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Philippine TIPS
TUBERCULOSIS INITIATIVES FOR THE PRIVATE SECTOR

Private Provider Study Final Report

Volume I
Executive Summary

Philippine Tuberculosis Initiatives for the Private Sector, a USAID funded project

and

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I. Introduction

The Philippine Tuberculosis Initiatives for the Private Sector (PhilTIPS) aims to contribute to the reduction of TB prevalence in the Philippines by standardizing procedures for TB control and management of TB patients in the private sector. As one of its major objectives, PhilTIPS is targeting an 85% treatment success rate through the application of Directly Observed Treatment Short Course (DOTS) in 25 sites where various DOTS models will be introduced and replicated. PhilTIPS hopes to achieve this objective by motivating private physicians and other clinical providers in the project or replication sites to adopt the DOTS protocol.

PhilTIPS, in coordination with various stakeholders, is attempting to address the situation by exploring various interventions designed to promote the application of DOTS. However, even as these initiatives are being piloted, there is growing recognition that the success of these interventions is not assured. A concern is that the applicability of the interventions to the different replication site may vary due to differences in the composition and practices of the private physician population operating in the various replication sites i.e., general practitioners versus specialists.

It is for this reason that information on private physician TB case finding and management practices needs to be generated for the design, monitoring and evaluation of interventions designed to promote the adoption of DOTS by private physicians.

Toward this end, PhilTIPS contracted the UPecon Foundation to implement the "Private Provider Study" that involves conducting a survey of the TB case finding and management practices of private physicians in 22 pre-selected replication sites. The study also involves a more intensive situational analysis of selected facilities in the same sites.

This four-volume report provides an account of the project activities and the findings of the survey and situational analysis conducted as part of the study. Volume IV: Project Activities describes the operational activities undertaken in relation to the conduct of the survey and the situational analysis. It also documents the roster of physicians, the field notes on both the survey and situational analysis and the survey and situational analysis instruments. Some problems encountered and lessons learned are drawn in this volume to inform the conduct of similar undertakings in the future.

Volume III: Situational Analysis of Nine TB-DOTS Centers presents the results of the situational analysis conducted from August to October 2004. This volume provides a brief profile of the study sites and the findings relevant to the five elements of DOTS and quality aspects of service provision. From these findings, some suggested interventions and enhancements are drawn and discussed.

Volume II: Private Provider Survey gives a profile of TB treating physicians, the variations in how they manage TB cases, with an emphasis on those elements that form an integral part of the DOTS strategy. The report also provides a profile of the levels of TB DOTS awareness and adoption. Analysis of the factors that determine awareness and adoption is undertaken in order to draw out the possible areas for intervention by PhilTIPS.

Volume I: Executive Summary shows a summation of the findings discussed in the three volumes, paying particular attention to the implications of these findings on the design and evaluation of interventions. It begins by outlining some of the tasks and goals of the project taking off from the task of PhilTIPS. This is followed by a brief discussion of the study limitations, particularly in the scope and coverage of the study. A summary of the project activities and some lessons learned from the project undertakings is then presented. The main findings of the survey are likewise discussed, together with implications and interventions. The main results of the situational analysis, together with some enhancements for each of the DOTS centers are presented last.

II. Tasks and Goals of the Project

The mission statement of PhilTIPS indicates the following tasks that the project has set for itself:

1. Promote a policy environment for stronger participation of the private sector in DOTS
2. Conduct operations research to improve and expand DOTS implementation
3. Develop and create viable DOTS models
4. Replicate DOTS models in at least 25 strategic sites
5. Provide training, certification and communication support to DOTS implementation in the private sector
6. Undertake financing studies to strengthen private sector participation in TB control

In line with these tasks, the Private Provider Study has aimed to provide information to PhilTIPS that would help it achieve the following assumed goals:

1. Increase TB-DOTS awareness rates among private physicians
2. Increase TB-DOTS adoption rates
   a. increase the adoption of clinical practice guidelines in the treatment of pulmonary tuberculosis
   b. increase adherence to the non-clinical aspects of DOTS such as monitoring of daily drug intake and record keeping
   c. increase engagement of private physicians as providers or referring MDs
3. Strengthen existing TB-DOTS centers
   a. strengthen potentials for public-private partnership
4. Create an environment favorable to the expansion of TB-DOTS centers

III. Study Limitations

While recognizing that the findings and results of both the survey and situational analysis provide a wealth of information useful for the design of interventions and enhancements, the study team also recognizes that certain study limitations should inform the interpretation of results.

As the name of the study implies, focus of the analysis is on the providers of adult TB services, i.e., the supply side of the market. However, it must be recognized that TB outcomes is as much a function of patient behavior as provider behavior. For instance, the health seeking behavior of patients has implications on whether DOTS-enabled physicians are patronized. Compliance to prescribed regimens and directly observed intake are also dependent on patient characteristics and incentives. To the extent that patient behavioral considerations are internalized by providers and are reflected as incentives that govern provider behavior, then demand side considerations are tackled in the analysis, albeit at a limited extent. However, as the analysis of demand side considerations is limited, so is the ability of the study to propose demand side interventions that could also enhance the adoption of DOTS and improve TB treatment outcomes.

Another note of caution relates to the timing of the study and the interpretation of the results. As originally intended, the study was envisioned to provide information on current TB practices that would serve as a baseline point before interventions are enacted. However, the survey was conducted after some of the PhilTIPS interventions had already been implemented. The study is therefore a snapshot of practice at a particular point in time. Using that snapshot as a baseline without giving thought to the effects of implemented interventions would bias the evaluation of the full impact of the interventions as the marginal outcomes would be understated. Comparison of results across replication sites should also consider this information in mind. At the time of the survey, various sites have already had varied exposure to some of the interventions.

In drawing up the implications, the study team was particularly mindful of interventions that PhilTIPS could implement especially since the implications from some of these interventions can also inform policy formulation of the government.

Sampling considerations also preclude the generation of definitive statements and conclusions regarding some of the behavior of selected providers. Due to the limited numbers of physicians belonging to non-reference specialties, statements regarding these specialties are only representative at the national level and may not hold except for the full sample sites; Tacloban City, Roxas City and Cagayan de Oro City. Caution should also be observed when looking at site-specific findings when the number of respondent physicians is low.

IV. Highlights of Project Activities

Three major sets of activities were undertaken in the study: (i) pre-survey operations, (ii) physician survey operations and (iii) the situation analysis of nine (9) selected TB DOTS clinics.

A. Pre-survey Operations

1. *Survey Roster Development and Validation*

An initial survey roster was provided to UPecon by PhilTIPS based on a listing of physicians compiled by IMS Health Philippines, Inc., a private consulting firm. This roster was used as an initial sampling frame and basis for planning survey operations. While extensive, the IMS roster had to be adjusted because of: (i) incomplete entries, (ii) duplicate entries, and (iii) outdated entries. Initial field validation of the survey roster commenced February 2004 and lasted until April 2004. The validation activity took longer than originally anticipated because of difficulties encountered in the identification of enumerated physicians/clinics.

The initial field validation activity revealed potential problems with the survey roster. The average attrition or rate of invalid roster entries in all 22 replication sites was 44 percent even when less-discerning physician identification methods using key informants as opposed to actual ocular verification were employed

Problems encountered in the initial field validation effort led to subsequent field validation activities that were conducted just prior to actual conduct of survey. These field validation activities yielded a validated roster that enumerated 2,552 identified physicians.

2. *Development of Survey Instruments*

Final versions of the physician and patient exit questionnaires were finished and printed during the third week of April. The following activities were undertaken in relation to the development of the survey instruments:

a. **Determination of questionnaire format** - A landscape format was adopted with relatively big fonts and, as much as possible, pre-coded answers.
b. **Determination of interview methodology** - It was decided that the instruments were to be interviewer-administered so as to avoid lost questionnaires, "leading" the physicians to certain answers, and frequent callbacks to follow up questionnaires.
c. **Initial drafting** of questionnaires by the core team.

d. **Consultation and revision** - Several meetings attended by members of the field teams and physician consultants were also conducted.
e. **Drafting of physician vignettes** - TB case vignettes were included in the physician instrument. Two infectious disease specialists, Dr. Marissa Alejandria and Dr. Regina Berba, were asked to formulate the vignettes, the corresponding scoring system and the method of administration. While two vignettes, a smear positive case and a smear negative case, were successfully pre-tested, only the smear positive case was included in the final physician questionnaire due to length of time required for the interview.
f. **Drafting of line by line instructions and field manual for training** - The line-by-line instructions formed part of the field operations manual that was utilized during the training of the team leaders and interviewers and served as the reference for the field work.
g. **Pre-testing of questionnaires** - The pre-testing of the questionnaires was made as an integral part of the training of the team leaders. In order not to contaminate the sample, pre-testing of the physician and patient exit questionnaires was held in Marikina City, a non-replication site and non-survey site.
h. **Revision and finalization of questionnaires** - After the pre-test, the major revision in both the physician and patient questionnaire consisted of re-sequencing the major blocks of questions and the questions within each block.
i. **Questionnaire translation and printing** – The Patient Exit Questionnaire was translated to Tagalog and Visayan. There was no need to translate the English physician questionnaire to any dialect since it was deemed that physicians could readily understand the questions as written.

3. *Other Pre-survey Activities*

Other pre-survey activities included the following:

a. Endorsement letters from medical associations and city mayors were solicited.
b. Purchase of tokens that were to be given as expressions of appreciation for participating in the survey. The CD-ROM "TB-DOTS eShelf 1" from PhilTIPS was reproduced and copies were given to sample physicians.
c. Holding of central level training of team leaders last March 29 to April 2, 2004 at the UP School of Economics. Eleven team leaders from the Luzon and the Visayas-Mindanao field teams attended the training, together with the two field supervisors and other members of the field staff.
d. Field level training of interviewers were held last April 21 to 25, 2004 in Cagayan de Oro City for the Visayas-Mindanao field team and May 5 to 8, 2004 for the Luzon team.

B. Survey Operations

1. *Deployment of Field Teams*

Survey operations in the Visayas-Mindanao sites commenced April 28, 2004 with the deployment of field teams to Cagayan de Oro City. Survey operations in the Luzon replication sites began May 17, 2004 in Quezon City.

Survey operations in Visayas-Mindanao were completed in October while survey operations in Luzon were completed in December 2004.

A total of 1535 physicians were interviewed.

2. *Data Editing, Encoding and Processing*

Technical specifications for the encoding programs were drafted by the central team. Among these specifications were: (i) double entry encoding system and comparison of separately encoded data to vet out errors, (ii) provision for raw and clean data columns for the data screens, (iii) data screens that approximate the appearance of the questionnaire page, (iv) consistency and error trapping routines, and (v) provision for additional codes.

A programmer was contracted during the latter half of May 2004. Working encoding programs were developed by July 2004. Revisions to encoding programs were made to accommodate new codes for answers that do not fall under the pre-coded answers. Final revisions to the encoding programs were completed in February 2005.

Another layer of editing was performed at the central level to rectify field editing and enumerator errors as well as to ensure consistency of codes used.

Encoding of all questionnaires was completed first week March 2005.

C. Situational Analysis (SA) Operations

1. *Respondent Identification*

Unlike the physician survey, a purposive sampling strategy was adopted for the situational analysis of DOTS clinics. Prospective respondent clinics were chosen from a pre-identified list provided by the Philippine Coalition Against Tuberculosis (PhilCAT) rather than drawn at random from the said list. Due to the limited number of DOTS clinics that were (i) privately run, (ii) located at the replication sites, and (iii) not previously the subject of situational analyses conducted by PhilTIPS, only a handful of DOTS clinics were left to choose from. As such, no attempt was made to select DOTS clinics according to alternative private-public mix models although clinics were chosen to

achieve, as much as possible, geographic representation. Six DOTS clinics were selected from the Luzon area, with three located in Metro Manila and three outside, while 3 DOTS clinics were selected from the Visayas and Mindanao areas. A list of 13 clinics was then submitted to PhilTIPS which approved nine for the situational analysis. From the initial list of clinics submitted, eight clinics were selected and one additional clinic not in the list was requested to be included by PhilTIPS.

The DOTS clinics that were the subjects of the SA are the following:

1. Angeles University Foundation Medical Center-HMO DOTS Center – Angeles City
2. Canossa Health and Social Center Foundation, Inc.– Manila City
3. Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City
4. Health Management and Research Group Foundation – Davao City
5. Philamcare Quezon City Clinic DOTS Center – Quezon City
6. Philippine Tuberculosis Society Inc., Cebu TB Pavilion– Cebu City
7. Polymedic General Hospital DOTS Center– Cagayan de Oro City
8. Premier General Hospital of Nueva Ecija, Inc. DOTS Center– Cabanatuan City
9. UST Adult and Pediatric TB DOTS Center – Manila City

2. *Development of Situation Analysis Instruments*

The PhilTIPS SA tools were used as the bases for the development of the SA instruments. The proposed revisions to the tools were discussed and approved in a meeting of UPecon and PhilTIPS technical personnel. The revision of the tools therefore proceeded along the lines proposed.

a. **Drafting of separate "Facility Tool."** A separate "Facility Tool" was drafted that consists of questions on the facility history, background, organization and staffing as well as financial aspects.
b. **Deletion of focus group discussion (FGD) tools**. Two tools, Tool 5: Focus Group Discussion for Referring Physicians and Tool 6: Focus Group Discussion Guide for Treatment Partners, were not included among the proposed tools. The team decided not to use these tools since some of the information contained in the FGDs can be gathered from the results of the survey.
c. **Modifications per tool**. Other changes were implemented for the specific tools mainly the reorganization of questions. Part of the revisions in the provider tool is the inclusion of the same vignette that was asked of private physicians.

3. *Training of Field Teams for Situational Analysis*

Training of the field teams for the situational analysis was held last August 10 to 13 at the UP School of Economics.

After a brief overview of the TIPS and the Private Provider Study, the training session proceeded with an overview of the SA methodology. Conducted by Dr. Marilou Costello of PhilTIPS, the session provided a clearer understanding of the data expectations and focus that the SA should provide.

The second part of the training had the field teams going to two non-sample DOTS centers to implement the SA tools. The Luzon field team conducted the exercise at the UNILAB DOTS Center while the Visayas-Mindanao field team conducted the exercise at the FriendlyCare DOTS Center in Cubao.

4. *Pre-deployment Activities for Situational Analysis*

Letters were sent to the sample SA sites outlining the objectives of the SA and seeking their consent to the exercise. An endorsement letter from PhilTIPS was also sought and was sent to accompany the UPecon letters.

Tokens were purchased as gestures of appreciation for participation in the SA.

5. *Deployment Schedule*

The SA activities were conducted from August to October 2004. Three teams each were deployed in Luzon and Visayas-Mindanao, with each of the Luzon teams handling two SA sites.

6. *Encoding of Tools*

Encoding of the patient exit and provider tools were performed by central level researchers. Encoding was completed in December 2004.

V. Private Provider Survey: Main Findings and Implications

This section presents the findings of the survey on the TB case finding and management practices of private physicians conducted in line with the following study objectives: (i) generate a profile of private physicians who provide adult TB and TB-DOTS services, (ii) examine private physician TB case management practices across practice settings and specialization, with particular attention to variations in TB DOTS protocols, and (iii) examine private physician capacity to provide DOTS services across practice settings and specializations.

Roster validation activities generated a physician roster of 2,552 physicians in the replication sites. While the entire physician roster was enumerated during survey operations in order to meet the PhilTIPS initial[2] target number of respondent physicians, complete enumeration was hindered by (i) refusals and (ii) non-availability during the interview period. Thus, a total of only 1535 physicians were interviewed. The presence of relatively high non-response rates in the physician-dense sites of Manila and Quezon City necessitated the use of adjustment factors to mitigate the impact of non-response. To account for refusals and non-availability (sampling) probability weights were employed as adjustment factors.

Analysis of the survey responses revealed the following relevant findings and their implications on the profile of private physicians providing adult TB services, variations in their TB case management and their capacity to provide DOTS services.

A. Physicians Providing Adult TB Services: Profile and Case Management Practices

- *Not all physicians belonging to the reference specialties are TB treating, and physicians belonging to non-reference specialties were found to manage TB cases. The proportion of TB treating physicians varies across replication sites. It was also noted that in sites where implementing TB DOTS is more accessible to the patient (school-based and work-based clinics), less than 40 percent of physicians are TB treating.*

Implication*:* Programs and interventions targeted only at reference specialties may overlook a non-negligible segment of TB treating physicians. From the proportion of TB treating physicians, this may not be too worrisome unless there are some sites where more TB treating physicians belong to the non-reference specialties.

Interventions: The long term goal of interventions should be targeted to all physicians, although in the short-term, reference specialties could be prioritized. Provide,

[2] PhilTIPS recommendation was based o pharmaceutical industry studies, which presumed 44,000 active physicians in the country which was probably more than double the actual number of active practitioners.

at least, information about TB-DOTS to non-TB treating physicians in school-based and work-based clinics.

- *TB treating physicians see a significant number of patients, both in absolute terms and in relation to total patients. TB treating physicians see about one TB patient every other day and about 1 in ten patients are TB patients.*

Implication: Based on current patient loads, the private sector cannot be ignored in solving the TB problem.

- *For non-TB treating physicians, only about 20 percent of adult suspect TB patients are referred to centers that utilize TB DOTS.*

Implication: There is scope for increasing referrals to facilities that practice TB-DOTS.

Intervention: Interventions can be designed so as to encourage non-TB treating physicians to refer to facilities that are most likely utilizing TB-DOTS in the management of patients.

- *Among patients referred by TB treating physicians, majority are referred to other private providers of care, slightly more than one third are referred to DOTS utilizing centers.*

- *On average, TB treating physicians seem not to have sufficient knowledge about TB-DOTS as indicated by vignette scores that are used to measure knowledge of clinical practice guidelines. TB treating physicians obtained average scores of 81 percent and only 60 percent reached the cutoff. The figures are slightly higher for TB treating physicians belonging to reference specialties; 83 percent average score and 69 percent reaching the cutoff. General practitioners posted lowest average vignette scores which are below the cutoff. Those in school-based clinics and other types of clinics had low vignette scores and low proportions exceeding the cutoff. Relating mean scores and passing rates with each other reveal distributional aspects of scores, i.e., some locations have low scores but high passing rates and higher mean scores but low passing rates. These imply wide variations in the vignette scores of physicians in some sites, with some exhibiting outliers at the low end of the range of scores and some sites having outliers on the high end of the scores.*

Implications: If knowledge translates to actual practice, then the higher a physician's score is, the more faithful his TB practice is to the clinical elements of TB DOTS. Training for GPs needs to be prioritized over other reference specialties, also those for school-based and other types of clinics. A less than 100 percent passing rate in the vignette means that there is still insufficient knowledge about the clinical practice

guidelines on TB-DOTS of TB-treating physicians. Variations in scores across sites imply that knowledge of clinical practice guidelines remain uneven in some sites.

Intervention: Training can be focused on those groups/sites that scored relatively low and whose passing rates are also low.

- *About 45 percent of TB treating physicians still use x-ray exclusively as primary diagnostic tool for suspect TB patients, with variations across specialties, clinic types and location. HMO physicians report highest utilization of AFB smear.*

Implication: TB treating physicians are not yet conforming to the clinical practice guidelines regarding the management of pulmonary TB.

Interventions: Training on, and dissemination of clinical practice guidelines may be warranted. Advocate a payment scheme in the TB-OP package that would pay for the sputum exam first and x-ray only for category III patients.

- *Only about one-fourth of TB treating physicians belonging to the reference specialties employ treatment regimens that coincide with short-course chemotherapy (SCC) with infectious disease specialists and pulmonologists registering the highest proportions. Those in hospital OPDs and school-based clinics also register low proportions.*

Implication: Application of the SCC is still limited among TB treating physicians. This coincides with the vignette scores and outcomes.

Intervention: Training and dissemination of clinical practice guidelines may be warranted.

- *About 80 percent of TB treating specialists among the reference specialists sees their TB patients for follow-up consultation within two months. Infectious disease specialists and pulmonologists are more likely to see their TB patients for follow-up consultations within one month after the start of treatment compared with other TB treating physicians belonging to the reference specialties.*

- *Majority of TB treating physicians among the reference specialist prefer fixed dose packaging.*

Implication: This is consistent with the DOTS preferred mode of packaging due to convenience.

- *Indirect means of monitoring drug intake are employed by most TB treating physicians. Reports of treatment partners, either oral or written are employed by only 10 percent of TB treating physicians belonging to the reference specialties.*

Implication: Since only ten percent use a more reliable monitoring device, patient compliance may be lower for patients who see private physicians.

- *Records of TB patients are not separated from records of all other patients. Less than 10 percent separate records. Physicians practicing in community-based, school-based and work-based clinics report the highest percentage.*

Implications: The added costs of complying with reporting requirements may be high. Compliance to the CUP requirements to submit summary records is likely to be low.

Interventions: Sanctions can be imposed on physicians who do not submit summary reports. Design of sanctions should encourage that reports not only be submitted but that these should be accurate as well.

Intervention: Reimbursement amounts and mechanisms of PHIC programs should be designed to encourage physicians to set up a good records system.

- *The TB outcome profile of general practitioners differ the most compared with other reference specialties, reporting low completion rates and high failure rates. Patients lost to follow-up accounts for a non-trivial proportion of all TB patients, especially for general practitioners. TB outcomes are not necessarily related to vignette outcomes, as indicated by the TB outcomes by site.*

Implications: It is possible that the insufficient knowledge of TB DOTS, as indicated by vignette scores, translates into poor outcomes for general practitioners. The substantial proportion of patients lost to follow-up of general practitioners highlight the importance of more proactive monitoring of these patients. Knowledge of clinical practice guidelines (CPGs) is necessary but not sufficient condition for achieving acceptable TB outcomes. Apart from knowledge of CPGs, other factors such as patient monitoring and patient willingness to comply with the recommended protocol are important in achieving good TB outcomes.

Interventions: More intensive training on clinical practice guidelines may be warranted for those groups who have low proportions of patients who complete treatment. In the short term, encouraging groups that have high proportions of patients lost to follow-up and/or low proportions of patients who complete treatment to refer patients to TB DOTS centers may improve TB outcomes.

- *Variations exist for consultation fees and laboratory fees across specialties, type of clinic and location. Specialists charge higher than general practitioners, physicians in hospital-based clinics charge higher than those in other types of clinics and the highest fees are charged in Quezon City. At current fees and actual services, the DOTS regimen is at least revenue-neutral if not revenue-enhancing for the private physician.*

Implications: With current fees, the DOTS regimen is at least as expensive as the actual regimen. Flexible referring arrangements may have to be instituted (where physicians can retain management of the patients while avoiding the costs of monitoring and direct observation of drug intake). With average monthly clinic expenses for both

stand-alone and institution-based clinics ranging from P10,000 to P17,000, the physician needs about 40 to 68 consultations a month to recover costs. The estimated amount of fees for consults gives the participation constraint for the physician to refer patients to DOTS centers. Using this analysis, while GPs have a lower participation constraint, they could be providing lower quality services, as evidenced by the vignettes.

- *Estimates of average monthly incomes of physicians, which are most likely to be understated because of refusals, indicate the highest income for pulmonologists. Mean incomes vary substantially by location.*

- *About 78 percent of TB treating physicians is accredited with either PHIC or private insurance with general practitioners showing the least proportion.*

Implication: If they do not have to be accredited to get reimbursement, then the potential of PHIC accreditation as a means to ensure compliance to clinical practice guidelines is reduced. Since most TB treating physicians are accredited and have experience with third party payors, the potential of insurance as a means to encourage TB DOTS is heightened.

B. TB DOTS Awareness and Adoption: Levels of engagement and case management variations across types of engagement

- *About 70 percent of all physicians are aware of TB DOTS while about 72 percent of all TB treating physicians are aware of TB DOTS.*

- *While TB DOTS awareness rates are expected to be higher among TB treating doctors, this is not the case for general practitioners. There are wide variations in awareness rates across sites. There is a reduction in awareness rates as the base changes from all doctors to TB treating doctors. TB DOTS awareness is lowest among work-based doctors.*

Implications: General practitioners can be the focus or target of information campaigns. Information campaigns can be redirected toward certain sites. Changes in awareness rates in sites, as the base changed from all doctors to TB-treating doctors, could indicate that there were TB DOTS interventions that were not very well-targeted, i.e., interventions reached doctors who actually do not have a TB practice and should therefore have a low priority in terms of intervention targeting. If on the other hand, there were no interventions in these cities as of the time of the survey then these numbers indicate the potential TB-referring and TB-treating physicians. There are some knowledgeable physicians who can be encouraged to refer to TB DOTS centers. There is scope for increasing awareness of TB-DOTS among work-based physicians considering

that the costs to patients and physicians of implementing TB-DOTS in the workplace may be lower.

- *Awareness of TB DOTS does not automatically translate to adoption, since of all physicians who are aware only about 29 percent adopt. While 78 percent of all TB treating physicians are aware, only about 35 percent report adoption. Adoption rates vary across sites.*

Implication: Information is not everything. Other factors may come into play in influencing adoption.

Implication: Coupled with the finding that patient loads of TB treating physicians are substantial, low adoption rates imply that a significant number of TB patients are managed utilizing non-DOTS protocols.

- *Out of those adopting TB DOTS among the reference specialties, the most common level of engagement is being a DOTS referring physician (52 percent), followed by being a DOTS provider (26 percent).*

Implications: Uneven proportions of certified DOTS-referring physicians point to areas where efforts can be focused, i.e, general practitioners, hospital outpatient departments/ERs, free standing clinics. While this may suggest the feasibility of adopting single practice networks, more information is needed given the high variability of DOTS levels among physicians across sites.

- *Reported awareness of DOTS tends to be positively associated with the total vignette score across reference specialties with pulmonologists obtaining the highest average total vignette score. Across the different replication sites, respondents who report awareness of DOTS tend to achieve higher total vignette scores with physicians in Dagupan City obtaining the highest average total vignette scores.*

Implication: Physicians who are aware of TB DOTS seem to show greater knowledge of clinical practice guidelines.

- *The mean score of physicians who claim to adopt DOTS barely meets the cutoff rate of 82. About 60 percent of those who claim to adopt have scores exceeding the cutoff score. Among DOTS-engaged physicians, certified DOTS-referring physicians have the highest aggregate vignette scores and passing rate while members of PHILCAT and PhilHealth certification committee have the lowest average score and passing rate. Quite unexpectedly, certified DOTS providers who are supposed to have had more intensive training on TB DOTS posted lower scores and passing rates relative to DOTS-referring physicians.*

Implication: While DOTS-engaged physicians have better knowledge about clinical practice guidelines than those who are not engaged, the knowledge that they possess still seems insufficient.

Intervention: There may be a need for interventions that would reinforce the knowledge of physicians about clinical practice guidelines even among those who are already engaged in DOTS.

- *Similar to the general trend, those who report adoption of DOTS tend to obtain higher total vignette scores across types of clinics and replication sites. Among respondent physicians who report adoption of DOTS, those who also report certification as DOTS-referring physicians tend to obtain higher total vignette scores*

- *Actual practice of DOTS elements is more prevalent among those who report DOTS awareness compared with those who do not, and for those who report DOTS adoption compared with those who are not adopting.*

- *The proportion of those who use the sputum smear exam is higher among those who report awareness of DOTS. Awareness of DOTS, however, does not ensure adoption of the sputum smear exam as the diagnostic tool since 38.8 percent of the DOTS-aware physicians still exclusively use the x-ray test as the primary diagnostic tool. The proportion of those who use the sputum smear exam is higher among those who report adoption of DOTS compared to those who report non-adoption of DOTS. Again, reported adoption of DOTS does not necessarily lead to complete adoption of the sputum smear exam since 28 percent of those who report adoption of DOTS use x-ray tests exclusively.*

- *The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is higher among physicians who report awareness of DOTS relative to those who do not. The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is lower among physicians who report adoption of DOTS relative to those who do not.*

- *Only around 10 percent of those who report awareness of DOTS check the treatment partner report. This indicates that reported awareness of DOTS may not necessarily lead to the application of more stringent methods of drug intake monitoring. The tabulations on differences of monitoring drug intake across levels of engagement so far suggest that the monitoring aspect may be harder to push compared to the clinical aspects of DOTS.*

- *The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report awareness of DOTS appears to be higher compared to physicians who do not report awareness of DOTS. The proportion of those who see their TB patients within two months after initiation of*

treatment among physicians who report adoption of DOTS appears to be slightly higher compared to physicians who do not report adoption of DOTS.

- *There are appears to be no difference in the preferred mode of TB drug packaging between physicians who report awareness of DOTS and physicians who do not*.

Implication: There seems to be a correlation between intentions and actual practice.

Implication: Given the current patient load of private patients, these numbers also have implications on the number of TB patients that are managed utilizing different protocols (non-DOTS).

C. Determinants of Awareness and Adoption

1. *Regression results for reported awareness of TB-DOTS show that*:

- Those who are accredited with insurance are less likely to be aware than those who are not.
- Doctors with more recent TB training, i.e., within the last year, are more likely to be aware of TB DOTS.
- General practitioners, family medicine specialists, general internists, internists with subspecialty training, infectious disease specialists, and other specialists are less likely to be aware of TB DOTS compared to pulmonologists.
- Hospital based physicians, including those in ER/OPDs, as well as those in work-based clinics are more likely to be aware of TB DOTS relative to those in free standing clinics.
- Members of specialty societies and those engaged in teaching and research are also more likely to be aware.

Implications: Information campaigns should target (i) older physicians, (ii) those who had less-recent TB training, (iii) those in free-standing clinics, (iv) non-members or specialty societies, and (v) GPs, internists and other non-reference specialty physicians.

2. *Regression results for awareness of individual elements of DOTS indicate that:*

- Members of specialty societies as well as those who are engaged in teaching and research are more likely to be aware of all the elements of TB DOTS. Those who have mixed practices are also more likely to be aware of the diagnosis and recording elements.

- Physicians having more recent TB training are more likely to be aware of the directly observed treatment and continuous supply of drugs components of TB DOTS. More recent TB training, however, does not seem to make the physician more aware of the other TB DOTS elements.
- While having multiple clinics increases the likelihood that a physician reports awareness of TB DOTS, the same association can not be observed with regards the component elements of TB DOTS. Thus, physicians with multiple practices may just be as uninformed about TB DOTS compared to physicians with single clinics.

Implication: These results indicate that efforts are still needed to raise the awareness and knowledge of physicians regarding TB DOTS, especially the specific and individual elements.

3. *Regressions of the likelihood of exceeding the cutoff vignette score indicate that*:

- Physicians who had training in TB DOTS were more likely to at least satisfy the cutoff score.
- However, physicians who are currently aware of the PHIC TB DOTS package are less likely to make the cutoff. This implies that, for these physicians to provide adequate DOTS services that can be reimbursed by PHIC, they would have to undergo further training.
- As in the awareness models, younger physicians are more likely to make the cutoff score.
- General internists as a whole are more likely to exceed the cutoff relative to all other specialties, while it is only in Manila where pulmonologists are more likely to make the cutoff relative to general internists. Those in hospital-based clinics, including those based in OPDs/ERs are also more knowledgeable.
- Those with mixed practices are more likely to meet the cutoff score. This confirms the hypothesis that physicians holding public appointments have greater access to knowledge about tuberculosis.
- The acquisition of DOTS knowledge is also driven by market forces. For every one percent change in the ratio of TB patients to all patients, the likelihood of making the cut increases by almost 14 percent.

Implications: Benefit considerations matter; physicians with larger TB patient to total patient ratios seek knowledge on clinical practice guidelines. However, awareness of the PHIC TB out-patient benefit package may not increase physician knowledge without corresponding interventions providing TB DOTS training.

4. *Regression results for reported adoption indicate that*:

- Physicians with multiple clinics are more likely to adopt TB DOTS.
- Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to adopt TB DOTS. This may indicate that the PHIC TB out-patient benefit package does represent a financial incentive for physicians to adopt TB DOTS and thus can be used to motivate greater private physician participation in the provision of TB DOTS.
- Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to adopt TB DOTS. This indicates that training from PhilCAT or PhilTIPS does convince physicians of the merits of DOTS.
- Similar to the case of TB DOTS awareness, physicians who had less recent TB training were less likely to adopt TB DOTS. These results lend credence to the validity of conducting TB DOTS information dissemination among physicians.
- Physicians practicing in clinics with x-ray machines were less likely to adopt while physicians practicing in clinics with sputum collecting equipment are more likely to adopt TB DOTS.
- Pulmonologists are also more likely to adopt TB DOTS compared to physicians engaged in other clinical specialties. This is interesting since the logit regression of vignette scores indicated that pulmonologists were not more knowledgeable of clinical practice guidelines.
- Physicians in work-based clinics are more likely to adopt TB DOTS. This result gives indications that work based DOTS programs may be starting to reap some modicum of success.

Implication: Again, the results indicate that financial incentives such as the PHIC TB out-patient benefit package are viewed favorably by physicians and serve as motivation for TB DOTS adoption. Coupled with the result that TB DOTS training is positively associated with TB DOTS adoption, these herald positive developments that should influence the direction of TB DOTS interventions.

5. *Regression results for physicians seeking certification as DOTS referring physicians indicate that*:

- Physicians who have insurance accreditation are more likely to seek certification as DOTS referring physicians.
- Physicians with multiple clinics, who are more likely to have a larger TB patient load and a larger number of PHIC covered patients, are more likely to seek certification as DOTS-referring physicians. Consequently, these physicians may be more attracted to the financial incentive (PHIC TB out-patient benefit package payments) that certification as DOTS-referring physician brings.

- Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS-referring physicians.
- Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS-referring physicians. This indicates that training from PhilCAT or PhilTIPS not only convinces physicians of the clinical merits but also of the financial merits of TB DOTS.
- Physicians practicing in clinics with x-ray machines are less likely to seek certification while physicians practicing in clinics with sputum collecting equipment are more likely to seek certification as DOTS referring physicians.
- Pulmonologists are also more likely to seek certification as DOTS referring physicians.
- Physicians based in HMO clinics and hospital OPD/emergency rooms are more likely to seek certification as DOTS referring physicians.
- Physicians who had less-recent TB training are less likely to seek certification as DOTS-referring physicians.

6. *Regression results for physicians seeking certification as DOTS providers indicate that*:

- Physicians who have insurance accreditation are more likely to seek certification as DOTS providers.
- Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS providers.
- Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS providers.
- This is further supported by the result that physicians practicing in clinics with x-ray machines were less likely to seek certification while physicians practicing in clinics with sputum collecting equipment were more likely to seek certification as DOTS providers.

Implication*:* These results indicate that financial incentives influence physician behavior to the extent that physicians seek DOTS certification, an activity that certainly incurs some costs.

7. *Results on the use of AFB sputum smear indicate that*:

- Physicians accredited with private insurance firms (including HMO accreditation) are less likely to use the AFB sputum smear exam.
- Members of specialty societies are more likely to use the AFB sputum smear exam. This is probably due to the "quality" consideration where members of specialty societies have greater exposure to clinical practice guidelines.

- Physicians who are aware of the PHIC TB out-patient benefit package but perform poorly in the vignette (low vignette diagnosis scores) as well as physicians who perform well in the vignette but are not aware of the PHIC TB out-patient benefit package are less likely to use the AFB sputum smear exam. The opposite result is observed with respect to physicians who are aware of the PHIC TB out-patient benefit package and perform well in the vignette (high vignette diagnosis scores).
- Physicians who are older or had less recent TB training are also less likely to apply the AFB sputum smear exam. This indicates that the use of the AFB smear exam is a relatively recent development.

Implication: These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the AFB sputum smear exam.

8. *Results on regressions for the use of the SCC regimen indicate that*:

- Teaching physicians are more likely to use the SCC as drug regimen. This coincides with the result that physicians who had less-recent TB training are also less likely to apply the SCC.
- Physicians with greater TB patient densities (greater proportion of TB patients relative to total patients) are less likely to prescribe the SCC. This probably reflects the institutional paradigm that physicians with greater clinical experience tend to follow their own treatment regimen.
- Physicians who are aware of the PHIC TB out-patient benefit package are less likely to use the SCC drug regimen.
- However, physicians who are aware of the PHIC TB out-patient benefit package and also perform well in the vignette (high vignette drug scores) are more likely to use the SCC drug regimen.

