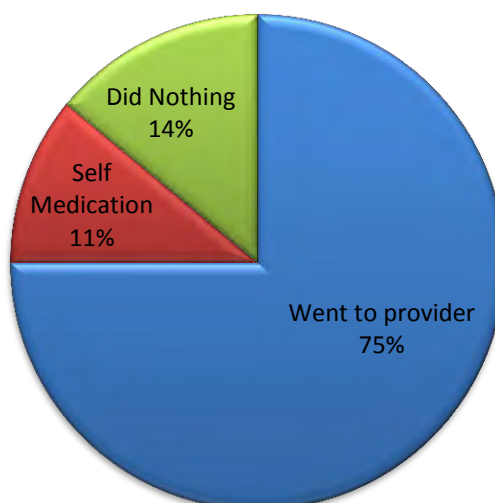
In UP, a total of 1,526 CS were interviewed in the two study districts of Etah and Ghaziabad. The sections below present findings relating to the actions taken by CS and the type of providers visited by them and provide insights on the composition of private providers in the MBPH network.

### First Action taken by CS on Noticing Persistent Cough for 2 Weeks

CS were asked about the action taken when they first noticed that they were suffering from persistent cough for two weeks or more; the findings are presented in Figure 3.1. While 75 percent of the CS reported going to a healthcare provider, 25 percent either did not do anything or resorted to self-medication. This indicates that majority of CS took the desired step and consulted a provider when they noticed a persistent cough.

It is important to understand further the type of providers that they visited to guide the composition of private providers in the program. The next section discusses this.

**Figure 3.1: First action taken by CS when they noticed persistent cough of two weeks or more**



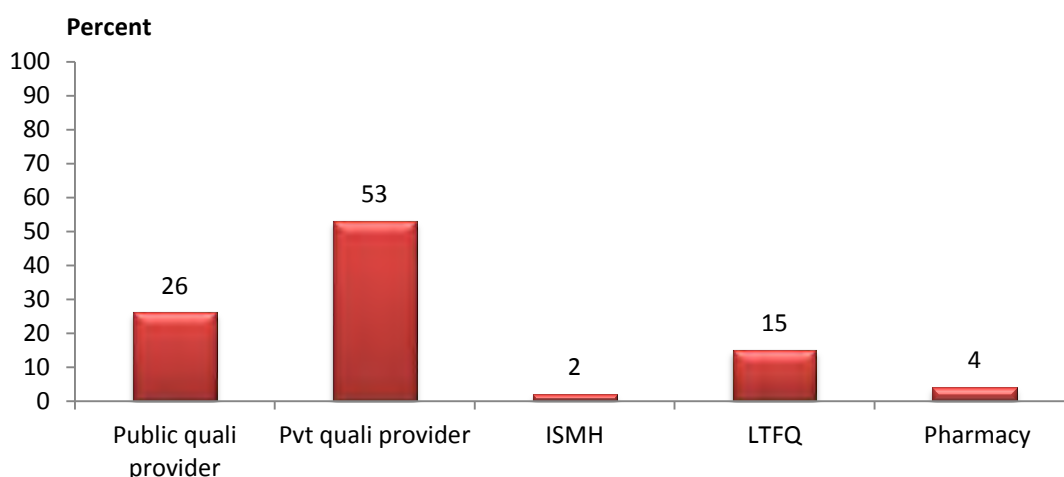
Base: All CS

### Type of Providers Visited First After Onset of Symptoms

Figure 3.2 shows that a majority of the CS who went to providers visited a qualified provider (79 percent); more than half of the CS reported visiting a private qualified provider (53 percent) followed by public qualified provider (26 percent) and LTFQ (15 percent). A negligible proportion of CS visited ISMH and pharmacy.

These findings suggest including private qualified private providers and LTFQ in subsequent program interventions.

**Figure 3.2: Type of provider visited first**



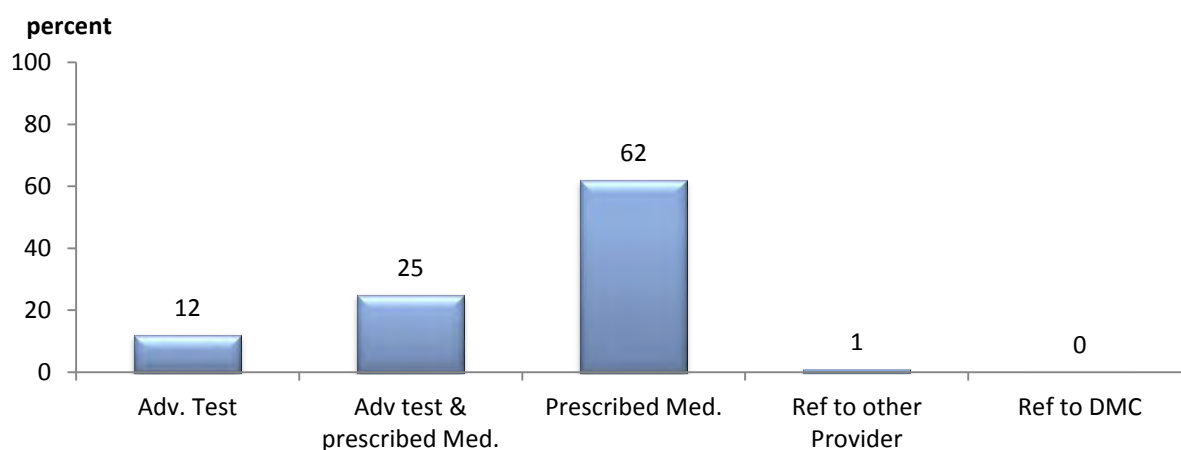
Base: Those who went to a provider for treatment of persistent cough

### Action taken by the Qualified Private Provider

The following section details the action taken by the qualified private providers as reported by CS. It helps us understand the common practices followed by pHCP for treating cases of persistent cough, as perceived or understood by consumers.

Among the CS who first visited private qualified providers, the majority (62 percent) of them reported that the provider only prescribed medicines and 37 percent of CS reported that the provider recommended tests (Figure 3.3).

**Figure 3.3: Action taken by qualified private providers as reported by consumers**



Base: Those who went to a provider for treatment of persistent cough

### Tests Advised by Qualified Private Healthcare Providers

Table 3.1 depicts the different types of diagnostic tests advised by the providers as reported by CS.

Around two-thirds of the CS who went to a qualified private provider reported being advised blood tests followed by 57 percent of CS being advised X-rays. Only 16 percent reported being advised sputum test.

**Table 3.1 Percentage of CS by types of test advised by private allopaths**

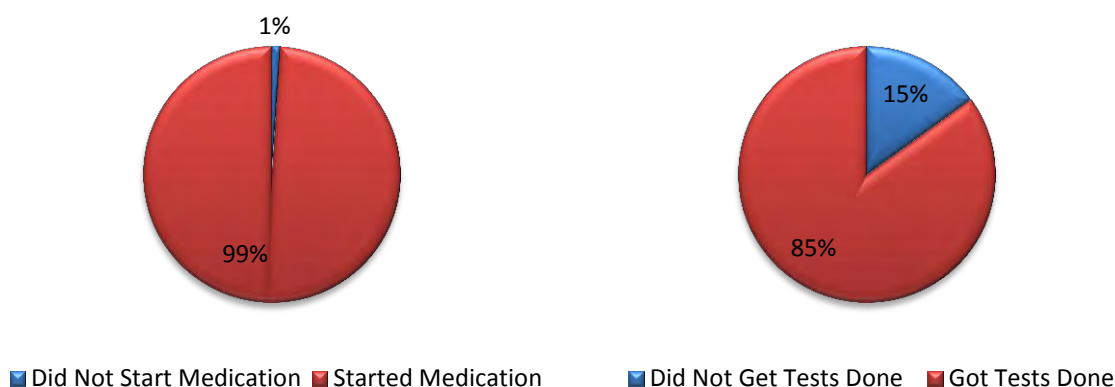
Type of test advised	CS
Blood test	66.0
X ray	57.0
Sputum test	16.0
Urine examination	5.0
CT scan	3.0
Monteux test	0.3

Base: CS who went to a private allopath

### Adherence to the provider’s advice by CS

The majority (85 percent) of CS who were advised a test by their healthcare provider reported getting the tests done and nearly all (99 percent) of those who were prescribed medicines, adhered to the provider’s advice (Figure 3.4).

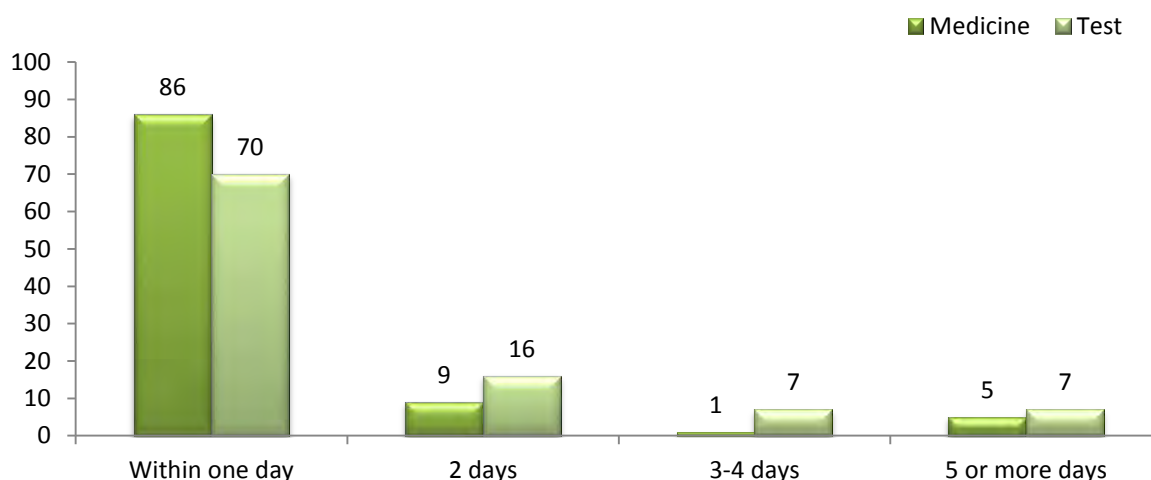
**Figure 3.4: Adherence to the provider’s advice by CS**



Base: Those respondents who went to a private allopath

Figure 3.5 shows that about 70 percent of the CS who were advised a test reported getting them done within one day and another 16 percent reported getting the tests done within the next 2 days. The majority of the CS, who were prescribed medicines, reported having started with the medication within 1 day of getting the prescription (86 percent). Therefore, there is a high level of adherence to a healthcare provider’s advice for diagnosis and treatment among CS.

**Figure 3.5: Delay in conducting tests and starting medication advised by providers**

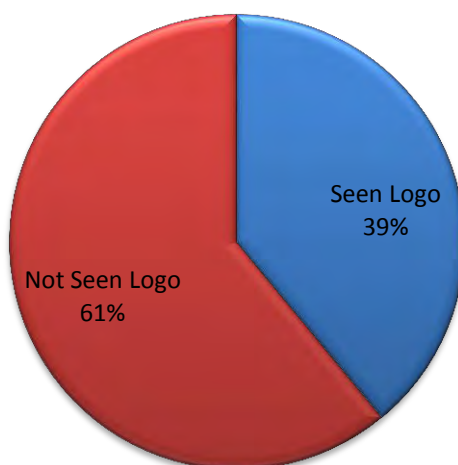


Base: CS who went to a private allopath and were either advised with a test or prescribed medicines

### Awareness about DOTS

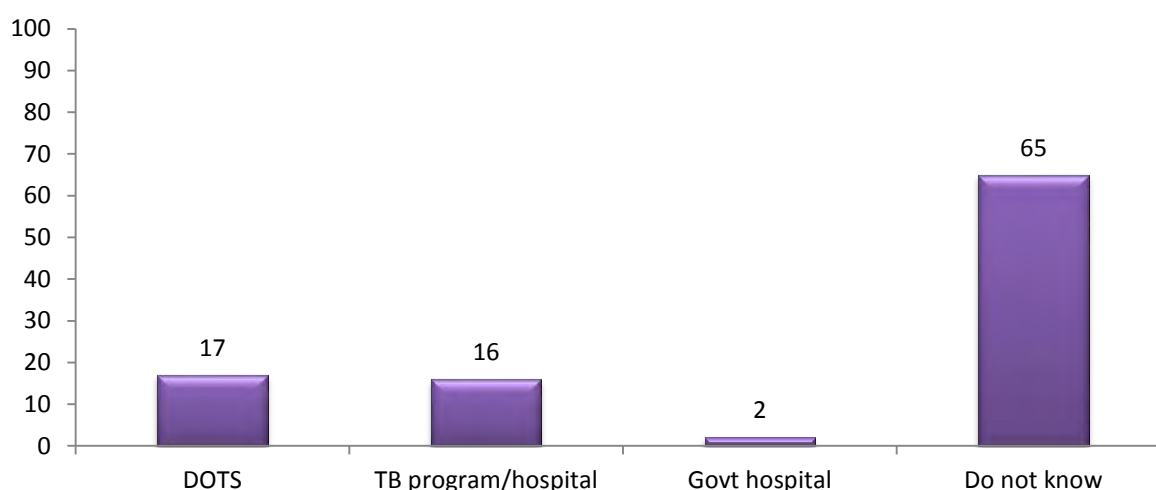
In order to assess awareness about DOTS, respondents were shown a picture of the RNTCP logo. They were then asked if they had ever seen the logo. About 39 percent of the respondents reported ever seeing the logo (Figure 3.6).

**Figure 3.6: Ever seen the RNTCP logo**



Base: All Respondents

Those who reported that they had seen the logo were then asked to identify the logo and its association. The majority of them did not know what it meant (65 percent). Only 17 percent were able to correctly identify the logo as belonging to RNTCP. Another 16 percent of the respondents were able to identify the logo as belonging to the TB program or TB hospital. (Figure 3.7)

**Figure 3.7: What does the logo stand for?**

*Base: Those who have ever seen the logo*

## Identifying Key Determinants of Desired Behavior

This section discusses the key determinants of the desired behavior. For CS, the desired behavior is defined as visiting a qualified provider. As discussed in the previous sections, 75 percent of the CS reported visiting a provider, of which 79 percent visited allopaths, 15 percent visited LTFQ, and remaining 6 percent either visited ISMH or pharmacy. 25 percent of CS did nothing or self-medicated themselves.

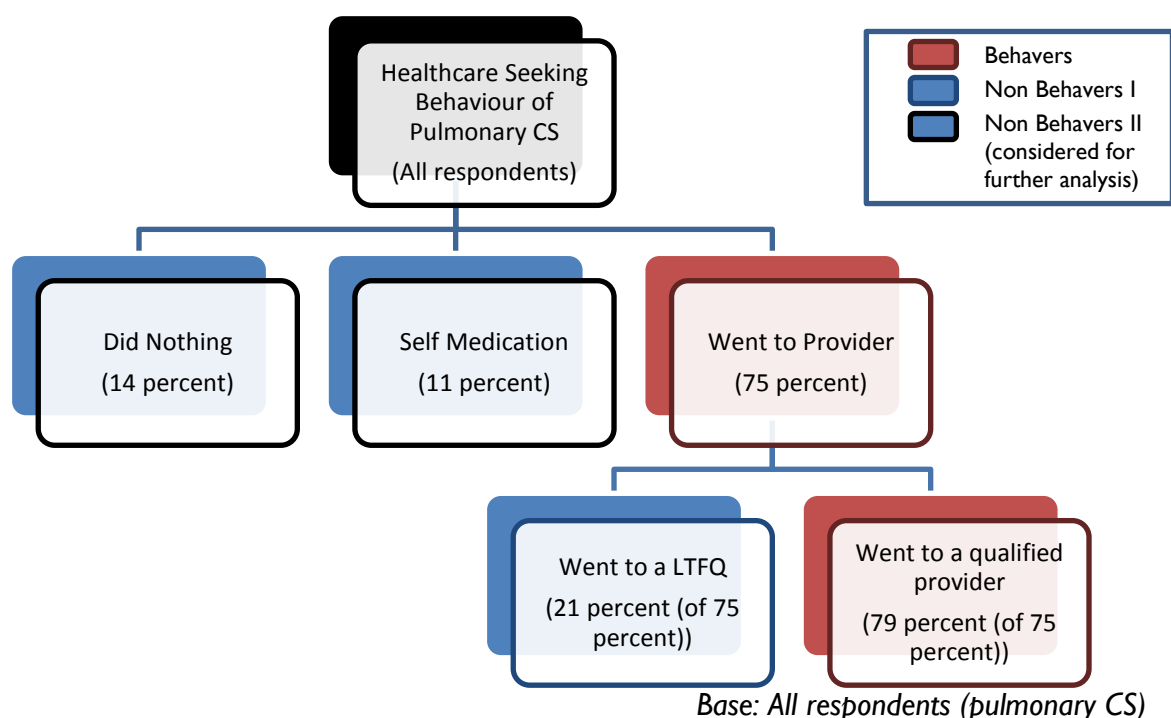
Segmentation analysis was used to identify the key determinants of desired behavior. Segmentation analysis is the process of dividing a heterogeneous population into homogenous groups based on their risk and behavior of interest, and then identifying behavioral determinants and population characteristics that are significantly different for behaviors versus non-behaviors. The behaviors were those who demonstrate the desired behavior, i.e. CS who visited the qualified providers. Non-behaviors were those who do not demonstrate the desired behavior, i.e. those who did not visit the qualified providers. The findings suggest that the non-behaviors had two sub-homogeneous groups:

1. Non-Behaviors I - CS who visited LTFQ, and
2. Non-Behaviors II - CS who either did nothing or opted for self-medication

The program focus was on the Non-Behaviors II, as compared to the Non-Behaviors I. since this group was relatively bigger than the Non-Behaviors I (Figure 3.8).



**Figure 3.8: Segmentation of CS**



The present segmentation, as shown in Table 3.2 focuses on identifying determinants that differentiate the behaviors from non behaviors. Priority is given to those non-behaviors who either did nothing or self- medicated themselves (Non-Behavers II, henceforth referred to as non-behaviors).