Implication: These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the SCC drug regimen.

9. *Results for separation of TB patient records show that:*

- Physicians accredited with private insurance firms (including HMO accreditation) are less likely to separate records of TB patients.
- Members of specialty societies are more likely to separate the records of TB patients.

- Physicians who own the clinic practice are less likely to separate the records of TB patients. This probably stems from the greater effort and possibly cost of maintaining separate records.
- However, physicians with greater TB patient densities (high proportion of TB patients relative to total patients) are more likely to separate the records of TB patients.
- Physicians trained by PhilTIPS are more likely to separate the records of TB patients.
- Physicians who are aware of the PHIC TB out-patient benefit package are more likely to separate the records of TB patients. This indicates that awareness of financial incentives may motivate physicians to separate the records of TB patients.
- Physicians who perform well in the vignettes, however, are less likely to separate the records to TB patients.

Implication: This indicates that knowledge of clinical practice guidelines for TB may not necessarily translate into knowledge of the recording and reporting elements of DOTS.

10. *Results for monitoring drug intake via treatment partner report show that*:

- Physicians with multiple clinics are more likely to monitor daily drug intake using the treatment partner report.
- Physicians engaged in teaching and research are more likely to monitor daily drug intake using the treatment partner report.
- Likewise, private physicians who also have clinical practices in public health facilities are more likely to monitor daily drug intake using the treatment partner report.
- Physicians who are aware of the PHIC TB out-patient benefit package are more likely to monitor daily drug intake using the treatment partner report.

Implications: These results show that individually, neither awareness of financial incentives nor knowledge of clinical practice guidelines may be sufficient to ensure physician practice of TB DOTS in its entirety. Interventions have to be instituted so that these provide not only financial incentives but also knowledge as well. Furthermore, the results indicate that each aspect of TB DOTS has to be given separate thought particularly since knowledge of the clinical aspect of TB DOTS does not necessarily translate to knowledge of the non-clinical aspects of TB DOTS.

D. Intervention Points

- *About two-thirds of physicians obtained TB information in the last year. However, about fifteen percent acquired TB information more than five years ago. Among the reference specialties, pulmonologists show the greatest proportion of physicians who have received relatively more recent TB training while general practitioners show the lowest proportion of obtaining TB information in the last year.*

- *Only slightly more than a fourth of TB treating physicians has had training in TB-DOTS. For reference specialties, this figure is at about 34 percent.*

Implications: There is therefore significant room for the expansion of training programs. Such programs can be directed at general practitioners, family medicine specialists and internists as these groups exhibit the lowest proportion that have had training. Expansion of training programs can also be directed at the third of pulmonologists who have had no training in TB-DOTS.

- *Only about 36 percent of TB treating physicians is aware of the PHIC package. Internists with subspecialties are the least aware, followed by general practitioners, family medicine specialists and general internists. Lower proportions of physicians in work-based clinics, free-standing clinics and hospital outpatient departments or ERs are aware of the package.*

Implication: Information campaigns on the TB-DOTS package can be targeted to these specialties.

Intervention: There is scope for expanding joint efforts with the PHIC for information about the package as only about 5 percent of physician got their information from PHIC.

E. Replication Sites Summaries

Tables 1 to 4 present the positions of the replication sites on the basis of the levels of DOTS engagement, practice consistent with DOTS elements, exposure to interventions and level of difficulty. The first two elements can be considered as the target outcomes of policy- the increase in the proportions of TB treating physicians who not only report awareness and adoption of DOTS but also actually practice the elements of DOTS. The third element measures the extent to which interventions have reached TB treating physicians. The last element recognizes that implementing interventions in some sites may be much more difficult, and thus more costly, than in others.

Table 1
Sites by reported level of DOTS engagement

Site	Awareness of TB DOTS	Adoption of TB DOTS	Certified DOTS referring physician	Certified DOTS providers	Overall
Angeles City	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Bacolod City	LOW	LOW	MEDIUM	LOW	LOW
Bacoor City	HIGH	HIGH	LOW	LOW	MEDIUM
Batangas City	MEDIUM	MEDIUM	LOW	LOW	LOW
Cabanatuan City	HIGH	HIGH	HIGH	MEDIUM	HIGH
Cagayan de Oro City	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu City	LOW	LOW	MEDIUM	MEDIUM	LOW
Cotabato City	MEDIUM	MEDIUM	LOW	LOW	LOW
Dagupan City	HIGH	HIGH	LOW	LOW	MEDIUM
Davao City	HIGH	HIGH	HIGH	LOW	HIGH
Dumaguete City	LOW	LOW	MEDIUM	HIGH	MEDIUM
Iloilo City	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
Laoag City	HIGH	HIGH	MEDIUM	HIGH	HIGH
Lucena City	HIGH	HIGH	LOW	MEDIUM	MEDIUM
Manila City	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM
Naga City	LOW	LOW	HIGH	MEDIUM	MEDIUM
Ozamis City	LOW	LOW	LOW	HIGH	LOW
Puerto Princesa City	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
Quezon City	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Roxas City	HIGH	HIGH	HIGH	LOW	HIGH
Tacloban City	LOW	LOW	MEDIUM	HIGH	MEDIUM
Zamboanga City	LOW	LOW	MEDIUM	HIGH	MEDIUM

Table 2
Sites by actual practice of DOTS elements

Site	Use Sputum	Prescription coincides with SCC	Vignette score	Passing Rate	Written Report	Separate records	Overall
Angeles City	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM
Bacolod City	MEDIUM	HIGH	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
Bacoor City	LOW	HIGH	MEDIUM	LOW	HIGH	LOW	MEDIUM
Batangas City	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	HIGH
Cabanatuan City	LOW	LOW	MEDIUM	LOW	MEDIUM	HIGH	MEDIUM
Cagayan de Oro City	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu City	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM
Cotabato City	MEDIUM	LOW	HIGH	HIGH	LOW	LOW	MEDIUM
Dagupan City	HIGH	HIGH	HIGH	HIGH	LOW	LOW	HIGH
Davao City	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	HIGH	MEDIUM
Dumaguete City	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	MEDIUM
Iloilo City	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM
Laoag City	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Lucena City	HIGH	MEDIUM	LOW	MEDIUM	HIGH	LOW	MEDIUM
Manila City	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Naga City	HIGH	MEDIUM	HIGH	LOW	LOW	HIGH	MEDIUM
Ozamis City	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Puerto Princesa City	HIGH	LOW	HIGH	HIGH	LOW	HIGH	HIGH
Quezon City	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM
Roxas City	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	HIGH	HIGH
Tacloban City	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM
Zamboanga City	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW

Table 3
Sites by exposure to interventions

Site	Awareness of PHIC TB-DOTS package	Training in TB-DOTS	Obtained TB information in the last year	Overall
Angeles City	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Bacolod City	MEDIUM	MEDIUM	HIGH	MEDIUM
Bacoor City	LOW	LOW	MEDIUM	LOW
Batangas City	HIGH	HIGH	HIGH	HIGH
Cabanatuan City	HIGH	HIGH	MEDIUM	HIGH
Cagayan de Oro City	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Cebu City	LOW	LOW	LOW	LOW
Cotabato City	HIGH	LOW	HIGH	MEDIUM
Dagupan City	MEDIUM	LOW	LOW	LOW
Davao City	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Dumaguete City	LOW	MEDIUM	LOW	LOW
Iloilo City	LOW	MEDIUM	MEDIUM	MEDIUM
Laoag City	HIGH	HIGH	HIGH	HIGH
Lucena City	HIGH	HIGH	MEDIUM	HIGH
Manila City	LOW	LOW	LOW	LOW
Naga City	HIGH	HIGH	LOW	MEDIUM
Ozamis City	MEDIUM	LOW	LOW	LOW
Puerto Princesa City	HIGH	HIGH	HIGH	HIGH
Quezon City	LOW	MEDIUM	LOW	LOW
Roxas City	MEDIUM	HIGH	HIGH	HIGH
Tacloban City	MEDIUM	MEDIUM	HIGH	MEDIUM
Zamboanga City	LOW	LOW	MEDIUM	LOW

Table 4
Sites by level of difficulty of interventions

Site	Response rate	Number of reference MDs	Proportion of GPs	Overall
Angeles City	HIGH	MEDIUM	HIGH	HIGH
Bacolod City	HIGH	HIGH	LOW	MEDIUM
Bacoor City	HIGH	MEDIUM	MEDIUM	MEDIUM
Batangas City	HIGH	LOW	LOW	LOW
Cabanatuan City	MEDIUM	MEDIUM	HIGH	MEDIUM
Cagayan de Oro City	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu City	MEDIUM	HIGH	MEDIUM	MEDIUM
Cotabato City	LOW	LOW	LOW	LOW
Dagupan City	MEDIUM	LOW	HIGH	MEDIUM
Davao City	MEDIUM	HIGH	MEDIUM	MEDIUM
Dumaguete City	LOW	LOW	HIGH	LOW
Iloilo City	MEDIUM	HIGH	LOW	MEDIUM
Laoag City	LOW	LOW	HIGH	LOW
Lucena City	HIGH	MEDIUM	MEDIUM	MEDIUM
Manila City	HIGH	HIGH	MEDIUM	HIGH
Naga City	LOW	MEDIUM	LOW	LOW
Ozamis City	MEDIUM	LOW	HIGH	MEDIUM
Puerto Princesa City	LOW	LOW	MEDIUM	LOW
Quezon City	HIGH	HIGH	MEDIUM	HIGH
Roxas City	LOW	MEDIUM	LOW	LOW
Tacloban City	MEDIUM	MEDIUM	LOW	LOW
Zamboanga City	LOW	MEDIUM	HIGH	MEDIUM

Table 5 summarizes these elements. Given these rankings, PhilTIPS can perhaps concentrate on sites with low levels of outcomes and exposure to interventions where the level of difficulty implementing such interventions is not that high. One such area is Ozamis City. Other areas with low outcomes, relatively low exposure to interventions and where level of difficulty is medium include the cities of Cebu, Cotabato, and Zamboanga. While PhilTIPs can intervene in areas with medium outcomes, medium rank in terms of interventions and level of difficulty, the costs of interventions would be higher in the harder to reach areas. The implications of this methodology were generated using a narrow definition of "outcomes", i.e., awareness and adoption of TB DOTS. Whether these will lead to other impacts like higher TB cure rates or greater DOTS coverage would require more information including those on demand-side aspects. For example, while we are saying that there is scope for increasing training of physicians in Cebu City, we cannot predict for certain how increased training will translate to higher DOTS coverage or TB cure rates without patient-side information. We cannot also predict whether the same training conducted in Manila will have the same health impacts without patient-side information.

Table 5
Summary site matrix

Site	Level of engagement	Actual practice of DOTS elements	Exposure to interventions	Level of difficulty in implementing interventions
Angeles City	MEDIUM	MEDIUM	MEDIUM	HIGH
Bacolod City	LOW	MEDIUM	MEDIUM	MEDIUM
Bacoor City	MEDIUM	MEDIUM	LOW	MEDIUM
Batangas City	LOW	HIGH	HIGH	LOW
Cabanatuan City	HIGH	MEDIUM	HIGH	MEDIUM
Cagayan de Oro City	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Cebu City	LOW	MEDIUM	LOW	MEDIUM
Cotabato City	LOW	MEDIUM	MEDIUM	LOW
Dagupan City	MEDIUM	HIGH	LOW	MEDIUM
Davao City	HIGH	MEDIUM	MEDIUM	MEDIUM
Dumaguete City	MEDIUM	MEDIUM	LOW	LOW
Iloilo City	HIGH	MEDIUM	MEDIUM	MEDIUM
Laoag City	HIGH	HIGH	HIGH	LOW
Lucena City	MEDIUM	MEDIUM	HIGH	MEDIUM
Manila City	MEDIUM	MEDIUM	LOW	HIGH
Naga City	MEDIUM	MEDIUM	MEDIUM	LOW
Ozamis City	LOW	LOW	LOW	MEDIUM
Puerto Princesa City	HIGH	HIGH	HIGH	LOW
Quezon City	MEDIUM	MEDIUM	LOW	HIGH
Roxas City	HIGH	HIGH	HIGH	LOW
Tacloban City	MEDIUM	MEDIUM	MEDIUM	LOW
Zamboanga City	MEDIUM	LOW	LOW	MEDIUM

VI. Situation Analysis of DOTS Centers: Main Findings

Presented in Table 6 below are the results of the situational analysis conducted in nine TB-DOTS Centers from August to October 2004. This table includes the major SA findings and suggested enhancements to DOTS clinics. The findings presented here are based on the three tools utilized in the situation analysis: the facility tool, the provider tool and the patient exit tool. These tools were accomplished mainly through interviews as well as through observation of the facilities and the services provided. Results from the provider and patient exit tools are used to validate and enrich the findings from the facility tool. Text in italics represents suggested follow-through activities or specific actions for TIPS to enhance the private DOTS clinics.

Table 6
Summary of Major SA Findings and Suggested Enhancements of DOTS Clinics*

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	Both sputum and x-rays are used and administered in the hospital; Diagnostic Committee (DC) is constituted; exam fees charged	Current stocks adequate, with drug inventory policy; drugs not dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic not required; dispensing policy not clear; allows family members to be treatment partners; defaulter tracing thru phone, texting	TB registry is updated; but no quarterly reports on treatment progress and outcomes; no request forms for hospital lab exams	Maintains book of accounts; 84.5% of operating budget supported by PhilTIPS grant; low cost-recovery rate due to limited number of patients (paying or insured); 63.5% of operating expenses is on staff salaries; use market/RITM rates for fees; refer non-paying patients to RHUs; not yet PhilHealth accredited; site physician passed vignette 1 but failed vignette 2
	Verify further the procedures in the use of x-ray tests; verify quality of AFB smear tests done in hospital; adopt QA	*Expedite MOA with LGU; secure storage area; dedicate drugs per patient*	*Clarify frequency of drug dispensing during intensive and maintenance phases undertake periodic home visits*	*Verify and encourage the use of quarterly reports to monitor treatment progress and outcomes; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential clients; rationalize user fees to improve cost recovery rates; further evaluate and upgrade DOTS capability of the site physician*

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
Canossa Health and Social Center Foundation, Inc., Manila City	Both sputum and x-rays are used and administered in the hospital; DC is constituted; exam fees charged; PhilCAT accredited	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; no MOA yet with LGU/DOH; drugs provided for free	Follow NTP drug regimen; DOT is done; clear dispensing policy; medical staff as treatment partners; defaulter tracing thru home visits	TB registry is updated; but no quarterly reports on treatment progress and outcomes;	Does not seem to maintain own book of accounts; 65% of payroll supported from PhilTIPS grant; low cost-recovery rate due to high number of charity patients; no pricing schedule; not yet PhilHealth accredited; site physician passed both vignettes
	Verify quality of AFB smear; adopt QA	*Facilitate MOA with LGU/DOH; secure storage area; dedicate drugs per patient*	*Maintain current standards and procedures*	*Verify and encourage the use of quarterly reports to monitor treatment progress and outcomes; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential paying clients; adopt user fees to recover costs*
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	AFB smear mainly, but also x-rays sometimes used; samples sent to hospital for processing; DC constituted; exam fees charged by hospital; repeat exams of previous external lab tests	Current and buffer stocks adequate for current patients, with drug inventory policy; drugs dedicated per patient; drugs provided for free; no MOA yet with CHO/LGU	Follow NTP drug regimen; daily DOT in clinic is not required; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits	TB registry is updated and submitted to DOH and PhilTIPS; with quarterly reports on treatment progress and outcomes	Employs standard bookkeeping practices; currently, relies private PhilTIPS grant and from hospital; total monthly salary about P39,000; no user fees; not clear if PhilHealth accredited due to lack of DC; the sole cite physician passed both vignettes 1 and 2

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
	Verify quality of AFB smear tests done in hospital	*Facilitate MOA with LGU/DOH*	*Verify DOT compliance at home*	*Maintain current standards and procedures*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation.*
Health Management and Research Group Foundation, Davao City	Use AFB smear which is mainly done on site; no DC constituted, but rely on external consultants; exam fees charged; DOH-region checks specimen	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; MOA with DOH-Region 11; drugs provided for free	No information on drug regimen; daily DOT in clinic not required; drug dispensing weekly; treatment partners are BHWs and FTCs; FTCs do home visits to trace defaulters	TB registry is updated; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Uses own financial mgt system; currently, relies 100% on PhilTIPS grant for operating expenses; 65% of operating expenses is on staff salary; charge 5% mark-ups; not yet PhilHealth accredited; only one of the two site physicians passed vignette 1 or vignette 2
	Constitute a Diagnostic Committee Verify quality of AFB smear; adopt QA	*Maintain current standards and procedures*	*Verify drug regimen followed*	*Verify and encourage the use of counting sheets for lab exams; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential client; rationalize user fees to improve cost-recovery rate; further evaluate and upgrade DOTS capability of the site physician*

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
PhilamCare-Quezon City Clinic DOTS Center, Quezon City	Use AFB smear only, but specimens collected at home or elsewhere are accepted; no TB DC constituted; No fees collected in clinic.	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in the clinic; clear dispensing policy; medical staff and family members as treatment partners; no own defaulter tracing mechanism	TB registry is updated and submitted to NTP; with quarterly reports on treatment progress and outcomes and other reports	No separate accounting and financial reporting system for the DOTS clinic; wholly supported by mother organization; no fees charged to enrolled patients who are insured with mother organization; all 5 site physicians passed vignette 1, but only 2 passed vignette 2
	Constitute a Diagnostic Committee	*Facilitate MOA with LGU*	*Develop own defaulter tracing mechanism*	*Maintain current standards and procedures*	*Maintain current standards and procedures further evaluate and upgrade DOTS capability of the site physician*
Polymedic General Hospital DOTS Center, Cagayan de Oro City	Use AFB smear mainly and on site; DC constituted; no exam fees charged	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encouraged; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing self-reported accounts of patients; nurse phone-in follow ups	TB registry is updated; but no quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Maintains own book of accounts; relies on PhilCAt support; no fees charged to patients; not clear if PhilHealth accredited; no vignette administered to the site physician, some patient dissatisfaction with MD explanation of service, location and waiting time

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
	Adopt indicators of quality assurance Verify quality of AFB smear	*Verify if drugs dedicated per patient*	*Verify DOT also through periodic home visits*	*Verify and encourage the use of counting sheets for lab exams; verify submission of TB registry to NTP*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; verify or facilitate PhilHealth accreditation; verify DOTs capability of the site physician, possibly through vignettes, improve processes to increase explanation of service and to reduce waiting time.*
Premier General Hospital of Nueva Ecija, Inc. DOTS Clinic, Cabanatuan City	AFB smear mainly, tests done in the hospital; no DC constituted; exam fees charged by hospital; accepts previous results only from DOH accredited labs	Current and buffer stocks adequate, with drug inventory policy; drugs not dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is followed; dispensing policy clear; treatment partners are the MDs, nurses and family members; no defaulter tracing mechanism	TB registry is updated and submitted to CHO and PhilTIPS; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Maintains own book of accounts; current stock of drugs from PhilTIPS; patients are not charged for the services; no or expenditure structure patients to RHUs; not clear if PhilHealth accredited; the sole site physician passed vignette 1 but failed vignette 2

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
	Verify quality of AFB smear tests done in hospital; constitute DC, adopt QA	*Facilitate MOA with LGU/DOH; dedicate drugs per patient*	*Adopt defaulter tracing mechanism*	*Verify and encourage the use of counting sheets for lab exams*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation; further evaluate and upgrade the DOTS capability of the site physician.*
Philippine Tuberculosis Society, Inc.-Cebu TV Pavilion, Cebu City	Both sputum and x-rays are used and administered on site; DC is constituted; no fees for AFB smear; X-ray fees charged; repeat of previous external lab tests	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encourage; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits, ID system and patient interviews	TB registry is updated; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Uses own financial mgt system; currently, relies private sources to support 75% of operating expenses; 68% of operating expenses is on staff salary; all services are for free except x-rays; not clear if PhilHealth accredited; the sole site physician failed vignette 1 but passed vignette 2, patients not given educational materials nor involved in decision making, not enough privacy given

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
	Maintain current standards and procedures, Verify quality of AFB smear; adopt QA	*Verify MOA with the LGU and whether drugs are dedicated per patient*	*Maintain current standards and procedures*	*Verify submission of TB registry to NTP; verify and encourage the use of counting sheets for lab exams;*	*Verify revenue structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation; further evaluate and upgrade the DOTS capability of the site physician, , provide educational materials, improve process to involve patients in decision making and afford privacy*
UST Adult and Pediatric DOTS Center	Policy is AFB smear only; samples sent to hospital for processing; DC constituted; However, sputum and x-rays are used and administered on site; DC is constituted; fees for PPD charged; PhilCAT accredited	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encouraged; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits	TB registry is updated; with quarterly reports on treatment progress and outcomes; counting sheets for lab exams available from hospital	No own financial mgt system; currently, relies heavily on PhilTIPS grant; 55% of PhilTIPS grant spent on staff salary; charge fees for PPD; not clear if PhilHealth accredited; the sole cite physician passed both vignettes 1 and 2, some dissatisfaction with MD explanation of service and clinic hours

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
	Maintain current standards and procedures Verify quality of AFB smear; adopt QA	*Verify if there's MOA with DOH;*	*Maintain current standards and procedures*	*Verify submission of TB registry to NTP; verify and encourage the use own records of counting sheets for lab exams*	*Verify revenue structures; rationalize user fees to improve cost recovery rate; advertise to potential patients; facilitate PhilHealth accreditation, , improve process to provide patients explanations*
OVERALL	Most rely on AFB smear; a few have no DCs; quality of hospital lab facilities unknown	Current drug supply adequate only for current patients	All compliant with NTP-prescribed drug regimen, but not with daily DOT. Defaulter tracing mechanism also weak in many clinics.	All have complete and updated TB registry, but not all have quarterly reports on treatment progress and outcomes. Also, not all submit their TB registry to DOH/NTP	Weak financial management system; heavy reliance on external support; poor cost-recovery performance; poor prospects for financial sustainability; variable DOTS capability within sites.
	Consitute DCs and verify quality of hospital lab facilities	*Secure long term supply through MOA with government sources; project future drug needs*	*Verify DOT compliance thru periodic home visits of clinic staff.*	*Facilitate submission of TB registry to NTP; verify and develop or strengthen other recording system*	*Verify revenue and expenditure structures; facilitate adoption of user fees to recover costs; information and dissemination campaign targeted to potential clients and patients; facilitate PhilHealth accreditation; implement continuing DOTS training/education programs .*

VII. Summary

In a nutshell, the results from both the physician survey and situation analysis of TB DOTS centers provide the rationale for TB DOTS enhancing activities as well as suggest the necessary interventions and targets of these interventions.

Survey results indicate that while nominal awareness of TB DOTS is widespread, there is still insufficient knowledge of both clinical and non-clinical elements of DOTS. This suggests the need for more information campaigns targeted not only towards the TB-treating but also towards the non TB-treating physicians who refer TB patients even if they do not manage TB cases. The results also suggest that information dissemination activities have not been completely effective and that there is a need to redesign TB DOTS information campaigns.

The survey results also indicate relatively low levels of formal DOTS engagement and even lower levels of actual TB DOTS practice. The analyses of survey results suggest that, individually, neither information dissemination nor financial incentives is sufficient to encourage formal adoption and actual practice of TB DOTS and that both are needed.

The situation analyses of the nine TB DOTS centers suggest that the application of TB DOTS by these centers has to be strengthened. Monitoring of daily drug intake seems to be the weakest TB DOTS aspect. Thus, various enhancements to address specific deficiencies are still necessary.

The situation analyses also suggest that the financial sustainability of most of the TB DOTS centers studied may be subject to question. Cost recovery mechanisms are not in place and patient volumes are relatively low. Consequently there may be a need to provide technical assistance in terms of: (i) developing cost recovery mechanisms that may include user fees, (ii) information campaigns to target new clients, (iii) obtaining memorandum of agreements with LGUS for drugs, and (iv) facilitating Philhealth accreditation.

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Private Provider Study
Final Report

Volume II
Private Provider Survey

UPecon Foundation[1]

August 2005

[1] Private Provider Study team of Dr. Aleli D. Kraft, Mr. Carlos Antonio Tan, Jr., Dr. Stella A. Quimbo, Dr. Joseph J. Capuno, Ms. Ermi Amor F. Yap, Dr. Noel Juban, and Dr. Magdalena Cabaraban. The field operations were undertaken by the Research Institute for Mindanao Culture (RIMCU) and the team headed by Dr. Noel Juban. The UPecon Foundation acknowledges funding assistance from the Philippine Tuberculosis Initiatives for the Private Sector (PhilTIPS) under USAID Prime Contract No. No. 492-C-00-02-00031.

I. Introduction

A. Background

The Philippine Tuberculosis Initiatives for the Private Sector (PhilTIPS) aims to contribute to the reduction of TB prevalence in the Philippines by standardizing procedures for TB control and management of TB patients in the private sector. As one of its major objectives, PhilTIPS is targeting an 85 percent treatment success rate through the application of Directly Observed Treatment Short Course (DOTS) in 25 model and replication sites. PhilTIPS hopes to achieve this objective by motivating private physicians and other clinical providers in the replication sites to adopt the DOTS protocol.

Evidence of the critical role of private physicians in the fight against TB has been shown in the 1997 TB Prevalence survey where it was revealed that at most only 26 percent of the TB population is treated in public health facilities. This figure would not be cause for concern if private physicians have adopted DOTS. Unfortunately however, there is evidence to the contrary. Separate surveys by Philippine Coalition Against Tuberculosis (PHILCAT) and Medicos del Mundo both show that private physicians are either uninformed about DOTS, or do not provide it adequately.[2]

PhilTIPS, in coordination with various stakeholders, is attempting to address the situation by exploring various interventions designed to promote the application of DOTS. These interventions range from DOTS advocacy, DOTS coverage by Philippine Health Insurance Corporation (PHIC), to the introduction of public-private partnership models (PPM). DOTS advocacy is being undertaken in the form of information and education campaigns (IEC) targeted at physicians and other clinical providers, and changes in the medical curriculum. PHIC has recently unveiled TB Out-Patient benefit package designed to make DOTS treatment more financially viable. Public-private partnership models such as DOTS in the workplace, DOTS in the community and DOTS in the schools are also being developed to promote DOTS adherence in specific environments.

However, even as these initiatives are being piloted, there is growing recognition that the success of these interventions is not assured. A concern is that the applicability of the interventions to the different replication site may vary due to differences in the composition of the private physician population operating in the various replication sites i.e., general practitioners versus specialist.

[2] The PhilCAT survey indicated that non-use of AFB smear as the primary diagnostic tool is as high as 43.5% of physicians with purely private practice. And this does not even reflect improper application of the AFB smear test, i.e., a series of three AFB smears is required during initial screening. The same survey also showed 72% of physicians with purely private practice did not employ the prescribed TB DOTS drug protocol for Category 1 patients.

Findings giving weight to this concern have been generated by several PhilTIPS studies. The TB policy assessment study for one has indicated that the analysis of survey findings from the PHILCAT and Medicos del Mundo surveys reveal significant variations in TB case finding and management practices across the breadth of private physicians belonging to different clinical specializations and practice settings.

Unfortunately however, the more recent surveys like the PHILCAT and Medicos del Mundo surveys suffer from sampling and methodological infirmities that inhibit a more conclusive analysis of private physician capacity to provide DOTS services. It is for this reason that information on private physician TB case finding and management practices needs to be generated for the design, monitoring and evaluation of interventions designed to promote the adoption of DOTS by private physicians. At the minimum, the information should include: the number and distribution of private physicians providing TB services, their TB patient load, their knowledge, awareness and attitudes of TB case finding, TB case management, and DOTS, their sources of medical information, their referral practices, their interaction with public providers, their access to diagnostic facilities. In addition, proposed interventions may further be enhanced with data on variations in private TB practice and TB patient-physician interaction at different clinic settings and locations, participation in public and private financing schemes, fees and cost structures.

B. Research Objectives

This survey therefore aimed to collect information on the TB case finding and management practices of private physicians in line with the following study objectives:

1. Generate a profile of private physicians who provide adult TB and TB-DOTS services

    a. Estimate the proportion of private physicians who manage adult TB cases
    b. Estimate variations in the size of private physician TB patient load across practice settings and specializations
    c. Determine the location, characteristics and practice settings of those who provide TB and TB-DOTS services

2. Examine private physician TB case management practices across practice settings and specialization, with particular attention to variations in TB DOTS protocols

    a. Examine variations in TB case finding protocols
    b. Examine variations in TB case holding protocols
    c. Examine referral systems, networks for both diagnosis and treatment

3. Examine private physician capacity to provide DOTS services across practice settings and specializations.

    a. Determine differences in the knowledge, attitudes and practices (KAP) of private physicians regarding DOTS and the NTP across specializations and practice settings
    b. Identify factors that could influence adoption of DOTS by private physicians

C. Organization of this Volume

This volume presents the results of the completed Private Provider Survey that was conducted from May to November 2004[3]. Towards the achievement of the first two study objectives, the next section provides a profile of the respondent physicians, and the TB treating physicians from among the respondents. This section also contains an analysis of variations in TB practices and TB case management of sample physicians, with an emphasis on those elements that form an integral part of the DOTS strategy. Physician capacity to provide DOTS services across practice settings and specializations is discussed in Section III where a profile of the levels of DOTS engagement of TB treating physicians from TB DOTS awareness to adoption is presented. These are in turn related to differences in practices across levels of engagement. Analysis of the factors that determine DOTS awareness responds to the question of how TB treating MDs can be made aware of TB-DOTS. Analysis of the influences of adoption responds to the question about what can be done to make those aware of TB DOTS adopt it. Following through on the results from the Section III, Section IV shows the current state of possible intervention points with the end in view of identifying where PhilTIPS can intensify its efforts. The following section summarizes the findings, their implications and suggested interventions. The appendix of this volume contains more detailed tables presenting the results of the various blocks of the survey.

[3] Please see Volume IV: Project Activities, this report for a detailed description of the roster development process, the survey activities, and the survey instruments.

II. Profile of Respondent Physicians and TB Practice

A. Notes on Definitions and Conventions

As these would be used as bases for the analyses throughout the remainder of the report, the definitions and methodology for constructing some variables of interest are presented first. In general, these variables were determined from: (i) direct information from the physician roster, (ii) direct responses to specific questions in the survey instrument or, (iii) combinations of answers from different questions. These variables include the specialization of physicians, the type of clinic where he practices, the city where the physician is deemed to belong, and TB practice characteristics.

1. *Physician Characteristics*

Specialty. The clinical specialties of physicians identified in the survey roster were generated from the source documents used to construct the survey roster, namely, the IMS list of physicians, the RX Pinoy physician directory, the PCP membership roster, the PhilHealth list of accredited physicians, and physicians given by key informants in various cities/replication sites. The listed clinical specialties in the physician survey roster were validated when respondent physicians were asked what their clinical specialties were. Whenever discrepancies were noted using this clinical specialty validation, roster information was revised in favor of survey data.

To elicit information on clinical specialties from respondent physicians, two sets of questions were asked: (i) a direct question on the clinical specialty of the respondent physician and (ii) a series of questions asking if the respondent had completed specialty and subspecialty training as well as membership in a clinical specialty society. Respondents who did not report any specialty nor reported completion of specialty training were tagged as general practitioners. The identified specialty was further validated through cross-checks using the response of the physician to questions on subspecialty training and membership in specialty societies.

Using this procedure, respondent physicians were found to be practicing under the following clinical specialties:

- General Practice
- Family Medicine
- Internal Medicine
- Pediatrics
- Obstetrics/Gynecology
- Anesthesiology
- Emergency Medicine
- Ear, Nose and Throat
- Opthalmology
- Orthopedics

- Pathology
- Psychiatry
- Radiology
- Surgery
- Community Medicine

The process of identifying the clinical specialties of respondent physicians also revealed completion of subspecialty training in the following disciplines: cardiology, endocrinology, pulmonology, infectious disease, gastroenterology, neurology, urology, dermatology, oncology, hematology, rheumatology, nephrology.

In response to the request of PhilTIPS that the private physician study focus on physicians practicing in the areas of general practice, family medicine, general internal medicine, pulmonology and infectious disease, a taxonomy that dichotomized physicians into reference and other specialties was developed. Under this nomenclature, general practice, family medicine, general internal medicine, pulmonology and infectious disease are referred to as **Reference Specialties** while the other clinical specialties are simply referred to as **Other Specialties**.

During the conduct of the survey a large number of respondent physicians who had been identified in the physician roster as general practitioners or general internists turned out to have completed either specialty or subspecialty training. Most of those found to have clinical specialties classified under the other specialties group were marked as invalid (see volume of project activities) except for those who indicated that their practice was really akin to general practice or internal medicine and were most likely to see TB patients. (Their listed clinical specialty however was retained and as a result there are some respondent physicians whose listed clinical specialties are other specialties even if they were identified outside the full-population sites of Cagayan de Oro City, Roxas City and Tacloban City). A bigger dilemma arose when respondent physicians previously listed as general internists were found to have subspecialty training in disciplines outside pulmonology and infectious disease. To account for this discrepancy, a sixth reference specialty – internal medicine with subspecialty training (other than pulmonology and infectious disease) was identified.

The final taxonomy of respondent physicians is thus:

Reference specialties

- General Practice
- Family Medicine
- General Internal Medicine
- Internal Medicine with Subspecialty
- Pulmonology
- Infectious Disease

Other specialties

- Pediatrics
- Obstetrics/Gynecology
- Anesthesiology
- Emergency Medicine
- Ear, Nose and Throat
- Opthalmology
- Orthopedics
- Pathology
- Psychiatry
- Radiology
- Surgery
- Community Medicine

Type of clinic. To facilitate respondent physician response to questions on the type of clinic where physician practiced, a classification of clinic types was developed. The listed clinic types are:

- Free-standing
- Hospital-based
- Hospital-Outpatient/ER
- HMO-based
- Community-based
- School-based/University-based/ER
- Work-based
- Others

While physicians could practice in more than one clinic, a reference clinic for the respondent physician was designated. Corresponding questions on clinic and practice characteristics were based on this reference clinic. Whenever tables are sorted by type of clinic, the clinic referred to is the reference clinic.

Location. Geographical codes were developed to identify the city or replication site in which the respondent physician practiced. Since physicians could operate in more than one city, a reference city was associated with each and every respondent physician. To designate the reference city, the following rule was employed - the reference city is the city where the reference clinic is located.

Physician demographics. A series of questions pertaining to age, gender and religion were incorporated in the survey instrument to account for the potential influence of physician demographics on TB practice and case management. The following classifications were employed to facilitate analysis:

Age groups

Age group 1 - Physician age less than or equal to 30
Age group 2 - Physician age greater than 30 but less than or equal to 40
Age group 3 - Physician age greater than 40 but less than or equal to 50
Age group 4 - Physician age greater than 50 but less than or equal to 65
Age group 5 - Physician age greater than 65

Gender groups: Male and female

Religion

Anecdotal evidence from the 1997 National Tuberculosis Prevalence Survey indicates that some practices observed by denominations belonging to the Muslim faith may not be in consonance with the sputum smear test. To assess whether this has an impact on the TB case management of Muslim physicians, a classification scheme that identifies physicians whose religion is Islam employed.

2. *Calculation of Weights Used*

Due to the PhilTIPS-indicated target of 2200 respondent physicians in the 22 replication sites, the private provider study employed a sampling scheme that enumerated not only the population of physicians belonging to the 5 Reference Specialties in all 22 sites but also the population of physicians (of all specialties) in the 3 full-population sites of Cagayan de Oro City, Roxas City and Tacloban City. Refusals and non-availability of potential respondent physicians however prevented the attainment of the 2200 respondent physician sample. To account for the impact of refusals and non-availability on the analysis of survey data, the sampling design includes the generation of sampling weights. The sampling weight is defined by the simplified formula:

$$w_{ij} = \frac{Total\ Number\ MD's\ in\ Site\ i\ and\ Specialty\ j}{Number\ of\ Sample\ MD's\ in\ Site\ i\ and\ Specialty\ j}.$$

The number of sample physicians is generated from the survey data while the total number of physicians is generated from the physician roster. Since the physician roster does not enumerate the populations of two groups - internists with subspecialty training and physicians belonging to Other Specialties, counts of total number of physicians for these two groups were derived from the Philippine College of Physicians (PCP) membership roster and PhilHealth list of accredited physicians (this extrapolation however does not apply to the three full-population sites of Cagayan de Oro City, Roxas City and Tacloban City).