Logistic regression is used to find determinants of desired behavior. The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, income, and occupation of CS. The asterisks sign indicates that the indicator is significant at  $p < 0.05$  and is a determinant of desired behavior. Table 3.2 presents only those determinants and population characteristics which are significantly associated with desired behavior (see Annexure II for detailed list of variables considered as determinants and population characteristics)

The odds ratio in Table 3.2 indicates the strength of association between a determinant and the desired behavior. An odds ratio of greater than one indicates that a particular determinant is likely to have a positive association in motivating non-behaviors to adopt desired behavior. Similarly, an odds ratio of less than one indicates that a determinant is likely to have a negative association on behavior change. In the survey, attitude and perceptions-related issues were measured using multi-items with Likert Scale's response. Five point Likert Scale was used from strongly disagree to strongly agree (1: Strongly disagree, 2: Somewhat disagree, 3: Neither disagree nor agree, 4: Somewhat agree, 5: Strongly agree). Some of the issues relating to knowledge and belief were measured using one statement with 'yes' and 'no' response and hence presented as proportion or in percent.

**Table 3.2: Segmentation analysis (visited a qualified provider as a first action)**

The segmentation analysis is done among consumers who were CS in the three months preceding the survey: logistic Odds Ratios of key determinants of visiting a qualified healthcare provider as a first action against doing nothing or self-medication is represented in table 3.2

Determinants	Odds Ratio		Adjusted Mean Scores/Proportions	
	Odds Ratio	Sig	Non-behavers	Behavers
<b>Perceptions and Knowledge levels</b>				
Do not believe that TB affects only certain people and is caused by weakness	1.27	*	3.52	3.65
Know that TB is caused because of infection with germs/bacteria	5.88	*	79 %	95 %
Do not believe that a person can get infected through sharing of utensils, food or talking face to face with TB patient	1.42	*	1.44	1.59
Thought of suffering from TB when first noticed persistent cough	5.36	*	1.2 %	8.9 %
Can visit a doctor as soon as possible (Self efficacy)	1.89	*	4.67	4.81
Do not believe that one can confirm that he/she has TB through blood test	1.19	*	3.04	3.47
<b>Demographics</b>				
High socio-economic classification (Ref: Low SEC)	5.76	*	6.9	11.9
3 or more adults in house (Ref: 1-2 adults)	2.84	*	15 %	33.8 %
Male (Ref: Female)	0.573	*	63.3	51.0

Table 3.2 indicates that CS who were aware that TB is caused because of infection with germs and bacteria had an odds ratio of 5.88. This means that the CS who were aware of it were 5.88 times more likely to visit a qualified provider than those who were not aware of it. The other significant determinants which had high odds ratio (more than 2) was those CS who 'thought that they could be suffering from TB when they first noticed persistent cough'.

Adjusted proportion or the mean score of non-behavers provides the scope for change. If the mean score or adjusted proportion of a determinant among non-behavers is low, there is high scope for the particular determinant to change. Table 3.2 further indicates that adjusted proportion of non-behavers who were aware that TB is caused because of infection with germs and bacteria was as high as 79 percent. This indicates that though this determinant had a high positive association with desired behavior, the scope for change was minimal. Whereas, the adjusted proportion for the determinant 'thought that they could be suffering from TB when they first noticed persistent cough' among non-behavers was only 1.2 percent, indicating a high scope for change.

Table 3.2 further indicates that among all the population characteristics controlled for its effect in logistic regression, socio-economic classification, numbers of adults in household and gender categories showed a significant association with the desired behavior. The CS who belonged to high socio-economic strata were 5.8 times likely to visit qualified provider

than those who were belonged to low socio-economic strata. The other population characteristic which showed high positive association was of CS who had three or more adults in their house (odds ratio: 2.84). Data further indicates that the male CS showed negative association with the desired behavior. It means that the CS who were men were less likely to visit qualified provider than females. It is important to explore this pattern further. The segmentation Table 3.2 reveals that CS who belonged to low socio-economic strata, had two or less adults in the household and men were the ones who, more likely, did not follow the desired behavior.

Overall, segmentation Table 3.2 indicates that the key determinant of desired CS behavior is thinking that they 'could be suffering from TB when they first noticed persistent cough' as this had a very strong association with the desired behavior (odds ratio: 5.36) and greater scope for change (Non-behavers: 1.2 percent). The population characteristics that should be targeted were CS who belonged to lower socio-economic strata, households having two or less adults and mainly men. This profile of non-behavers is helpful in developing a marketing mix that is appealing to this specific group.

## Summary

The key findings are summarized below:

1. The majority of CS visited a provider as a first action when they first noticed that they were suffering from persistent cough for two weeks or more
2. Among those who visited a provider, 79 percent of them visited a qualified provider as a first action
3. 53 percent of those who visited a provider visited private qualified provider and 15 percent of such CS visited LTFQ
4. Blood tests (66 percent) and X rays (57 percent) were the most common diagnostic tests recommended by providers, as reported by CS
5. 16 percent of CS reported that the private qualified provider recommended sputum test
6. 74 percent of CS reported getting themselves tested within two days of provider's recommendation. 85 percent of CS started their medicine within one day of provider's advice
7. 39 percent had seen the RNTCP logo. However, of those who reported having seen the logo, 65 percent did not know what it stood for
8. The determinants of desired behavior were:
  - a. Suspicion of suffering from TB when first noticed persistent cough
  - b. Knowledge that TB is caused because of infection with germs/bacteria
  - c. Belief that I do not get infected through sharing of utensils/ food or talking face to face with TB patients
9. CS who were less likely to follow the desired behavior had the following population characteristics:
  - a. Low socio-economic strata
  - b. Two or less adults in the households
  - c. Men

## Recommendations

The following recommendations are proposed:

1. Program implementation should focus resources largely on changing provider behavior
2. Communication activities should focus on targeting CS who did not visit qualified providers as first action to increase the treatment seeking behavior
3. Communication messages should emphasize risk recognition in terms of recognizing that they may be suffering from TB if they have persistent cough of two weeks or more.



## Chapter 4: Findings from the Survey among Private Healthcare Providers in Uttar Pradesh

In UP, a total of 888 pHCP were interviewed in the two research districts of Etah and Ghaziabad. Distribution by provider type is detailed below in Table 4.1.

**Table 4.1: Provider sample size covered i UP**

Details	Total Achieved
Allopath	266
ISMH	331
LTFQ	291
<b>Total</b>	<b>888</b>

As the majority of CS reported visiting either private allopaths or LTFQ as a first action, the following sections discuss the findings pertaining to private allopaths and LTFQ.

The provider section gives information pertaining to the profile, knowledge of DOTS protocols, and their self-reported practice when they see persons with persistent cough and TB patients. This section also highlights the determinants for recommending sputum test (microscopy) and referring TB patients for management, using DOTS. The study elicited additional information pertaining to providers' knowledge about symptoms of TB, tests (investigations) to be carried out and precautions suggested to TB patients (presented in the Annexure III).

### Qualified Private Providers (Private Allopath)

#### Profiling Qualified Private Providers

As depicted in Figure 4.1, among the qualified private providers included in the survey, 24 percent reported having completed their post-graduate medical studies (19 percent, their MD<sup>6</sup> and 4 percent had an MS<sup>7</sup>). The remaining 76 percent were graduates, having a MBBS<sup>8</sup> degree. While a majority (44 percent) of allopaths covered as part of the survey had more than 20 years of experience, nearly one-third (32 percent) of the providers reported having an experience of 10 to 20 years as a health care provider.

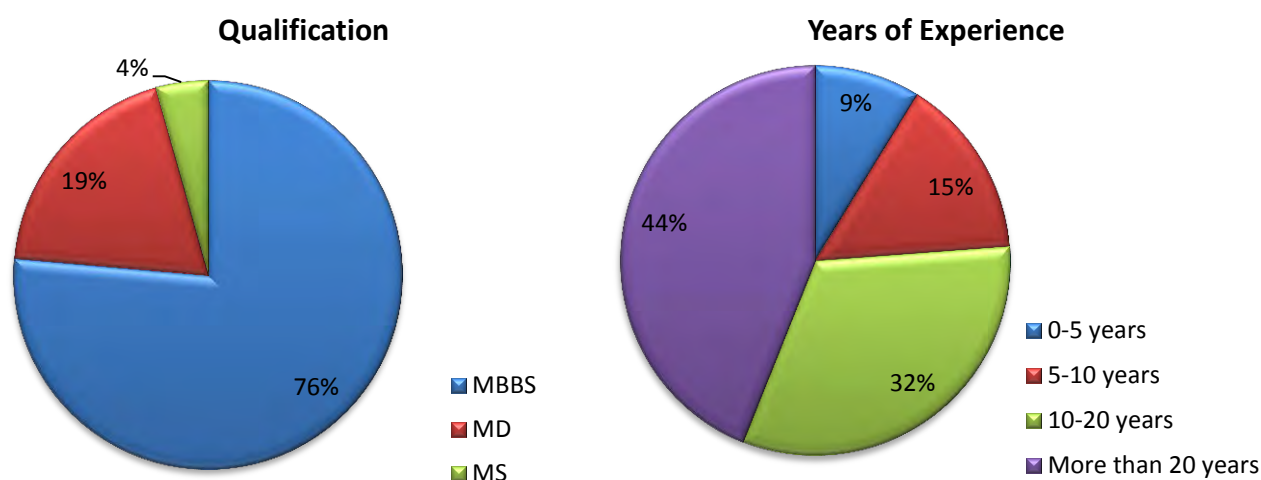
The survey suggests that there exists a variation in terms of the qualification and experience of the private allopaths covered under the study. These variations were taken into account while explaining the key determinant of desired behavior among allopaths.