Unless otherwise specified, these sampling weights are applied to the individual respondents in generating the tables that pertain to profiles of TB treating physicians and TB practice. Although the sampling weights were used to generate means and other statistics, only the raw number of respondents (N) was listed rather than the population projected counts of physicians.

3. *Physician TB Practice Characteristics*

TB Treating Physicians. Anecdotal evidence indicates that not all physicians may be managing TB cases. Focused group discussions held in the TB Policy Study conducted by Capuno et al. (2003) indicate that cases of primary complex are more likely to be encountered by general practitioners in private clinics. Since the PhilTIPS had requested that focus be directed towards treatment of adult cases, the study stratifies TB treating physicians on whether they see adult TB cases or not. Towards this objective, questions that ask if the physician sees adult suspect TB patients and whether the physician manages or refers them are asked. If the respondent physician indicates that he/she does not encounter adult suspect TB patients or refers all suspect adult TB patients that he/she encounters, then the physician is labeled as a non-TB treating physician.

Levels of TB - DOTS engagement. Discussions with PhilTIPS have indicated that there are several levels of DOTS engagement; certification as DOTS referring physician, certification as DOTS provider, ownership/operation of a DOTS center, membership in a DOTS diagnostic committee, and membership in a PPM or local DOTS coalition. Accordingly, the study adopts this nomenclature and in addition, considers two, more general levels - DOTS awareness and DOTS adoption.

a. TB DOTS aware or not

Respondent physicians were asked if they were aware or familiar with DOTS and its components. Respondent physicians were also asked if they have attended seminars, trainings, conventions as well as received written material regarding DOTS. Those who responded positively to these questions were deemed aware of TB DOTS.

b. TB DOTS adopt or not

Respondent physicians who indicated that they were aware of DOTS were asked if they have adopted DOTS. Those who responded positively to this question are therefore considered as adopting TB-DOTS.

c. TB DOTS by level of engagement

To gauge the level of DOTS engagement, respondent physicians who indicated that they have adopted DOTS were asked if they were: (i) certified DOTS referring physicians, (ii) certified DOTS providers, (iii) members of a DOTS diagnostic committee, (iv) owners/operate DOTS centers, and (v) members of a PPM or local DOTS coalition.

4. *Vignettes and Vignette Scoring Assumptions*

The survey employed physician vignettes in an attempt to unearth physician knowledge of current clinical practice guidelines[4]. Vignettes present cases of a particular disease or condition followed by questions on the diagnosis and management of that particular case. The answers to the questions are then scored to gauge the knowledge of physicians on the management of the case. The bases for the scoring system are the clinical practice guidelines implied by TB DOTS. To compute the aggregate vignette score, questions are weighed on the basis of their importance to TB DOTS. The weights attached are as follows:

Aggregate score for vignette case 1 (Smear positive case):

Q1 =	correct score/17	x	0.15
Q2 =	correct score/12	x	0.25
Q3 =	correct score/8	x	0.10
Q4 =	correct score/16	x	0.20
Q5 =	correct score/8	x	0.05
Q6 =	correct score/ 16	x	0.20
Q7 =	correct score/6	x	0.05

The perfect score for the vignette is 1.00 while 0.82 represents the cutoff score that represents acceptable knowledge of clinical practice guidelines. The following are the scoring ranges and the qualitative description:

0.90 – 1.00 Excellent knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB.

0.82 - 0.89 Acceptable knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB.

Below 0.82 Reflects inadequate knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB. Physician may need supervision or additional training on clinical practice guidelines

Aggregate score for vignette case 2 (Smear negative case):

Q1 = correct score/ 7	x	0.30
Q2 = correct score/ 12	x	0.30
Q3 = correct score/ 13	x	0.30
Q4 = correct score/ 8	x	0.10

[4] Copies of the vignette questions are in Volume 1V: Project Activities. The vignettes and the corresponding scoring system were developed by Dr. Marissa Alejandria and Dr. Regina Berba. For the Private Provider Survey, only vignette 1 was administered. Vignettes 1 and 2 were administered to providers in the Situational Analysis.

The perfect score for this vignette is likewise 1.00, while the cutoff score is 0.70. The qualitative description of scores are as follows:

0.80 – 1.00 Excellent knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB.

0.70 – 0.79 Acceptable knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB.

Below 0.70 Reflects inadequate knowledge of recent clinical practice guidelines on the diagnosis and management of Pulmonary TB. Physician may need supervision or additional training on clinical practice guidelines

All of the vignette questions are followed by a list of items that correspond to possible answers. For each of the vignette question to be deemed as completely answered, all items listed have to be ticked, either as a correct answer or as a wrong answer. In cases when the physician did not tick a particular item, it was assumed that the item is incorrectly answered and no points are assigned to that item. While this can be considered as a "strict scoring" methodology, it is adopted in the analysis since setting aside vignettes with only a few missing items significantly reduces the number of vignettes that can be analyzed.

B. Profile of Respondent Physicians

This subsection describes how physicians were identified and listed in the survey roster. However, only a subset of the roster physicians was eventually interviewed on account of refusals and non-availability. Thus, a discussion on variations in response rates is also presented with the end in view of identifying sampling design limitations and appropriate adjustments.

The latter part of this subsection presents the distribution and profile of respondent physicians. The study recognizes that variations in the demographics of respondent physicians may help explain differences in TB case management and practice. As such, this subsection also examines the profile and distribution of respondent physicians in terms of location, clinical specialty, practice setting, physician characteristics – age, gender, etc., awareness of DOTS, adoption of DOTS and levels of DOTS engagement.

1. *Roster Validation and Interview Outcomes*

Roster validation was undertaken in both pre-survey and survey operations. During pre-survey activities, roster validation concentrated on culling out roster entries corresponding to physicians who: (i) could not be found, (ii) were deceased, (iii) had retired or (iv) had migrated to non-survey sites/cities, (v) changed careers/professions and (vi) were engaged in pure public practice. In addition to culling out invalid roster entries, subsequent physician identification activities were also conducted before the actual

survey to identify physicians not previously listed in the survey roster but were engaged in the practice of the reference specialties in the replication sites[5]. These activities generated a validated roster of 2,552 physicians that was used during survey operations.

The relatively small number of physicians listed in the validated roster led to a change in the sampling strategy. Given the possibility of refusals during interviews, the entire physician roster was enumerated during survey operations in order to meet the PhilTIPS mandated target number of respondent physicians.

During the conduct of survey operations, two main hindrances prevented complete enumeration of the survey physician roster population – (i) Refusals and (ii) non-availability of prospective physician respondents who were temporarily outside the replication site during the survey period.

The typology of prospective respondent physicians is best described by:

- Invalid roster entries
  - Not Found
  - Dead
  - Migrated to other sites
  - Retired / Practicing other professions / careers
  - Engaged in pure public practice

- Valid roster entries (includes physicians identified during survey)
  - Interviewed – Physician was interviewed
  - Refused Interview – Physician refused to be interviewed or hospital refused access to physician
  - Temporarily not available – Physician practicing in identified clinic but presently out of replication site

The distribution of roster physicians across replication sites (cities) and specialties show that general practitioners and general internists constitute the majority of roster physicians (Table 1).

[5] The culling of roster of identified physicians who were engaged in clinical practices outside the reference specialties was not conducted in the three full-population control sites of Cagayan de Oro City, Roxas City and Tacloban City where the target physician population consisted of all physicians practicing in the site and not just all physicians engaged in the practice of reference specialties.

Table 1. Distribution of roster physicians by location and specialty

City		GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Angeles	N	28	18	18	1	2	0	0	67
	%	41.79	26.87	26.87	1.49	2.99	0	0	100
Bacolod	N	11	6	38	11	10	4	6	86
	%	12.79	6.98	44.19	12.79	11.63	4.65	6.98	100
Bacoor	N	10	1	18	1	1	1	0	32
	%	31.25	3.13	56.25	3.13	3.13	3.13	0	100
Batangas	N	1	2	17	1	2	0	0	23
	%	4.35	8.70	73.91	4.35	8.7	0	0	100
Cabanatuan	N	17	0	13	6	2	0	0	38
	%	44.74	0.00	34.21	15.79	5.26	0	0	100
Cagayan de Oro	N	43	6	28	23	6	1	104	211
	%	20.38	2.84	13.27	10.9	2.84	0.47	49.29	100
Cebu	N	43	65	53	26	17	3	13	220
	%	19.55	29.55	24.09	11.82	7.73	1.36	5.91	100
Cotabato	N	1	2	7	0	1	0	7	18
	%	5.56	11.11	38.89	0	5.56	0	38.89	100
Dagupan	N	7	4	5	1	1	0	1	19
	%	36.84	21.05	26.32	5.26	5.26	0	5.26	100
Davao	N	60	47	62	25	5	2	6	207
	%	28.99	22.71	29.95	12.08	2.42	0.97	2.9	100
Dumaguete	N	8	4	6	0	3	1	1	23
	%	34.78	17.39	26.09	0	13.04	4.35	4.35	100
Iloilo	N	18	28	60	27	24	8	3	168
	%	10.71	16.67	35.71	16.07	14.29	4.76	1.79	100
Laoag	N	14	1	3	0	2	0	1	21
	%	66.67	4.76	14.29	0	9.52	0	4.76	100
Lucena	N	5	4	11	0	5	1	0	26
	%	19.23	15.38	42.31	0	19.23	3.85	0	100
Manila	N	100	34	124	37	41	5	8	349
	%	28.65	9.74	35.53	10.6	11.75	1.43	2.29	100
Naga	N	7	6	11	8	4	1	0	37
	%	18.92	16.22	29.73	21.62	10.81	2.7	0	100
Ozamis	N	9	0	8	2	0	0	1	20
	%	45	0.00	40	10	0	0	5	100
Puerto Princesa	N	7	2	6	1	3	1	6	26
	%	26.92	7.69	23.08	3.85	11.54	3.85	23.08	100
Quezon	N	146	83	267	76	122	22	11	727
	%	20.08	11.42	36.73	10.45	16.78	3.03	1.51	100
Roxas	N	11	4	7	7	4	2	29	64
	%	17.19	6.25	10.94	10.94	6.25	3.13	45.31	100
Tacloban	N	7	4	13	16	5	0	73	118
	%	5.93	3.39	11.02	13.56	4.24	0	61.86	100
Zamboanga	N	20	1	21	5	3	0	2	52
	%	38.46	1.92	40.38	9.62	5.77	0	3.85	100
Total	N	573	322	796	274	263	52	272	2552
	%	22.45	12.62	31.19	10.74	10.31	2.04	10.66	100

Given the presence of refusals and unavailability of prospective respondents who were temporarily outside the survey site, a profile of identified physicians who were not interviewed may provide some indication of prospective bias (Table 2).

Table 2. Proportion of respondent physicians to total number of roster physicians by location and specialty

City		GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Angeles	%	50.00	77.78	61.11	100.00	50.00			61.19
	N	14	14	11	1	1			41
Bacolod	%	54.55	33.33	50.00	100.00	80.00	50.00	100.00	62.79
	N	6	2	19	11	8	2	6	54
Bacoor	%	60.00	0.00	44.44	100.00	100.00	0.00		50.00
	N	6	0	8	1	1	0		16
Batangas	%	100.00	100.00	35.29	100.00	50.00			47.83
	N	1	2	6	1	1			11
Cabanatuan	%	64.71		76.92	100.00	100.00			76.32
	N	11		10	6	2			29
Cagayan de Oro	%	88.37	83.33	67.86	82.61	50.00	100.00	66.35	72.99
	N	38	5	19	19	3	1	69	154
Cebu	%	74.42	78.46	45.28	100.00	52.94	66.67	100.00	71.36
	N	32	51	24	26	9	2	13	157
Cotabato	%	100.00	100.00	71.43		100.00		100.00	88.89
	N	1	2	5		1		7	16
Dagupan	%	71.43	75.00	80.00	100.00	100.00		100.00	78.95
	N	5	3	4	1	1		1	15
Davao	%	76.67	82.98	56.45	100.00	80.00	100.00	100.00	75.85
	N	46	39	35	25	4	2	6	157
Dumaguete	%	100.00	75.00	66.67		100.00	100.00	100.00	86.96
	N	8	3	4		3	1	1	20
Iloilo	%	38.89	82.14	46.67	100.00	70.83	100.00	100.00	67.26
	N	7	23	28	27	17	8	3	113
Laoag	%	92.86	100.00	66.67		50.00		100.00	85.71
	N	13	1	2		1		1	18
Lucena	%	20.00	0.00	45.45		40.00	100.00		34.62
	N	1	0	5		2	1		9
Manila	%	32.00	76.47	18.55	100.00	41.46	20.00	100.00	41.26
	N	32	26	23	37	17	1	8	144
Naga	%	85.71	83.33	54.55	100.00	100.00	100.00		81.08
	N	6	5	6	8	4	1		30
Ozamis	%	66.67		87.50	100.00			100.00	80.00
	N	6		7	2			1	16
Puerto Princesa	%	71.43	50.00	83.33	100.00	66.67	100.00	100.00	80.77
	N	5	1	5	1	2	1	6	21
Quezon	%	35.62	54.22	23.60	98.68	53.28	63.64	100.00	44.70
	N	52	45	63	75	65	14	11	325

City		GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Roxas	%	81.82	100.00	57.14	71.43	100.00	100.00	93.10	85.94
	N	9	4	4	5	4	2	27	55
Tacloban	%	100.00	100.00	53.85	93.75	100.00		72.60	77.12
	N	7	4	7	15	5		53	91
Zamboanga	%	90.00	0.00	71.43	100.00	100.00		100.00	82.69
	N	18	0	15	5	3		2	43
Total	%	56.54	71.43	38.94	97.08	58.56	69.23	79.04	60.15
	N	324	230	310	266	154	36	215	1535

The average response rate in all 22 replication sites was 60.15 percent. In terms of specialties internists with subspecialties provided the highest response rate at 97.08 percent while general internists gave the lowest response rate at 38.94 percent. In terms of replication sites, Cotabato City, Dumaguete City and Roxas City had the highest response rates at 88.89, 86.96 and 85.94 percent, respectively, while Lucena City, Manila City and Quezon City gave the lowest response rates at 34.62, 41.26 and 44.70 percent, respectively.

The presence of relatively high non-response rates in the physician-dense sites of Manila City and Quezon City necessitates the use of adjustment factors to mitigate the impact of non-response. To account for refusals and non-availability (sampling) probability weights are employed as adjustment factors. These are generated using the formula:

$$w_{ij} = \frac{Total\ Number\ MD's\ in\ Site\ i\ and\ Specialty\ j}{Number\ of\ Sample\ MD's\ in\ Site\ i\ and\ Specialty\ j}.$$

Since the roster may not have completely enumerated internists with subspecialty training and physicians engaged in non-reference specialties, information on physician counts was obtained from the Philippine College of Physicians (PCP) and PhilHealth lists of physicians. The augmented information is shown in Table 3 below.

Table 3. Augmented count of physicians by location and specialty

City	GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Angeles	28	18	18	4	2	0	113	183
Bacolod	11	6	38	29	10	4	116	214
Bacoor	10	1	18	1	1	1	24	56
Batangas	1	2	17	3	2	0	48	73
Cabanatuan	17	0	13	8	2	0	68	108
Cagayan de Oro	43	6	28	23	6	1	104	211
Cebu	43	65	53	96	17	3	353	630
Cotabato	1	2	7	0	1	0	27	38
Dagupan	7	4	5	6	1	0	72	95
Davao	60	47	62	36	5	2	264	476
Dumaguete	8	4	6	9	3	1	31	62
Iloilo	18	28	60	32	24	8	156	326

City	GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Laoag	14	1	3	1	2	0	13	34
Lucena	5	4	11	8	5	1	54	88
Manila	100	34	124	211	41	5	458	973
Naga	7	6	11	8	4	1	53	90
Ozamis	9	0	8	2	0	0	8	27
Puerto Princesa	7	2	6	1	3	1	14	34
Quezon	146	83	267	349	122	22	1628	2617
Roxas	11	4	7	7	4	2	29	64
Tacloban	7	4	13	16	5	0	73	118
Zamboanga	20	1	21	5	3	0	55	105
Total	573	322	796	855	263	52	3761	6622

2. *Profile of Respondent Physicians*

General practitioners and general internists comprise the two largest groups of respondents despite the heavy attrition in these two groups due to non-response (Table 4). This indicates perhaps that the distribution of respondents may not be as highly skewed as the earlier tables may seem to show i.e., the use of probability weights may address distortions brought about by refusals. The distribution of respondent physicians across specialties varies by site suggesting some analysis may be directed towards TB case management and practice variations by specialty and site.

Table 4. Distribution of respondent roster physicians by location and specialty

City		GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
Angeles	N	14	14	11	1	1	0	0	41
	%	34.15	34.15	26.83	2.44	2.44	0.00	0.00	100
Bacolod	N	6	2	19	11	8	2	6	54
	%	11.11	3.70	35.19	20.37	14.81	3.70	11.11	100
Bacoor	N	6	0	8	1	1	0	0	16
	%	37.50	0.00	50.00	6.25	6.25	0.00	0.00	100
Batangas	N	1	2	6	1	1	0	0	11
	%	9.09	18.18	54.55	9.09	9.09	0.00	0.00	100
Cabanatuan	N	11	0	10	6	2	0	0	29
	%	37.93	0.00	34.48	20.69	6.90	0.00	0.00	100
Cagayan de Oro	N	38	5	19	19	3	1	69	154
	%	24.68	3.25	12.34	12.34	1.95	0.65	44.81	100
Cebu	N	32	51	24	26	9	2	13	157
	%	20.38	32.48	15.29	16.56	5.73	1.27	8.28	100
Cotabato	N	1	2	5	0	1	0	7	16
	%	6.25	12.50	31.25	0.00	6.25	0.00	43.75	100
Dagupan	N	5	3	4	1	1	0	1	15
	%	33.33	20.00	26.67	6.67	6.67	0.00	6.67	100
Davao	N	46	39	35	25	4	2	6	157
	%	29.30	24.84	22.29	15.92	2.55	1.27	3.82	100
Dumaguete	N	8	3	4	0	3	1	1	20

City		GP	FM	IM-GEN	IM-SUB	Pulmo	ID	Others	Total
	%	40.00	15.00	20.00	0.00	15.00	5.00	5.00	100
Iloilo	N	7	23	28	27	17	8	3	113
	%	6.19	20.35	24.78	23.89	15.04	7.08	2.65	100
Laoag	N	13	1	2	0	1	0	1	18
	%	72.22	5.56	11.11	0.00	5.56	0.00	5.56	100
Lucena	N	1	0	5	0	2	1	0	9
	%	11.11	0.00	55.56	0.00	22.22	11.11	0.00	100
Manila	N	32	26	23	37	17	1	8	144
	%	22.22	18.06	15.97	25.69	11.81	0.69	5.56	100
Naga	N	6	5	6	8	4	1	0	30
	%	20.00	16.67	20.00	26.67	13.33	3.33	0.00	100
Ozamis	N	6	0	7	2	0	0	1	16
	%	37.50	0.00	43.75	12.50	0.00	0.00	6.25	100
Puerto Princesa	N	5	1	5	1	2	1	6	21
	%	23.81	4.76	23.81	4.76	9.52	4.76	28.57	100
Quezon	N	52	45	63	75	65	14	11	325
	%	16.00	13.85	19.38	23.08	20.00	4.31	3.38	100
Roxas	N	9	4	4	5	4	2	27	55
	%	16.36	7.27	7.27	9.09	7.27	3.64	49.09	100
Tacloban	N	7	4	7	15	5	0	53	91
	%	7.69	4.40	7.69	16.48	5.49	0.00	58.24	100
Zamboanga	N	18	0	15	5	3	0	2	43
	%	41.86	0.00	34.88	11.63	6.98	0.00	4.65	100
Total	N	324	230	310	266	154	36	215	1535
	%	21.11	14.98	20.20	17.33	10.03	2.35	14.01	100

The greater proportion of respondent physicians in the reference specialties has either free-standing or hospital-based clinics (Table 5). Likewise, around 92 percent of respondent physicians belonging to other clinical specialties operate either free-standing or hospital-based clinics. Among respondent physicians belonging to reference specialties, a substantial number, 12 percent, practice in the out-patient department or emergency room.

Table 5. Distribution of respondent physicians by type of clinic and specialty

	Reference Specialties		Other Specialties		All	
Type of Clinic	Percent	N	Percent	N	Percent	N
Free-standing	40.76	538	32.09	69	39.54	607
Hospital-based	39.24	518	60.00	129	42.15	647
Hospital-Outpatient/ER	12.42	164	1.40	3	10.88	167
HMO-based	2.42	32	1.40	3	2.28	35
Community-based	1.06	14	0.47	1	0.98	15
School and University Based	1.74	23	1.86	4	1.76	27
Work-based	1.74	23	0.93	2	1.63	25
Others	0.61	8	1.86	4	0.78	12
Total	100	1,320	100	215	100	1,535

Around 72 percent of respondent physicians belonging to reference specialties are between 31 and 50 years old (Table 6). Respondent physicians belonging to other specialties tend to be older where around 38 percent are 50 years old or above.

Table 6. Distribution of respondent physicians by age

	Reference Specialties		Other Specialties		All	
Age Group	Percent	N	Percent	N	Percent	N
below 31	5.95	78			5.11	78
31 to 40	40.2	527	26.98	58	38.34	585
40 to 50	31.58	414	35.35	76	32.11	490
50 to 65	15.56	204	31.16	67	17.76	271
more than 65	6.71	88	6.51	14	6.68	102
Total	100	1,311	100	215	100	1,526

The proportion of male and female physician respondents is roughly the same (Table 7).

Table 7. Distribution of respondent physicians by gender

	Reference Specialties		Other Specialties		All	
Gender	Percent	N	Percent	N	Percent	N
Male	48.33	638	50.23	108	48.6	746
Female	51.67	682	49.77	107	51.4	789
All	100	1,320	100	215	100	1,535

To give an idea of the numbers of physicians covered, the following tables present raw counts of respondent physicians classified by selected characteristics. Figures from these tables, especially those that indicate proportions, should be interpreted with caution. These are not to be taken as reflective of the true proportions of physicians according to those characteristics. A better representation of the true proportions would be obtained from the subsequent tables that will be presented in line with the profile of physician practices.

Almost 76 percent of respondent physicians belonging to reference specialties are TB treating (Table 8). This is noticeably higher in comparison to physicians in other clinical specialties where only 26 percent of the practitioners are TB treating.

Table 8. Distribution of respondent physicians by TB practice

	Reference Specialties		Other Specialties		All	
	Percent	N	Percent	N	Percent	N
Not TB Treating	24.27	317	73.95	159	31.30	476
TB Treating	75.73	989	26.05	56	68.70	1,045
All	100.00	1,306	100.00	215	100.00	1,521

Around 79 percent of physicians belonging to reference specialties are aware of DOTS (Table 9). This is noticeably higher compared to the 54 percent of physicians engaged in other specialties who are also aware of DOTS.

Table 9. Distribution of respondent physicians by awareness of TB-DOTS
Base: All respondents

	Reference Specialty		**Other Specialty**		**All Specialties**	
	Percent	N	Percent	N	Percent	N
Not Aware	21.39	280	45.58	98	24.80	378
Aware	78.61	1,029	54.42	117	75.20	1,146
All	100.00	1,309	100.00	215	100.00	1,524

A bit more than 40 percent of respondent physicians belonging to reference specialties indicate that they have adopted DOTS (Table 10). This is noticeably higher than the 16 percent of respondent physicians in other specialties who indicated that they have adopted DOTS.

Table 10. Distribution of respondent physicians by TB-DOTS level of engagement: adoption
Base: All MDs aware of TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not Adopt DOTS	59.63	613	83.76	98	62.10	711
Adopt DOTS	40.37	415	16.24	19	37.90	434
All	100.00	1,028	100.00	117	100.00	1,145

Among respondent physicians who have indicated adoption of DOTS, 57 percent are certified DOTS referring physicians (Table 11). This proportion is slightly higher compared to the percentage of respondent physicians belonging to other specialties who are certified DOTS referring physicians.

Table 11. Distribution of respondent physicians by TB-DOTS level of engagement: certified DOTS referring MD
Base: All MDs adopting TB-DOTS

	Reference Specialty	**Other Specialty**	**All Specialties**			
	Percent	N	Percent	N	Percent	N
Not A Certified DOTS Referring MD	42.75	177	47.37	9	42.96	186
Certified DOTS Referring MD	57.25	237	52.63	10	57.04	247
Total	100.00	414	100.00	19	100.00	433

Around 28 percent of respondent physicians belonging to reference specialties who indicated adoption of DOTS are certified DOTS providers (Table 12).

Table 12. Distribution of respondent physicians by TB-DOTS level of engagement: certified DOTS provider
Base: All MDs adopting TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not Certified DOTS Provider	71.98	298	68.42	13	71.82	311
Certified DOTS Provider	28.02	116	31.58	6	28.18	122
Total	100.00	414	100.00	19	100.00	433

Around 11 percent of respondent physicians belonging to reference specialties who indicated adoption of DOTS are owners of DOTS centers (Table 13).

Table 13. Distribution of respondent physicians by TB-DOTS level of engagement: own a DOTS center
Base: All MDs adopting TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not An Owner of DOTS Center	88.62	366	89.47	17	88.66	383
Owner of DOTS Center	11.38	47	10.53	2	11.34	49
Total	100	413	100	19	100	432

Slightly more than 15 percent of respondent physicians belonging to reference specialties who indicated adoption of DOTS are members of a DOTS diagnostic committee (Table 14).

Table 14. Distribution of respondent physicians by TB-DOTS level of engagement: member of diagnostic committee
Base: All MDs adopting TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not A Member of DOTS Diagnostic Committee	84.78	351	89.47	17	84.99	368
Member of DOTS Diagnostic Committee	15.22	63	10.53	2	15.01	65
Total	100.00	414	100.00	19	100.00	433

A little less than 18 percent of respondent physicians belonging to reference specialties who indicated adoption of DOTS are members of a DOTS certification committee (Table 15).

Table 15. Distribution of respondent physicians by TB-DOTS level of engagement: member of DOTS certification committee
Base: All MDs adopting TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not A Member of DOTS Certification Committee	82.32	340	73.68	14	81.94	354
Member of DOTS Certification Committee	17.68	73	26.32	5	18.06	78
Total	100.00	413	100.00	19	100.00	432

Around 17 percent of respondent physicians belonging to reference specialties who indicated adoption of DOTS are members of a DOTS PPM (Table 16).

Table 16. Distribution of respondent physicians by TB-DOTS level of engagement: member of DOTS PPM
Base: All MDs adopting TB-DOTS

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Not A Member of DOTS PPM	82.61	342	78.95	15	82.45	357
Member of DOTS PPM	17.39	72	21.05	4	17.55	76
Total	100.00	414	100.00	19	100.00	433

Almost 9 percent of respondent physicians belonging to reference specialties have indicated participation in a PhilTIPS activity (Table 17).

Table 17. Distribution of respondent physicians by participation in PhilTIPS activity
Base: TB treating MDs

	Reference Specialty		Other Specialty		All Specialties	
	Percent	N	Percent	N	Percent	N
Did Not Participate in PhilTIPS Activity	91.16	939	100	117	92.06	1,055
Participate in PhilTIPS Activity	8.84	91			7.94	91
Total	100.00	1,029	100.00	117	100.00	1,146

C. Profile of TB Practice

A physician is considered as TB treating if he or she diagnoses and manages adult TB patients. This involves ordering the diagnostic tests for TB suspects and upon confirmation of diagnosis, the prescription of the appropriate treatment regimen and the follow-up of the patient. About 67 percent of physicians diagnose and manage adult TB patients. Two significant findings are revealed by Table 18. Not all physicians belonging to the five "reference specialties," i.e., those presumed to be TB treating, diagnose and manage the adult TB suspect patients that approach them in their clinics. Not all pulmonologists are TB treating, and only about 69 percent of general practitioners manage TB cases. Just nearly two-thirds of internal medicine practitioners with subspecialties manage TB cases.

On the other hand, physicians belonging to the other specialties do manage TB cases, albeit at lesser proportions than the reference specialties. About 69 percent of pediatricians, 38 percent of OB Gynecologistss and 75 percent of surgeons report that they diagnose and manage adult TB suspect patients. Programs and interventions targeted only at the reference specialties may therefore overlook a significant segment of TB treating physicians.

Table 18. Proportion of TB treating physicians by specialty
Base: All MDs

Specialty	Proportion TB treating	N
General Practice	0.687	321
Family Medicine	0.815	226
General Internal Medicine	0.773	308
Internal Medicine w/ Subspecialty	0.664	263
Pulmonology	0.957	152
Infectious Disease	0.818	36
Pediatrics	0.692	59
Obstetrics/Gynecology	0.378	43
Anesthesiology	0.160	20
Ear, Nose and Throat	0.931	9
Opthalmology	0.000	8
Orthopedics	0.000	5
Pathology	0.304	5
Psychiatry	0.000	3
Radiology	0.742	11
Surgery	0.755	48
Community Medicine	1.000	2
Other Specialties	0.000	2
Total	0.671	1521

Of the reference specialties, the least proportions of TB treating physicians are shown to be practicing in school-based or university based clinics as well as work based clinics (Table 19). It is surprising that only about 36 percent of those practicing in work-based

clinics do manage TB patients. This could reflect effective screening mechanisms of workplaces against those suspected to have TB. In sites where implementing TB DOTS is less costly on the part of the patient (school-based and work-based clinics), less than 40 percent of physicianss are TB treating. This may be due to the absence of TB suspects in the month previous to the survey. However, we find that some did encounter patients but referred them elsewhere. Nearly three-fourths of physicians in all the other types of clinics are TB treating.

Of the other specialties, more than three-fourths of physicians practicing in free-standing clinics treat TB patients, while just over half of those in hospital based clinics treat TB patients.

Table 19. Proportion of TB treating physicians by type of clinic
Base: All MDs

Clinic Type	Reference specialties Proportion TB treating	N	Other specialties Proportion TB treating	N
Free-standing	0.766	533	0.762	69
Hospital-based	0.746	511	0.521	129
Hospital-Outpatient/ER	0.789	164	0.051	3
HMO-based	0.702	32	0.580	3
Community-based	0.648	14	0.000	1
School-based/University-based/ER	0.310	22	0.000	4
Work-based	0.357	22	1.000	2
Others	0.761	8	0.000	4
Total	0.746	1306	0.610	215

The proportions of TB treating physicians differ across replication sites, even for reference specialties (Table 20). The lowest proportion of TB treating physicians is registered in Cagayan de Oro City, while the highest proportion is registered in Bacolod City. Variations also registered for the proportion of TB treating physicians among the reference specialties across the sites

Table 20. Proportion of TB treating physicians by location,
Base: All MDs

City	Reference specialties Proportion TB treating	N	Other specialties Proportion TB treating	N
Angeles	0.869	41	0.000	0
Bacolod	0.953	48	0.833	6
Bacoor	0.817	16	0.000	0
Batangas	0.767	11	0.000	0
Cabanatuan	0.807	29	0.000	0

City	Reference specialties Proportion TB treating	N	Other specialties Proportion TB treating	N
Cagayan de Oro	0.416	84	0.058	69
Cebu	0.800	142	0.615	13
Cotabato	0.900	8	0.857	7
Dagupan	0.541	13	1.000	1
Davao	0.735	150	0.833	6
Dumaguete	0.795	19	1.000	1
Iloilo	0.756	110	0.667	3
Laoag	0.710	17	1.000	1
Lucena	0.584	7	0.000	0
Manila	0.647	136	0.500	8
Naga	0.919	30	0.000	0
Ozamis	0.763	15	1.000	1
Puerto Princesa	0.730	15	0.500	6
Quezon	0.781	308	0.636	11
Roxas	0.737	28	0.000	27
Tacloban	0.689	38	0.151	53
Zamboanga	0.858	41	0.000	2
Total	0.746	1306	0.610	215

For those physicians who choose not to manage adult TB patients, adult suspect TB patients are referred to other facilities for care. Which facilities they are referred to has implications on how these patients are eventually managed. Assuming that all RHUs/CHOs manage patients using DOTS, then referrals to these facilities and to TB DOTS centers would indicate the proportion of patients that end up being managed using DOTS. An average of about 5 patients was referred by non-TB treating physicians in the last month (Table 21). The average numbers of patients referred are higher for the reference specialties, indicating perhaps the greater number of TB suspects approaching these physicians. Most of the patients are referred to other private physicians for management, either by non-DOTS or DOTS protocols. For the reference specialties, about 15-19 percent of referrals are to TB DOTS centers, for all specialties about 6 percent. Roughly 20 percent of referred patients are to facilities managing patients using DOTS. This indicates some scope for increasing referrals to facilities that manage patients using DOTS.

Table 21. Referral patterns of non-TB treating physicians, by specialty

Specialty	Average Number of TB suspects referred last month	N	Referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
General Practice	8.737	49	0.397	0.272	0.027	0.066	0.153
Family Medicine	8.844	12	0.394	0.237	0.134	0.000	0.157
General Internal Medicine	7.402	18	0.358	0.362	0.055	0.000	0.194

Specialty	Average Number of TB suspects referred last month	N	Referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
Internal Medicine w/ Subspecialty	7.052	24	0.707	0.118	0.020	0.000	0.154
Pulmonology	10.000	1	1.000	0.000	0.000	0.000	0.000
Infectious Disease	4.611	2	0.611	0.000	0.000	0.000	0.389
Other Specialties							
Pediatrics	3.000	3	0.092	0.000	0.908	0.000	0.000
Obstetrics/Gynecology	2.173	9	0.899	0.024	0.039	0.000	0.000
Anesthesiology	2.343	4	0.756	0.244	0.000	0.000	0.000
Ear, Nose and Throat	5.087	5	0.780	0.000	0.000	0.000	0.220
Opthalmology	2.079	4	1.000	0.000	0.000	0.000	0.000
Orthodpedics	16.000	1	0.375	0.000	0.000	0.625	0.000
Psychiatry	3.939	2	0.030	0.000	0.000	0.000	0.000
Radiology	151.500	2	1.000	0.000	0.000	0.000	0.000
Surgery	1.969	15	0.602	0.192	0.000	0.181	0.026
Other Specialties	2.000	1	0.000	0.000	0.000	1.000	0.000
Total	4.879	152	0.393	0.127	0.057	0.276	0.064

*Proportions of referrals may not sum to 100% since some minor referral categories were not reported.

Greater proportions of non-TB treating physicians based in free-standing clinics and those in work-based clinics refer their patients to RHUs/CHOs. (Table 22). Hospital-based physicians are more likely to refer to public hospitals.

Table 22. Referral patterns of non-TB treating physicians, by type of clinic

Clinic Type	Average Number of TB suspects referred last month	N	Referred to:				
			Private MD	RHU/ CHO	Private hospital	Public hospital	TB DOTS center
Free-standing	4.557	51	0.514	0.257	0.027	0.141	0.046
Hospital-based	4.342	69	0.272	0.048	0.084	0.407	0.065
Hospital-Outpatient/ER	10.052	21	0.643	0.135	0.000	0.000	0.223
HMO-based	12.782	2	0.602	0.000	0.000	0.000	0.000
Community-based		0					
School-based/University-based/ER	2.188	7	0.747	0.101	0.033	0.086	0.033
Work-based	19.613	2	0.000	0.633	0.000	0.000	0.000
Others		0					
Total	4.879	152	0.393	0.127	0.057	0.276	0.064

*Proportions of referrals may not sum to 100% since some minor referral categories were not reported.

Table 23 indicates the referral patterns of non-TB treating physicians by city. Cities where a relatively large proportion of non-TB treating physicians refer patients to facilities that manage patients using DOTS include Cabanatuan, Puerto Princessa and Zamboanga.