<sup>6</sup> Doctor of Medicine

<sup>7</sup> Master of Surgery

<sup>8</sup> Bachelor of Medicine and Bachelor of Surgery

**Figure 4.1: Profile of qualified private healthcare providers**



Base: All qualified providers

### Knowledge about Steps to Follow as per DOTS while Treating TB

To gauge the knowledge of respondents about the steps to be followed while treating a TB patient under DOTS, they were asked to list all the steps they knew (Table 4.2). Most (60 percent) of the respondents mentioned that the patients should be referred to accredited testing lab while 43 percent of them talked about initiating the DOTS treatment. A comparatively small percentage of the respondents could recall procedural and documentation steps such as notification to RNTCP (7 percent) and maintaining appropriate record of the patients. Overall, the knowledge about the steps to follow as per the DOTS was poor among the private allopath provider.

**Table 4.2: Knowledge about the various steps to be followed in DOTS**

Statements	Spontaneous Recall (in percent)
Refer for appropriate testing to accredited testing labs	60.0
Notify RNTCP appropriately	7.0
Counsel clients to accept the appropriate DOTS treatment protocol	36.2
Determine client's preference for DOTS provider	5.6
Initiate DOTS treatment as appropriate	43.1
Refer patient to appropriate allopathic practitioner for diagnosis	20.9
Follow-up with patient or assigned health worker to ensure adherence	15.4
Maintain appropriate records (register/MIS)	6.2

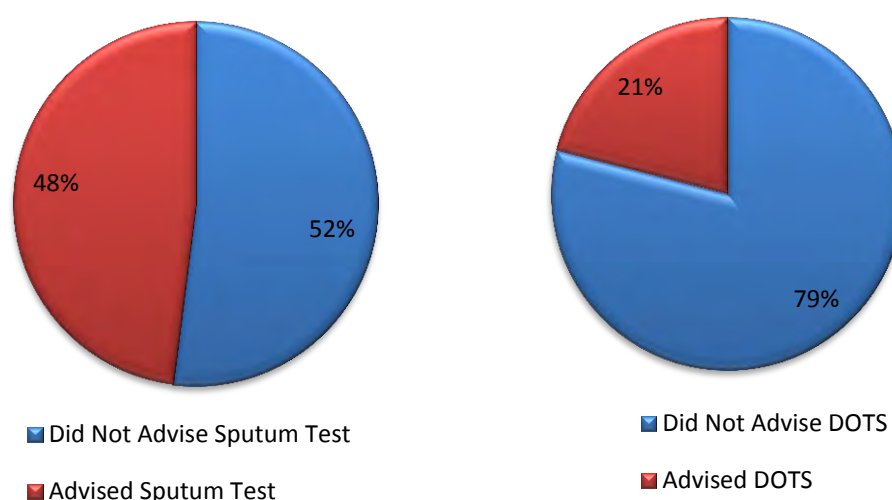
Base: All private allopaths

### Action Taken by Qualified Providers when Managing CS and TB positive Patient

Providers were asked about the actions they would take when a patient with persistent cough presented to them and when they had a patient with TB.

As is evident from Figure 4.2, when presented with a scenario of treating a patient with persistent cough of two week or more, 48 percent of allopath providers responded that they would advise sputum test<sup>9</sup> to the patient. Similarly, when providers were presented with a scenario of treating a patient who has just been diagnosed positive for TB, a smaller proportion (21 percent) reported that they would refer the patient for DOTS<sup>10</sup>.

**Figure 4.2: Providers exhibiting desired behavior - advice sputum test & refer to DOTS**



### Determinants of Recommending Sputum Microscopy and Referral to DOTS

As mentioned above, segmentation analysis is used to identify the key determinants of desired behavior. Recommending sputum test (microscopy) to CS and referring a TB positive patient for management under DOTS (behavers) were the desired behaviors among private allopaths. Non-behavers were those who do not demonstrate such behavior. This section provides two segmentation tables. Table 4.3 focuses on identifying the determinants of recommending sputum test (Segmentation I) and Table 4.4 identifies determinants of referring a TB patient to DOTS (Segmentation II).

Logistic regression is used to find determinants of desired behavior. The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, and work experience, of allopath. The asterisks sign indicates that the indicator is significant at  $p < 0.05$  and is a determinant of desired behavior. Tables 4.3 and 4.4 present only those determinants and population characteristics which are significantly associated with desired behavior (see Annexure II for detailed list of variables considered as determinants and population characteristics)

<sup>9</sup> Sputum test here refers to the provider advising the patient either for a sputum microscopy or referring him/her to a DOTS center

<sup>10</sup> DOTS in this context mean referring the patient to any one of the following facilities: (a) referring to the DOTS system, (b) notifying RNTCP appropriately, (c) counseling the patient to accept the appropriate DOTS treatment protocol, (d) referring the patient to a TB hospital, (e) initiating DOTS treatment as appropriate, and/or (f) referring the patient to a specialist provider who practices DOTS

**Table 4.3: Segmentation I (recommending sputum test)**

Determinants	Odds Ratio	Sig	Adjusted Mean Scores/Proportions	
			Non-behavers	Behavers
<b>Perceptions and Knowledge levels</b>				
Knowledge that DOTS treatment should be initiated as appropriate	3.31	*	25.9%	52.0%
Belief that X-ray is not the first test to detect TB and sputum test is the first test to detect TB	1.62	*	3.81	4.30
Positive attitude towards sputum test (It is not difficult to convince clients to get their sputum tested and sputum test is necessary for a patient suffering from persistent cough for two weeks or more)	1.61	*	2.34	2.99

Table 4.3 indicates that allopaths who knew that DOTS treatment should be initiated as appropriate had odds ratio of 3.31. This means that the allopaths who were aware of it were 3.31 times more likely to recommend sputum test than those who were not aware. The other significant determinants were 'belief that X-ray is not the first test to detect TB and that sputum test is the first test to detect TB' and 'positive attitude towards sputum testing'. But the strength of association of these determinants is much lower than the determinant pertaining to knowledge.

Adjusted proportion or the mean score of non-behavers provides scope for change. Table 4.3 further indicates that the adjusted proportion of non-behavers who were aware that DOTS treatment should be initiated as appropriate was as low as 26 percent. This indicates that this determinant had a high positive association with desired behavior, with high scope for change. The non-behavers rated positive attitude towards sputum test as 2.34 in the scale of 1 (strongly disagree) to 5 (strongly agree). This indicates that the mean score is low and there is greater scope for change in the positive attitude determinant. But the strength of association of this determinant is low (odds ratio: 1.61). Table 4.3 indicates that no population characteristics emerged as having significant association with the desired behavior.

The overall findings of Segmentation Table 4.3 reveals that the key determinant of desired behavior was knowledge that DOTS treatment should be initiated as appropriate as it had a high association with the desired behavior (odds ratio: 3.31) and greater scope for change (non-behavers: 26 percent).



**Table 4.4: Segmentation 2 (referring TB patients to DOTS center)**

Determinants	Odds Ratio	Sig	Adjusted Mean Scores (or Proportions)	
			Non-behavers	Behavers
<b>Perceptions and Knowledge levels</b>				
Knowledge that DOTS treatment should be initiated as appropriate	2.31	*	37.1%	57.3%
Knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis	4.07	*	9.9%	25.9%
Believe that I do not find it difficult to counsel clients to accept DOTS	1.87	*	4.54	4.88

Table 4.4 shows that allopaths who knew that patients should be referred to an appropriate allopathic practitioner for diagnosis had odds ratio of 4.07. This means that the allopaths who were aware of it were 4.07 times more likely to refer TB patients to DOTS than those who did not aware of it. The ‘appropriate practitioner’ referred to practitioners like themselves. The other significant determinants were that ‘knowledge that DOTS treatment should be initiated as appropriate’ and ‘I believe that I do not find it difficult to counsel clients to accept DOTS’. But the strength of association of these determinants was much lower than the determinant pertaining to knowledge about patient referral.

Table 4.4 further shows that adjusted proportion of non-behavers who were aware that patients should be referred to appropriate allopathic practitioner for diagnosis was as low as 10 percent. This indicates that this determinant had a high positive association with desired behavior, with high scope for change. The other determinant which had a high scope for change was knowledge that DOTS treatment should be initiated as appropriate as adjusted proportion was 37 percent among non-behavers. The third determinant i.e. belief that providers do not find it difficult to counsel clients to accept DOTS, indicates low scope for change as the mean score was high among non-behavers. Table 4.4 indicates that no population characteristics emerged as having significant association with the desired behavior.

The overall findings of segmentation Table 4.4 reveal that the key determinants of desired behavior were knowledge that DOTS treatment should be initiated as appropriate and knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis as it had a high association with the desired behavior and greater scope for change.

## Less-than-Fully-Qualified Providers (LTFQ)

### Profiling LTFQ

LTFQ are accepted by healthcare consumers as they are accessible and affordable. However, they are not recognized by the government or by qualified healthcare professionals as a legal, or ethical, body of healthcare providers. LTFQ emerged as the second largest group after allopaths with 15 percent of CS from intervention slums who went to a provider, visiting them. Therefore, the findings relating to LTFQ are presented in the following sections.

LTFQ were asked about the numbers of years they have spent as a health provider. In response, 18 percent of LTFQ reported being in this profession for more than 20 years and

34 percent, reported having 10 to 20 years' experience as a health provider. Table 4.5 shows the experience profile of LTFQ surveyed.