Table 23. Referral patterns of non-TB treating physicians, by city

City	Average Number of TB suspects referred last month	N	Referred to:				
			Private MD	RHU/ CHO	Private hospital	Public hospital	TB DOTS center
Angeles	3.514	3	1.000	0.000	0.000	0.000	0.000
Bacolod		0					
Bacoor	15.000	1	0.000	0.000	0.000	0.000	1.000
Batangas	10.000	2	0.257	0.243	0.500	0.000	0.000
Cabanatuan	8.000	5	0.200	0.733	0.067	0.000	0.000
Cagayan de Oro	12.508	42	0.539	0.165	0.050	0.000	0.218
Cebu	2.322	10	0.482	0.042	0.247	0.228	0.000
Cotabato	4.000	1	1.000	0.000	0.000	0.000	0.000
Dagupan	20.000	1	0.000	1.000	0.000	0.000	0.000
Davao	5.955	19	0.100	0.072	0.026	0.000	0.125
Dumaguete		0					
Iloilo	1.086	4	0.978	0.022	0.000	0.000	0.000
Laoag	4.000	2	1.000	0.000	0.000	0.000	0.000
Manila	6.602	14	0.521	0.153	0.000	0.044	0.238
Naga	82.333	3	0.867	0.133	0.000	0.000	0.000
Ozamis		0					
Puerto Princesa	4.938	4	0.313	0.188	0.000	0.188	0.313
Quezon	3.147	11	0.139	0.048	0.000	0.798	0.000
Roxas	2.929	7	1.000	0.000	0.000	0.000	0.000
Tacloban	5.072	19	0.820	0.146	0.000	0.034	0.000
Zamboanga	2.161	4	0.057	0.943	0.000	0.000	0.000
Total	4.879	152	0.393	0.127	0.057	0.276	0.064

*Proportions of referrals may not sum to 100% since some minor referral categories were not reported.

The usual number of TB patients seen in a month, both in absolute terms and in relation to their total patient load gives an indication of the importance of TB patients in the practices of physicians and how important private physicians are in efforts to control tuberculosis. TB treating physicians see an average of about 16 TB patients per month (Table 24). That translates to roughly one TB patient every other day. Slightly more than one in ten patients of TB treating physicians is a TB patient, not an insignificant amount.

Of the reference specialties, pulmonologists see the highest average number of TB patients in a month, roughly one a day. TB patients comprise more than one-fourth of their total patient load. While infectious disease specialists see the least number of TB patients in a month, those that they see comprise nearly 12 percent of their total patient load. TB patients are roughly 8-10 percent of the patient loads of the other reference specialties.

Of the other specialties, TB treating surgeons seem to have high average number of TB patients in a month. Pediatricians see an average of five TB patients a month. These may be patients who are below 18 but who are considered adults for the purposes of the study[6].

Table 25 indicates the average patient load of TB treating physicians belonging to the reference specialties by type of clinic. Although physicians working in clinics that cater to specific clients (school, employees and HMO members) see more patients, they also see less TB patients relative to free-standing and hospital-based clinics. The proportion of TB patients to total patients is therefore lower than those of the physicians in free-standing and hospital based clinics.

Table 24. Average monthly patient load, TB treating physicians by specialty

Specialty	Average Number of all patients	N	Average Number of TB patients	N	Ratio of TB to all Patients	N
General Practice	302.760	211	11.040	209	0.100	211
Family Medicine	225.950	183	8.240	182	0.090	183
General Internal Medicine	183.000	247	10.130	247	0.110	247
Internal Medicine w/ Subspecialty	160.960	174	7.210	174	0.080	174
Pulmonology	177.760	145	31.670	145	0.270	145
Infectious Disease	136.680	29	6.640	29	0.120	29
Pediatrics	259.670	19	5.120	19	0.040	19
Obstetrics/Gynecology	683.250	4	25.910	4	0.040	4
Anesthesiology	117.060	4	3.360	4	0.070	4
Ear, Nose and Throat	120.000	1	10.000	1	0.080	1
Pathology	20.000	1	4.000	1	0.020	1
Radiology	199.750	4	96.150	4	0.500	4
Surgery	210.330	21	20.260	21	0.290	21
Community Medicine	178.000	2	4.500	2	0.080	2
Total	231.050	1045	15.990	1042	0.140	1045

[6] The relatively few sampled OB-GYNEs who are TB treating and who have answered the questions on patient load preclude the formation of conclusions about the average number of patients. However, those that have been sampled show a large number of patients seen.

Table 25. Average monthly patient load, TB treating physicians-reference specialties, by clinic type

Clinic Type	Average Number of all patients	N	Average Number of TB patients	N	Ratio of TB to all Patients	N
Free-standing	240.520	422	12.530	421	0.120	422
Hospital-based	171.930	384	13.110	382	0.120	384
Hospital-Outpatient/ER	162.530	123	8.900	123	0.100	123
HMO-based	256.520	26	6.920	26	0.080	26
Community-based	222.480	10	7.780	10	0.070	10
School-based/University-based/ER	260.710	6	1.510	6	0.010	6
Work-based	592.890	12	5.070	12	0.020	12
Others	136.710	6	4.410	6	0.060	6
Total	203.170	989	11.790	986	0.110	989

Patient load averages by city show wide differences (Table 26). From the least number of TB patients seen in Cagayan de Oro City average patient load gets as high as 32 patients a month in Tacloban. TB patients as proportion of all patients range from about 4.7 percent to about 28 percent, averaging about 11 percent of all patients.

Table 26. Average monthly patient load, TB treating physicians-reference specialties by city

City	Average Number of all patients	N	Average Number of TB patients	N	Ratio of TB to all Patients	N
Angeles	251.330	35	12.300	35	0.054	35
Bacolod	215.270	46	14.750	45	0.113	46
Bacoor	190.990	13	11.450	13	0.087	13
Batangas	214.890	9	24.700	9	0.135	9
Cabanatuan	276.340	24	14.900	24	0.161	24
Cagayan de Oro	268.720	33	6.390	33	0.053	33
Cebu	220.870	110	7.400	109	0.088	110
Cotabato	362.310	7	41.710	7	0.127	7
Dagupan	323.510	9	22.720	9	0.175	9
Davao	264.820	110	10.870	110	0.074	110
Dumaguete	337.810	15	11.260	15	0.097	15
Iloilo	241.310	84	15.000	83	0.110	84
Laoag	249.720	12	12.500	12	0.063	12
Lucena	239.410	5	34.020	5	0.279	5
Manila	183.100	96	11.510	96	0.101	96

City	Average Number of all patients	N	Average Number of TB patients	N	Ratio of TB to all Patients	N
Naga	277.280	27	16.720	27	0.111	27
Ozamis	175.960	12	7.610	12	0.056	12
Puerto Princesa	354.250	11	23.210	11	0.086	11
Quezon	150.590	249	10.120	249	0.145	249
Roxas	318.580	21	8.120	21	0.047	21
Tacloban	287.490	26	32.470	26	0.151	26
Zamboanga	270.440	35	16.540	35	0.112	35
Total	203.170	989	11.790	986	0.114	989

The net patient load of TB treating physicians also depends on how many TB suspect patients they refer to other facilities for care. Table 27 shows the number of referrals and location of referrals of TB treating physicians. On average, about 6 TB patients are referred to other facilities for care in a month, with the highest average number of referrals coming from general internal medicine. About 9 percent of patients are referred to public hospitals, while about 40 percent are referred to other private MDs. Among TB treating MDs, referrals to the public sector; hospitals, RHUs and CHOs receive about 32 percent of referrals while 15 percent goes to DOTS centers.

Table 27. Referral patterns of TB treating physicians, reference specialties

Specialty	Average Number of referrals a month	N	Proportion referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
General Practice	6.76	38	0.2198	0.3673	0.1172	0.1231	0.1524
Family Medicine	4.41	31	0.3993	0.3547	0.0514	0.0959	0.0572
General Internal Medicine	7.89	46	0.4629	0.2112	0.0403	0.0918	0.1673
Internal Medicine w/ Subspecialty	4.17	26	0.4702	0.1175	0.1419	0.0876	0.0907
Pulmonology	5.40	12	0.1846	0.2047	0.0000	0.0608	0.4961
Infectious Disease	1	1	1.0000	0.0000	0.0000	0.0000	0.0000
Total	6.01	154	0.3992	0.2323	0.0786	0.0937	0.1508

TB-treating physicians based in free-standing clinics and community-based clinics show the largest proportions referring to RHUs/CHOs. (Table 28) while those based in HMOs refer to TB DOTS centers. However, physicians in hospital based facilities largely refer to other private MDs.

Table 28. Referral patterns of TB treating physicians-reference specialties, by clinic type

Clinic Type	Average Number of referrals a month	N	Proportion referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
Free-standing	4.420	60	0.270	0.349	0.085	0.082	0.114
Hospital-based	6.650	54	0.496	0.204	0.050	0.083	0.147
Hospital-Outpatient/ER	7.140	28	0.439	0.109	0.133	0.111	0.186
HMO-based	10.700	3	0.474	0.104	0.000	0.000	0.423
Community-based	4.860	4	0.240	0.486	0.100	0.174	0.000
School-based/University-based/ER	1.000	1	0.000	0.000	0.000	0.000	1.000
Work-based	1.990	4	0.452	0.106	0.000	0.442	0.000
Total	6.010	154	0.399	0.232	0.079	0.094	0.151

The proportion of TB treating physicians who refer to DOTS centers is relatively high in Cagayan de Oro City and Manila City while the proportion referring to RHUs/CHOs is relatively high in the cities of Cagayan de Oro, Bacolod, and Zamboanga (Table 29).

Table 29. Referral patterns of TB treating physicians-reference specialties, by city

City	Average Number of referrals a month	N	Proportion referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
Angeles	4.770	7	0.411	0.187	0.174	0.086	0.143
Bacolod	3.590	8	0.635	0.365	0.000	0.000	0.000
Batangas		0					
Cabanatuan	12.330	3	0.000	1.000	0.000	0.000	0.000
Cagayan de Oro	5.580	10	0.271	0.385	0.000	0.000	0.345
Cebu	2.940	13	0.512	0.307	0.181	0.000	0.000
Dagupan	4.510	2	0.000	0.512	0.000	0.000	0.488
Davao	6.690	21	0.369	0.293	0.000	0.102	0.147
Dumaguete	17.500	2	0.603	0.397	0.000	0.000	0.000
Iloilo	27.370	8	0.363	0.097	0.170	0.112	0.164
Laoag	2.000	1	0.000	1.000	0.000	0.000	0.000
Manila	3.810	18	0.380	0.041	0.049	0.115	0.330
Naga	3.470	5	0.237	0.579	0.092	0.092	0.000
Ozamis	9.000	1	0.000	1.000	0.000	0.000	0.000
Puerto Princesa	7.000	2	0.000	0.917	0.000	0.000	0.083
Quezon	5.600	40	0.438	0.174	0.112	0.133	0.116

City	Average Number of referrals a month	N	Proportion referred to:				
			Private MD	RHU /CHO	Private hospital	Public hospital	TB DOTS center
Roxas	6.400	3	0.400	0.360	0.080	0.160	0.000
Tacloban	2.000	1	1.000	0.000	0.000	0.000	0.000
Zamboanga	6.490	9	0.095	0.677	0.000	0.000	0.000
Total	6.010	154	0.399	0.232	0.079	0.094	0.151

How are private physicians managing TB patients and how do TB treating practices deviate from practice according to the DOTS standard? The extent of deviation from the DOTS standard has implications on the magnitude of the tasks that have to be done in order to make the private sector adopt the DOTS strategy. Departures from the DOTS strategy could be reckoned from its clinical and non-clinical elements.

Adherence to the clinical elements of DOTS, as indicated in clinical practice guidelines, is dependent on whether physicians are knowledgeable about these guidelines. To gauge their knowledge, vignettes were used. Vignettes describe a hypothetical patient and provide questions regarding diagnosis and management. Respondents in this survey were given a vignette which presents the case of a new TB suspect followed by 7 questions.

The respondent's answers were used to compute a score, where the bases for scoring are the clinical practice guidelines implied by TB DOTS. Vignette scores, which range from 0 to 100, are thus a measure of a doctor's knowledge of TB DOTS. If knowledge of TB DOTS translates into actual practice, then the closer one's score is to 100, it is deemed that the more faithful one's TB practice is to TB DOTS.

For each respondent, an aggregate vignette score is computed using weights assigned to each question on the basis of importance to TB DOTS. The weights attached to each question are as follows:

Question 1 (screening questions to be asked by doctor)– 15 percent
Question 2 (diagnostic procedure)– 25 percent
Question 3 (number of sputum exams)– 10 percent
Question 4 (drug regimen)– 20 percent
Question 5 (schedule of follow up sputum exam)– 5 percent
Question 6 (drug regimen given information on follow up sputum exam)– 20 percent
Question 7 (side effects of drugs)– 5 percent

As mentioned previously a score of 82 indicates an acceptable knowledge of the clinical aspects of TB DOTS[7].

Table 30 reports the mean and standard deviation of scores for vignette 1 for all sample doctors with TB practice by specialty. The highest average aggregate score was posted by OB-Gynecologists, who presumably do not to have a significant TB practice. Among the

[7] See Volume IV: Project Activities for a copy of the vignette and the scoring system used.

reference specialties, pulmonologists and infectious disease specialists had the highest mean vignette scores and lowest standard deviation. On the other hand, general practitioners posted the lowest average aggregate vignette score which is also below the passing mark. An implication of this finding is that training for GPs may need to be prioritized over other reference specialties.

It can be noted that the mean score for all specialties is below the cutoff. The relatively low scores of other specialists such as pediatricians, anesthesiologists, and radiologists but who treat TB patients as well pulled down the general average for all specialties. Targeting interventions purely on the basis of specialty is not very effective because TB patients do not seem to limit choice of doctors to the reference specialties.

The passing rates also reveal the same pattern. Among all specialties, OB-Gynecologists had the highest passing rates. Among reference specialties, general practitioners had the lowest passing rates while infectious disease specialists had the highest. Among other specialties, pediatricians had the lowest mean aggregate score and passing rates.

Table 30. Mean and standard deviation of aggregate vignette scores and passing rates, by specialty
Base: All TB treating MDs

Specialty	Mean Score	Std Deviation	Passing Rate	N
General Practice	81.279	8.844	0.556	207
Family Medicine	83.748	9.039	0.643	183
General Internal Medicine	85.152	7.915	0.766	247
Internal Medicine w/ Subspecialty	82.898	9.430	0.659	168
Pulmonology	86.264	6.947	0.798	144
Infectious Disease	85.926	8.697	0.817	29
Pediatrics	72.763	13.402	0.409	19
Obstetrics/Gynecology	89.519	9.779	0.858	4
Anesthesiology	76.762	8.244	0.085	4
Ear, Nose and Throat	74.167	-	0.000	1
Pathology	87.292	-	1.000	1
Radiology	78.643	0.136	0.103	4
Surgery	81.538	10.770	0.784	21
Community Medicine	80.576	6.846	0.500	2
ALL	80.841	8.838	0.598	1,034

Doctors who are HMO-based had the highest average vignette scores while those whose practice is based in a hospital's outpatient or emergency room had the highest passing rate (Table 31). On the other hand, those in school-based clinics and other types of clinics had the lowest vignette scores and passing rates. Since teachers are a high risk group for TB, it is important for school-based doctors to be aware of the clinical practice guidelines for TB DOTS

Table 31. Mean and standard deviation of aggregate vignette scores and passing rate, by clinic type
Base: All TB treating MDs, reference specialties

Clinic Type	Mean	Std. Deviation	Passing Rate	N
Free-standing	83.188	8.318	0.634	417
Hospital-based	84.177	9.190	0.711	378
Hospital-Outpatient/ER	84.602	8.310	0.795	123
HMO-based	86.122	6.290	0.722	26
Community-based	81.410	9.458	0.582	10
School-based/University-based/ER	81.421	6.955	0.528	6
Work-based	82.649	7.067	0.633	12
Others	80.007	5.589	0.225	6
Total	83.837	8.615	0.690	978

Average vignette scores for sites do not differ substantially across sites, with the minimum and maximum scores differing by about 10 percentage points (Table 32). The highest average vignette scores were posted by Dagupan and Laoag-based doctors while Lucena-based doctors had the lowest average score. Passing rates vary substantially, ranging from a low of 55 percent for Dumaguete and a high of 89 percent for Cotabato City. Metro areas such as Cebu City and Davao City had relatively low passing rates although the average aggregate scores for these sites exceeded the passing mark.

Respondent doctors in Laoag City and Cotabato City were the best vignette performers on the basis of both average score and passing rate.

Distributional aspects of scores could be highlighted by examining the vignette results for Lucena City and Bacolod Cit. While the average score for Lucena City doctors is below the passing mark, the passing rate is relatively high. This indicates widely dispersed scores, where the lowest scores were low enough to pull down the average grade below the passing level but that the highest scores were not high enough to pull up the average above the passing level.

On the other hand, while doctors in Bacolod City had an average vignette score that is considered passing, only 58 percent of the doctors made this cut. This also suggests that the range of vignette scores among Bacolod City doctors is large and that the relatively few doctors who know TB DOTS know it really well but there are relatively more doctors who have insufficient knowledge about the clinical guidelines of TB DOTS.

Thus, Lucena City would exemplify the case where there are outliers on the low end of the range of scores while Bacolod City's outliers are on the high end of the range of scores.

Table 32. Mean and standard deviation of aggregate vignette scores and passing rates, by city
Base: All TB treating MDs, reference specialties

City	Mean	Std Deviation	Passing Rate	N
Angeles	83.942	6.372	0.719	35
Bacolod	82.811	8.274	0.578	46
Bacoor	83.765	7.293	0.619	13
Batangas	85.952	7.036	0.748	9
Cabanatuan	83.282	6.107	0.636	23
Cagayan de Oro	81.748	12.092	0.665	32
Cebu	82.656	8.841	0.649	109
Cotabato	86.469	5.709	0.889	7
Dagupan	87.939	8.535	0.775	9
Davao	83.818	8.852	0.615	109
Dumaguete	82.726	7.235	0.552	15
Iloilo	84.309	8.608	0.684	84
Laoag	86.998	6.090	0.848	12
Lucena	77.611	20.059	0.782	5
Manila	83.881	8.141	0.698	92
Naga	84.588	7.975	0.629	26
Ozamis	81.950	11.013	0.635	12
Puerto Princesa	86.831	5.704	0.719	11
Quezon	84.218	8.388	0.730	248
Roxas	83.891	7.888	0.703	21
Tacloban	83.786	12.090	0.673	25
Zamboanga	83.305	8.484	0.656	35
Total	83.837	8.615	0.690	978

Clinical elements of DOTS include diagnostic procedures and tools and treatment regimen. The DOTS strategy prescribes the use of AFB smear as main diagnostic tool for TB suspect patients. Table 33 reports TB treating physicians' reported primary diagnostic tool for TB patients. While only about 12 percent of TB treating reference specialists utilize AFB smear exclusively as the primary diagnostic tool, more than half use it either exclusively or in conjunction with x-ray. Infectious disease specialists report the highest exclusive use of sputum smear for diagnosis of nearly one-third, followed by pulmonologists and general internal medicine. Lowest exclusive use is reported for internal medicine specialists with subspecialty, who in turn report the highest use of x-ray as the primary diagnostic tool. Roughly 73 percent of pulmonologists use sputum exclusively or with x-ray. However, about 45 percent of TB treating MDs belonging to the reference specialties still use x-ray exclusively as the primary diagnostic tool for TB patients.

Table 33. TB treating physicians by reported primary diagnostic test, by specialty
Base: Reference specialties

	Use Sputum	N	Use Sputum exclusively	N	Use x-ray	N
General Practice	0.457	208	0.140	208	0.520	208
Family Medicine	0.595	182	0.110	182	0.395	182
General Internal Medicine	0.599	247	0.144	247	0.379	247
Internal Medicine w/ Subspecialty	0.396	172	0.052	172	0.596	172
Pulmonology	0.726	145	0.154	145	0.274	145
Infectious Disease	0.642	29	0.279	29	0.334	29
Total	0.535	983	0.119	983	0.451	983

The lowest proportions of TB treating physicians who use AFB smear are those based in hospital outpatient departments or emergency rooms (Table 34). For majority of these physicians, x-ray is still the diagnostic tool of choice. A relatively high proportion of HMO-based physicians report use of sputum smear, either exclusively or in conjunction with x-ray. This may indicate common protocols for treating diseases adopted by physicians practicing in HMO clinics. This may imply greater institutional control over MD practices in HMOs relative to independent practices.

Table 35 reports primary diagnostic tool use in the study sites. For large study sites such as Davao City, Cebu City, Quezon City and Manila, about half of physicians use at least sputum smear. The proportion of physicians who use sputum exclusively ranges from about 11 percent to 16 percent in these sites, except Manila (6 percent). Angeles City and Cagayan de Oro City report the highest proportion of physicians who use x-ray as primary diagnostic tools for TB.

Table 34. TB treating physicians by reported primary diagnostic test, by clinic type
Base: Reference specialties

Clinic Type	Use Sputum	N	Use Sputum exclusively	N	Use x-ray	N
Free-standing	0.535	419	0.128	419	0.447	419
Hospital-based	0.570	383	0.109	383	0.419	383
Hospital-Outpatient/ER	0.426	122	0.111	122	0.574	122
HMO-based	0.678	25	0.136	25	0.208	25
Community-based	0.597	10	0.326	10	0.403	10
School-based/University-based/ER	0.528	6	0.225	6	0.472	6
Work-based	0.423	12	0.000	12	0.577	12
Others	0.709	6	0.096	6	0.292	6
Total	0.535	983	0.119	983	0.451	983

Table 35. TB treating physicians by reported primary diagnostic test, by city
Base: Reference specialties

City	Use Sputum	N	Use Sputum exclusively	N	Use x-ray	N
Angeles	0.324	35	0.657	35	0.601	35
Bacolod	0.568	46	0.054	46	0.432	46
Bacoor	0.456	13	0.204	13	0.544	13
Batangas	0.800	9	0.040	9	0.200	9
Cabanatuan	0.522	24	0.121	24	0.478	24
Cagayan de Oro	0.346	32	0.176	32	0.654	32
Cebu	0.546	109	0.112	109	0.431	109
Cotabato	0.578	7	0.000	7	0.267	7
Dagupan	0.656	9	0.429	9	0.344	9
Davao	0.566	108	0.162	108	0.418	108
Dumaguete	0.657	15	0.133	15	0.343	15
Iloilo	0.609	84	0.099	84	0.358	84
Laoag	0.702	12	0.217	12	0.222	12
Lucena	0.683	5	0.248	5	0.317	5
Manila	0.534	96	0.062	96	0.466	96
Naga	0.617	27	0.227	27	0.383	27
Ozamis	0.488	12	0.000	12	0.434	12
Puerto Princesa	0.671	11	0.151	11	0.329	11
Quezon	0.516	249	0.125	249	0.473	249
Roxas	0.549	20	0.257	20	0.451	20
Tacloban	0.593	25	0.131	25	0.374	25
Zamboanga	0.534	35	0.107	35	0.442	35
Total	0.535	983	0.119	983	0.451	983

It was noted earlier that only about 53 percent of physicians adopt AFB smear as the primary diagnostic tool for suspect TB patients. Part of the non-adoption may be the insufficient knowledge about facilities that offer AFB smears. However, this does not seem to be the case. As Table 36 indicates, almost all of the TB treating physicians surveyed are aware of facilities that offer AFB smears. This implies that the availability of the test does not automatically translate to its use.

Table 36. Proportion of physicians who are aware of facilities that offer AFB smear
Base: TB treating physicians

Specialty	Proportion	N
General Practice	0.964	209
Family Medicine	0.970	182
General Internal Medicine	0.960	247
Internal Medicine w/ Subspecialty	0.964	172
Pulmonology	1.000	145
Infectious Disease	1.000	29
Pediatrics	1.000	19
Obstetrics/Gynecology	1.000	4
Anesthesiology	0.158	4
Ear, Nose and Throat	1.000	1
Pathology	1.000	1
Radiology	1.000	4
Surgery	0.994	21
Community Medicine	1.000	2
Total		1040

The prescription of the Short-Course Chemotherapy (SCC) drug regimen constitutes a key aspect element of DOTS. How closely do physician prescription patterns hew to the SCC[8]? Departures from the SCC treatment regimen may indicate that patients are not being treated appropriately which could lead to longer treatment duration or even failed treatment. About one-fourth of TB treating physicians belonging to the reference specialties employ treatment regimens that coincide with the SCC, with infectious disease specialists and pulmonologists registering the highest proportions (Table 37).

Table 37. Proportion of TB treating physicians whose drug regimen prescribed coincides with SCC, by specialty
Base: TB treating, reference specialties

Specialty	Proportion	N
General Practice	0.205	211
Family Medicine	0.243	183
General Internal Medicine	0.243	247
Internal Medicine w/ Subspecialty	0.264	174
Pulmonology	0.353	145
Infectious Disease	0.476	29
Total	0.259	989

[8] SCC treatment regimens for Category I and Category III TB patients are considered. Thus the number of months that pyrazinamide is prescribed is allowed to vary between 0 and 2 months.

Physicians based in HMO clinics and those in community clinics show the highest proportion of treatment regimens coinciding with the SCC (Table 38). Treatment regimens of those in work-based clinics do not coincide at all with the SCC. Low proportions are registered by physicians in hospital OPDs, and school based clinics.

Table 38. Proportion of TB treating physicians whose drug regimen prescribed coincides with SCC, by clinic type
Base: TB treating, reference specialties

Clinic Type	Proportion	N
Free-standing	0.267	422
Hospital-based	0.284	384
Hospital-Outpatient/ER	0.181	123
HMO-based	0.313	26
Community-based	0.399	10
School-based/University-based/ER	0.106	6
Work-based	0.000	12
Others	0.205	6
Total	0.259	989

Adherence of treatment regimens with the SCC protocol is highest among physicians in the cities of Bacoor, Dagupan, and Laoag and lowest among physicians practicing in the cities of Cagayan de Oro, Tacloban and Cotabato (Table 39).

Table 39. Proportion of TB treating physicians whose drug regimen prescribed coincides with SCC, by city
Base: TB treating, reference specialties

City	Proportion	N
Angeles	0.168	35
Bacolod	0.355	46
Bacoor	0.503	13
Batangas	0.357	9
Cabanatuan	0.162	24
Cagayan de Oro	0.114	33
Cebu	0.245	110
Cotabato	0.156	7
Dagupan	0.669	9
Davao	0.258	110
Dumaguete	0.248	15
Iloilo	0.362	84
Laoag	0.772	12

City	Proportion	N
Lucena	0.317	5
Manila	0.183	96
Naga	0.266	27
Ozamis	0.158	12
Puerto Princesa	0.164	11
Quezon	0.271	249
Roxas	0.425	21
Tacloban	0.099	26
Zamboanga	0.160	35
Total	0.259	989

The duration that separates the initiation of treatment and the first follow-up consultation may indicate physician predisposition to follow the DOTS recommended schedule of follow-up consultations which prescribe at least a follow-up visit by the end of the second month. Thus, physicians who regularly see their TB patients within the second month after initiation of treatment may also be predisposed to adopt the DOTS schedule of follow-up consultations.

Table 40. Distribution of respondents by length of time between start of treatment and first consultation by specialty
Base: TB treating, reference specialties

	General Practice		Family Medicine		General Internal Medicine		Internal Medicine w/ Subspecialty		Pulmonology		Infectious Disease		Total	
	%	n	%	n	%	n	%	n	%	n	%	n	%	N
No follow-up	0.007	2	0.005	1	0.004	1	0	0	0	0	0.024	1	0.003	5
1 - 2 weeks	0.019	6	0.064	11	0.637	16	0.047	10	0.035	6	0	0	0.046	49
2 - 4 weeks	0.245	52	0.304	53	0.297	69	0.341	54	0.446	63	0.562	15	0.323	306
1 - 2 months	0.451	87	0.437	78	0.459	112	0.395	63	0.427	61	0.307	9	0.431	410
2 - 3 months	0.266	57	0.18	36	0.147	40	0.174	35	0.082	13	0.084	3	0.171	184
> 3 months	0.007	2	0.005	1	0.022	5	0.033	6	0	0	0.024	1	0.018	15
Other time	0.006	2	0.005	1	0.008	3	1	3	0.01	2	0	0	0.008	11
Total	1.000	208	1.000	181	1.000	246	1.000	171	1.000	145	1.000	29	1.000	980

Infectious disease specialists and pulmonologists are more likely to see their TB patients for follow-up consultation within 2 months after start of treatment compared to other TB treating physicians belonging to the reference specialties (Table 40).

Table 41. Distribution of respondents by length of time between start of treatment and first consultation by type of clinic
Base: TB Treating, reference specialties

	Free-Standing		Hospital Based		Hospital Out-Patient / ER		HMO Based		Community		School Based		Work Based		Others		Total	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	N
No follow-up	0.005	3	0.003	1	0.003	1	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.003	5
1 – 2 weeks	0.042	21	0.055	22	0.032	4	0.000	0	0.061	1	0.000	0	0.000	0	0.407	1	0.050	49
2 – 4 weeks	0.324	134	0.301	111	0.415	50	0.217	6	0.275	1	0.000	0	0.289	3	0.071	1	0.323	306
1 – 2 months	0.414	169	0.445	164	0.445	52	0.435	11	0.210	2	0.774	4	0.564	7	0.134	1	0.431	410
2 – 3 months	0.192	81	0.166	69	0.093	14	0.271	7	0.454	6	0.226	2	0.147	2	0.387	3	0.171	184
> 3 months	0.015	6	0.020	7	0.012	1	0.077	1	0.000	0	0.000	0	0.000	0	0.000	0	0.018	15
Other time	0.010	5	0.011	6	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.008	11
Total	1.000	419	1.000	380	1.000	122	1.000	25	1.000	10	1.000	6	1.000	12	1.000	6	1.000	980

A higher proportion of physicians based in hospital OPD and emergency rooms and work-based clinics appear to see their TB patients within 2 months after start of treatment compared to physicians based in free-standing and hospital based clinics (Table 41).

Table 42. Distribution of respondents by length of time between start of treatment and first consultation by city
Base: TB treating, reference specialties

	No follow-up		1-2 Weeks		2-4 Weeks		1-2 Months		2-3 months		> 3 months		Other time		All	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	N
Angeles	0.000	0	0.027	1	0.611	21	0.275	10	0.087	3	0.000	0	0.000	0	1.000	35
Bacolod	0.000	0	0.085	3	0.248	11	0.458	21	0.180	8	0.000	0	0.029	1	1.000	44
Bacoor	0.000	0	0.000	0	0.269	4	0.595	7	0.136	2	0.000	0	0.000	0	1.000	13
Batangas	0.000	0	0.000	0	0.357	4	0.496	4	0.148	1	0.000	0	0.000	0	1.000	9
Cabanatuan	0.000	0	0.081	2	0.589	14	0.299	7	0.031	1	0.000	0	0.000	0	1.000	24
Cagayan de Oro	0.026	1	0.062	2	0.190	6	0.449	14	0.273	9	0.000	0	0.000	0	1.000	32
Cebu	0.006	1	0.000	0	0.194	21	0.369	42	0.353	38	`	5	0.012	2	1.000	109
Cotabato	0.000	0	0.000	0	0.000	0	0.889	6	0.111	1	0.000	0	0.000	0	1.000	7
Dagupan	0.119	1	0.000	0	0.119	1	0.571	5	0.085	1	0.106	1	0.000	0	1.000	9
Davao	0.000	0	0.058	7	0.238	26	0.337	36	0.316	35	0.009	1	0.042	4	1.000	109
Dumaguete	0.000	0	0.000	0	0.410	6	0.171	3	0.343	5	0.076	1	0.000	0	1.000	15
Iloilo	0.000	0	0.107	8	0.203	17	0.502	43	0.171	14	0.017	2	0.000	0	1.000	84
Laoag	0.000	0	0.106	1	0.228	3	0.515	6	0.076	1	0.000	0	0.076	1	1.000	12
Lucena	0.218	1	0.000	0	0.317	2	0.465	2	0.000	0	0.000	0	0.000	0	1.000	5
Manila	0.000	0	0.074	5	0.359	32	0.420	43	0.147	15	0.000	0	0.000	0	1.000	95
Naga	0.029	1	0.035	1	0.424	12	0.360	9	0.152	4	0.000	0	0.000	0	1.000	27
Ozamis	0.000	0	0.000	0	0.251	3	0.567	7	0.103	1	0.000	0	0.078	1	1.000	12

	No follow-up		1-2 Weeks		2-4 Weeks		1-2 Months		2-3 months		> 3 months		Other time		All	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	N
Puerto Princesa	0.000	0	0.185	2	0.247	3	0.384	4	0.082	1	0.000	0	0.103	1	1.000	11
Quezon	0.000	0	0.017	4	0.380	100	0.483	117	0.103	24	0.017	3	0.000	0	1.000	248
Roxas	0.000	0	0.203	4	0.362	8	0.210	4	0.226	4	0.000	0	0.000	0	1.000	20
Tacloban	0.000	0	0.295	7	0.264	6	0.140	4	0.267	7	0.000	0	0.033	1	1.000	25
Zamboanga	0.000	0	0.050	2	0.164	6	0.478	16	0.251	9	0.057	2	0.000	0	1.000	35
Total	0.003	5	0.046	49	0.323	306	0.431	410	0.171	184	0.018	15	0.008	11	1.000	980

Physicians in Angeles City and Cabanatuan City are more likely to see their TB patients within 2 months after start of treatment (Table 42).

The fixed-dose packaging is presently the DOTS preferred mode of packaging due to drug intake convenience. This subsection examines which physicians are more predisposed to prescribing TB drugs in fixed-dose packaging.

Among TB treating physicians who report adoption of DOTS, infectious disease specialists and pulmonologists tend to prefer fixed-dose packaging relative to physicians engaged in other specialties. Internists with subspecialty training on the other hand tend to prefer blister pack packaging (Table 43).

Table 43. Distribution of physicians by preferred drug packaging, by specialty
Base: TB treating, reference specialties

Specialty	Loose Drug		Blister Pack		Fixed Dose		All	
	Percent	n	Percent	n	Percent	n	Percent	N
General Practice	0.024	6	0.620	122	0.357	80	1.000	208
Family Medicine	0.024	5	0.616	111	0.360	65	1.000	181
General Internal Medicine	0.022	4	0.539	134	0.439	106	1.000	244
Internal Medicine w/ Subspecialty	0.024	4	0.659	113	0.317	53	1.000	170
Pulmonology	0.008	1	0.471	68	0.522	73	1.000	142
Infectious Disease			0.394	12	0.606	17	1.000	29
Total	0.021	20	0.584	560	0.395	394	1.000	974

TB treating physicians based in HMO clinics tend to prefer blister pack packaging compared to physicians practicing in other types of clinics (Table 44). Physicians in free-standing clinics tend to prefer fixed-dose packaging relative to physicians in hospital based clinics.

Table 44. Distribution of physicians by preferred drug packaging, by type of clinic
Base: TB treating, reference specialties

Clinic Type	Loose Drug		Blister Pack		Fixed Dose		All	
	Percent	n	Percent	n	Percent	n	Percent	N
Free-standing	0.019	8	0.573	235	0.408	174	1.000	417
Hospital-based	0.017	8	0.604	221	0.379	147	1.000	376
Hospital-Outpatient/ER	0.026	3	0.563	67	0.411	52	1.000	122
HMO-based			0.720	19	0.280	6	1.000	25
Community-based	0.280	1	0.330	4	0.395	5	1.000	10
School-based/University			0.510	3	0.490	3	1.000	6
Work-based			0.557	7	0.443	5	1.000	12
Others			0.502	4	0.498	2	1.000	6
Total	0.021	20	0.584	560	0.395	394	1.000	974

Those practicing in the cities of Puerto Princessa, Naga and Ozamis tend to prefer the fixed those packaging while physicians practicing in the cities of Dagupan, Lucena and Batangas tend to favor blister pack packaging (Table 45).