**Table 4.5: Profile of LTFQ**

<b>Experience</b>	<b>CS (in percent)</b>
0-5 years	23.0
5-10 years	24.0
10-20 years	34.0
More than 20 years	18.0

### **Knowledge about Steps to Follow as per DOTS, while Treating TB**

To gauge the knowledge of the respondents about the steps to be followed while treating a TB patient as per DOTS, LTFQ were asked to enlist all the steps they know about. As shown in Table 4.6, 43 percent of the respondents mentioned that the patients should be referred to accredited testing laboratories, while 37 percent of them talked about initiating the DOTS treatment. A comparatively small percentage of the respondents stated procedural and documentation steps such as notification to RNTCP (4 percent) and maintaining appropriate records of patients. Overall, the knowledge about the steps to follow as per DOTS was poor among the LTFQ.

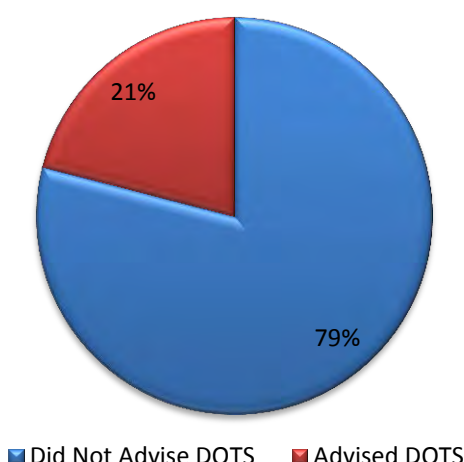
**Table 4.6: Knowledge about steps to be followed for DOTS**

<b>Statements</b>	<b>Spontaneous Recall (in percent)</b>
Refer for appropriate testing to accredited testing labs	42.9
Notify RNTCP appropriately	4.5
Counsel clients to accept the appropriate DOTS treatment protocol	28.7
Determine client's preference for DOTS provider	8.0
Initiate DOTS treatment as appropriate	36.7
Refer patient to appropriate allopathic practitioner for diagnosis	13.7
Follow-up with patient or assigned health worker to ensure adherence	10.0
Maintain appropriate records (register/MIS)	4.5

### **Action Taken by LTFQ when a CS Patient Visits Them**

When presented with a scenario of treating a CS, the desired behavior was that the LTFQ would refer the patient to a government provider or to a DOTS center. According to the data collected, 21 percent of LTFQ responded that they would refer such a patient appropriately (Figure 4.3).

**Figure 4.3: LTFQ exhibiting desired behavior – advice sputum test and refer for DOTS**



### Identifying and Prioritizing Determinants of Referring to DOTS

This section discusses the key determinants of desired behavior among LTFQ. Respondents who reported desired behavior (behavers) were those who referred a person with persistent cough of two weeks or more to a government healthcare provider or to a DOTS center. Non-behavers were those who did not demonstrate this behavior.

**Table 4.7: Determinants of Behavior (referring to DOTS centers)**

Determinants	Odds Ratio	Sig	Adjusted Mean Scores/Proportions	
			Non-behavers	Behavers
<b>Perceptions and Knowledge levels</b>				
Belief that referring patients to another provider does not raise a question about his competency as a health provider	2.89	*	4.34	4.94

The segmentation Table 4.7 shows that only one determinant, i.e. belief that ‘referring patients to another provider does not raise a question about his competency as a health provider’ emerged as being highly associated with desired behavior with an odds ratio 2.89. No population characteristics emerged as significantly associated with desired behavior.

### Summary

The following points summarize the findings of the survey of pHCP catering to MBPH intervention slum populations in UP.

- Knowledge about the steps to be followed under the DOTS strategy is poor among private allopaths and LTFQ
- 48 percent of allopaths reported advising sputum test to patients with persistent cough and 21 percent of them reported referring patients with TB to DOTS
- 21 percent of LTFQ reported referring patients with persistent cough to government providers or DOTS centers

- Knowledge that DOTS treatment should be initiated as appropriate emerged as the key determinant of referring CS for sputum test (microscopy) or referring TB patients to DOTS among private allopaths.
- The key determinant of referring CS to government providers or DOTS centers among LTFQ was the belief that the referring patients to another provider do not raise a question about his/her competency as a healthcare provider.

## Recommendations

Through this survey, the MBPH research team recommends the following actions for program implementation:

- The program should focus on building the capacity of allopath practitioners and LTFQ to improve knowledge about DOTS protocols
- The program implementation team should emphasize and motivate allopath practitioners to inculcate the value of sputum testing for diagnosis of TB
- Referral of CS by LTFQ should be encouraged by:
  - Reassuring LTFQ that referring CS enhances their image in community
  - Exploring the feasibility of giving incentives to LTFQ for referring CS to DOTS center
- The program implementation team should provide supportive supervision and ensure frequent engagement of private qualified provider and LTFQ.



## Chapter 5: Findings from the Survey among Chest Symptomatics in Karnataka

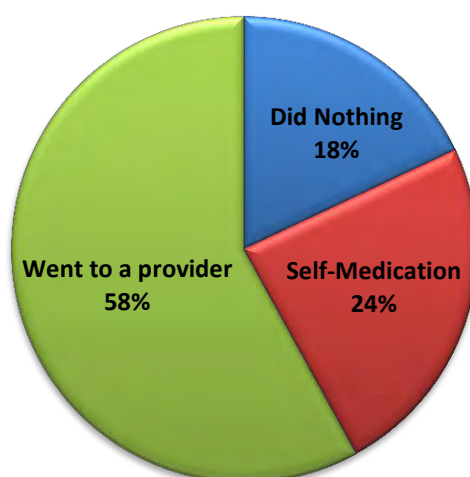
In Karnataka, a total of 1,515 CS were interviewed in the study districts of Gulbarga, Chitradurga, Kodagu and Udupi.

The sections below present findings relating to the actions taken by CS and the type of providers visited by them and provide insights to the composition of private providers in the MBPH network.

### First Action Taken By CS on Noticing Persistent Cough of Two Weeks Duration or More

CS were asked about the action taken by them when they first noticed that they were suffering from persistent cough for two weeks or more. The findings are presented in Figure 5.1. 58 percent of the CS reported going to a healthcare provider, 18 percent did nothing and 24 percent resorted to self-medication.

**Figure 5.1: First health seeking action taken by CS**



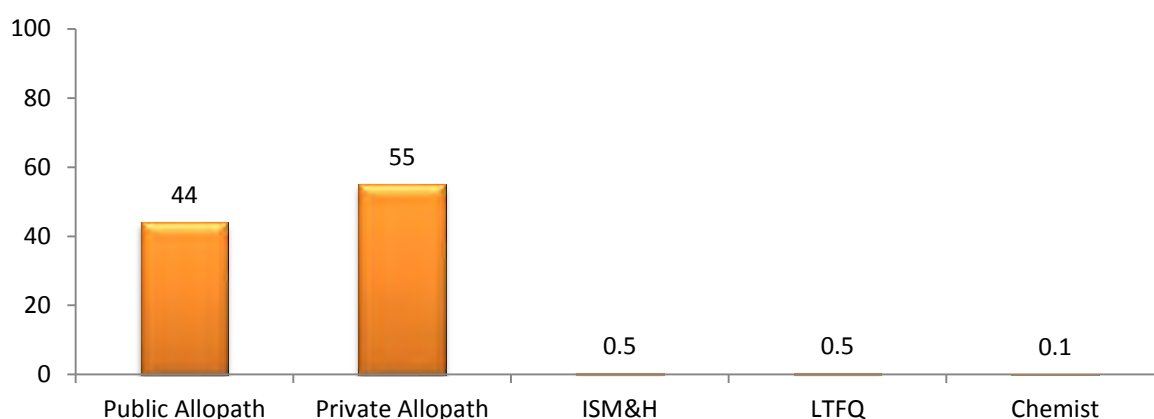
*Base: All respondents*

### Type of Providers Visited First after Onset of Symptoms

Among those CS who reported visiting a provider, almost all reported visiting an allopath. As shown in Figure 5.2, more than half (55 percent) of those who visited a provider, reported going to a private allopath, while the rest 44 percent of the respondents reported going to public allopaths; very few visited LTFQ.

The findings provide important information about the composition of private providers that should be networked by MBPH for effective management of TB.

**Figure 5.2: Type of provider visited first by a pulmonary CS**

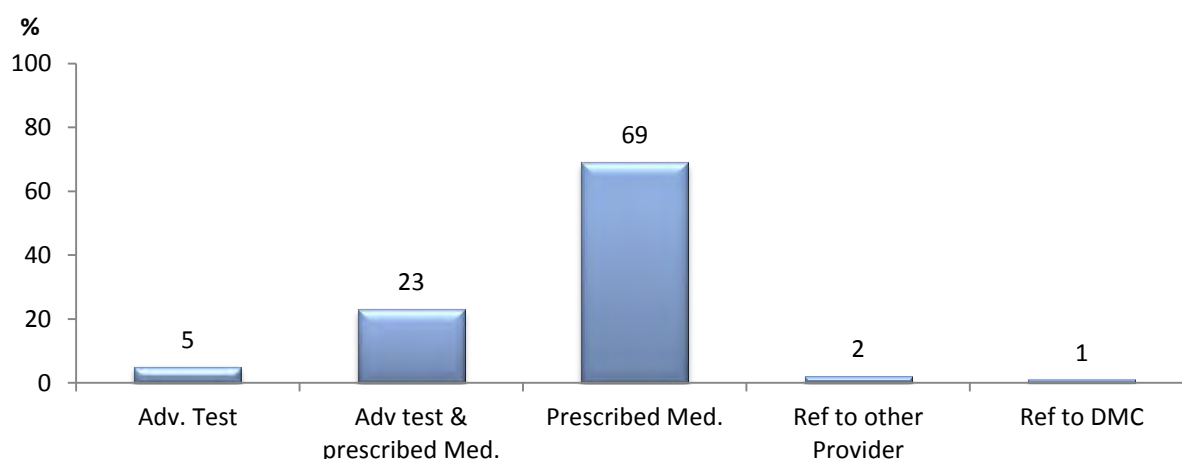


### Action Taken by the Private Allopaths as Reported by CS Surveyed

This section details the action taken by private allopaths as reported by the CS surveyed. It provides us with an understanding of the common practices followed by the private allopaths when treating cases of persistent cough, as perceived or understood by consumers.