Table 45. Distribution of physicians by preferred drug packaging, by city
Base: TB treating, reference specialties

City	Loose Drug		Blister Pack		Fixed dose		Total	
	Percent	n	Percent	n	Percent	n	Percent	N
Angeles	0.000	0	0.500	17	0.500	18	1.000	35
Bacolod	0.000	0	0.643	29	0.357	15	1.000	44
Bacoor	0.000	0	0.612	8	0.388	5	1.000	13
Batangas	0.000	0	0.704	7	0.296	2	1.000	9
Cabanatuan	0.083	2	0.458	11	0.460	11	1.000	24
Cagayan De Oro	0.028	1	0.472	15	0.500	16	1.000	32
Cebu	0.012	2	0.671	72	0.317	33	1.000	107
Cotabato	0.000	0	0.689	5	0.311	2	1.000	7
Dagupan	0.000	0	0.894	8	0.106	1	1.000	9
Davao	0.065	7	0.567	61	0.368	41	1.000	109
Dumaguete	0.000	0	0.676	10	0.324	5	1.000	15
Iloilo	0.000	0	0.542	44	0.458	38	1.000	82
Laoag	0.000	0	0.485	6	0.515	6	1.000	12
Lucena	0.000	0	0.782	4	0.218	1	1.000	5
Manila	0.034	2	0.534	55	0.432	38	1.000	95
Naga	0.000		0.325	9	0.676	18	1.000	27
Ozamis	0.000	0	0.365	4	0.636	8	1.000	12
Puerto Prinsesa	0.000	0	0.000	0	1.000	11	1.000	11
Quezon	0.018	4	0.617	150	0.365	93	1.000	247

City	Loose Drug		Blister Pack		Fixed dose		Total	
	Percent	n	Percent	n	Percent	n	Percent	N
Roxas	0.000		0.669	13	0.331	7	1.000	20
Tacloban	0.033	1	0.698	17	0.269	7	1.000	25
Zamboang	0.027	1	0.445	15	0.528	18	1.000	34
Total	0.021	20	0.584	560	0.395	394	1.000	974

Aside from adherence to the standard diagnostic protocols and treatment regimens, DOTS requires direct observation of drug intake as well as a standardized recording and reporting system. While private physicians do not exactly follow these dictates, there are practice characteristics that would enable physicians to follow these requirements more readily.

One aspect of direct observation of drug intake is the presence of a treatment partner who records the daily drug intake of the patient. From Table 46, it can be seen that a scant 4 percent of TB treating physicians (belonging to the reference specialties) monitor the drug intake of their patients by a written record. Variations exist across physician specialization with pulmonologists registering the highest proportion of monitoring by written report of a treatment partner. General internal medicine specialists report the least percentage.

Table 46. Proportion of TB treating physicians by method of monitoring drug intake, by specialty
Base: TB treating physicians, reference specialties

Specialty	Check blister pack	Ask patient	Ask relative	Phone patient	Infer from patient improvement	Check prescription	Oral report of treatment partner	Written report of treatment partner	N
General Practice	0.169	0.679	0.289	0.021	0.209	0.037	0.069	0.043	211
Family Medicine	0.205	0.772	0.370	0.073	0.219	0.030	0.042	0.036	183
General Internal Medicine	0.146	0.785	0.320	0.036	0.255	0.043	0.064	0.027	247
Internal Medicine-w/ Subspecialty	0.100	0.826	0.328	0.030	0.158	0.011	0.024	0.038	174
Pulmonology	0.264	0.803	0.470	0.106	0.257	0.085	0.162	0.097	145
Infectious Disease	0.223	0.805	0.584	0.038	0.452	0.123	0.159	0.062	29
Total	0.161	0.777	0.345	0.045	0.221	0.038	0.065	0.043	989

HMO based physicians register a higher proportion of those who monitor drug intake with a written record (Table 47). Again this may be related to the stricter adherence to specified protocols. None of those in community based, school-based and work based clinics monitor by written records.

Table 47. Proportion of TB treating physicians by method of monitoring drug intake, by clinic type
Base: TB treating, reference specialties

Clinic Type	Check blister pack	Ask patient	Ask relative	Phone patient	Infer from patient improvement	Check prescription	Oral report of treatment partner	Written report of treatment partner	N
Free-standing	0.181	0.805	0.334	0.052	0.251	0.052	0.078	0.037	422
Hospital-based	0.142	0.793	0.350	0.039	0.199	0.023	0.062	0.044	384
Hospital-Outpatient/ER	0.157	0.722	0.411	0.054	0.238	0.041	0.058	0.059	123
HMO-based	0.242	0.575	0.200	0.000	0.129	0.000	0.050	0.057	26
Community-based	0.143	0.531	0.201	0.000	0.143	0.000	0.000	0.000	10
School-based-University-based/ER	0.000	0.881	0.000	0.000	0.107	0.000	0.000	0.000	6
Work-based	0.184	0.626	0.168	0.000	0.178	0.235	0.000	0.000	12
Others	0.000	0.800	0.334	0.000	0.000	0.071	0.000	0.000	6
Total	0.161	0.777	0.345	0.045	0.221	0.038	0.065	0.043	989

In some cities, no TB treating physicians monitor drug intake by written reports (Table 48). These cities include Batangas, Cabanatuan, Cotabato, Dagupan, Dumaguete, Naga, Ozamis, Puerto Princessa and Zamboanga.

Table 48. Proportion of TB treating physicians by method of monitoring drug intake, by city
Base: TB treating, reference specialties

City	Check blister pack	Ask patient	Ask relative	Phone patient	Infer from patient improvement	Check prescription	Oral report of treatment partner	Written report of treatment partner	N
Angeles	0.258	0.528	0.410	0.075	0.194	0.033	0.212	0.033	35
Bacolod	0.112	0.825	0.173	0.020	0.086	0.021	0.013	0.043	46
Bacoor	0.361	0.748	0.367	0.000	0.092	0.092	0.092	0.092	13
Batangas	0.600	0.800	0.704	0.104	0.400	0.148	0.104	0.000	9
Cabanatuan	0.160	0.623	0.113	0.000	0.154	0.000	0.040	0.000	24
Cagayan de Oro	0.055	0.797	0.132	0.000	0.105	0.026	0.033	0.045	33
Cebu	0.104	0.763	0.222	0.045	0.092	0.000	0.019	0.015	110
Cotabato	0.000	1.000	0.000	0.000	0.156	0.111	0.000	0.000	7
Dagupan	0.106	0.452	0.346	0.000	0.106	0.000	0.119	0.000	9
Davao	0.078	0.818	0.251	0.036	0.123	0.000	0.033	0.036	110
Dumaguete	0.057	0.629	0.267	0.086	0.276	0.000	0.057	0.000	15
Iloilo	0.142	0.937	0.316	0.080	0.318	0.086	0.030	0.035	84
Laoag	0.474	0.924	0.848	0.398	0.550	0.369	0.550	0.293	12
Lucena	0.465	0.535	0.564	0.218	0.317	0.218	0.218	0.218	5
Manila	0.096	0.759	0.342	0.022	0.264	0.000	0.052	0.069	96
Naga	0.035	0.738	0.206	0.000	0.226	0.000	0.029	0.000	27

City	Check blister pack	Ask patient	Ask relative	Phone patient	Infer from patient improvement	Check prescription	Oral report of treatment partner	Written report of treatment partner	N
Ozamis	0.103	0.670	0.000	0.000	0.330	0.000	0.000	0.000	12
Puerto Princesa	0.068	0.801	0.658	0.000	0.240	0.000	0.000	0.000	11
Quezon	0.223	0.778	0.448	0.053	0.282	0.049	0.092	0.045	249
Roxas	0.145	0.799	0.175	0.039	0.039	0.203	0.039	0.039	21
Tacloban	0.189	0.674	0.324	0.000	0.184	0.092	0.032	0.064	26
Zamboanga	0.024	0.923	0.243	0.033	0.000	0.126	0.000	0.000	35
Total	0.161	0.777	0.345	0.045	0.221	0.038	0.065	0.043	989

The DOTS protocol utilizes standard reporting forms for TB suspects, laboratory examinations requested as well as on treatment outcomes. These are in turn submitted to the local Centers for Health Development (CHD) for collation and monitoring. Physicians who separate the records of TB patients from all other patients can more readily fulfill these requirements. About nine percent of TB treating physicians separate the records of TB patients from all other patient records (Table 49). The highest proportion of MDs who separate records are general practitioners. They are therefore in a better position to report the number of TB patients to the DOH.

Physicians in community-based and school-based clinics report the highest percentage of those who separate the records of TB patients (Table 50). These institution-based clinics may have closer links to the city health offices for reporting purposes. No TB treating physicians separate the records of TB patients in the cities of Cotabato, Dagupan, Lucena, and Ozamis (Table 51).

Table 49. Proportion of TB Treating MDs who separate records of patients, by specialty
Base: TB treating, reference specialties

Specialty	Proportion	N
General Practice	0.161	208
Family Medicine	0.117	182
General Internal Medicine	0.059	246
Internal Medicine w/ Subspecialty	0.041	172
Pulmonology	0.125	144
Infectious Disease	0.060	29
Total	0.088	981

Table 50. Proportion of TB Treating MDs who separate records of patients, by clinic type
Base: TB treating, reference specialties

Clinic Type	Proportion	N
Free-standing	0.112	421
Hospital-based	0.073	380
Hospital-Outpatient/ER	0.052	121
HMO-based	0.098	25
Community-based	0.406	10
School-based/University-based/ER	0.119	6
Work-based	0.059	12
Others	0.000	6
Total	0.088	981

Table 51. Proportion of TB Treating MDs who separate records of patients, by city
Base: TB treating, reference specialties

City	Proportion	N
Angeles	0.075	35
Bacolod	0.067	46
Bacoor	0.041	13
Batangas	0.104	9
Cabanatuan	0.136	24
Cagayan de Oro	0.109	32
Cebu	0.046	109
Cotabato	0.000	7
Dagupan	0.000	9
Davao	0.116	110
Dumaguete	0.063	14
Iloilo	0.019	84
Laoag	0.293	12
Lucena	0.000	6
Manila	0.075	96
Naga	0.153	27
Ozamis	0.000	12
Puerto Princesa	0.151	11
Quezon	0.105	251
Roxas	0.182	20
Tacloban	0.196	25
Zamboanga	0.086	35
Total	0.088	987

1. *TB Outcomes*

Table 52 reports the distribution of TB patients seen in the last three months by type of outcome and specialty. The table indicates that among the reference specialties, the TB outcome profile of GPs differ the most compared to physicians engaged in the other reference specialties. For example, completion rates among reference specialties are within the 72-80 percent range while that of general practitioners is below 60 percent.

Patients who are lost-to-follow-up accounts for a non-trivial proportion of all TB patients, with general practitioners reporting losing about a quarter of their TB patients in this manner. Doctors with reference specialties reported that roughly 5 to 10 percent of all TB patients transfer to different providers. Among the reference specialties, general practitioners reported the highest failure rates while infectious disease specialists reported the lowest rates. Death rates were consistently less than 1 percent for all specialties, whether for reference or other specialties.

It is possible that the insufficient knowledge on TB DOTS, as indicated by vignette scores, translates into poor outcomes for general practitioners.

Table 52. Distribution of patients (in percent) by TB outcomes and specialty
Base: TB treating MDs

Specialty	Completed Treatment	Lost to Follow up	Transferred to Private MD	Transferred to Public MD	Failed Treatment	Died	N
General Practice	59.651	25.808	1.970	5.871	5.898	0.816	149
Family Medicine	72.391	19.475	0.955	4.673	3.308	0.746	125
General Internal Medicine	72.324	19.031	2.515	3.420	2.532	0.099	170
Internal Medicine w/ Subspecialty	78.879	13.090	2.486	2.476	2.519	0.367	120
Pulmonology	75.150	15.975	0.997	3.199	3.670	0.359	109
Infectious Disease	72.010	17.047	4.667	4.640	1.516	0.346	19
Pediatrics	72.964	18.033	0.000	4.451	4.154	0.670	15
Obstetrics/Gynecology	69.515	11.169	0.000	9.658	9.658	0.000	3
Anesthesiology	60.000	35.000	5.000	0.000	0.000	0.000	2
Ear, Nose and Throat	70.000	20.000	0.000	10.000	0.000	0.000	1
Pathology	0.000	50.000	0.000	50.000	0.000	0.000	1
Radiology	35.443	24.484	0.000	40.073	0.000	0.000	3
Surgery	78.443	11.019	1.969	1.009	7.368	0.492	18
Community Medicine	80.000	10.000	0.000	10.000	0.000	0.000	1
ALL	72.665	16.663	1.412	4.547	4.412	0.427	736

*total may exceed 100 because some categories are not mutually exclusive

Table 53 summarizes TB outcomes by clinic type. The average treatment completion rates are highest for doctors in work-based clinics and lowest for community-based clinics. The relatively good TB outcomes achieved by doctors in work-based clinics could be the result of a number of factors: (i) the mandatory nature of medical care among workers with TB – e.g., patients are required by employers to strictly comply with the protocol if they are to keep their jobs, (ii) the ease by which doctors in work-based clinics can monitor patients who are also employees, or (iii) the relatively low direct and indirect costs of medical care for TB patients who are treated at the clinic in their workplace.

HMO-based doctors also have among the highest treatment completion rates although a relatively high failed treatment rate as well.

On the whole it would seem that doctors in community-based clinics have the least acceptable TB outcomes – losing as many as 40 percent of TB patients to follow up and transfers, having about 9 percent of TB patients with failed treatment, and having about 2 percent of TB patients eventually dying.

Table 53. Distribution of patients (in percent) by TB outcomes and clinic type
Base: All TB Treating MDs, reference specialties

Clinic Type	Completed Treatment	Lost to Follow up	Transferred to Private MD	Transferred to Public MD	Failed Treatment	Died	N
Free-standing	67.782	20.472	0.705	6.782	4.063	0.267	314
Hospital-based	77.441	12.757	1.901	2.040	5.321	0.618	290
Hospital-Outpatient/ER	70.821	16.005	3.880	5.125	4.139	0.663	89
HMO-based	77.937	14.679	1.233	0.944	4.941	0.000	21
Community-based	42.981	39.085	0.000	5.510	9.884	2.540	9
School-based/ University-based/ER	72.462	27.538	0.000	0.000	0.000	0.000	3
Work-based	95.179	4.236	0.346	0.585	0.000	0.000	6
Others	85.385	13.699	0.000	0.000	0.916	0.000	4
Total	72.665	16.663	1.412	4.547	4.412	0.427	736

*total may exceed 100 because some categories are not mutually exclusive

Table 54 shows that TB outcomes vary substantially across sites. Average treatment completion rates range from a low of 55 percent for Lucena to a high of 88 percent for Batangas. The average proportion of TB patients lost to follow up range from a low of 6 percent for Batangas to a high of 40 percent for Laoag. The average proportion of patients that are lost due to transfers is within the 5 percent range for transfers to private providers but reaches as high as 20 percent for transfers to public providers. Angeles and Dagupan had the highest average failed treatment rates.

The relatively poor performance of Lucena-based doctors in the vignette appears to be correlated with poor TB outcomes. On the other hand, the relatively good performance of Laoag and Cotabato- based doctors does not seem to translate into good TB outcomes.

These findings imply that knowledge of clinical practice guidelines (CPG) is necessary but not sufficient condition for achieving acceptable TB outcomes. Apart from knowledge of CPG, other factors such as patient monitoring and patient willingness to comply with the recommended protocol are important in achieving good TB outcomes

Table 54. Distribution of patients (in percent) by TB outcomes and site
Base: All TB Treating MDs, reference specialties

City	Completed Treatment	Lost to Follow up	Transferred to Private MD	Transferred to Public MD	Failed Treatment	Died	N
Angeles	57.606	24.788	2.401	3.621	10.089	3.806	23
Bacolod	58.071	24.949	0.824	15.085	1.215	0.000	35
Bacoor	74.082	21.386	0.000	3.015	1.011	0.506	12
Batangas	87.854	5.707	1.317	4.244	0.878	0.000	4
Cabanatuan	63.461	28.675	2.952	2.701	2.890	0.745	16
Cagayan de Oro	68.173	21.314	1.300	4.193	3.606	0.194	23
Cebu	81.874	8.257	0.287	3.697	4.930	0.834	78
Cotabato	57.137	41.875	0.000	0.988	2.470	0.000	10
Dagupan	59.395	28.750	0.643	1.171	10.016	0.076	9
Davao	71.347	15.952	0.164	9.123	3.046	0.207	92
Dumaguete	90.797	7.410	0.000	0.837	0.478	0.000	11
Iloilo	68.397	22.418	1.268	2.927	3.711	0.174	53
Laoag	55.821	40.000	0.000	0.000	4.179	1.254	2
Lucena	54.688	9.375	3.125	20.313	6.250	3.125	2
Manila	73.737	19.179	1.347	1.978	3.655	0.140	81
Naga	57.619	34.398	1.817	2.569	4.048	0.451	21
Ozamis	52.419	6.321	0.325	34.797	8.577	0.000	9
Puerto Prinsesa	30.000	65.000	0.000	35.000	0.000	0.000	2
Quezon	74.391	14.126	2.226	3.816	5.058	0.509	186
Roxas	62.999	24.542	0.860	7.751	3.011	0.000	16
Tacloban	69.163	23.445	1.124	1.877	4.079	0.384	28
Zamboanga	70.494	27.669	0.000	0.797	2.339	0.000	23
All	72.665	16.663	1.412	4.547	4.412	0.427	736

*total may exceed 100 because some categories are not mutually exclusive

2. *Clinic Expenditures*

Among the reference specialties, general practitioners have the highest monthly expenditures (Table 55). This relatively high average level of spending is due to a few general practitioners with larger than usual clinic sizes. General practitioners appear to have a more diverse practice compared to their peers.

The rest of the reference specialties have average monthly expenditures falling within the 10,000-16,000 pesos range. Salaries (including allowances and wages of clinic staff) constitute the largest expenditure shares, followed by rent and utilities.

Table 55. Average total monthly expenditures on reference clinic and shares of expenditure items, by specialty
Base: TB treating MDs

Specialty	Mean Expenditure	Salaries	Utilities	Medical Supplies	Drugs	Rent	Others	Total
General Practice	25,949	0.391	0.233	0.106	0.088	0.155	0.027	1.000
	(81)							
Family Medicine	12,764	0.324	0.019	0.122	0.053	0.269	0.041	1.000
	(80)							
General Internal Medicine	9,508	0.406	0.207	0.989	0.019	0.255	0.014	1.000
	(130)							
Internal Medicine w/ Subspecialty	16,047	0.422	0.178	0.052	0.044	0.286	0.019	1.000
	(95)							
Pulmonology	12,271	0.458	0.173	0.053	0.009	0.281	0.025	1.000
	(65)							
Infectious Disease	10,609	0.458	0.144	0.083	0.033	0.244	0.039	1.000
	(19)							
Pediatrics	5,879	0.155	0.554	0.156	0.001	0.133	0.001	1.000
	(12)							
Obstetrics/Gynecology	9,094	0.533	0.078	0.108	0.000	0.281	0.000	1.000
	(4)							
Anesthesiology	5,308	0.271	0.689	0.000	0.000	0.041	0.000	1.000
	(4)							
Pathology	65,000	0.215	0.462	0.462	0.154	0.123	0.000	1.000
	(1)							
Radiology	21,726	0.097	0.192	0.094	0.000	0.054	0.075	1.000
	(3)							
Surgery	16,716	0.294	0.234	0.134	0.071	0.267	0.000	1.000
	(14)							
Community Medicine	6,500	0.000	0.154	0.077	0.769	0.000	0.000	1.000
	(1)							
ALL	12,717	0.308	0.280	0.113	0.052	0.232	0.013	1.000

* Base = All TB treating MDs with own practice
**Base = All TB treating MDs with own practice whose reported total expenditure tallies with the sum of the expenditure items
Figures enclosed in parentheses refer to number of observations.

Table 56 shows that hospital-based clinics and free standing clinics have roughly the same cost structure, with salaries and rent accounting for the biggest shares of total expenditure. For outpatient clinics in the hospital's emergency room, rent has the largest expenditure share. The relatively large share of utilities in free standing clinics' total monthly expenditures could be the result of many free standing clinics being located in doctors' residences and therefore utilities bills could cover both clinic and household operations.

Table 56. Average total monthly expenditures on reference clinic and shares of expenditure items, by type of clinic (Base: TB treating MDS, reference specialties)

Clinic Type	Mean Expenditure	Salaries	Utilities	Medical supplies	Drugs	Rent	Others	Total
Free-standing	13,465	0.221	0.360	0.165	0.084	0.155	0.015	1.000
	(256)	(202)						
Hospital-based	11,831	0.406	0.195	0.056	0.018	0.314	0.011	1.000
	(239)	(184)						
Hospital-Outpatient/ER	9,747	0.342	0.132	0.863	0.000	0.427	0.013	1.000
	(11)	(8)						
Community-based	38,500	0.424	0.045	0.708	0.000	0.227	0.227	1.000
	(2)	(1)						
Others	600	0.000	0.833	0.167	0.000	0.000	0.000	1.000
	(1)	(1)						
All	12,717	0.308	0.280	0.113	0.052	0.232	0.013	1.000
	(509)	(396)						

* Base = All TB treating MDs with own practice
**Base = All TB treating MDs with own practice whose reported total expenditure tallies with the sum of the expenditure items
Figures enclosed in parentheses refer to number of observations.

3. *Fees*

Average fees charged by TB treating physicians are reported in Table 57. Consultation fees for new patients are on average higher than follow-up consultation fees for old patients. TB treating internal medicine specialists with subspecialties other than pulmonology charge the highest fees, followed by pulmonologists. General practitioners charge the lowest average consultation fees. Assuming the recommended number of visits under DOTS for the duration of TB treatment for a Category I patient, i.e., 2 visits for diagnosis and 3 follow-up visits, patients with Category I TB who patronize private TB treating physicians are expected to shell out from P 691 to about P 1,600 for consultation fees alone.

Table 57. Average fees for selected services of TB treating physicians, by specialty Base: Reference specialties

Specialty	Consultation Fee:						X-ray fee		AFB smear (1 test)	
	New patient	N	Old patient, simple case	N	Old patient complex case	N		N		N
General Practice	141.170	192	136.263	192	143.021	185	185.919	28	184.243	18
Family Medicine	176.229	162	171.426	162	177.037	160	207.293	31	158.979	21
General Internal Medicine	220.365	223	212.077	224	215.523	222	216.162	24	278.186	9

Internal Medicine w/ Subspecialty	332.637	166	310.744	166	315.186	164	222.135	3		0
Pulmonology	299.672	137	288.158	137	295.261	137	241.938	15	137.337	9
Infectious Disease	273.900	27	248.059	27	252.680	27	189.722	3	150.000	1
Total	241.723	907	230.006	908	235.736	895	208.741	104	190.904	58

Only a limited number of TB treating private practitioners offer x-ray and or sputum AFB smear tests within their clinics. Those who have x-ray facilities comprise only 13 percent of TB treating physicians and those who have microscopes and can offer AFB smear on site comprise 10 percent of TB treating physicians. Charges for chest x-rays are about P 208 on average, with a range of P 186 to P 242. On average, AFB smears cost about P 191, with AFB smears performed in clinics of general internal medicine specialists being more expensive. With these prices, six sputum smear tests recommended for a Category I TB patient would cost about P 1145 on average, with the maximum fee reaching about P 1700.

Charges of physicians practicing in hospital based clinics are higher on average than those in other clinics, except for AFB smears (Table 58). Consultation fees are nearly P 291 pesos for new patients. While consultation fees are lower for HMO based physicians, x-ray and laboratory fees are higher for HMO clinics. Consultation fees may reflect the co-payment of patients while the laboratory fees reflect the internal charges.

Table 58. Average fees for selected services of TB treating physicians, by clinic type
Base: Reference specialties

Clinic type	Consultation Fee:						X-ray fee		AFB smear (1 test)	
	New patient	N	Old patient, simple case	N	Old patient complex case	N		N		
Free-standing	184.653	406	178.153	407	184.296	400	198.464	71	172.127	41
Hospital-based	290.687	360	274.237	360	280.319	359	233.513	17	156.785	8
Hospital-Outpatient/ER	279.475	109	266.799	109	268.577	105	234.756	9	149.582	5
HMO-based	138.039	12	135.739	12	134.561	11	315.584	2	573.807	2
Community-based	157.575	10	150.411	10	185.088	10	130.000	1	0.000	1
School-based/ University-based/ER	0.000	1	0.000	1	0.000	1		0		0
Work-based	93.999	4	93.999	4	58.357	4	175.000	2		0
Others	238.106	5	193.313	5	193.313	5	36.768	2	50.000	1
Total	241.723	907	230.006	908	235.736	895	208.741	104	190.904	58

Table 59. Average fees for selected services of TB treating physicians, by city
Base: Reference specialties

City	Consultation Fee:						X-ray fee		AFB smear (1 test)	
	New patient	N	Old patient, simple case	N	Old patient complex case	N		N		N
Angeles	178.461	34	172.737	34	172.283	33	179.279	9	150.000	3
Bacolod	190.031	40	188.087	40	188.087	40	150.000	1		0
Bacoor	223.980	13	223.980	13	221.348	12		0		0
Batangas	235.204	8	223.469	8	223.469	8	142.759	3	150.000	1
Cabanatuan	179.513	23	168.718	24	178.493	24	176.667	3	135.000	2
Cagayan de Oro	177.928	31	173.772	31	175.778	30	200.000	1	80.000	1
Cebu	209.388	87	202.101	87	206.022	84	203.425	10	118.695	7
Cotabato	180.263	6	173.684	6	173.684	6		0		0
Dagupan	219.405	9	207.507	9	207.507	9	272.346	3	140.000	1
Davao	150.387	104	148.126	104	148.633	104	138.363	6	108.033	4
Dumaguete	123.542	14	123.542	14	123.542	14	175.000	1	20.000	1
Iloilo	196.484	83	196.566	83	198.481	83	192.487	7	87.134	5
Laoag	195.691	12	173.740	12	199.756	12	207.910	4	67.500	2
Lucena	228.218	5	228.218	5	228.218	5	200.000	1	100.000	1
Manila	279.791	89	265.604	89	267.959	88	236.656	14	377.811	5
Naga	191.377	23	176.331	23	181.539	23	190.141	2		0
Ozamis	138.325	12	138.325	12	138.325	12	200.000	1	200.000	1
Puerto Princesa	164.041	11	164.041	11	164.041	11		0		0
Quezon	299.112	230	278.721	230	291.743	224	218.542	33	207.631	21
Roxas	153.160	19	151.674	19	151.674	19	150.000	2	50.000	1
Tacloban	184.903	22	184.903	22	184.903	22	144.815	3	25.000	2
Zamboanga	168.530	32	168.530	32	168.530	32		0		0
Total	241.723	907	230.006	908	235.736	895	208.741	104	190.904	58

Given the current average fees of TB treating physicians, how much would a physician earn if he/she were to prescribe to the usual number of services in the treatment of a tuberculosis patient? This amount can then be compared with an estimate of how much it would cost to treat a patient using DOTS recommended services. This would indicate the participation constraint of the physician, i.e., how much he would have to be compensated for him to consider providing DOTS services.

At current prices, consultation and laboratory fees associated with current regimen would cost about P 2,453.00, with lower total costs associated with general practitioners and family medicine specialists (Table 60). If the physician does not offer laboratory services, then the consultation fees would amount to about P 1,200.00. This would be the minimum amount that physicians would have to be compensated if they were to directly provide the consultations of patients under DOTS or alternatively, the amount that may have to be paid to them in order to refer patients to DOTS centers.

If the physician were to offer consultation, AFB smears and x-rays for a Category I patient, then at current average fees, it would cost about P2611 (Table 61). This amount is lower for general practitioners and family medicine specialists. However this does not yet cover the cost of drugs and the cost of monitoring the patient, i.e., direct observation of drug intake. If the physician does not offer laboratory services, then the consultation fee part of the recommended regimen would be about P 1,400. If this amount would be paid to the physician either as part of the compensation for services provided or for referring, then shifting to DOTS is at least revenue neutral.

Table 60: Estimated cost of actual regimen exclusive of drugs, by specialty
Base: Reference specialties

Specialty	Mean number of consults - initial	Mean number of consults – follow up	Consult fee	Mean Number of smears	AFB Smear Fee	Mean number of X-rays	X-ray Fee	Total
General Practice	1.109	4.061	709.909	2.959	545.244	2.407	447.475	1702.628
Family Medicine	1.207	4.554	993.438	4.256	676.665	2.403	498.173	2168.276
General Internal Medicine	1.193	4.204	1154.407	3.853	1071.743	2.574	556.391	2782.542
Internal Medicine w/ Subspecialty	1.088	3.608	1483.106	3.600	663.318	2.615	580.987	2727.411
Pulmonology	1.182	4.023	1513.504	4.340	596.109	2.730	660.596	2770.208
Infectious Disease	1.308	4.467	1466.345	3.994	599.042	2.073	393.386	2458.772
Total	1.152	4.036	1206.793	3.746	715.222	2.545	531.215	2453.230

* Fees for new patients were applied to initial consultations while fees for old patients with simple cases were applied to follow-up consultations

Table 61. Estimated cost of recommended regimen for Category I, exclusive of drugs, by specialty
Base: Reference specialties

Specialty	Number of consults	Consult fee	Mean number of AFB smears	AFB Smear Fee	Mean number of x-ray (assume 1/3 of patients is Cat III)	X-ray Fee	Total
General Practice	6	827.391	6	1105.457	0.300	55.776	1988.624
Family Medicine	6	1038.160	6	953.874	0.300	62.188	2054.222
General Internal Medicine	6	1289.037	6	1669.115	0.300	64.849	3023.001
Internal Medicine w/ Subspecialty	6	1908.249	6	1105.457	0.300	66.640	3080.347
Pulmonology	6	1751.976	6	824.023	0.300	72.581	2648.581
Infectious Disease	6	1540.037	6	900.000	0.300	56.917	2496.953
Total	6	1403.469	6	1145.425	0.300	62.622	2611.515

The applicable tables for physicians classified by type of clinic are in Tables 62 and 63. Actual costs of the current regimen are cheapest in free-standing, community based and work-based clinics. Consultation fees for work-based clinics are also the least expensive. This implies that it would take less compensation to encourage them to switch to prescribing services that are consistent with the DOTS regimen.

Table 62. Estimated cost of actual regimen exclusive of drugs, by clinic type
Base: Reference specialties

Clinic Type	Mean number of consults - initial	Mean number of consults – follow up	Consult fee	Mean Number of smears	AFB Smear Fee	Mean number of X-rays	X-ray Fee	Total
Free-standing	1.139	4.099	940.551	4.167	717.304	2.462	488.686	2146.541
Hospital-based	1.160	3.976	1427.501	3.363	527.320	2.667	622.783	2577.604
Hospital-Outpatient/ER	1.198	3.988	1398.653	3.717	556.046	2.468	579.298	2533.997
HMO-based	1.099	3.841	672.986	2.258	1295.630	2.504	790.303	2758.920
Community-based	1.000	3.422	672.327	3.045	581.224	2.333	303.247	1556.798
School-based/ University-based/ER *	1.000	6.000	1621.759	12.000	2290.848	3.000	626.223	4538.830
Work-based	1.158	5.036	582.211	4.457	850.900	2.693	471.350	1904.460
Others	1.000	4.273	1064.050	4.347	217.341	2.367	87.022	1368.414
Total	1.152	4.036	1206.793	3.746	715.222	2.545	531.215	2453.230

*Average fees were imputed for missing or zero values of fees

Table 63. Estimated cost of recommended regimen for Category I, exclusive of drugs, by clinic type
Base: Reference specialties

Clinic Type	Number of consults	Consult fee	Mean number of AFB smears	AFB Smear Fee	Mean number of x-ray (assume 1/3 of patients is Cat III)	X-ray Fee	Total
Free-standing	6	1081.916	6	1032.761	0.300	59.539	2174.216
Hospital-based	6	1678.323	6	940.709	0.300	70.054	2689.086
Hospital-Outpatient/ER	6	1626.148	6	897.490	0.300	70.427	2594.065
HMO-based	6	819.035	6	3442.844	0.300	94.675	4356.555
Community-based	6	916.794	6	1145.425	0.300	39.000	2101.219
School-based/University-based/ER *	6	1403.470	6	1145.424	0.300	62.622	2611.516
Work-based	6	563.996	6	1145.425	0.300	52.500	1761.921
Others	6	1249.462	6	300.000	0.300	11.030	1560.493
Total	6	1403.469	6	1145.425	0.300	62.622	2611.515

*Average fees were imputed for missing or zero values of fees

Table 64. Estimated cost of actual regimen exclusive of drugs, by city
Base: Reference specialties

City	Mean number of consults - initial	Mean number of consults – follow up	Consult fee	Mean Number of smears	AFB Smear Fee	Mean number of X-rays	X-ray Fee	Total
Angeles	1.205	4.901	1061.597	1.937	290.578	2.202	394.843	1747.018
Bacolod*	1.000	3.734	892.330	2.440	465.773	2.602	390.345	1748.447
Bacoor*	1.000	6.000	1567.857	7.500	1431.781	2.500	521.852	3521.490
Batangas	1.000	3.614	1042.830	3.789	568.421	1.807	257.967	1869.219
Cabanatuan	1.917	4.972	1182.956	6.250	843.776	2.669	471.558	2498.289
Cagayan de Oro	1.218	4.009	913.480	1.962	156.995	2.634	526.711	1597.186
Cebu	1.213	3.302	921.236	3.008	356.993	2.464	501.161	1779.389
Cotabato*	1.000	4.750	1005.263	3.000	572.712	3.000	626.223	2204.198
Dagupan	1.000	2.417	720.881	5.000	700.000	2.000	544.691	1965.572
Davao	1.047	4.581	835.982	4.902	529.554	2.567	355.202	1720.739
Dumaguete	1.000	3.500	555.938	1.535	30.704	2.338	409.155	995.797
Iloilo	1.000	4.410	1063.428	4.259	371.093	2.534	487.820	1922.341
Laoag	1.000	4.667	1006.477	1.333	90.000	2.000	415.821	1512.298
Lucena	1.000	4.370	1225.614	3.185	318.519	2.815	562.963	2107.096
Manila	1.227	3.800	1352.395	4.832	1825.399	2.753	651.488	3829.283
Naga*	1.149	5.348	1162.848	6.558	1251.982	2.714	516.097	2930.927
Ozamis	1.000	4.062	700.182	1.907	381.443	1.928	385.567	1467.192
Puerto Princesa*	1.000	4.851	959.735	2.540	484.940	2.034	424.680	1869.355
Quezon	1.166	4.047	1476.707	3.600	747.525	2.509	548.416	2772.648
Roxas	1.000	3.000	608.182	2.000	100.000	2.000	300.000	1008.182
Tacloban	1.157	4.487	1043.684	2.256	56.407	2.690	389.481	1489.572
Zamboanga*	1.000	3.972	837.930	2.277	434.715	2.822	589.103	1861.747
Total	1.152	4.036	1206.793	3.746	715.222	2.545	531.215	2453.230

*Average fees were imputed for missing or zero values of fees

Table 65. Estimated cost of recommended regimen for Category I, exclusive of drugs, by city
Base: Reference specialties

City	Number of consults	Consult fee	Mean number of AFB smears	AFB Smear Fee	Mean number of x-ray (assume 1/3 of patients is Cat III)	X-ray Fee	Total
Angeles	6	1047.868	6	900.000	0.30	53.784	2001.652
Bacolod	6	1132.409	6	1145.425	0.30	45.000	2322.834
Bacoor	6	1343.878	6	1145.425	0.30	62.622	2551.924
Batangas	6	1364.286	6	900.000	0.30	42.828	2307.113
Cabanatuan	6	1033.899	6	810.000	0.30	53.000	1896.899
Cagayan de Oro	6	1050.944	6	480.000	0.30	60.000	1590.944
Cebu	6	1227.179	6	712.168	0.30	61.028	2000.374
Cotabato	6	1055.263	6	1145.425	0.30	62.622	2263.310

City	Number of consults	Consult fee	Mean number of AFB smears	AFB Smear Fee	Mean number of x-ray (assume 1/3 of patients is Cat III)	X-ray Fee	Total
Dagupan	6	1268.839	6	840.000	0.30	81.704	2190.542
Davao	6	893.279	6	648.199	0.30	41.509	1582.986
Dumaguete	6	741.250	6	120.000	0.30	52.500	913.750
Iloilo	6	1179.234	6	522.801	0.30	57.746	1759.781
Laoag	6	1086.341	6	405.000	0.30	62.373	1553.715
Lucena	6	1369.307	6	600.000	0.30	60.000	2029.307
Manila	6	1621.997	6	2266.867	0.30	70.997	3959.860
Naga	6	1088.079	6	1145.425	0.30	57.042	2290.545
Ozamis	6	829.951	6	1200.000	0.30	60.000	2089.951
Puerto Princesa	6	984.247	6	1145.425	0.30	62.622	2192.293
Quezon	6	1713.108	6	1245.788	0.30	65.563	3024.459
Roxas	6	913.016	6	300.000	0.30	45.000	1258.016
Tacloban	6	1109.417	6	150.000	0.30	43.444	1302.861
Zamboanga	6	1011.182	6	1145.425	0.30	62.622	2219.229
Total	6	1403.469	6	1145.425	0.30	62.622	2611.515

*Average fees were imputed for missing or zero values of fees

4. *Physician Income*

Table 66 presents average monthly incomes from all sources of TB treating doctors. Among the reference specialties, mean incomes are highest for pulmonologists and lowest for family medicine specialists.