As per RNTCP protocol, it is expected that allopaths should advise sputum test (microscopy) to a person complaining of persistent cough of two weeks or more. Figure 5.3 indicates that among CS who visited private allopaths, the majority reported that the provider prescribed medicines (69 percent). Only 28 percent of CS reported that the provider recommended tests.

**Figure 5.3: Action taken by provider visited by CS**



*Base: All respondents who ever went to a provider*

### Tests Advised by Qualified Private Providers

Sputum microscopy for AFB is the standard test for detecting pulmonary tuberculosis under RNTCP. In the ensuing section, we discuss the type of diagnostic tests prescribed by providers visited, as reported by the CS surveyed. The tests advised by private providers as

reported by CS, are shown in Table 5.1. CS were advised multiple tests. 78 percent of CS who went to a private allopath reported being advised X-ray followed by 52 percent who were advised blood tests. Less than half of the CS surveyed reported being advised sputum test (48 percent).

**Table 5.1: Percentage of CS by type of investigations prescribed by providers**

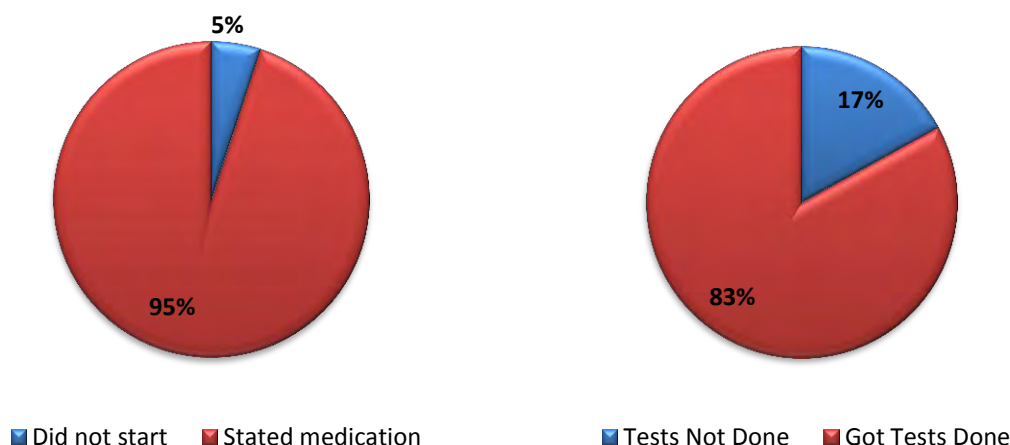
Type of test advised	CS
X ray	78.0
Blood test	52.0
Sputum test	48.0
Urine examination	37.0
CT scan	16.0
Monteux test	0.3
Others	0.3

Base: All respondents who ever went to a private allopath and were prescribed tests

### Adherence to the provider’s advice by CS

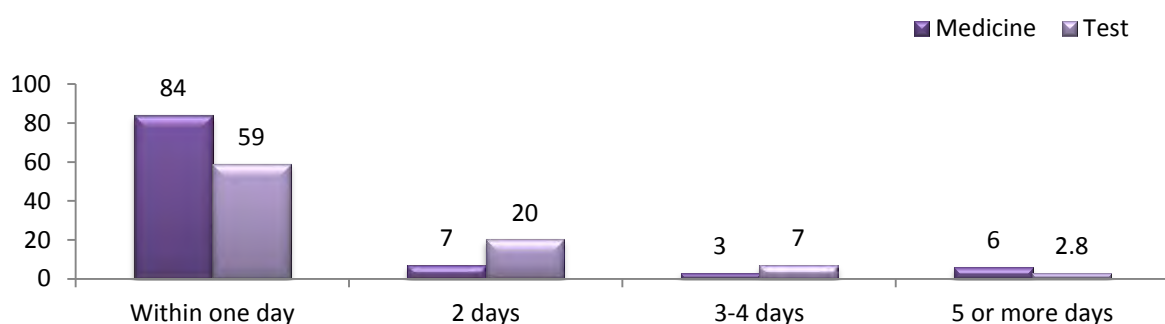
The majority (83 percent) of the respondents who were advised a test by their private allopaths reported getting the tests done (Figure 5.4); 79 percent reported getting the test done within two days of provider’s advice (Figure 5.5). Similarly, 95 percent of the respondents who were prescribed medicines, reported following the providers’ advice with the majority of them reporting having started the medication within 1 day of getting the prescription (84 percent). As shown in Figures 5.4 and 5.5, the level of adherence to a healthcare provider’s advice for diagnosis and treatment among CS is high.

**Figure 5.4: Compliance of CS to provider advice**



Base: Respondents who went to a private allopath

**Figure 5.5: Delay in conducting tests and starting on medication advised by providers**

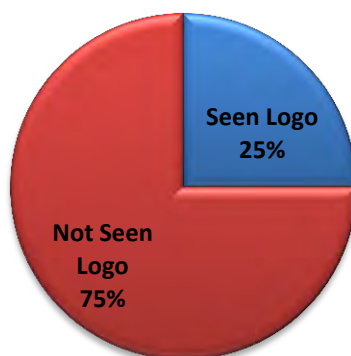


Base: Respondents who went to a provider

### Awareness about DOTS

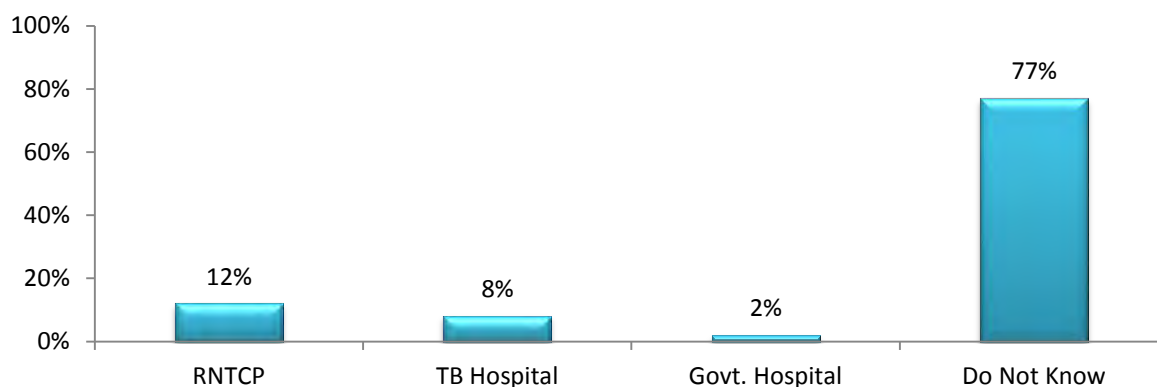
Respondents were shown a picture of the RNTCP logo and asked if they had ever seen the logo. About 25 percent of the respondents reported seeing the logo (Figure 5.6). Among those who reported that they had seen the logo, the majority did not know what it stood for (77 percent). As shown in Figure 5.7, only about 12 percent of the respondents were able to identify the logo as being the RNTCP logo. Another 10 percent of the respondents identified the logo as belonging to a TB program or TB or government hospital.

**Figure 5.6: Ever seen the RNTCP logo**



Base: All Respondents

**Figure 5.7: What does the logo stand for?**



Base: Those who have ever seen the logo



## Identifying Key Determinants of Desired Behavior

The desired behavior is that CS should visit an allopath. As discussed in the previous sections, 58 percent of the CS reported visiting a provider, of which 99 percent visited an allopath thereby exhibiting desired behavior and the remaining went to LTFQ (1 percent). 42 percent of CS did nothing or self-medicated themselves.

Segmentation analysis was used to identify the key determinants of desired behavior. The findings suggest that non-behavers had two sub-homogeneous groups. The first group includes CS who visited LTFQ while the second include those who either did nothing, or opted for self-medication. This analysis chooses to focus on the second, which is also the larger group of non-behavers. The results of the segmentation analysis are presented in Table 5.2.

Table 5.2 presents only those determinants and population characteristics which are significantly associated with desired behavior. The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, and work experience of CS. The *asterisks* sign indicates that the indicator is significant at  $p < 0.05$  and is a determinant of desired behavior (see Annexure II for detailed list of variables considered as determinants and population characteristics).

**Table 5.2: Segmentation analysis (visited an allopath as a first action)**

The segmentation analysis was done among consumers who were CS in the three months preceding the survey: logistic Odds Ratios of key determinants of visiting a qualified healthcare provider as a first action against doing nothing or self-medication is shown in Table 5.2.