As expected, the majority of TB treating doctors refused to reveal their incomes. If doctors with higher incomes tend to be those who refuse to divulge income information, then the averages presented in the above table are likely to be understated.

Table 66. Average monthly income of TB treating doctors, by specialty
Base: TB treating MDs

Specialty	Mean	N
General Practice	47391.740	115
Family Medicine	38500.200	94
General Internal Medicine	44676.430	132
Internal Medicine w/ Subspecialty	76738.680	66
Pulmonology	109261.600	50
Infectious Disease	43895.900	15
Pediatrics	102240.000	6
Obstetrics/Gynecology	20922.070	2

Specialty	Mean	N
Anesthesiology	83121.140	3
Radiology	45683.370	3
Surgery	65239.840	10
Community Medicine	34500.000	2
ALL	62902.930	498
Refused		548

Table 67 reports mean income levels for TB treating doctors by type of clinic. Mean incomes are highest among those who are hospital-based and in free standing clinics, where compensation is typically of the fee-for-service type. On the other hand, doctors in HMOs, community-based clinics, school-based clinics, and work-based clinics presumably receive fixed salaries and which also probably explains the lower average incomes. Under-reporting of incomes for these doctor types is also less likely compared to those who work in free-standing or hospital-based clinics.

Table 67. Average monthly income of TB treating doctors, by clinic type
Base: TB Treating MDs, reference specialties

Clinic Type	Mean	N
Free-standing	52,346.65	203
Hospital-based	67,778.59	188
Hospital-Outpatient/ER	50,605.89	50
HMO-based	21,913.92	17
Community-based	17,380.62	3
School-based/University-based/ER	31,849.15	5
Work-based	20,682.40	5
Others	20,000.00	1
ALL	56,644.60	472

As can be seen from Table 68, mean incomes of TB treating doctors vary substantially by location. Mean monthly incomes range from about 24,000 pesos for Ozamis-based doctors to 230,000 pesos for doctors in Batangas City.

Mean income levels for metro areas such as cities Cebu, Davao, Manila, and Quezon fall within the 55,000 to 60,000 peso range.

Table 68. Average monthly income of TB treating doctors, by city
Base: TB Treating MDs, reference specialties

City	Mean	N
Angeles	50077.190	27
Bacolod	60313.010	24
Bacoor	33333.330	4
Batangas	230000.000	2
Cabanatuan	35114.130	11
Cagayan de Oro	44783.360	23
Cebu	56329.840	67
Cotabato	70384.620	4
Dagupan	42500.000	2
Davao	58046.450	66
Dumaguete	41036.770	10
Iloilo	44535.340	42
Laoag	76757.900	9
Lucena	80000.000	1
Manila	55970.130	32
Naga	79287.150	13
Ozamis	24676.470	5
Puerto Princesa	122187.500	7
Quezon	59603.040	76
Roxas	50281.820	14
Tacloban	48180.550	14
Zamboanga	57455.840	19
ALL	56644.600	472

5. *Insurance Accreditation*

About 78 percent of TB treating physicians is accredited with either PHIC or private insurance, with IM with subspecialties showing the highest proportions (Table 69). These groups of physicians also show the highest likelihood of being accredited with private insurance schemes. General practitioners show the least proportion of accreditation in either PHIC or private insurance. Two implications can be gleaned from these findings. If physicians do not have to be accredited to get reimbursement, then the potential of PHIC accreditation as a means to ensure compliance to clinical practice guidelines may be reduced. However, since most TB treating physicians are accredited and have experience with third party payors, the potential of insurance as a means to encourage TB DOTS is heightened.

Table 69. Proportion of TB treating physicians with insurance accreditation, by specialty
Base: TB treating, reference specialties

Specialty	PHIC accredited	N	Private insurance Accredited	N	Insurance Accredited	N
General Practice	0.367	209	0.220	209	0.438	211
Family Medicine	0.621	180	0.477	180	0.728	182
General Internal Medicine	0.761	244	0.565	244	0.841	246
Internal Medicine w/ Subspecialty	0.908	174	0.638	174	0.932	174
Pulmonology	0.879	143	0.552	145	0.910	145
Infectious Disease	0.791	29	0.560	29	0.866	29
Total	0.724	979	0.508	981	0.785	987

HMO based and hospital-based physicians show the greatest proportion of physicians who are insurance accredited, while community-based clinics show the least proportion. Physicians practicing in free-standing clinics show the least proportion of private insurance accreditation (Table 70).

Table 70. Proportion of TB treating physicians with insurance accreditation, by clinic type
Base: TB treating, reference specialties

Clinic Type	PHIC accredited	N	Private insurance accredited	N	Insurance accredited	N
Free-standing	0.574	414	0.333	417	0.633	420
Hospital-based	0.890	383	0.658	383	0.935	384
Hospital-Outpatient/ER	0.737	122	0.506	121	0.774	123
HMO-based	0.514	26	0.862	26	1.000	26
Community-based	0.554	10	0.410	10	0.554	10
School-based/University-based/ER	0.579	6	0.472	6	0.579	6
Work-based	0.478	12	0.445	12	0.587	12
Others	0.709	6	0.498	6	0.800	6
Total	0.724	979	0.508	981	0.785	987

Table 71. Proportion of TB treating physicians with insurance accreditation, by city
Base: TB treating physicians, reference specialties

City	PHIC accredited	N	Private insurance accredited	N	Insurance accredited	N
Angeles	0.675	34	0.551	35	0.761	35
Bacolod	0.814	46	0.465	46	0.814	46
Bacoor	0.344	13	0.344	13	0.435	13
Batangas	0.896	9	0.252	9	0.896	9
Cabanatuan	0.768	24	0.558	24	0.816	24
Cagayan de Oro	0.647	33	0.322	33	0.675	33
Cebu	0.791	110	0.648	110	0.845	110
Cotabato	1.000	7	0.844	7	1.000	7
Dagupan	0.768	9	0.470	9	0.768	9
Davao	0.770	108	0.513	107	0.812	108
Dumaguete	0.667	15	0.495	15	0.743	15
Iloilo	0.764	81	0.396	83	0.828	84
Laoag	0.556	12	0.576	11	0.772	12
Lucena	1.000	5	0.752	5	1.000	5
Manila	0.731	95	0.504	96	0.749	96
Naga	0.773	27	0.502	27	0.773	27
Ozamis	0.695	12	0.532	12	0.921	12
Puerto Princesa	1.000	11	0.459	11	1.000	11
Quezon	0.674	246	0.496	246	0.764	249
Roxas	0.685	21	0.469	21	0.772	21
Tacloban	0.869	26	0.701	26	0.901	26
Zamboanga	0.742	35	0.513	35	0.854	35
Total	0.724	979	0.508	981	0.785	987

III. TB DOTS Awareness and Adoption

A. Profile and Capacity of TB-DOTS Aware and Adopting Physicians

1. *Awareness of TB DOTS*

Table 72 shows the proportion of doctors reporting awareness of TB DOTS by specialty. Within the reference specialties, almost all pulmonologists and infectious disease specialists who were interviewed said that they were aware of TB DOTS. However, less than 70 percent of general practitioners and internists with subspecialties reported TB DOTS awareness. Among the other specialties, awareness rates exceeding 70 percent were reported for pediatricians, anesthesiologists, psychiatrists, and surgeons.

In general, TB DOTS awareness rates are expected to be higher among TB treating doctors. Presumably, those who actually see TB patients are more likely to acquire information on TB DOTS if they are well-targeted by TB DOTS information campaigns. There are also demand side factors that would push TB treating doctors to be aware of TB DOTS such as patient information and TB insurance packages. Table 66, however, shows that this is not the case for general practice and especially, anesthesiology.

Table 72. Proportion of MDs reporting awareness of TB DOTS, by specialty

Specialty	Base			
	All MDs	N	All TB Treating MDs	N
General Practice	0.675	321	0.651	211
Family Medicine	0.838	226	0.842	182
General Internal Medicine	0.798	309	0.808	247
Internal Medicine w/ Subspecialty	0.679	264	0.703	173
Pulmonology	0.993	153	0.992	145
Infectious Disease	0.950	36	0.976	29
Pediatrics	0.724	59	0.755	19
Obstetrics/Gynecology	0.546	43	0.978	4
Anesthesiology	0.793	20	0.043	4
Ear, Nose and Throat	0.037	9	0.000	1
Opthalmology	0.386	8	0.000	0
Orthopedics	0.414	5	0.000	0
Pathology	0.484	5	1.000	1
Psychiatry	0.968	3	0.000	0
Radiology	0.092	11	0.110	4
Surgery	0.740	48	0.833	21
Community Medicine	0.500	2	0.500	1
Other Specialties	0.993	2	0.000	0
ALL	0.695	1,524	0.725	1,042

From Table 73, it can be seen that awareness levels of TB DOTS are lowest among work-based doctors and highest among community- and HMO-based doctors. Awareness rates among TB treating physicians are lower than among all physicians for those who are based in HMOs, community-based clinics, and school-based clinics.

Table 73. Proportion of MDs reporting awareness of TB DOTS, by clinic type
Base: Reference specialties

Clinic Type	Base			
	All MDs	N	All TB Treating MDs	N
Free-standing	0.755	533	0.762	421
Hospital-based	0.776	513	0.809	383
Hospital-Outpatient/ER	0.735	164	0.741	123
HMO-based	0.892	32	0.846	26
Community-based	0.919	14	0.876	10
School-based/University-based/ER	0.680	22	0.528	6
Work-based	0.570	23	0.758	12
Others	1.000	8	1.000	6
Total	0.763	1,309	0.781	987

Table 74 shows wide differences in awareness rates across sites. While only 50 percent of Ozamis-based doctors reported awareness of TB DOTS, all doctors in Batangas City and almost all in Bacoor City reported the same.

The table also shows a reduction of at least 4 percentage points in awareness rates as the base changes from all doctors to TB treating doctors Laoag City and Cagayan de Oro City.

This could indicate that there were TB DOTS interventions in Laoag City and Cagayan de Oro City that were not very well-targeted, i.e., interventions reached doctors who actually do not have a TB practice and should therefore have a low priority in terms of intervention targeting. If on the other hand, there were no interventions in these cities as of the time of the survey, these numbers indicate the potential TB referring doctors and TB treating physicians. There are some knowledgeable physicians who can be encouraged to refer to TB DOTS centers.

Table 74. Proportion of MDs reporting awareness of TB DOTS, by city
Base: Reference specialties

City	Base			
	All MDs	N	All TB Treating MDs	N
Angeles	0.781	41	0.823	35
Bacolod	0.687	48	0.671	46
Bacoor	0.944	16	0.932	13
Batangas	1.000	11	1.000	9
Cabanatuan	0.740	29	0.774	24
Cagayan de Oro	0.723	84	0.659	33
Cebu	0.763	142	0.792	110
Cotabato	0.380	8	0.422	7
Dagupan	0.667	13	0.894	9
Davao	0.837	149	0.825	109
Dumaguete	0.758	19	0.810	15
Iloilo	0.843	110	0.862	84
Laoag	0.763	17	0.667	12
Lucena	0.887	8	1.000	5
Manila	0.738	136	0.758	96
Naga	0.796	30	0.778	27
Ozamis	0.504	15	0.557	12
Puerto Princesa	0.930	15	1.000	11
Quezon	0.754	311	0.778	248
Roxas	0.785	28	0.830	21
Tacloban	0.862	38	0.867	26
Zamboanga	0.610	41	0.598	35
ALL	0.763	1309	0.781	987

2. *Adoption of TB DOTS*

Among the reference specialists who are aware of TB DOTS, average adoption rates range from a low of 20 percent for internists with a subspecialty to 59 percent for pulmonologists (Table 75). For these specialists, adoption rates are higher if TB treating.

Among the other specialists, it could be noted that pediatricians have a relatively high adoption rate.

Table 75. Proportion of MDs reporting adoption of TB DOTS, by specialty

Specialty	Base			
	Aware	N	TB Treating	N
General Practice	0.398	220	0.426	211
Family Medicine	0.427	191	0.439	183
General Internal Medicine	0.403	246	0.408	247
Internal Medicine w/ Subspecialty	0.199	186	0.248	174
Pulmonology	0.589	152	0.591	145
Infectious Disease	0.453	34	0.451	29
Pediatrics	0.349	40	0.484	19
Obstetrics/Gynecology	0.083	20	0.123	4
Anesthesiology	0.015	9	0.000	4
Ear, Nose and Throat	0.000	4	0.000	1
Opthalmology	0.000	3	0.000	
Orthopedics	0.000	2	0.000	
Pathology	0.000	2	0.000	1
Psychiatry	0.000	2	0.000	
Radiology	0.059	4	0.067	4
Surgery	0.174	29	0.146	21
Community Medicine	0.000	1	0.000	2
Other Specialties	0.000	1	0.000	
ALL	0.287	1,146	0.352	1,045

Among clinic types, adoption rates are highest for HMO-based doctors (Table 76). For the rest of the clinic types, average adoption rates would fall within the 33-40 percent range.

Table 76. Proportion of MDs reporting adoption of TB DOTS, by clinic type
Base: Reference specialists

Clinic Type	Base			
	All MDs	N	All TB Treating MDs	N
Free-standing	0.355	414	0.365	422
Hospital-based	0.363	410	0.427	384
Hospital-Outpatient/ER	0.402	128	0.421	123
HMO-based	0.625	29	0.550	26
Community-based	0.331	12	0.536	10
School-based/University-based/ER	0.391	15	0.799	6
Work-based	0.383	13	0.316	12
Others	0.395	8	0.205	6
Total	0.375	1,029	0.406	989

TB adoption rates vary widely across sites (see Table 77). Among those who are aware of TB DOTS, adoption rates vary from a low of 13-14 percent for doctors in Naga City and Dumaguete City and a high of 72 to 74 percent for doctors in Bacoor, Dagupan, and Laoag cities.

Even among reference specialists, overall adoption rate among those who are aware is relatively low, at 38 percent.

Table 77. Proportion of MDs reporting adoption of TB DOTS, by city
Base: Reference specialists

City	Base			
	All MDs	N	All TB Treating MDs	N
Angeles	0.500	31	0.480	35
Bacolod	0.314	34	0.337	46
Bacoor	0.726	15	0.803	13
Batangas	0.500	11	0.504	9
Cabanatuan	0.543	22	0.520	24
Cagayan de Oro	0.291	60	0.431	33
Cebu	0.300	112	0.332	110
Cotabato	0.368	3	0.368	7
Dagupan	0.743	11	0.772	9
Davao	0.497	125	0.548	110
Dumaguete	0.140	14	0.165	15
Iloilo	0.367	95	0.379	84
Laoag	0.718	13	0.659	12
Lucena	0.399	7	0.465	5
Manila	0.319	105	0.354	96
Naga	0.130	24	0.145	27
Ozamis	0.276	8	0.142	12
Puerto Princesa	0.392	14	0.404	11
Quezon	0.379	245	0.408	249
Roxas	0.679	23	0.814	21
Tacloban	0.268	32	0.307	26
Zamboanga	0.245	25	0.235	35
Total	0.375	1,029	0.406	989

3. *Level of TB DOTS Engagement*

Sixty percent of all those who reported adoption of TB DOTS are certified referring physicians (Table 78). Among reference specialties, infectious disease specialists have the highest proportion of certified referring physicians, while general practitioners have the lowest proportion of certified referring physicians.

A quarter of all doctors who reported adoption of TB DOTS are certified DOTS providers. Among reference specialties, infectious disease specialists and pulmonologists had the highest proportion of certified DOTS providers.

Table 78. Proportion of MDs, by level of TB DOTS engagement, by specialty
Base: All MDs reporting adoption of TB DOTS

Specialty		Certified DOTS referring physician	Certified DOTS Provider	Operator of a certified DOTS center	Member of a PPM/ diagnostics committee	Member of Certification Committee	Member of a PPM Coalition that has a DOTS center
General Practice	Prop	0.400	0.320	0.150	0.110	0.180	0.100
	N	(89)	(89)	(89)	(89)	(89)	(89)
Family Medicine	Prop	0.480	0.160	0.040	0.030	0.070	0.060
	N	(82)	(82)	(82)	(82)	(82)	(82)
General Internal Medicine	Prop	0.450	0.200	0.130	0.110	0.190	0.170
	N	(97)	(97)	(96)	(97)	(96)	(97)
Internal Medicine w/ Subspecialty	Prop	0.460	0.120	0.080	0.050	0.130	0.130
	N	(40)	(40)	(40)	(40)	(40)	(40)
Pulmonology	Prop	0.760	0.430	0.130	0.300	0.270	0.270
	N	(89)	(89)	(89)	(89)	(89)	(89)
Infectious Disease	Prop	0.930	0.520	0.170	0.380	0.290	0.500
	N	(17)	(17)	(17)	(17)	(17)	(17)
Pediatrics	Prop	0.760	0.090	0.500	0.090	0.590	0.090
	N	(5)	(5)	(5)	(5)	(5)	(5)
Obstetrics/Gynecology	Prop	0.930	0.930	0.000	0.000	0.930	0.930
	N	(2)	(2)	(2)	(2)	(2)	(2)
Anesthesiology	Prop	1.000	0.000	0.000	0.000	0.000	0.000
	N	(1)	(1)	(1)	(1)	(1)	(1)
Radiology	Prop	0.000	0.000	0.000	0.000	0.000	0.000
	N	(1)	(1)	(1)	(1)	(1)	(1)
Surgery	Prop	0.690	0.440	0.010	0.010	0.030	0.050
	N	(10)	(10)	(10)	(10)	(10)	(10)
ALL	Prop	0.600	0.250	0.200	0.110	0.280	0.150
	N	(433)	(433)	(432)	(433)	(432)	(433)

Figures enclosed in parentheses refer to number of observations.

There seems to be no significant differences in the levels of DOTS engagement across physicians based in free-standing and hospital based clinics (Table 79). Being a DOTS referring physician seems to be the most common form of engagement. HMO-based physicians show the greatest proportion operating DOTS centers or being members or DOTS PPM coalitions.

Table 79. Proportion of MDs, by level of TB DOTS engagement, by clinic type
Base: All MDs reporting adoption of TB DOTS, reference specialties

Clinic Type	Certified DOTS referring physician	Certified DOTS Provider	Operator of a certified DOTS center	Member of a PPM/diagnostic committee	Member of Certification Committee	Member of a PPM Coalition that has a DOTS center
Free-standing	0.510	0.280	0.150	0.140	0.210	0.180
	(169)	(169)	(169)	(169)	(169)	(169)
Hospital-based	0.520	0.220	0.100	0.120	0.120	0.170
	(153)	(153)	(153)	(153)	(153)	(153)
Hospital-Outpatient/ER	0.470	0.250	0.070	0.110	0.310	0.120
	(56)	(56)	(56)	(56)	(56)	(56)
HMO-based	0.820	0.520	0.250	0.300	0.170	0.260
	(17)	(17)	(17)	(17)	(17)	(17)
Community-based	0.110	0.110	0.110	0.110	0.110	0.000
	(3)	(3)	(3)	(3)	(3)	(3)
School-based/University-based/ER	0.260	0.260	0.000	0.130	0.000	0.000
	(7)	(7)	(7)	(7)	(7)	(7)
Work-based	0.740	0.000	0.000	0.000	0.000	0.000
	(5)	(5)	(4)	(5)	(4)	(5)
Others	0.260	0.180	0.000	0.000	0.000	0.000
	(4)	(4)	(4)	(4)	(4)	(4)
ALL	0.520	0.260	0.120	0.130	0.180	0.160
	(414)	(414)	(413)	(414)	(413)	(414)

Figures enclosed in parentheses refer to number of observations.

Of those physicians who have adopted DOTS, physicians in the cities of Cabanatuan, Cagayan de Oro, Davao, Iloilo, Naga and Puerto Princessa show high proportions of certified DOTS referring physicians (Table 80).

Table 80. Proportion of MDs, by level of TB DOTS engagement, by city
Base: All MDs reporting adoption of TB DOTS, reference specialties

City	Certified DOTS referring physician	Certified DOTS Provider	Operator of a certified DOTS center	Member of a PPM/diagnostics committee	Member of Certification Committee	Member of a PPM Coalition that has a DOTS center
Angeles	0.510	0.330	0.330	0.210	0.280	0.270
	(16)	(16)	(16)	(16)	(16)	(16)
Bacolod	0.560	0.210	0.000	0.000	0.000	0.000
	(11)	(11)	(11)	(11)	(11)	(11)
Bacoor	0.380	0.190	0.000	0.000	0.110	0.080
	(11)	(11)	(11)	(11)	(11)	(11)

City	Certified DOTS referring physician	Certified DOTS Provider	Operator of a certified DOTS center	Member of a PPM/diagnostics committee	Member of Certification Committee	Member of a PPM Coalition that has a DOTS center
Batangas	0.160	0.160	0.080	0.080	0.310	0.000
	(6)	(6)	(6)	(6)	(6)	(6)
Cabanatuan	0.740	0.320	0.080	0.080	0.220	0.080
	(12)	(12)	(12)	(12)	(12)	(12)
Cagayan de Oro	0.780	0.260	0.120	0.320	0.160	0.280
	(16)	(16)	(16)	(16)	(16)	(16)
Cebu	0.490	0.250	0.070	0.130	0.240	0.130
	(36)	(36)	(36)	(36)	(36)	(36)
Cotabato	0.000	0.000	0.000	0.000	0.000	0.000
	(1)	(1)	(1)	(1)	(1)	(1)
Dagupan	0.370	0.000	0.000	0.000	0.000	0.000
	(8)	(8)	(8)	(8)	(8)	(8)
Davao	0.660	0.240	0.120	0.130	0.100	0.220
	(63)	(63)	(63)	(63)	(63)	(63)
Dumaguete	0.430	0.430	0.000	0.430	0.000	0.000
	(2)	(2)	(2)	(2)	(2)	(2)
Iloilo	0.830	0.330	0.100	0.390	0.290	0.390
	(38)	(38)	(38)	(38)	(38)	(38)
Laoag	0.610	0.480	0.180	0.280	0.000	0.180
	(9)	(9)	(9)	(9)	(9)	(9)
Lucena	0.320	0.320	0.320	0.320	0.320	0.320
	(3)	(3)	(3)	(3)	(3)	(3)
Manila	0.400	0.240	0.170	0.150	0.250	0.150
	(38)	(38)	(37)	(38)	(37)	(38)
Naga	1.000	0.260	0.000	0.260	0.520	0.000
	(3)	(3)	(3)	(3)	(3)	(3)
Ozamis	0.000	0.570	0.570	0.000	0.000	0.000
	(2)	(2)	(2)	(2)	(2)	(2)
Puerto Princesa	1.000	0.560	0.370	0.210	0.210	0.370
	(6)	(6)	(6)	(6)	(6)	(6)
Quezon	0.450	0.260	0.100	0.070	0.160	0.140
	(101)	(101)	(101)	(101)	(101)	(101)
Roxas	0.650	0.070	0.070	0.070	0.050	0.000
	(16)	(16)	(16)	(16)	(16)	(16)
Tacloban	0.600	0.400	0.200	0.100	0.200	0.100
	(10)	(10)	(10)	(10)	(10)	(10)
Zamboanga	0.470	0.330	0.140	0.470	0.330	0.470
	(6)	(6)	(6)	(6)	(6)	(6)
ALL	0.520	0.260	0.120	0.130	0.180	0.160
	(414)	(414)	(413)	(414)	(413)	(414)

Figures enclosed in parentheses refer to number of observations.

B. Variations in TB Case Management of DOTS-engaged Physicians

Do physicians who claim to adopt DOTS actually adhere to the DOTS protocol? A look at the differences between the current state of knowledge and the TB case management patterns of non-DOTS engaged physicians and those who are DOTS engaged would show some answers to this question. Closer adherence to the DOTS protocol of those who claim to be DOTS engaged indicate that claims are indeed backed by practice. Elements that are not closely adhered to may indicate areas that need to be re-emphasized in future interventions.

Adherence to DOTS presupposes knowledge of clinical elements of DOTS. As before, the indicators of knowledge about the clinical elements are the vignette scores. The average total vignette score of those TB treating reference specialists who indicate awareness of DOTS is higher compared to respondents who indicate that they are not aware of DOTS. This indicates that reported awareness may be positively correlated with knowledge of current clinical practice guidelines (Table 81).

Like the overall trend, reported awareness of DOTS tends to be positively associated with the total vignette score across reference specialties with pulmonologists obtaining the highest average total vignette score. The exception to the trend appears to be internists with subspecialty training. This result however may be accounted for by physicians with subspecialty training being more up to date with recommended clinical practice guidelines (a more rigorous assessment however is necessary before a more conclusive can be made). If this conjecture is indeed true then this simply implies that lack of knowledge may not be the main motivation should internists with subspecialty training decide not to apply DOTS.

Table 81. Mean scores of physicians by DOTS awareness and specialty
Base: TB treating, reference specialties

Specialty	Not aware of DOTS		Aware of DOTS		Total	
	Percent	N	Percent	N	Percent	N
General Practice	79.86%	71	82.04%	136	81.28%	207
Family Medicine	79.63%	27	84.56%	155	83.79%	182
General Internal Medicine	84.24%	49	85.37%	198	85.15%	247
Internal Medicine w/ Subspecialty	85.00%	45	82.01%	123	82.90%	168
Pulmonology	90.78%	1	86.23%	143	86.26%	144
Infectious Disease	78.75%	1	86.10%	28	85.93%	29
Total	82.82%	194	84.13%	783	83.84%	977

Likewise, reported awareness of DOTS tends to be positively associated with the total vignette score across practice in different clinic types HMO based physicians recording the highest average vignette score (Table 82). The exception to the trend appears to be physicians based in hospital OPD and emergency rooms. Again, this observation may warrant further investigation.

Table 82. Mean scores of physicians by DOTS awareness and type of clinic
Base: TB treating, reference specialties

Clinic Type	Not aware of DOTS		Aware of DOTS		Total	
	Percent	N	Percent	N	Percent	N
Free-standing	81.72%	93	83.65%	323	83.20%	416
Hospital-based	82.92%	64	84.47%	314	84.18%	378
Hospital-Outpatient/ER	85.19%	27	84.39%	96	84.60%	123
HMO-based	83.94%	3	86.52%	23	86.12%	26
Community-based	87.07%	2	80.61%	8	81.41%	10
School-based/University-based	74.74%	2	87.40%	4	81.42%	6
Work-based	82.59%	3	82.67%	9	82.65%	12
Others			80.01%	6	80.01%	6
Total	82.82%	194	84.13%	783	83.84%	977

Across the different replication sites, respondents who report awareness of DOTS tend achieve higher total vignette scores with physicians in Dagupan City obtaining the highest average total vignette score. The exception to the trend are respondents in the cities of Angeles, Cabanatuan, Cagayan de Oro, Davao and Dumaguete.

Table 83. Mean scores of physicians by DOTS awareness and city
Base: TB treating, reference specialties

City	Not aware of DOTS		Aware of DOTS		Total	
	Percent	N	Percent	N	Percent	N
Angeles	85.18%	7	83.67%	28	83.94%	35
Bacolod	81.72%	14	83.35%	32	82.81%	46
Bacoor	81.25%	1	83.95%	12	83.76%	13
Batangas			85.95%	9	85.95%	9
Cabanatuan	84.70%	4	82.94%	19	83.28%	23
Cagayan de Oro	86.55%	12	79.16%	20	81.75%	32
Cebu	79.96%	18	83.31%	91	82.66%	109
Cotabato	85.19%	4	88.22%	3	86.47%	7
Dagupan	68.41%	1	90.26%	8	87.94%	9
Davao	84.84%	19	83.68%	89	83.88%	108
Dumaguete	83.06%	3	82.65%	12	82.73%	15
Iloilo	78.00%	9	85.32%	75	84.31%	84
Laoag	86.30%	4	87.35%	8	87.00%	12
Lucena			77.61%	5	77.61%	5
Manila	82.78%	19	84.24%	73	83.88%	92
Naga	81.93%	6	85.37%	20	84.59%	26
Ozamis	77.54%	5	85.46%	7	81.95%	12
Puerto Princesa			86.83%	11	86.83%	11
Quezon	83.87%	47	84.32%	201	84.22%	248

City	Not aware of DOTS		Aware of DOTS		Total	
	Percent	N	Percent	N	Percent	N
Roxas	82.36%	3	84.20%	18	83.89%	21
Tacloban	78.15%	4	84.69%	21	83.79%	25
Zamboanga	81.21%	14	84.71%	21	83.30%	35
Total	82.82%	194	84.13%	783	83.84%	977

Vignette scores of those who claim to adopt DOTS and who claim different levels of engagement are shown in Table 84. The mean score of physicians who claim to adopt DOTS barely meets the cutoff rate of 82. About 60 percent of those who claim to adopt have scores exceeding the cutoff score. From the table, certified DOTS referring physician have the highest aggregate vignette scores and passing rate while members of PHILCAT and PhilHealth certification committee have the lowest average score and passing rate.

Quite unexpectedly, certified DOTS providers who are supposed to have had more intensive training on TB DOTS posted lower scores and passing rates relative to DOTS referring physicians.

Table 84. Average vignette scores and passing rate, by level of DOTS engagement
Base: ALL MDs reporting adoption of TB DOTS

Level of DOTS Engagement	Score	Passing Rate	N
Certified DOTS Referring Physician	85.997	0.862	97
Certified DOTS Provider	75.625	0.495	46
Operator of Certified DOTS Center	81.071	0.491	6
Member of a PPM/ Diagnostic Committee	84.983	0.683	16
Member of PHILCAT/ PhilHealth Certification Committee	77.247	0.267	37
Member of a PPM Coalition that has set up a DOTS center	83.877	0.639	76
None, but has reported adoption of TB DOTS	83.647	0.630	152
ALL	82.195	0.597	430

The next few tables provide more detailed breakdowns of vignette scores according to the level of DOTS engagement. As noted earlier, respondent physicians who report adoption of DOTS tend to achieve higher total vignette scores. The average total vignette scores across specialties of those respondents who report adoption of DOTS is higher compared who report non-adoption of DOTS with the exception of general internists (Table 85). However, differences are not too marked with respect to pulmonologists.

Table 85. Average vignette scores by TB-DOTS adoption and specialty
Base: Aware MDs, TB treating reference specialties

Specialty	Not Adopt DOTS		Adopt DOTS		Total	
General Practice	80.93%	76	83.51%	60	82.04%	136
Family Medicine	83.60%	87	85.79%	68	84.56%	155
General Internal Medicine	85.76%	119	84.80%	79	85.37%	198
Internal Medicine w/ Subspecialty	81.75%	92	82.85%	31	82.01%	123
Pulmonology	86.36%	58	86.14%	85	86.23%	143
Infectious Disease	84.71%	13	87.79%	15	86.10%	28
Total	83.63%	445	84.85%	338	84.13%	783

Similar to the general trend, respondents practicing in different types of clinics who report adoption of DOTS tend to obtain higher total vignette scores (Table 86). Again the exception appears to be physicians based in hospital out-patient departments and emergency rooms.

Table 86. Average vignette scores by TB-DOTS adoption and clinic type
Base: Aware MDs, TB treating reference specialties

Clinic Type	Not adopt DOTS		Adopt DOTS		Total	
	Percent	N	Percent	N	Percent	N
Free-standing	83.34%	185	84.20%	138	83.65%	323
Hospital-based	83.75%	181	85.45%	133	84.47%	314
Hospital-Outpatient/ER	84.69%	52	83.98%	44	84.39%	96
HMO-based	84.95%	11	87.80%	12	86.52%	23
Community-based	78.19%	5	82.69%	3	80.61%	8
School-based/University-based	85.83%	1	87.80%	3	87.40%	4
Work-based	80.85%	6	86.61%	3	82.67%	9
Others	79.02%	4	83.83%	2	80.01%	6
Total	83.63%	445	84.85%	338	84.13%	783

Across replication sites, physicians who report adoption of DOTS tend to record higher total vignette scores with the exception of the cities of Bacoor, Batangas, Dagupan, Dumaguete, Lucena, Ozamis, and Roxas (Table 87).

Table 87. Average vignette scores by TB-DOTS adoption and city
Base: Aware MDs, TB treating reference specialties

City	Not adopt DOTS		Adopt DOTS		Total	
	Percent	N	Percent	N	Percent	N
Angeles	81.73%	14	85.78%	14	83.67%	28
Bacolod	82.76%	21	84.50%	11	83.35%	32
Bacoor	89.69%	2	82.54%	10	83.95%	12
Batangas	87.09%	4	84.83%	5	85.95%	9

City	Not adopt DOTS		Adopt DOTS		Total	
	Percent	N	Percent	N	Percent	N
Cabanatuan	80.73%	9	84.98%	10	82.94%	19
Cagayan de Oro	74.64%	12	84.73%	8	79.16%	20
Cebu	83.26%	59	83.41%	32	83.31%	91
Cotabato	87.18%	2	90.00%	1	88.22%	3
Dagupan	94.30%	2	89.07%	6	90.26%	8
Davao	83.42%	40	83.89%	49	83.68%	89
Dumaguete	83.05%	10	80.60%	2	82.65%	12
Iloilo	84.84%	44	86.10%	31	85.32%	75
Laoag	79.58%	3	91.37%	5	87.35%	8
Lucena	86.85%	3	66.99%	2	77.61%	5
Manila	83.43%	44	85.73%	29	84.24%	73
Naga	84.42%	17	90.76%	3	85.37%	20
Ozamis	89.04%	6	63.75%	1	85.46%	7
Puerto Princesa	86.74%	6	86.96%	5	86.83%	11
Quezon	83.84%	114	85.02%	87	84.32%	201
Roxas	87.73%	3	83.40%	15	84.20%	18
Tacloban	83.18%	14	88.59%	7	84.69%	21
Zamboanga	84.23%	16	86.27%	5	84.71%	21
Total	83.63%	445	84.85%	338	84.13%	783

Among respondent physicians who report adoption of DOTS, those who also report certification as DOTS referring physicians tend to obtain higher total vignette scores (Table 88). This trend can also be observed across specialties with the exception of pulmonologists. Again this finding suggests the need for further investigation. Infectious disease specialists and pulmonologists recorded the highest average vignette scores. This possibly indicates the need to engage more pulmonologists who tend to be more knowledgeable of the clinical practice guidelines relative to physicians engaged in other specialties.

Table 88. Average vignette scores by level of engagement: DOTS certified referring and by specialty
Base: TB DOTS adopting MDs

Specialty	Not certified referring		Certified referring		Total	
	Percent	N	Percent	N	Percent	N
General Practice	82.71%	35	84.73%	25	83.51%	60
Family Medicine	84.16%	36	87.86%	32	85.79%	68
General Internal Medicine	84.96%	39	84.58%	40	84.80%	79
Internal Medicine w/ Subspecialty	81.96%	17	84.12%	14	82.85%	31
Pulmonology	87.09%	20	85.84%	65	86.14%	85
Infectious Disease	91.67%	1	87.43%	14	87.79%	15
Total	84.16%	148	85.52%	190	84.85%	338

Table 89. Average vignette scores by level of engagement: DOTS certified referring and by clinic type
Base: TB DOTS adopting MDs

Clinic Type	Not certified referring		Certified referring		Total	
	Percent	N	Percent	N	Percent	N
Free-standing	83.82%	65	84.55%	73	84.20%	138
Hospital-based	84.51%	53	86.36%	80	85.45%	133
Hospital-Outpatient/ER	84.30%	22	83.60%	22	83.98%	44
HMO-based	83.13%	1	89.02%	11	87.80%	12
Community-based	81.30%	2	94.17%	1	82.69%	3
School-based/University-based	86.91%	2	90.42%	1	87.80%	3
Work-based	85.52%	2	89.17%	1	86.61%	3
Others	81.25%	1	85.21%	1	83.83%	2
Total	84.16%	148	85.52%	190	84.85%	338

The same trend can also be observed among physicians based in different types of clinics. Among those who report certification as DOTS referring physicians, HMO-based physicians recorded the highest average total vignette score[9] (Table 89).

Table 90. Average vignette scores by level of engagement: DOTS certified referring and by city
Base: TB DOTS adopting MDs

City	Not certified referring		Certified referring		Total	
	Percent	N	Percent	N	Percent	N
Angeles	84.66%	6	86.61%	8	85.78%	14
Bacolod	82.79%	5	85.86%	6	84.50%	11
Bacoor	81.92%	7	83.95%	3	82.54%	10
Batangas	83.70%	3	89.14%	2	84.83%	5
Cabanatuan	87.37%	2	84.38%	8	84.98%	10
Cagayan de Oro	91.62%	1	83.81%	7	84.73%	8
Cebu	85.33%	16	81.39%	16	83.41%	32
Cotabato	90.00%	1			90.00%	1
Dagupan	90.44%	4	86.35%	2	89.07%	6
Davao	82.19%	18	84.86%	31	83.89%	49
Dumaguete	90.42%	1	67.50%	1	80.60%	2
Iloilo	80.60%	5	87.18%	26	86.10%	31
Laoag	90.97%	3	91.81%	2	91.37%	5

[9] Although community and school based physicians obtained higher average vignette scores, the number of respondents belonging to these groups is too small and thus not considered in the comparison.

City	Not certified referring		Certified referring		Total	
	Percent	N	Percent	N	Percent	N
Lucena	87.08%	1	44.17%	1	66.99%	2
Manila	84.21%	16	88.08%	13	85.73%	29
Naga			90.76%	3	90.76%	3
Ozamis	63.75%	1			63.75%	1
Puerto Princesa			86.96%	5	86.96%	5
Quezon	84.25%	46	86.07%	41	85.05%	87
Roxas	79.58%	6	85.74%	9	83.40%	15
Tacloban	87.02%	3	89.80%	4	88.59%	7
Zamboanga	86.76%	3	85.31%	2	86.27%	5
Total	84.16%	148	85.52%	190	84.85%	338

Respondents who report certification as DOTS referring physicians tend to obtain higher total vignette scores even across cities (Table 90). The most noticeable exception appears to be physicians practicing in Cagayan de Oro City. Again this requires further investigation since this would imply the need to intensify DOTS campaigns in Cagayan de Oro City should the finding hold water.

Among respondents who report adoption of DOTS, those who report certification as DOTS providers tend to obtain higher vignette scores. The trend however does not appear to hold across specialties with respondents engaged in family medicine, general internal medicine, pulmonology and infectious disease who report non-certification as DOTS providers obtaining higher vignettes scores. Although this again warrants further assessment, this suggests that certification as DOTS providers may not lead to a significant gain in terms of knowledge of clinical practice guidelines.

Table 91. Average vignette scores by level of engagement: DOTS certified provider and by specialty
Base: TB DOTS adopting MDs

Specialty	No		Yes		Total	
	Percent	N	Percent	N	Percent	N
General Practice	82.61%	39	85.18%	21	83.51%	60
Family Medicine	86.21%	57	83.46%	11	85.79%	68
General Internal Medicine	84.96%	59	84.24%	20	84.80%	79
Internal Medicine w/ Subspecialty	81.67%	28	91.68%	3	82.85%	85
Pulmonology	87.03%	48	85.02%	37	86.14%	31
Infectious Disease	88.91%	8	86.37%	7	87.79%	15
Total	84.72%	239	85.19%	99	84.85%	338

No distinct pattern can be observed across physicians practicing in different types of clinics (Table 92). Among physicians practicing in free-standing clinics and hospital based clinics (the two largest groups), certification appears to be positively correlated to

knowledge of clinical practice guidelines for those based in hospital clinics but not for those based in free standing clinics. This suggests that certification may be a quality measure in hospital based clinics where quality comparisons may be easier to undertake given proximity of clinics.

Table 92. Average vignette scores by level of engagement: DOTS certified provider and by clinic type
Base: TB DOTS adopting MDs

Clinic Type	No		Yes		Total	
	Percent	N	Percent	N	Percent	N
Free-standing	84.83%	98	82.64%	40	84.20%	138
Hospital-based	85.16%	96	86.36%	37	85.45%	133
Hospital-Outpatient/ER	83.35%	32	85.87%	12	83.98%	44
HMO-based	86.86%	5	88.39%	7	87.80%	12
Community-based	81.30%	2	94.17%	1	82.69%	3
School-based/University-based/ER	86.94%	1	88.55%	2	87.80%	3
Work-based	86.61%	3			86.61%	3
Others	83.83%	2			83.83%	2
Total	84.72%	239	85.19%	99	84.85%	338

The small sample size precludes a definitive assessment of correlation patterns between certification as DOTS provider and total vignette scores although assessment can be carried out in sites with relatively large samples such as Cebu, Davao, Iloilo, Manila and Quezon cities (Table 93). In Davao City, Manila and Quezon City, certification appears to be correlated with higher vignette scores and thus knowledge of clinical practice guidelines. This does not appear to be true however in Cagayan de Oro City and Cebu City.

Table 93. Average vignette scores by level of engagement: DOTS certified provider and by city
Base: TB DOTS adopting MDs

City	No		Yes		Total	
	Percent	N	Percent	N	Percent	N
Angeles	85.57%	9	86.14%	5	85.78%	14
Bacolod	84.04%	8	86.30%	3	84.50%	11
Bacoor	83.42%	9	73.75%	1	82.54%	10
Batangas	83.70%	3	89.14%	2	84.83%	5
Cabanatuan	83.32%	6	87.48%	4	84.98%	10
Cagayan de Oro	85.05%	5	84.20%	3	84.73%	8
Cebu	84.63%	24	79.36%	8	83.41%	32
Cotabato	90.00%	1			90.00%	1
Dagupan	89.07%	6			89.07%	6
Davao	83.78%	36	84.18%	13	83.89%	49

City	No		Yes		Total	
	Percent	N	Percent	N	Percent	N
Dumaguete	90.42%	1	67.50%	1	80.60%	2
Iloilo	88.71%	18	82.36%	13	86.10%	31
Laoag	90.85%	2	91.64%	3	91.37%	5
Lucena	87.08%	1	44.17%	1	66.90%	2
Manila	85.18%	18	87.03%	11	85.73%	29
Naga	90.97%	2	90.16%	1	90.76%	3
Ozamis	63.75%	1			63.75%	1
Puerto Princesa	86.69%	3	87.28%	2	86.96%	5
Quezon	84.21%	64	87.40%	23	85.02%	87
Roxas	83.06%	14	87.92%	1	83.40%	15
Tacloban	86.53%	4	91.36%	3	88.59%	7
Zamboanga	85.51%	4	90.00%	1	86.27%	5
Total	84.72%	239	85.19%	99	84.85%	338

Among physicians engaged in other specialties, awareness of DOTS appears to be positively correlated with higher total vignette scores (Table 94). This association however can not be observed for adoption of DOTS, certification as DOTS referring physician and certification as DOTS provider. This suggests that the TB practice of these physicians may be markedly different from physicians engaged in reference specialties.

Table 94. Average vignette scores by levels of DOTS engagement, non-reference specialties
Base: TB treating, non-reference specialties

	No		Yes		Total	
	Percent	N	Percent	N	Percent	N
Aware of TB DOTS	75.58%	19	79.00%	37	77.86%	56
Adopted TB DOTS	79.58%	23	77.57%	14	79.00%	37
Certified DOTS Referring	84.49%	7	75.83%	7	77.57%	14
Certified DOTS Provider	79.57%	9	71.07%	5	77.57%	14

Are physicians applying what they know in their actual practice? Do DOTS-engaged physicians, who are in general more knowledgeable about clinical practice guidelines, apply what they know to their own practices? The following tables show actual practice of DOTS elements, comparing those who are DOTS engaged with those who are not.

A critical element of DOTS practice is the use of the sputum smear as the primary diagnostic tool. This subsection examines how the use of alternative diagnostic tools varies in terms of levels of DOTS engagements.

The proportion of those who use the sputum smear exam is higher among those who report awareness of DOTS compared to those who report not being aware of DOTS (Table 95). Awareness of DOTS however does not ensure adoption of the sputum smear exam as the diagnostic tool since 38.80% of the DOTS aware still exclusively use the x-ray test as the primary diagnostic tool.

Table 95. Primary diagnostic tool by DOTS awareness
Base: TB treating, reference specialties

	Not Aware DOTS		Aware DOTS		All	
	Percent	N	Percent	N	Percent	N
X-ray Only	66.710	129	38.810	290	4.490	419
Sputum Only	4.620	10	13.980	121	11.940	131
X-ray and Sputum	26.980	51	45.840	364	41.730	415
PPD	0.930	1	0.720	6	0.770	7
Other Diagnostics	0.760	3	0.650	6	0.680	9
All	1.000	194	1.000	787	1.000	981

The proportion of those who use the sputum smear exam is higher among those who report adoption of DOTS compared to those who report non-adoption of DOTS. Again reported adoption of DOTS does not necessarily lead to complete adoption of the sputum smear exam since 28.60 percent of those who report adoption of DOTS use x-ray tests exclusively.

Table 96. Primary diagnostic tool by DOTS adoption
Base: TB treating, reference specialties

	Not Adopt DOTS		Adopt DOTS		All	
	Percent	N	Percent	N	Percent	N
X-ray Only	45.77	196	28.60	94	38.81	290
Sputum Only	10.15	48	19.58	73	13.98	121
X-ray and Sputum	42.67	197	50.49	167	45.84	364
PPD	0.65	3	0.82	3	0.72	6
Other Diagnostics	0.75	4	0.51	2	0.65	6
All	1.00	448	1.00	339	1.00	787

Although the proportion of those who use the sputum smear exam is higher among those who report certification as DOTS referring physicians, 26.11 percent of those who do so still use the x-ray test exclusively (Table 97).

Table 97. Primary diagnostic tool by DOTS engagement: certified DOTS referring
Base: TB treating, reference specialties

	Not Certified DOTS Referring		Certified DOTS Referring		All	
	Percent	N	Percent	N	Percent	N
X-ray Only	31.20	47	26.11	47	28.60	94
Sputum Only	15.82	28	23.19	45	19.58	73
X-ray and Sputum	52.17	71	48.88	96	50.49	167
PPD	0.43	1	0.64	2	0.82	3
Other Diagnostics	0.37	1	0.64	1	0.51	2
All	1.00	148	1.00	191	1.00	339

Almost 80 percent of those who report certification as DOTS providers use the sputum smear exam. Nevertheless around 20 percent of those who report certification as DOTS providers still use the x-ray test exclusively (Table 98).

Table 98. Primary diagnostic tool by DOTS engagement: certified DOTS provider
Base: TB treating, reference specialties

	Not Certified DOTS Provider		Certified DOTS Provider		All	
	Percent	N	Percent	N	Percent	N
X-ray Only	31.41	75	20.95	19	28.6	94
Sputum Only	17.16	45	25.89	28	19.58	73
X-ray and Sputum	49.92	116	52.03	51	50.49	167
PPD	0.71	2	1.13	1	0.82	3
Other Diagnostics	0.69	2			0.51	2
All	1.00	240	1.00	99	1.00	339

The prescription of the Short-Course Chemotherapy (SCC) drug regimen constitutes a key aspect element of DOTS. This subsection assesses whether the TB drug prescribing behavior of respondent physicians coincides with the SCC. Should there be a coincidence then this may imply that advocacy of the SCC may not be a difficult task.

The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is higher among physicians who report awareness of DOTS relative to those who do not (Table 99). Less than 30 percent , however, of physicians who report awareness of DOTS prescribe drug regimens similar to the SCC.

The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is lower among physicians who report adoption of DOTS relative to those who do not. Notably, the proportion of reported DOTS-adopting physicians prescribing in accordance with the SCC is even lower compared to physicians reporting awareness of DOTS.

Table 99. Distribution of physicians by prescription of SCC and levels of DOTS engagement
Base: TB treating, reference specialties

	No		Yes		All	
	%	N	%	N	%	N
Awareness of DOTS	13.66%	34	29.33%	226	25.89%	260
Adoption of DOTS	31.42%	127	26.27%	99	29.33%	226
Certified DOTS referring	22.55%	38	29.84%	61	26.27%	99
Certified DOTS provider	23.10%	64	34.92%	35	26.27%	99

The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is higher among physicians who report certification as DOTS referring physicians compared to those who do not. This is also true for physicians who report certification as DOTS providers compared to those who do not.

Aside from diagnosis through sputum microscopy and treatment using the Short Course Chemotherapy (SCC), the direct observed treatment (DOT) also constitutes a critical part of DOTS. One aspect of this DOT is the method of monitoring drug intake by patients. This subsection examines the alternative methods used by physicians across levels of DOTS engagement.

The predominant form of monitoring drug intake regardless of whether the respondent physician is aware or not of DOTS is by asking the patient directly (Table 100). The proportion of physicians who ask patients' relatives whether the patient takes the prescribed drugs daily is higher among those who report DOTS awareness. Only around 8 percent of those who report awareness of DOTS check the treatment partner report. This indicates that reported awareness of DOTS may not necessarily lead to the application of more stringent methods of drug intake monitoring

Table 100. Distribution of physicians by method of monitoring drug intake by TB DOTS awareness
Base: TB treating, reference specialties

	Not Aware DOTS		Aware DOTS		All	
	Percent	N	Percent	N	Percent	N
Check Blister Pack	0.115	23	0.174	139	0.161	162
Ask Patient	0.791	159	0.776	610	0.779	769
Ask Relative	0.255	42	0.372	280	0.346	322
Phone Patient	0.037	8	0.047	39	0.045	47
Check if Patient Improve	0.175	31	0.235	173	0.222	204
Check Prescription	0.013	4	0.045	40	0.038	44
Treatment Partner Report	0.035	9	0.101	77	0.087	86

Again, asking the patient regarding drug intake appears to be the predominant form regardless of whether the respondent reported adoption of DOTS. Only 10 percent however monitor by checking the treatment partner report. This again indicates that reported adoption of DOTS may not lead to the application of more rigorous methods of monitoring.

Table 101. Distribution of physicians by method of monitoring drug intake by TB DOTS adoption
Base: TB treating, reference specialties

	Not Adopt DOTS		Adopt DOTS		All	
	Percent	N	Percent	N	Percent	N
Check Blister Pack	0.129	59	0.240	80	0.174	139
Ask Patient	0.778	346	0.772	264	0.776	610
Ask Relative	0.341	142	0.417	138	0.372	280
Phone Patient	0.029	13	0.073	26	0.047	39
Check if Patient Improve	0.189	88	0.302	85	0.235	173
Check Prescription	0.030	13	0.067	27	0.045	40
Treatment Partner Report	0.072	26	0.144	51	0.101	77

Certification as DOTS referring physician does not seem to lead to the employment of more rigorous methods of monitoring. Only 12 percent check the treatment partner report while 26 percent simply ask the patient if the patient has taken the prescribed drugs (Table 102).

Table 102. Distribution of physicians by method of monitoring drug intake by TB DOTS engagement: certified DOTS referring
Base: TB treating, reference specialties

	Not Certified DOTS Referring		Certified DOTS Referring		All	
	Percent	N	Percent	N	Percent	N
Check Blister Pack	0.228	36	0.252	44	0.240	80
Ask Patient	0.795	117	0.750	147	0.772	264
Ask Relative	0.375	52	0.456	86	0.417	138
Phone Patient	0.064	10	0.081	16	0.073	26
Check if Patient Improve	0.377	41	0.230	44	0.302	85
Check Prescription	0.078	15	0.057	12	0.067	27
Treatment Partner Report	0.122	19	0.164	32	0.144	51

Likewise, certification as DOTS provider does not seem to lead to the employment of more rigorous methods of monitoring with only 25% monitoring through the treatment partner (Table 103). The tabulations so far suggest that the monitoring aspect may be harder to push compared to the clinical aspects of DOTS.

Table 103. Distribution of physicians by method of monitoring drug intake by TB DOTS engagement: certified DOTS provider
Base: TB treating, reference specialties

	Not Certified DOTS Provider		Certified DOTS Provider		All	
	Percent	N	Percent	N	Percent	N
Check Blister Pack	0.212	52	0.318	28	0.240	80
Ask Patient	0.780	192	0.753	72	0.772	264
Ask Relative	0.379	89	0.519	49	0.417	138
Phone Patient	0.057	14	0.117	12	0.073	26
Check if Patient Improve	0.318	60	0.256	25	0.302	85
Check Prescription	0.064	19	0.076	8	0.067	27
Treatment Partner Report	0.111	26	0.233	25	0.144	51

Case holding regimens under TB DOTS also prescribe certain follow-up schedules to check on the progress of the patient. The DOTS protocol prescribes a follow up consultation within the first two months after the start of treatment, corresponding to the end of the intensive phase. The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report awareness of DOTS appears to be slightly higher compared to physicians who do not report awareness of

DOTS. Around 80 percent of physicians who report DOTS awareness see their patient within the first month (Table 104).

Table 104. Distribution of respondents by length of time between start of treatment and first consultation by awareness of DOTS
Base: TB treating, reference specialties

	Not Aware DOTS		Aware DOTS		All	
	Percent	N	Percent	N	Percent	N
No follow-up	0.000	0	0.004	5	0.003	5
1 - 2 weeks	0.034	6	0.050	43	0.046	49
2 - 4 weeks	0.265	45	0.339	261	0.323	306
1 - 2 months	0.490	92	0.415	318	0.432	410
2 - 3 months	0.171	43	0.170	140	0.170	183
> 3 months	0.034	7	0.013	8	0.018	15
Other time	0.006	2	0.008	9	0.008	11
Total	1.000	195	1.000	784	1.000	979

The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report adoption of DOTS appears to be higher compared to physicians who do not report adoption of DOTS. Around 86 percent of physicians who report adoption of DOTS see their patient within the first month.

Table 105. Distribution of respondents by length of time between start of treatment and first consultation by adoption of DOTS
Base: TB treating, reference specialties

	Not adopt DOTS		Adopt DOTS		All	
	Percent	N	Percent	N	Percent	N
No follow-up	0.005	3	0.004	2	0.004	5
1 - 2 weeks	0.048	23	0.052	20	0.050	43
2 - 4 weeks	0.316	143	0.374	118	0.339	261
1 - 2 months	0.401	173	0.436	145	0.415	318
2 - 3 months	0.208	94	0.115	46	0.170	140
> 3 months	0.015	5	0.010	3	0.013	8
Other time	0.008	5	0.009	4	0.008	9
Total	1.000	446	1.000	338	1.000	784

The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report certification as DOTS referring physicians appear to be slightly higher compared to physicians who do not have certification as DOTS referring physicians. Around 87 percent of physicians who report certification as DOTS referring physicians see their patient within the first month.

Table 106. Distribution of respondents by length of time between start of treatment and first consultation by certification as DOTS referring physician
Base: TB treating, reference specialties

	Not Certified DOTS Referring		Certified DOTS Referring		All	
	Percent	N	Percent	N	Percent	N
No follow-up	0.004	1	0.004	1	0.004	2
1 - 2 weeks	0.034	6	0.070	14	0.052	20
2 - 4 weeks	0.356	50	0.391	68	0.374	118
1 - 2 months	0.477	67	0.397	78	0.436	145
2 - 3 months	0.113	22	0.117	24	0.115	46
> 3 months	0.017	2	0.003	1	0.010	3
Other time			0.018	4	0.009	4
Total	1.000	148	1.000	190	1.000	338

The proportion of those who see their TB patients within a month after initiation of treatment among physicians who report certification as DOTS providers appear to be less compared to physicians who do not report certification as DOTS providers. Around half of physicians who report certification as DOTS providers see their patient within the second month (Table 107).

Table 107. Distribution of respondents by length of time between start of treatment and first consultation by certification as DOTS provider
Base: TB treating, reference specialties

	Not Certified DOTS Provider		Certified DOTS Provider		All	
	Percent	N	Percent	N	Percent	N
No follow-up	0.006	2	0.000	0	0.004	2
1 - 2 weeks	0.050	13	0.059	7	0.052	20
2 - 4 weeks	0.340	75	0.467	43	0.374	118
1 - 2 months	0.456	108	0.382	37	0.436	145
2 - 3 months	0.130	37	0.074	9	0.115	46
> 3 months	0.013	3			0.010	3
Other time	0.006	2	0.019	2	0.009	4
Total	1.000	240	1.000	98	1.000	338

The following discussion examines which physicians are more predisposed to prescribing TB drugs in fixed-dose packaging. There are appears to be no difference in the preferred mode of TB drug packaging between physicians who report awareness of DOTS and physicians who do not. Most physicians however prefer either blister pack or fixed-dose packaging compared to TB drugs in loose drugs form.

Table 108. Distribution of physicians by preferred drug packaging and by awareness of DOTS
Base: TB treating, reference specialties

	Not Aware DOTS		Aware DOTS		All	
	Percent	N	Percent	N	Percent	N
Loose Drugs	0.020	4	0.021	16	0.021	20
Blister Pack	0.602	111	0.578	448	0.584	559
Fixed Dose	0.378	80	0.401	314	0.396	394
Total	1.000	195	1.000	778	1.000	973

Blister packaging is preferred by both physicians who report adoption and non-adoption of DOTS. (Table 109). Only a very small proportion prefers loose drug packaging regardless of whether they report adoption of DOTS.

Table 109. Distribution of physicians by preferred drug packaging and by adoption of DOTS
Base: TB treating, reference specialties

	Not Adopt DOTS		Adopt DOTS		All	
	Percent	N	Percent	N	Percent	N
Loose Drugs	0.025	12	0.015	4	0.021	16
Blister Pack	0.581	248	0.574	200	0.578	448
Fixed Dose	0.393	182	0.411	132	0.401	314
Total	1.000	442	1.000	336	1.000	778

Among physicians who reported adoption of DOTS, those who reported certification as DOTS referring physicians tend to prefer fixed-dose packaging while those who did not report adoption of DOTS tend to prefer blister pack packaging (Table 110). Considering the previous discussion, it appears that the slightly higher preference of those reported DOTS adoption for blister pack packaging relative to physicians who do not report adoption of DOTS may be due to the preference of DOTS adopting physicians who are not certified DOTS referring for blister pack packaging.

Table 110. Distribution of physicians by preferred drug packaging and by DOTS engagement: certified DOTS referring
Base: TB treating, reference specialties

	Not Certified DOTS Referring		Certified DOTS Referring		All	
	Percent	N	Percent	N	Percent	N
Loose Drugs	0.021	2	0.009	2	0.015	4
Blister Pack	0.595	93	0.554	107	0.574	200
Fixed Dose	0.384	51	0.438	81	0.411	132
Total	1.000	146	1.000	190	1.000	336

The same trend is observed for DOTS adopting physicians who report certification as DOTS providers. They tend to prefer fixed-dose packaging compared to DOTS adopting physicians who do not report certification as DOTS providers

Table 111. Distribution of physicians by preferred drug packaging and by DOTS engagement: certified DOTS provider
Base: TB treating, reference specialties

	Not Certified DOTS Provider		Certified DOTS Provider		All	
	Percent	N	Percent	N	Percent	N
Loose Drugs	0.020	4	0.000	0	0.015	4
Blister Pack	0.588	146	0.536	54	0.574	200
Fixed Dose	0.392	87	0.464	45	0.411	132
Total	1.000	237	1.000	99	1.000	336

C. Determinants of Awareness and Adoption

How can PhilTIPS increase physician awareness and adoption of TB DOTS? Toward these ends, PhilTIPS can provide incentives, financial or otherwise, to physicians or can influence policies that affect physician practices. However, physician choices are not only dependent on these incentives/policies. Other intervening factors can influence these decisions. To gauge the relative importance of each of these variables, further statistical analysis is required. This differentiates the analysis in this section from the analysis in the previous sections that employed tabulations or cross-tabulations of frequencies and averages. Consequently, a more fine-tuned analysis is presented in this section where own and net effect of each determinant or variable can be examined.

Underlying the statistical analysis of the determinants of awareness, adoption and practice of TB DOTS is an economic model of physician behavior with respect to DOTS. This model explains physician actions in terms of benefits, costs and predisposing factors. The economic model hypothesizes that physicians seek knowledge, adopt and practice TB DOTS only if the benefits, financial or otherwise, outweigh the associated costs. Policy interventions should therefore be those that increase benefits and/or reduce costs associated with DOTS practices.

Among the benefits and cost variables are some that can be influenced by policy interventions. These include training in TB-DOTS, TB training and TB information campaigns. These variables tend to reduce the cost of acquiring information which may impact on the physician's decision. Also included are insurance variables, specifically awareness of the PHIC TB-DOTS package. This variable is an indicator of potential benefits to adopting DOT, specifically as it influences an insured patient's willingness to pay for DOT.

Other benefit variables from seeking knowledge and adoption of TB DOTS are cast in terms of how these enhance the TB practice of the physician. These enhancements can take the form of (i) the expansion or maintenance of an adequate TB patient base, (ii) the diversification of the patient load e.g., maintenance of multiple clinics, and (iii) improved patient capacity to pay e.g., insurance coverage.

Included variables may also reflect the ability of certain groups of physicians to acquire TB DOTS information at lower costs. This could include physicians who: (i) have public sector and potentially TB DOTS information exposure (physicians with private and public practices), (ii) are more receptive to additional training due to their membership in specialty societies and participation in seminars and conventions, (iii) are younger and therefore more likely to be more aware of recent clinical practice guidelines (recent medical graduates who were taught TB DOTS in medical school), and (iv) do not have x-rays in their clinics such that switching to TB DOTS is less costly.

As costs and benefits of these decisions may also vary by the specialization of the physician, by the type of clinic and by the location of the physician, these variables are included in the regressions.

These behavioral considerations are analyzed using multivariate techniques, specifically logit regression models that estimate the probability associated with physicians seeking DOTS knowledge and applying DOTS in TB case management. The empiricals involve regressing awareness and practice of DOTS and its elements as functions of the cost, benefit and intervening variables discussed above.

The intervening variables in the regression include: (i) physician characteristics – age, dummy variables for time since physician had most recent TB training, and physician clinical specialty and membership in specialty societies, (ii) practice setting – dummy variables for type of clinic, engagement in teaching and research, practice in public health facilities, (iii) location – dummy variables for the city where the reference clinic is located. On the other hand, the benefit and cost variables include – the ratio of TB patients to total patients in reference clinic and dummy variables for insurance accreditation, ownership of practice in the reference clinic and practice in multiple clinics,.

In addition, clinical specialty dummy variables interacted with the Manila and Quezon City dummy variables were specified in the logit regression model. This specification was implemented to control for sampling biases that may have occurred because of high refusal rates in Quezon City and Manila (as shown the profile of respondent physicians)[10].

The regression results presented in the subsequent tables refer to estimated elasticities. These elasticities are unit free measures of the responsiveness of a physician's choice with respect to the regression variables. For example, if the estimated elasticity of TB

[10] Sampling bias may be present if refusals are systematic e.g., - refusals may be more prevalent for physicians with larger clinic practices.

DOTS adoption with respect to specialty society membership is 1.2, then this estimate implies that physicians who are specialty society members are (on the average) 120 percent more likely to adopt TB DOTS compared to physicians who are not (members of specialty societies).

Since the estimated elasticities are derived using logit regressions, then these elasticities are also net effects. Thus, in the previous example where the estimated TB DOTS adoption with respect to specialty society membership elasticity is 1.2, the 120 percent greater likelihood of specialty society members adopting TB DOTS is net of the potential effects of the other regression variables like insurance accreditation, ratio of TB to all patients, city dummies, etc. The reason for this is that regression methods like logit regression estimate the effect of each regression variable controlling for the potential effect of the other specified regression variables.

1. *Awareness of TB DOTS*

What does it take to make doctors more aware about TB DOTS and its various elements, namely: (i) diagnosis using AFB smear, (ii) directly observed treatment, (iii) continuous supply of drugs, (iv) recording and reporting of TB cases, and (v) political commitment?

Benefits to awareness include (i) the ability to satisfy patients who are informed (i.e., also know about TB DOTS) and (ii) the potential of tapping insurance-based payments. Other benefits are also enhanced; (i) the greater the size of a doctor's TB patient base, (ii) the greater the number of clinics (which also means a greater number and more diverse TB patients), and (iii) if the doctor is a teacher/ researcher and therefore has a greater need for more information,

Regression results for reported physician awareness of TB DOTS and its elements are presented in Table 112.

Table 112. Estimated elasticities of the determinants of TB DOTS Awareness and its elements Base: All MDs

	Aware DOTS		Aware of DOTS Elements									
			Diagnosis Using AFB Smear		Directly Observed Treatment		Continuous Supply of Drugs		Record Keeping		Political Commitment	
Age	-0.273	*	0.563		-0.173		-0.906	*	-0.574		-4.500	*
Female	-0.003		0.045		0.015		0.160	*	0.110		-0.234	*
General Practice	-0.047	*	0.061	*	0.003		-0.012		-0.010		-0.013	
Family Medicine	-0.019	*	0.019		-0.003		-0.025		-0.018		-0.067	*
General Internal Medicine	-0.068	*	-0.016		-0.012		-0.069	*	-0.061		-0.118	*
Internal Medicine with Subspecialty	-0.077	*	-0.016		-0.019		-0.080	*	-0.177	*	-0.263	*
Infectious Disease	-0.004	*	0.002		-0.003		0.000		-0.005		-0.009	*
Other Specialty	-0.352	*	0.052		-0.107		-0.261		-0.266		-1.357	*

	Aware DOTS		Aware of DOTS Elements									
			Diagnosis Using AFB Smear		Directly Observed Treatment		Continuous Supply of Drugs		Record Keeping		Political Commitment	
Angeles	-0.003		-0.008		-0.006		-0.002		-0.007		-0.028	*
Bacolod	-0.014	*	-0.051	*	-0.015		-0.018		-0.031		-0.063	*
Cabanatuan	-0.003	*	-0.021	*	-0.004		-0.006		-0.007		-0.006	
Cagayan de Oro	-0.015	*	-0.071	*	-0.030	*	-0.034	*	-0.058	*	-0.070	*
Cebu	-0.057	*	-0.203	*	-0.111	*	-0.095	*	-0.175	*	-0.286	*
Cotabato	-0.003	*	-0.002		-0.002		0.001		-0.001		0.001	
Dagupan	-0.011	*	-0.028	*	-0.021	*	-0.010		-0.021	*	-0.027	
Davao	-0.019		-0.073	*	-0.057	*	-0.055	*	-0.127	*	-0.250	*
Dumaguete	0.001		-0.011	*	0.005		-0.008	*	-0.014	*	-0.024	*
Iloilo	-0.021	*	-0.026		-0.027		-0.008		-0.014		-0.138	*
Laoag	-0.002		0.005		0.001		0.003		0.006		-0.003	
Manila	-0.022		-0.115		-0.060		0.141	*	0.129		-0.138	
Naga	-0.002		-0.004		-0.004	*	0.000		-0.005		-0.005	
Ozamis	-0.002	*	-0.009	*	-0.004	*	-0.004	*	-0.010	*	-0.004	
Puerto Princessa	0.000		-0.007		-0.001		0.001		-0.004		-0.005	
Quezon City	-0.018		-0.421		0.012		-0.126		-0.375		-0.415	
Roxas	-0.004	*	-0.016	*	-0.009	*	-0.004		-0.016	*	-0.027	*
Tacloban	-0.005		-0.030	*	-0.010	*	-0.017	*	-0.032	*	-0.025	*
Zamboanga	-0.006		-0.047	*	-0.006		-0.022	*	-0.052	*	-0.053	*
Hospital Based	0.110	*	0.391	*	0.103	*	0.072		0.231	*	0.197	*
Work Based	0.008	*	0.032	*	0.032	*	-0.006		-0.052	*	0.085	*
HMO Clinic	-0.001		0.000		-0.002		-0.033	*	-0.026		0.022	
School Based	0.014		0.017		0.036	*	0.005		0.022			
Hospital OPD / ER	0.022	*	0.161	*	0.042	*	0.065	*	0.131	*	0.044	
Insurance Accredited	-0.212	*	-0.171		-0.052		0.085		-0.237		0.401	
Specialty Society Member	0.132	*	0.749	*	0.407	*	0.632	*	0.766	*	0.949	*
Owns Practice	0.058		-0.373	*	-0.024		-0.239		-0.252		-0.099	
Multiple Clinic	0.090	*	0.216		0.135		0.074		0.158		-0.297	*

	Aware DOTS		Aware of DOTS Elements									
			Diagnosis Using AFB Smear		Directly Observed Treatment		Continuous Supply of Drugs		Record Keeping		Political Commitment	
Teaching MD	0.061	*	0.236	*	0.111	*	0.214	*	0.293	*	0.336	*
Mixed Private - Public Practice	0.003		0.038	*	0.006		0.002		0.021	*	0.010	
Ratio of TB Patients to All Patients	0.025		0.202	*	0.057		-0.007		0.019		-0.030	
Last TB Training < 3 Years	-0.036	*	-0.002		-0.074	*	-0.043		-0.020		-0.111	*
Last TB Training < 5 Years	-0.005	*	0.005		-0.005		-0.006		-0.005		-0.005	
Last TB Training > 5 Years	-0.106	*	-0.031		-0.161	*	-0.166	*	-0.094		0.110	
Manila General Practice	-0.004		0.002		-0.002		-0.016	*	-0.018		-0.014	
Manila Family Medicine	-0.001		-0.004		0.000		-0.003		-0.006		0.004	
Manila General Internal Medicine	-0.004		0.001		0.001		-0.024	*	-0.020		-0.012	
Manila Internal Medicine with SubsSpecialty	-0.009		-0.019		-0.014		-0.044	*	-0.051	*	0.018	
Quezon City General Practice	-0.007	*	0.003		-0.009		-0.001		0.004		-0.021	
Quezon City Family Medicine	-0.005	*	0.004		-0.004		0.006		0.007		0.013	
Quezon City General Internal Medicine	-0.011	*	0.017		-0.012		0.017		0.007		-0.015	
Quezon City Internal Medicine with SubsSpecialty	-0.030	*	-0.046		-0.046	*	-0.015		0.003		0.022	
No. of Observations	1,471		1,471		1,471		1,471		1,471		1,471	
Pseudo R2	0.331		0.269		0.224		0.236		0.268		0.356	

* Statistically significant at 10%

Those who are accredited with insurance are less likely to be aware than those who are not. This may reflect the limited coverage of tuberculosis outpatient services in current insurance packages. This may also reflect the relatively recent introduction and thus limited claims of the PHIC TB-DOTS package.

Doctors with more recent TB training, i.e., within the last year, are more likely to be aware of TB DOTS. This is supported by the finding that younger, more recent medical graduates are more likely to be aware of TB DOTS than older physicians.

General practitioners, family medicine specialists, general internists, internists with subspecialty training, infectious disease specialists, and other specialists are less likely to be aware of TB DOTS compared to pulmonologists. The difference in elasticities between pulmonologists and infectious disease specialists, however, is less pronounced compared to pulmonologists and other physicians.

Hospital based physicians, including those in ER/OPDs, as well as those in work-based clinics are more likely to be aware of TB DOTS relative to those in free standing clinics.

Members of specialty societies and those engaged in teaching and research are also more likely to be aware, consistent with the hypothesis that either the cost of seeking information is less or the benefits to seeking information are greater for these physicians.

These imply that information campaigns should target (i) older physicians, (ii) those who had less recent TB training, (iii) those in free-standing clinics, (iv) non-members or specialty societies, and (v) GPs, internists and other non-reference specialty physicians.

2. *Awareness of TB DOTS Elements*

Looking at the determinants of awareness of individual DOTS elements could indicate the depth of awareness of TB DOTS.

Members of specialty societies as well as those who are engaged in teaching and research are more likely to be aware of all the elements of TB DOTS. Those who have mixed practices are also more likely to be aware of the diagnosis and recording elements.