Determinants	Odds Ratio	Sig	Non-behavers	Behavers
			Mean scores/proportions	
<b>Perceptions/ Knowledge levels</b>				
Perceived quality of care	2.98	*	3.91	4.18
Can visit a doctor as soon as possible (Self Efficacy)	1.84	*	3.82	4.04
Aware of sputum test as a test for the diagnosis of TB	2.40	*	64%	79%
I suspect of suffering from TB when first noticed persistent cough	1.81	*	2%	6%
TB is curable	1.65	*	55%	65%
A person can get infected through air from a person infected with TB who is coughing/sneezing or spitting in the vicinity	1.67	*	68%	77%
One can confirm that he/she has TB through sputum test	1.53	*	38%	47%
Severity	0.65	*	3.73	3.50
<b>Demographics</b>				
Male (Ref: Females)	0.69	*	60%	51%
Having 3-4 adults in households (Ref: Having 1-2 adults in household)	1.51	*	42%	53%

Table 5.2 shows that CS who perceived good quality of care were 2.98 times more likely to visit an allopath than those who did not perceive quality of care to be good. The other

significant determinant which had a high odds ratio (more than 2) was of CS who were aware of sputum test as being a test for the diagnosis of TB.

Adjusted proportion or the mean score of non-behavers provides scope for change. Table 5.2 also shows that non-behavers rated 'perceived quality of care' as 3.91 on the scale of 1 (strongly disagree) to 5 (strongly agree) as compared to 4.18, as rated by behavers. This indicates that this determinant has a high positive association with desired behavior and there is scope for change. The adjusted proportion for the determinant 'aware of sputum test as a test for the diagnosis of TB' among non-behavers was 64 percent, indicating a moderate scope for change.

Table 5.2 further indicates that among all the population characteristics controlled for its effect in logistic regression, the number of adults in households and gender categories showed a significant association with the desired behavior. CS who had three or more adults in the households were 1.5 times more likely to visit allopaths than those who had one or two adults in their house. The data also shows that male CS showed a negative association with the desired behavior, or that a male CS was less likely to visit an allopath than a female.

The findings from segmentation overall reveals that the key determinants of desired behavior were perceived quality of care and aware of sputum test as a test for the diagnosis of TB. These determinants had strong association with the desired behavior and greater scope for change. The population characteristics, that should be targeted, were CS who belonged to households which have two or less adults and mainly men.

## Summary

The key findings of the survey of CS who are slum residents in Karnataka are summarized below:

- The majority of CS (58 percent) visited a provider as a first action. However 42 percent did either nothing or resorted to self-medication
- Among those who visited a provider, 99 percent of them visited an allopath as a first action
- 55 percent of those who visited a provider visited a private allopath and 44 percent of such CS visited a public allopath
- X rays (78 percent) and blood test (52 percent) tests were the most common diagnostic tests recommended by providers, as reported by CS
- 48 percent of CS reported that the private allopaths recommended sputum test
- 79 percent of CS reported getting themselves tested within two days of provider recommendation. 84 percent of CS started their medicine within day of provider advice
- 25 percent had seen the RNTCP logo. However, of those who reported having seen the logo, 77 percent did not know what it stood for
- The key determinants of desired behavior were:
  - Perceived quality of care
  - Aware of sputum test as a test for the diagnosis of TB.
  - CS who were less likely to follow the desired behavior, belonged to households that had two or less adults in the households and were mainly men

## Recommendations

The following recommendations are proposed by the research team with regard to program implementation in Karnataka:

- The program implementation should focus resources largely on changing provider behavior
- Communication activities should carry out targeted intervention to reach CS who did not visit an allopath as a first action, in order to improve their treatment seeking behavior
- Communication messages should emphasize improving perceived quality of care and knowledge that one can confirm TB through sputum test (microscopy).



## Chapter 6: Findings from the Survey among Private Healthcare Providers in Karnataka

In Karnataka, a total of 520 pHCP were interviewed in the four research districts. The distribution by provider type is detailed below in Table 6.1.

**Table 6.1: Providers interviewed during the survey**

Type of Private Provider	Total Achieved
Allopath	255
ISMH	193
LTFQ	72
<b>Total</b>	<b>520</b>

The following sections discuss the findings pertaining to private allopaths as the majority of the CS reported to visit allopaths as first action. Here, we detail information pertaining to the profile, knowledge of DOTS protocols, and the provider's self-reported practice when they see persons with persistent cough and patients diagnosed with TB. Determinants of recommending sputum test and referring to DOTS are also identified and understood. The study elicited additional information pertaining to provider knowledge about symptoms of TB, investigations used and precautions suggested to TB patients (presented in Annexure III).

### Private Allopaths

#### Profiling Private Allopaths

As shown in Table 6.2, in Karnataka, 71 percent of private allopaths interviewed reported having completed MBBS and 29 percent reported having done an MD/MS or other specialization.

**Table 6.2: Provider profile of allopath pHCP interviewed**

Qualifications	Percent	Years of Experience	Percent
MBBS	71.2	0-5 years	9.4
MD	16.1	5-10 years	18.2
MS	12.7	10-20 years	32.8
		More than 20 years	39.5

*Base: All private allopaths surveyed*

### Knowledge about Steps to Follow as per DOTS while Treating TB

To gauge the knowledge of the respondents about the steps to be followed while treating a TB patient as per DOTS, the respondents were asked to enlist all the steps they knew (Table 6.3). 41 percent of the respondents mentioned that patients should be referred to accredited testing laboratories and 33 percent talked about notifying RNTCP. A comparatively small percentage of the respondents could recall procedural and documentation steps like referring patient to appropriate allopathic practitioners for diagnosis (15 percent) and maintaining appropriate record of the patients (17 percent). Overall, the knowledge about the steps to follow as per the DOTS protocol was poor among the private allopaths.

**Table 6.3: Knowledge about the various steps to be followed in DOTS**

Statements	Spontaneous Recall (in percent)
Refer for appropriate testing to accredited testing labs	41.0
Notify RNTCP appropriately	33.0
Counsel clients to accept the appropriate DOTS treatment protocol	22.0
Determine client's preference for DOTS provider	29.0
Initiate DOTS treatment as appropriate	28.0
Refer patient to appropriate allopathic practitioner for diagnosis	11.0
Follow-up patient or assigned health worker to ensure adherence	15.0
Maintain appropriate records (register/MIS)	17.0

*Base: All private allopaths surveyed*

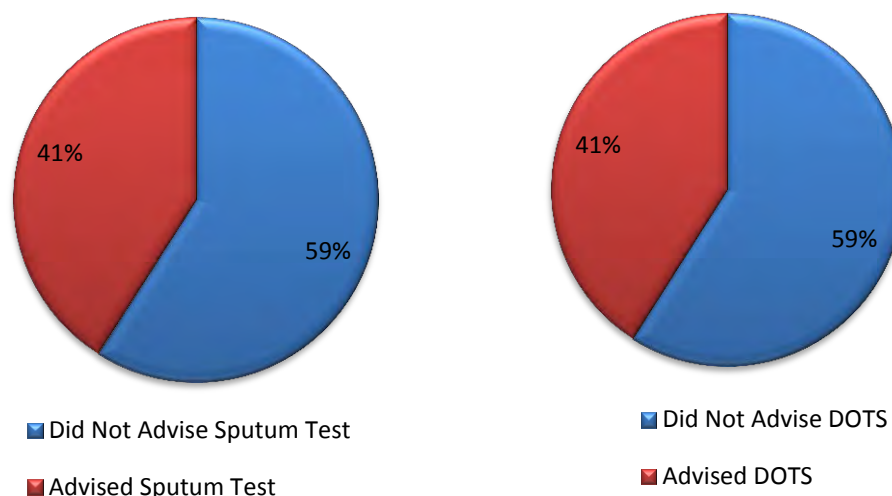
### Action Taken by Private Allopaths when a Pulmonary CS and TB Positive Patient Presents

As shown in Figure 6.1, when presented with a scenario of treating a patient with persistent cough of two week or more, 41 percent of the allopaths responded that they will advise sputum test<sup>11</sup> (microscopy to the patient. Similarly, when providers were presented with a scenario of treating a patient who has just been diagnosed positive for TB, the same proportion (41 percent) reported that they will refer the patient to DOTS<sup>12</sup>.

<sup>11</sup> Sputum test here refers to the provider advising the patient either for a sputum microscopy or referring him/her to a DOTS center

<sup>12</sup> DOTS in this context mean referring the patient to any one of the following facilities: (a) referring to the DOTS system, (b) notifying RNTCP appropriately, (c) counseling the patient to accept the appropriate DOTS treatment protocol, (d) referring the patient to a TB hospital, (e) initiating DOTS treatment as appropriate, and/or (f) referring the patient to a specialist provider who practices DOTS

**Figure 6.1: Providers exhibiting desired behavior – advice sputum test/refer to DOTS**



**Determinants of Recommending Sputum Microscopy and Referring TB Patients to DOTS**

A segmentation analysis is used to identify the key determinants of desired behavior. Providers reported to have the desired behavior (behavers) were those who recommended sputum test to a person with persistent cough patient of two weeks or more and who referred a TB positive patient to DOTS. Non-behavers were those who did not demonstrate such behavior. Table 6.4 shows determinants of recommending sputum test (Segmentation I), while Table 6.5 identifies determinants of referring a TB patient to DOTS (Segmentation II).

The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, and work experience, of allopath. The asterisks sign indicates that the indicator is significant at  $p < 0.05$  and is a determinant of desired behavior (see Annexure II for detailed list of variables considered as determinants and population characteristics).

**Table 6.4: Segmentation I (recommending sputum test)**

Determinants	Odds Ratio		Adjusted means/proportions	
			Non-behavers	Behavers
<b>Perceptions/ Knowledge levels</b>	<b>Odds Ratio</b>	<b>Sig</b>	<b>Mean scores/proportions</b>	
Knowledge that DOTS treatment should be initiated as appropriate	4.33	*	21.70%	46.20%
Knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis	4.01	*	5.22%	24.65%
I believe in Sputum Test	1.66	*	4.05	4.55
I believe in the RNTCP Strategy	1.63	*	4.06	4.49

Table 6.4 shows that private allopaths who knew that DOTS treatment should be initiated as appropriate were 4.33 times more likely to recommend sputum test than those who were not aware of it. The other strongly associated determinant with desired behavior was 'knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis.

Table 6.4 further shows that the adjusted proportion of non-behavers who were aware that DOTS treatment should be initiated as appropriate was 22 percent and the same for those who had knowledge that the patients should be referred to appropriate allopathic practitioner was 5 percent. This indicates that these knowledge determinants have a high scope for change. Non-behavers rated 'I believe in sputum test' as 4.05 and 'I believe in the RNTCP strategy' as 4.06 on the scale of 1 (strongly disagree) to 5 (strongly agree). This indicates that the mean score is high and there is lesser scope for change in these determinants. In addition, the strength of association of these determinants is low (odds ratio: 1.61). No population characteristics emerged as having significant association with desired behavior.

Table 6.4 reveals that the key determinant of desired behavior was knowledge that DOTS treatment should be initiated as appropriate and knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis as these had high association with the desired behavior and greater scope for change.

**Table 6.5: Segmentation 2 (refer patients to a DOTS center<sup>13</sup>)**

Determinants	Odds Ratio		Adjusted means/ proportions	
			Non-behavers	Behavers
<b>Perceptions/ Knowledge levels</b>	<b>Odds Ratio</b>	<b>Sig</b>	<b>Mean scores/proportions</b>	
Determine client's preference for DOT provider	3.57	*	20.50%	41.90%
Knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis	3.02	*	7.80%	22.30%
Knowledge that DOTS treatment should be initiated as appropriate	2.15	*	28.30%	40.60%
Do not find it difficult to refer patient to appropriate allopathic practitioner for diagnosis	1.92	*	4.05	4.42
Referring patients to another provider for DOTS does not raise questions on my competency	1.40	*	4.00	4.33

<sup>13</sup> Among private allopath providers, logistic Odds Ratios of key determinants of referring TB patients to DOTS center

Table 6.5 shows that private allopaths, who knew that determining the patient's preference for DOT provider was one of the RNTCP protocols, were 3.57 times more likely to refer TB patients to DOTS than those who did not. Other associated determinants with desired behavior were knowledge that 'patients should be referred to appropriate allopathic practitioner for diagnosis' and 'DOTS treatment should be initiated as appropriate'.

Table 6.5 also shows that adjusted proportion of non-behavers pertaining to knowledge determinants discussed above was low. For example, the adjusted proportion of non-behavers who knew about determining client's preference for DOT provider as one of the RNTCP protocols was 20 percent. It was 8 percent for the determinant, 'knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis'. This indicates that these knowledge determinants have a high scope for change. No population characteristics emerged as having significant association with desired behavior.

The findings from segmentation reveal that the key determinants of desired behavior are knowledge about determining client's preference for DOT provider, knowledge that DOTS treatment should be initiated as appropriate and knowledge that patients should be referred to appropriate allopathic practitioner for diagnosis as these had high association with the desired behavior and greater scope for change.

## Summary

The findings of the survey among pHCP in Karnataka, relevant to the MBPH intervention districts and populations are:

- Knowledge of the steps to be followed under DOTS strategy is poor among private allopaths
- 41 percent of private allopaths reported advising sputum test to patients with persistent cough of two weeks or more and an equal proportion of them referred patients with TB to DOTS
- The key determinants of referring CS for sputum test (microscopy) for surveyed allopaths were:
  - Knowledge that DOTS treatment should be initiated as appropriate
  - Knowledge that patients should be referred to appropriate allopathic practitioners for diagnosis
- In addition, the determinant, 'Knowledge about determining client's preference for DOT provider' emerged as the key factor for referring TB patients to DOTS, among qualified private providers.

## Recommendations

Based on the above findings, the following recommendations are proposed by the MBPH research team for program implementation among similar population groups:

- The program should focus on building the capacity of allopath practitioners to improve their knowledge about DOTS protocols
- The program implementation team should emphasize and motivate allopath practitioners to adopt sputum testing (microscopy) for diagnosis of TB
- Supportive supervision is important for increasing the frequency and quality of engagement with the private allopath practitioners.





## Annexure I: Program Indicators

Indicators	Data sources and collection methods	Baseline Value	
		UP	KA
No. of TB patients who have been successfully treated by private healthcare providers <sup>14</sup>	Project and RNTCP MIS	-	
Time taken between development of TB symptoms and start of TB treatment using a correct regimen under DOTS	Survey among patients reporting to DOTS centers	-	
No. of private healthcare providers (all type) who are practicing DOTS	Project and RNTCP MIS	-	
Amount of resources leveraged	Leveraging report	-	
No. of referrals to approved laboratories as per records kept by private healthcare providers (all types)	Project and RNTCP MIS	-	
No. of sets of sputum samples (@ 1 set per pulmonary CS) transported to and tested by RNTCP Designated Microscopy Centers	Project and RNTCP MIS	-	
No. of new smear-positive pulmonary TB cases that were detected under DOTS (i.e. Case Detection Rate)	Project and RNTCP MIS	-	
No. of TB patients being administered anti-TB treatment (ATT) by community DOT providers and private healthcare providers (all types)	Project and RNTCP MIS	-	
Among those aware of TB, percentage with correct knowledge: <ul style="list-style-type: none"> <li>Of symptoms of pTB</li> <li>On where to go for appropriate medical care</li> <li>That TB is curable</li> </ul>	Baseline and End-line KAP surveys	<b>UP</b>	<b>KA</b>
		62%	49%
Percentage reporting correct awareness about RNTCP logo <ul style="list-style-type: none"> <li>Percentage of CS who recall seeing the RNTCP logo</li> <li>Among those who have seen the RNTCP logo, percentage who are aware that the logo stands for DOTS (or TB management)</li> </ul>	Baseline and End-line KAP surveys	<b>UP</b>	<b>KA</b>
		39%	25%
		35%	23%
No. of private sector DOT Centers created by the district RNTCP through signing of MoUs between RNTCP and Private healthcare providers	Project records	-	
No. of Private healthcare providers of modern medicines trained in PPM-DOTS and ISTC	Project MIS	-	
No. of pharmacists/chemists sensitized to PPM-DOTS	Project MIS	-	
No. of private healthcare providers of indigenous systems of medicine (ISMHs) sensitized to PPM-DOTS	Project MIS	-	
No. of unqualified private healthcare providers of medicine sensitized to PPM-DOTS	Project MIS	-	
No of patients identified as sputum smear positive (SSP) over the total number of sets of sputum samples tested by private RNTCP approved laboratories	Project MIS	-	
Percentage of non-compliant days of ATT by patients being treated by private healthcare providers	Project and RNTCP MIS	-	
Percentage of pHCP with correct knowledge of DOTS protocols, i.e.: <ul style="list-style-type: none"> <li>All CS should have sputum microscopy done</li> <li>All TB patients should be treated using appropriate regimens (right drugs, dosages, duration)</li> <li>All TB patients should be followed up to ensure treatment completion</li> </ul>	Baseline and End-line KAP surveys	<b>UP</b>	<b>KA</b>
		4%	8%

<sup>14</sup> This refers to the number of patients who have been treated by private healthcare providers and who have completed a full course of anti-TB treatment

## Annexure 2: Determinants and Population Characteristics

Consumer	Provider (Sputum)
Age, Education Media Habits Quality of care Self-efficacy Social Support Subjective norms Susceptibility Outcome expectations	Age, Education Media Habits Perception and Knowledge about sputum tests Perception and Knowledge about DOTs

## Annexure 3: Findings on Provider Knowledge about TB

### Uttar Pradesh

Statements	Mean scores Private Allopaths	Mean scores LTFQ
TB is not a hereditary disease	4.48	4.48
TB is contagious disease	4.64	4.64
TB can be cured through proper treatment	4.96	4.96
There is NO vaccine available for treatment	1.81	1.81
TB can be cured in 6-8 months	4.74	4.74
TB DOES NOT happen in only certain age groups	4.69	4.69
TB treatment is available for free	4.75	4.75
	<b>N=266</b>	<b>N=291</b>

### Karnataka

Statements	Mean Scores Private Allopaths
TB is not a hereditary disease	3.90
TB is contagious disease	4.39
TB can be cured through proper treatment	4.66
There is no vaccine available for treatment of TB	1.97
TB can be cured in 6-8 months	4.61
TB does not happen in only certain age groups	3.89
TB treatment is available for free	4.54
	<b>N=255</b>



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