Physicians having more recent TB training are more likely to be aware of the directly observed treatment and continuous supply of drugs components of TB DOTS. More recent TB training however does not seem to make the physician more aware of the other TB DOTS elements.

While having multiple clinics increases the likelihood that a physician reports awareness of TB DOTS, the same association can not be observed with regards the component elements of TB DOTS. Thus physicians with multiple practices may just be as uninformed about TB DOTS compared to physicians with single clinics.

These results indicate that effort is still needed to raise the awareness and knowledge of physicians regarding TB DOTS. To lend credence to this proposition, the study extends the analysis of TB DOTS to an objective assessment of knowledge of clinical practice guidelines using clinical vignettes.

3. *Knowledge of Clinical Practice Guidelines*

The use of clinical vignettes represents a recent trend that introduced a more objective measure of physician knowledge relative to gold standards and clinical practice guidelines. Under the vignette scoring system, physician response to each item or question in the vignette is assigned a score (weighted by difficulty and importance). Since the vignette scores per se are not readily interpretable without a reference point, cut-off points are designated to identify which vignette scores are high and which are adequate (see section describing vignette scoring system and cut-off points). To assess

respondent physician knowledge of TB case management, the study uses the TB vignettes (and scoring system) developed by Dr. Marissa Alejandria and Dr. Nina Berba.

Using the cut-off score for adequate knowledge indicated by the scoring system to create a binary variable with a value of 1 if the cut-off score is attained and 0 otherwise, logit regression is performed using the binary variable (of respondent physician performance in the vignette) as a dependent variable.

Aside from the set of regression variables used in the logit regression of awareness of TB DOTS, additional variables representing factors that could influence physicians to learn clinical practice guidelines were also included in the logit regression of vignette scores. These are:

a. A dummy variable for awareness of the PHIC TB Out-patient package was included to account for the possibility that physicians aware of the PHIC TB benefit package would be more receptive to TB DOTS because of the financial incentives.

b. Dummy variables representing TB DOTS training from PhilCAT and PhilTIPS were included to determine whether effectiveness of these trainings.

The estimated elasticities of the logit regression of vignette scores are presented in Table 113. Here the elasticities represent the percentage change in the probability that a physician attains the cut-off score given a percentage change in the regression variable.

Table 113. Estimated elasticities, Vignette score greater than cutoff
Base: All MDs

	Elasticity	
Age	-0.517	*
Female	-0.037	
General Practice	-0.006	
Family Medicine	0.012	
General Internal Medicine	0.042	*
Internal Medicine w/ Subspecialty	0.033	
Infectious Disease	0.005	
Other Specialty	-0.047	
Angeles	-0.009	
Bacolod	-0.040	*
Bacoor	-0.005	*
Batangas	-0.004	
Cabanatuan	-0.008	*
Cagayan de Oro	-0.023	*
Cebu	-0.055	
Cotabato	-0.003	*

	Elasticity	
Davao	-0.070	*
Dumaguete	-0.013	*
Iloilo	-0.021	
Laoag	0.000	
Lucena	-0.003	
Manila	0.049	
Naga	-0.004	
Ozamis	0.001	
Puerto Princessa	-0.005	
Quezon City	-0.239	
Roxas	-0.006	
Tacloban	-0.011	
Zamboanga	-0.002	
Hospital Based	0.136	*
Work Based	-0.001	
HMO Clinic	0.004	
School Based	-0.014	
Hospital OPD / ER	0.053	*
Insurance Accredited	-0.062	
Specialty Society Member	-0.143	
Owns Practice	0.085	
Multiple Clinic	-0.042	
Teaching MD	-0.051	
Mixed Private - Public Practice	0.009	*
Training in TB DOTS	0.084	*
Aware PHIC TB OP Package	-0.122	*
Ratio of TB Patients to All Patients	0.137	*
TB Training > 5 Years	-0.021	
Manila General Practice	-0.014	*
Manila Family Medicine	-0.005	*
Manila General Internal Medicine	-0.016	*
Manila Internal Medicine with Subspecialty	-0.027	*
Quezon City General Practice	0.001	
Quezon City Family Medicine	-0.002	
Quezon City General Internal Medicine	0.002	
Quezon City Internal Medicine with Subspecialty	-0.023	*
Quezon City Infectious Disease	-0.002	
Quezon City Other Specialties	0.021	
No. of Observations	1099	
Pseudo R2	0.238	

* Statistically significant at 10%

Physicians who had training in TB DOTS were 8 percent more likely to at least satisfy the cutoff score. It seems that previous DOTS training programs were effective in increasing the knowledge of clinical practice guidelines.

However, physicians who are currently aware of the PHIC TB DOTS package are less likely to make the cutoff. This implies that for these physicians to provide adequate DOTS services that can be reimbursed by PHIC, they would have to undergo further training.

As in the awareness models, younger physicians are more likely to make the cutoff score. General internists as a whole are more likely to exceed the cutoff relative to all other specialties, while it is only in Manila where pulmonologists are more likely to make the cutoff relative to general internists. Those in hospital based clinics, including those in OPDs/ERs are also more knowledgeable.

Those with mixed practices are more likely to meet the cutoff score. This confirms the hypothesis that physicians holding public appointments have greater access to knowledge about tuberculosis.

The acquisition of DOTS knowledge is also driven by market forces. For every one percent change in the ratio of TB patients to all patients, the likelihood of making the cut increases by almost 14 percent.

While direct interventions such as training would increase knowledge about the clinical elements of TB-DOTS, interventions that would increase patient likelihood of seeking care would also have impacts on physician knowledge.

Benefit considerations matter; physicians with larger TB patient to total patient ratios seek knowledge on clinical practice guidelines. However, awareness of the PHIC TB out-patient benefit package may not increase physician knowledge without corresponding interventions providing TB DOTS training.

4. *Adoption of TB DOTS*

The awareness of TB DOTS and the knowledge of clinical practice guidelines however may not be sufficient to insure physician adoption of TB DOTS. To shed light on the physician's decision to adopt TB DOTS, regression analysis of the determinants of TB DOTS adoption is undertaken. Specifically, the subsequent discussion attempts to generate information that can aid in addressing the policy question of what interventions can motivate private physicians to apply TB DOTS in their practice.

Although it stands to reason that factors that motivate physicians to acquire TB DOTS knowledge may also influence the adoption of TB DOTS, it does not necessarily follow that these factors affect awareness and adoption of TB DOTS to the same degree. In cognizance of this possibility, a modified set of regression variables are employed in the logit regression of TB DOTS adoption. In particular, the modification takes the form of including the following variables:

a. A variable Islam is included to account for anecdotes from the National TB Prevalence Survey field team that indicated that Muslim TB patients from the Lanao province were not receptive to undergoing sputum retrieval.

b. Variables for the presence of x-ray equipment and sputum collecting material were also included given the hypotheses that physicians with x-ray equipment would find it more costly to obtain new equipment (sputum collecting material) while physicians with sputum collecting material would find it less costly to provide TB DOTS services with the existing equipment.

The reference set of respondents in the discussion of TB DOTS adoption varies from that used in the analysis of TB DOTS awareness. In the case of TB DOTS adoption, the relevant set of respondents are those who are aware of TB DOTS i.e., physicians who are not aware of TB DOTS can not adopt it. Consequently, the sub-sample for the logit regression of TB DOTS adoption deviates from that used in the logit regressions of TB DOTS awareness.

The results of the logit regressions of TB DOTS adoption, certification as DOTS referring physician and certification as DOTS provider is presented in Table 114.

Table 114. Estimated elasticities of the determinants of TB DOTS Adoption Base: MDs Aware of TB DOTS

	Adopt DOTS	
Age	1.279	*
Female	0.092	
Islam	-0.003	
General Practice	-0.114	*
Family Medicine	-0.097	*
General Internal Medicine	-0.230	*
Internal Medicine w/ Subspecialty	-0.272	*
Infectious Disease	-0.017	*
Other Specialty	-0.716	*
Angeles	-0.009	
Bacolod	-0.067	*
Bacoor	0.003	
Batangas	-0.007	
Cabanatuan	-0.006	
Cagayan de Oro	-0.061	*
Cebu	-0.104	
Cotabato	-0.002	
Davao	-0.065	
Dumaguete	-0.042	*
Iloilo	-0.042	
Laoag	-0.012	*
Lucena	-0.008	*
Manila	-0.446	*
Naga	-0.019	*
Ozamis	-0.010	*
Puerto Princessa	-0.013	*

	Adopt DOTS	
Quezon City	-1.127	*
Roxas	-0.014	*
Tacloban	-0.032	*
Zamboanga	-0.032	*
Hospital Based	-0.124	
Work Based	-0.035	*
HMO Clinic	0.004	
School Based	-0.019	
Hospital OPD / ER	-0.043	
Insurance Accredited	0.261	
Specialty Society Member	-0.015	
Owns Practice	0.086	
Multiple Clinic	0.327	*
Teaching MD	-0.016	
Mixed Private - Public Practice	0.008	
Aware PHIC TB OP Package	0.182	*
Trained by PhilCat	0.034	*
Trained by PhilTIPS	0.022	*
Ratio of TB Patients to All Patients	-0.044	
TB Training > 5 Years	-0.098	*
X-ray Equimpment	-0.076	*
Sputum Collecting Equimpents	0.034	*
Manila General Practice	0.020	*
Manila Family Medicine	0.014	*
Manila General Internal Medicine	0.043	*
Manila Internal Medicine with Subspecialty	0.044	*
Quezon City General Practice	0.039	*
Quezon City Family Medicine	0.024	*
Quezon City General Internal Medicine	0.083	*
Quezon City Internal Medicine with Subspecialty	0.063	*
Quezon City Infectious Disease	0.007	*
Quezon City Other Specialties	0.019	
No. of Observations	1102	
Pseudo R2	0.240	

* Statistically significant at 10%

Physicians with multiple clinics are more likely to adopt TB DOTS. This possibly indicates that physicians with larger TB patient loads have greater incentive to perform well (reputation incentive).

Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to adopt TB DOTS. This may indicate that the PHIC TB out-patient benefit package does represent a financial incentive for physicians to adopt TB DOTS and thus can be used to motivate greater private physician participation in the provision of TB DOTS.

Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to adopt TB DOTS. This indicates that training from PhilCAT or PhilTIPS does convince physicians of the merits of DOTS. Similar to the case of TB DOTS awareness,

physicians who had less recent TB training were less likely to adopt TB DOTS. These results lend credence to the validity of conducting TB DOTS information dissemination among physicians.

Existing clinic equipment also seems to matter. Physicians practicing in clinics with x-ray machines were less likely to adopt while physicians practicing in clinics with sputum collecting equipment are more likely to adopt TB DOTS. To an extent, this may indicate the cost implications of having to acquire additional equipment although this could also capture the nuance that the presence or absence of sputum collecting equipment could be the consequence of the decision to adopt TB DOTS rather than the cause of it.

Pulmonologists are also more likely to adopt TB DOTS compared to physicians engaged in other clinical specialties. This is interesting since the logit regression of vignette scores indicated that pulmonologists were not more knowledgeable of clinical practice guidelines. Examining whether pulmonologists practice the different aspects of TB DOTS is thus a requisite subject of further investigation.

Physicians in work-based clinics are more likely to adopt TB DOTS. This result gives indications that work based DOTS programs may be starting to reap some modicum of success.

Again, the results indicate that financial incentives such as the PHIC TB out-patient benefit package are viewed favorably by physicians and serve as motivation for TB DOTS adoption. Coupled with the result that TB DOTS training is positively associated with TB DOTS adoption, these herald positive developments that should influence the direction of TB DOTS interventions.

5. *DOTS Certification*

Adoption of TB DOTS however may not translate into actual practice. The study takes the analysis in this direction by examining the factors motivate physicians to seek formal DOTS certification. At present there are several levels of DOTS certification. PhilTIPS for example has classification system for what it terms as DOTS-engaged physicians. The analysis shall focus on two such classifications: (i) certification as DOTS referring physicians and (ii) certification as DOTS providers.

Considering the high likelihood that only TB treating physicians will be seeking DOTS certification, the reference set of respondents for the subsequent analysis will be limited to TB treating respondent aware of TB DOTS. Using the same set of regression variables employed in the analysis of TB DOTS adoption, the potential impact of these factors (variables) on the decision of physicians to seek certification either as DOTS referring physicians or as DOTS providers is presented through logit regressions of the decisions to seek DOTS certification.

Table 115. Estimated elasticities of the determinants of DOTS Certification Base: TB Treating MDs Aware of TB DOTS

	Certified DOTS Referring Physician		Certified DOTS Provider	
Age	2.740	*	0.584	
Female	0.355	*	0.014	
Islam	-0.001			
General Practice	-0.111	*	-0.079	
Family Medicine	-0.137	*	-0.221	*
General Internal Medicine	-0.241	*	-0.320	*
Internal Medicine w/ Subspecialty	-0.244	*	-0.599	*
Infectious Disease	-0.018	*	-0.008	
Other Specialty	-0.419		-0.362	
Angeles	0.036	*	0.041	*
Bacolod	-0.008		0.044	
Bacoor	0.016	*	0.014	
Batangas	-0.009		0.002	
Cabanatuan	0.018	*	0.018	
Cagayan de Oro	0.021	*	0.018	
Cebu	0.153	*	0.210	
Cotabato				
Davao	0.186	*	0.249	*
Dumaguete	-0.019		-0.004	
Iloilo	0.136	*	0.064	
Laoag	0.007		0.020	*
Lucena	0.001			
Manila	0.115		0.004	
Naga	0.008		0.001	
Ozamis				
Puerto Princessa	0.004		0.008	
Quezon City	-0.084		-0.305	
Roxas	0.017	*	-0.001	
Tacloban	0.008		0.017	
Zamboanga	-0.001		0.004	
Hospital Based	0.138		0.325	
Work Based	-0.060			
HMO Clinic	0.027	*	0.033	*
School Based	0.001		0.007	*
Hospital OPD / ER	0.091	*	0.104	*
Insurance Accredited	0.559	*	0.879	*
Specialty Society Member	0.224		0.633	
Owns Practice	0.302		0.173	
Multiple Clinic	0.358	*	-0.049	
Teaching MD	-0.081		-0.075	
Mixed Private - Public Practice	0.011		0.026	
Aware PHIC TB OP Package	0.425	*	0.407	*
Trained by PhilCat	0.133	*	0.097	*

	Certified DOTS Referring Physician		Certified DOTS Provider	
Trained by PhilTIPS	0.044	*	0.054	*
Ratio of TB Patients to All Patients	-0.136		0.118	*
TB Training > 5 Years	-0.165		-0.136	*
X-ray Equimpment	-0.141	*	-0.171	*
Sputum Collecting Equimpents	0.082	*	0.126	*
Manila General Practice	0.015		0.058	*
Manila Family Medicine	-0.006		0.029	*
Manila General Internal Medicine	-0.015			
Manila Internal Medicine with Subspecialty				
Quezon City General Practice	0.053	*	0.054	*
Quezon City Family Medicine	0.047	*	0.062	*
Quezon City General Internal Medicine	0.058		0.150	*
Quezon City Internal Medicine with Subspecialty	0.056		0.243	*
Quezon City Infectious Disease	0.007	*	0.001	
Quezon City Other Specialties	0.442			
No. of Observations	797		797	
Pseudo R2	0.335		0.385	

* Statistically significant at 10%

a. Certification as DOTS Referring Physician

Physicians who have insurance accreditation are more likely to seek certification as DOTS referring physicians. Again, this indicates that physicians who potentially view insurance accreditation as a financial incentive in the sense that it allows access to insured patients also view certification in the same light.

Physicians with multiple clinics are more likely to seek certification as DOTS referring physicians. Physicians with multiple clinics may have larger TB patient load and possibly a larger number of PhilHealth covered patients. Consequently, these physicians may be more attracted to the financial incentive (PHIC TB out-patient benefit package payments) that certification as DOTS referring physician brings.

Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS referring physicians. Similar to the discussion above, this result gives credence to the proposition that access to reimbursements from the PHIC TB out-patient benefit package represents a financial incentive for physicians.

Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS referring physicians. This indicates that training from PhilCAT or PhilTIPS not only convinces physicians of the clinical merits but also convinces physicians of the financial merits of TB DOTS.

Physicians practicing in clinics with x-ray machines are less likely to seek certification while physicians practicing in clinics with sputum collecting equipment are more likely to seek certification as DOTS referring physicians. Again, this may indicate the cost implications of having to acquire additional equipment although this could also be the consequence of the decision to adopt TB DOTS and seek certification as DOTS referring physician.

Pulmonologists are also more likely to seek certification as DOTS referring physicians. This seems to follow from the earlier result that pulmonologists are more likely to adopt TB DOTS. Again investigation of whether pulmonologists practice the different aspects of TB DOTS to a greater degree relative to other physicians is an issue worth further investigation.

Physicians based in HMO clinics and hospital OPD/emergency rooms are more likely to seek certification as DOTS referring physicians.

b. Certification as DOTS Providers

Physicians who have insurance accreditation are more likely to seek certification as DOTS providers. Similar to the case of certification as DOTS referring physician, this may indicate that physicians who potentially view insurance accreditation as a financial incentive may also view certification as a DOTS provider as a financial incentive.

Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS providers. Again, this may indicate that physicians view the PHIC TB out-patient benefit package as a financial incentive.

Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS providers. Considering the results from the analysis of TB DOTS adoption and certification as DOTS referring physicians, this supports the previous hypothesis that training from PhilCAT or PhilTIPS convinces physicians of the financial merits of DOTS. This is further supported by the result that physicians practicing in clinics with x-ray machines were less likely to seek certification while physicians practicing in clinics with sputum collecting equipment were more likely to seek certification as DOTS providers.

These results indicate that financial incentives influence physician behavior to the extent that physicians seek DOTS certification, an activity that certainly incurs some costs.

6. *Practice of the Different Aspects of TB DOTS*

The discussion so far has indicated that financial incentives may motivate physicians to adopt TB DOTS to the extent of seeking DOTS certification. The question however remains whether these incentives will motivate physicians to practice TB DOTS as it has

been envisioned. To assess this consideration, the subsequent discussion will examine the factors that influence physician decision to adopt specific elements of TB DOTS, namely, (i) the use of sputum as a primary diagnostic tool, (ii) adherence to the short-course chemotherapy (SCC) drug regimen, (iii) the use of a separate record keeping system for TB patients, and (iv) the use of written reports by the patient's treatment partner (e.g., treatment card) to monitor daily intake of drugs.

To provide greater depth of analysis, additional regression variables are included in the logit regressions of physician decision to practice the different aspects of TB DOTS. The modification of the regression variables incorporate:

a. Private insurance accreditation is used as the insurance accreditation variable in the logit regression of sputum use. The rationale for this lies in the predisposition of HMOs and private insurance firms to prescribe chest x-ray given the existing occupational health law's mandate on the use of chest x-ray for the regular physical exams.

b. Ratio of TB patients to employees is used as a regression variable in the logit regression of view TB treatment partner report. The rationale for the inclusion of this variable is that this aspect of TB DOTS may require greater monitoring effort from the clinic staff.

c. The vignette diagnosis score and a variable representing the interaction of vignette diagnosis score with awareness of the PHIC TB Out-patient benefit package are included as variables in the use sputum regression. These variables are included to probe whether awareness of financial incentives or knowledge are sufficient by themselves to motivate physicians to apply DOTS.

d. The vignette drug regimen score and a variable representing the interaction of vignette drug regimen score with awareness of the PHIC TB Out-patient benefit package are included as variables in the use SCC regression. These variables are included to probe whether awareness of financial incentives or knowledge are sufficient by themselves to motivate physicians to apply DOTS.

e. The total vignette score is included as a regression variable in the logit regressions of Separate Records for TB Patients and View TB Treatment Partner Report. This variable is included to probe whether awareness of financial incentives or knowledge are sufficient by themselves to motivate physicians to apply DOTS.

The estimated elasticities from the logit regression of physician decision to practice the different elements of TB DOTS are presented in Table 116.

Table 116. Estimated elasticities, practice of DOTS elements
Base: TB Treating MDs Aware of TB DOTS

Variable	Sputum Exam		SCC		Separate TB Records		Monitor via Treatment Partner Report	
Age	-1.091	*	-1.987		-0.774		1.640	*
Female	0.069		-0.107		-0.349	*	-0.061	
Islam	0.004							
General Practice	-0.029		-0.038		-0.084		-0.083	
Family Medicine	-0.030	*	-0.042	*	-0.055		-0.134	*
General Internal Medicine	-0.043		-0.110	*	-0.229	*	-0.252	*
Internal Medicine w/ Subspecialty	-0.077	*	-0.119	*	-0.325	*	-0.157	
Infectious Disease	-0.002		-0.003		-0.008		-0.006	
Other Specialty	0.016		-0.866	*	-0.304		-1.039	*
Angeles	-0.015	*	0.018		0.044	*	0.027	*
Bacolod	-0.023		0.111	*	0.138	*	0.113	*
Bacoor	-0.004		0.015	*	0.020		0.018	
Batangas	0.000		0.012	*	0.018	*	0.009	
Cabanatuan	-0.002		0.007		0.025	*		
Cagayan de Oro	-0.009	*	0.003		0.042	*	0.020	
Cebu	-0.005		0.108		0.131		-0.103	
Cotabato	0.001				0.018	*		
Dagupan			0.010	*			0.005	
Davao	-0.031	*	0.074		0.331	*	0.050	
Dumaguete	-0.021	*	0.014					
Iloilo	-0.060	*	0.067	*	0.054		-0.014	
Laoag	-0.010	*	0.011	*	0.026	*	0.008	*
Lucena	0.000		0.006	*				
Manila	0.047		0.077		0.189		0.102	
Naga	-0.004		0.012		0.028	*	-0.004	
Ozamis	-0.007	*	0.006					
Puerto Princessa	-0.006	*	0.487		0.021	*		
Quezon City	-0.258		0.011		-0.039		0.093	
Roxas	-0.004		0.004		0.026	*	0.000	
Tacloban	-0.005		0.005		0.045	*	0.000	
Zamboanga	-0.003		0.067		0.030	*		
Hospital Based	-0.075				0.080		0.101	
Work Based	0.009							
HMO Clinic	0.001		0.011		0.001		0.024	
Hospital OPD / ER	-0.046	*	-0.024		-0.053		0.007	
Private Insurance Accredited	-0.109	*						
Insurance Accredited			-0.365		-0.698	*	-0.350	
Specialty Society Member	0.516	*	0.175		1.175	*	0.160	
Owns Practice	-0.047		0.354	*	-0.506		0.376	
Multiple Clinic	0.047		-0.214		-0.174		0.413	*
Teaching MD	-0.027		0.111	*	-0.123		0.165	*
Mixed Private - Public Practice	0.016		-0.009		0.016		0.046	*
Ratio of TB Patients to							0.046	

Variable	Sputum Exam		SCC		Separate TB Records		Monitor via Treatment Partner Report	
Employees								
Ratio of TB Patients to All Patients	-0.029		-0.233	*	0.297	*	-0.033	
Trained by PhilCAT	0.003		0.012		0.003		-0.035	
Trained by PhilTIPS	0.001		-0.004		0.032	*	0.011	
Aware PHIC TB OP Package	-0.887	*	-1.681	*	0.323	*	0.419	*
Vignette Diagnosis Score	-0.750							
Vignette Drug Score			1.708					
Aware PHIC TB OP Package*Vignette Diagnosis Score	0.959	*						
Aware PHIC TB OP Package*Vignette Drug Score			1.577	*				
Vignette Total Score					-2.701	*	0.163	
TB Training > 5 Years	-0.049	*	-0.098	*	-0.030		-0.119	*
Manila General Practice	-0.006		0.015		0.031	*	0.011	
Manila Family Medicine	-0.008	*						
Manila General Internal Medicine	-0.008		0.001					
Manila Internal Medicine with SubsSpecialty	-0.026	*	0.044	*				
Manila Other Specialties			0.111	*				
Quezon City General Practice	0.000		-0.005		0.099	*	0.043	
Quezon City Family Medicine	0.003		0.010		0.049	*	0.021	
Quezon City General Internal Medicine	0.006		0.008		0.176	*	0.116	*
Quezon City Internal Medicine with SubsSpecialty	0.016		0.074	*	0.261	*	-0.006	
Quezon City Infectious Disease	-0.002		0.004					
Quezon City Other Specialties	-0.311	*	0.933	*				
No. of Observations	801		804		799		673	
Pseudo R2	0.317		0.349		0.293		0.257	

* Statistically significant at 10%

a. Use of Sputum as a Primary Diagnostic Tool

Physicians accredited with private insurance firms (including HMO accreditation) are less likely to use the AFB sputum smear exam. This probably is a consequence of the past occupational law requirement on the use of the chest x-ray as well as previous standards where x-ray is prescribed.

Members of specialty societies are more likely to use the AFB sputum smear exam. This is probably due to the "quality" consideration where members of specialty societies have greater exposure to clinical practice guidelines.

Physicians who are aware of the PHIC TB out-patient benefit package but perform poorly in the vignette (low vignette diagnosis scores) as well as physicians who perform well in the vignette but are not aware of the PHIC TB out-patient benefit package are less likely to use the AFB sputum smear exam. The opposite result is observed with respect to physicians who are aware of the PHIC TB out-patient benefit package and perform well in the vignette (high vignette diagnosis scores). These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the AFB sputum smear exam.

Physicians who are older or had less recent TB training are also less likely to apply the AFB sputum smear exam. This indicates that the use of the AFB smear exam is a relatively recent development.

b. Use of the SCC as Drug Regimen

Teaching physicians are more likely to use the SCC as drug regimen. This coincides with the result that physicians who had less recent TB training are also less likely to apply the SCC. This indicates that the current SCC is also a relatively recent development.

Physicians with greater TB patient densities (greater proportion of TB patients relative to total patients) are less likely to prescribe the SCC. This probably reflects the institutional paradigm that physicians with greater clinical experience tend to follow their own treatment regimen.

Physicians who are aware of the PHIC TB out-patient benefit package are less likely to use the SCC drug regimen. Physicians however who are both aware of the PHIC TB out-patient benefit package and perform well in the vignette (high vignette drug scores) are more likely to use the SCC drug regimen. These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the SCC drug regimen.

c. Separate TB Records

Physicians accredited with private insurance firms (including HMO accreditation) are less likely to separate records of TB patients. This probably is a consequence of the lack of guidelines that direct physicians to separate TB records

Members of specialty societies are more likely to separate the records of TB patients. This is probably due to the "quality" consideration where members of specialty societies have greater exposure to TB DOTS information.

Physicians who own the clinic practice are less likely to separate the records of TB patients. This probably stems from the greater effort and possibly cost of maintaining separate records. Physicians however with greater TB patient densities (high proportion of TB patients relative to total patients) are more likely to separate the records of TB patients.

Physicians trained by PhilTIPS are more likely to separate the records of TB patients. This indicates the effectiveness of PhilTIPS TB DOTS workshops in disseminating the merits of separating records of TB patients.

Physicians who are aware of the PHIC TB out-patient benefit package are more likely to separate the records of TB patients. This indicates that awareness of financial incentives may motivate physicians to separate the records of TB patients.

Physicians who perform well in the vignettes however are less likely to separate the records to TB patients. This indicates that knowledge of clinical practice guidelines or the clinical aspects of DOTS may not necessarily translate into knowledge of the non-clinical elements of DOTS.

d. Monitor Drug Intake via Treatment Partner Report

Physicians with multiple clinics are more likely to monitor daily drug intake using the treatment partner report. This may stem from physician exposure to a diverse TB patient load and the merits of monitoring patient adherence to the prescribed drug regimen.

Physicians engaged in teaching and research are more likely to monitor daily drug intake using the treatment partner report. Likewise, private physicians who also have clinical practices in public health facilities are more likely to monitor daily drug intake using the treatment partner report. This probably is an indication of physician exposure to TB DOTS in clinical practice.

Physicians who are aware of the PHIC TB out-patient benefit package are more likely to monitor daily drug intake using the treatment partner report. Again, this may indicate that awareness of financial incentives may motivate physicians to monitor daily drug intake using the treatment partner report.

Of interest in the findings are results that show that neither awareness of financial incentives nor knowledge of clinical practice guidelines per se may be sufficient to ensure physician practice of TB DOTS in its entirety. Interventions have to be instituted so that these provide not only financial incentives but knowledge as well. Furthermore, the results indicate that each aspect of TB DOTS has to be given separate thought, specifically in the design of interventions. These are motivated by results that indicate for example that knowledge of the clinical aspect of TB DOTS, as indicated by vignette scores, does not necessarily translate to knowledge and adoption of the non-clinical aspects of TB DOTS.

IV. Intervention Points

The foregoing results point to some factors that influence the likelihood of physician awareness and adoption of TB-DOTS. In this section, we explore these factors in more detail with the aim of pinpointing areas where efforts can be intensified.

When the physician last obtained information about treatment of pulmonary TB was seen to significantly affect awareness and adoption rates. If the physician obtained information about treating pulmonary TB within the last year, the greater the probability that recent clinical practice guidelines would be among those discussed. Table 117 indicates the distribution of physicians by the last time that they obtained TB information. About two-thirds of physicians obtained TB information in the last year. However, about fifteen percent still obtained TB information more than five years ago. Among the reference specialties, pulmonologists show the greatest proportion of physicians who obtained TB training relatively recently while general practitioners show the lowest proportion of obtaining TB information in the last year.

Table 117. Distribution of physicians by when last TB information was obtained
Base: All physicians

Specialty	Less than 1 year	Less than 3 years	Less than 5 years	More than 5 years
General Practice	0.701	0.167	0.036	0.097
Family Medicine	0.735	0.209	0.028	0.028
General Internal Medicine	0.782	0.157	0.017	0.044
Internal Medicine w/ Subspecialty	0.607	0.222	0.057	0.113
Pulmonology	0.879	0.049	0.008	0.065
Infectious Disease	0.841	0.135	0.000	0.024
Pediatrics	0.844	0.151	0.000	0.005
Obstetrics/Gynecology	0.134	0.858	0.000	0.008
Anesthesiology	1.000	0.000	0.000	0.000
Ear, Nose and Throat	0.000	0.000	0.000	1.000
Pathology	1.000	0.000	0.000	0.000
Radiology	0.110	0.103	0.000	0.787
Surgery	0.703	0.067	0.000	0.230
Community Medicine	0.500	0.500	0.000	0.000
Total	0.668	0.172	0.016	0.145

Looking at the breakdowns by clinic type, reference physicians in school-based clinics show the greatest proportion who obtained TB information more than 5 years ago (Table 118). Hospital based physicians are more updated, where about 78 percent physicians obtaining TB information in the last year.

Table 118. Distribution of physicians by when last TB information was obtained, by clinic type
Base: Reference specialties

Clinic Type	Less than 1 year	Less than 3 years	Less than 5 years	More than 5 years
Free-standing	0.704	0.181	0.025	0.091
Hospital-based	0.783	0.157	0.020	0.040
Hospital-Outpatient/ER	0.664	0.148	0.079	0.109
HMO-based	0.640	0.297	0.000	0.063
Community-based	0.865	0.135	0.000	0.000
School-based/University-based/ER	0.617	0.106	0.000	0.277
Work-based	0.745	0.184	0.071	0.000
Others	0.709	0.291	0.000	0.000
Total	0.728	0.169	0.031	0.072

The highest proportions of physicians obtaining information more than five years ago found in the cities of Cabanatuan, Manila, Tacloban and Dagupan. Batangas City, Laoag City and Puerto Princesa City, on the other hand, show the highest proportions who obtained TB information less than a year ago (Table 119).

Table 119. Distribution of physicians by when last TB information was obtained, by city
Base: Reference specialties

City	Less than 1 year	Less than 3 years	Less than 5 years	More than 5 years
Angeles	0.821	0.087	0.027	0.066
Bacolod	0.888	0.041	0.000	0.071
Bacoor	0.840	0.160	0.000	0.000
Batangas	1.000	0.000	0.000	0.000
Cabanatuan	0.830	0.040	0.000	0.129
Cagayan de Oro	0.797	0.132	0.000	0.071
Cebu	0.738	0.194	0.022	0.046
Cotabato	0.889	0.111	0.000	0.000
Dagupan	0.537	0.225	0.119	0.119
Davao	0.859	0.097	0.018	0.026
Dumaguete	0.667	0.276	0.000	0.057
Iloilo	0.769	0.172	0.000	0.058
Laoag	0.924	0.076	0.000	0.000
Lucena	0.683	0.317	0.000	0.000
Manila	0.642	0.147	0.051	0.159
Naga	0.660	0.246	0.035	0.059
Ozamis	0.660	0.182	0.079	0.079
Puerto Princesa	1.000	0.000	0.000	0.000
Quezon	0.667	0.227	0.042	0.064

City	Less than 1 year	Less than 3 years	Less than 5 years	More than 5 years
Roxas	0.866	0.134	0.000	0.000
Tacloban	0.865	0.000	0.000	0.135
Zamboanga	0.808	0.132	0.060	0.000
Total	0.728	0.169	0.031	0.072

Training in TB-DOTS was seen as a positive influence on its adoption. In Table 120, it can be seen that only slightly more than a fourth of TB treating physicians have had training in TB-DOTS. For reference specialties, this figure is at about 35 percent. There is therefore significant room for the expansion of training programs. Such programs can be directed at general practitioners, family medicine specialists and internists as these groups exhibit the lowest proportion that have had training. Expansion of training programs can also be directed at the third of pulmonologists who have had no training in TB-DOTS.

Table 120. Proportion of physicians who had training in TB DOTS, by specialty
Base: TB treating physicians

	Proportion	N
General Practice	0.245	139
Family Medicine	0.301	156
General Internal Medicine	0.297	198
Internal Medicine w/ Subspecialty	0.220	126
Pulmonology	0.702	144
Infectious Disease	0.700	28
Pediatrics	0.231	13
Obstetrics/Gynecology	0.115	3
Anesthesiology	0.000	1
Ear, Nose and Throat		0
Pathology	1.000	1
Radiology	0.067	2
Surgery	0.157	16
Community Medicine	0.000	1
Total	0.269	828

Training in TB-DOTS can also be expanded for physicians practicing in work-based clinics since less than 20 percent of those who are aware of TB DOTS have had training (Table 121).

Table 121. Proportion of TB treating physicians who had training in TB-DOTS, by clinic type
Base: Reference specialties

	Proportion	N
Free-standing	0.334	327
Hospital-based	0.355	318
Hospital-Outpatient/ER	0.333	96
HMO-based	0.415	23
Community-based	0.368	8
School-based/University-based/ER	0.428	4
Work-based	0.188	9
Others	0.134	6
Total	0.343	791

Areas where less than one-third of TB treating physicians who are aware of TB-DOTS have had training include the cities of Bacoor, Cebu, Dagupan, Manila, Ozamis, Tacloban and Zamboanga (Table 122). Training programs can be directed at these sites.

Table 122. Proportion of TB-treating physicians who had training in TB-DOTS, by city
Base: Reference specialties

	Proportion	N
Angeles	0.407	28
Bacolod	0.470	32
Bacoor	0.146	12
Batangas	0.704	9
Cabanatuan	0.551	19
Cagayan de Oro	0.421	21
Cebu	0.189	91
Cotabato	0.000	3
Dagupan	0.222	8
Davao	0.449	90
Dumaguete	0.282	12
Iloilo	0.401	76
Laoag	0.545	8
Lucena	0.465	5
Manila	0.227	76
Naga	0.525	21
Ozamis	0.142	7
Puerto Princesa	1.000	11
Quezon	0.350	201
Roxas	0.429	18
Tacloban	0.300	22
Zamboanga	0.231	21
Total	0.343	791

Awareness of the PHIC TB-DOTS package is also a significant determinant of physician adoption of TB-DOTS. Only about 36 percent of all TB treating physicians are aware of the package (Table 123). Internists with subspecialties are the least aware, followed by general practitioners, family medicine specialists and general internists. Information campaigns on the TB-DOTS package can be targeted to these specialties.

Table 123. Proportion of physicians who are aware of PHIC-TB DOTS package, by specialty
Base: TB treating physicians

Specialty	Proportion	N
General Practice	0.354	139
Family Medicine	0.458	155
General Internal Medicine	0.459	198
Internal Medicine w/ Subspecialty	0.290	126
Pulmonology	0.768	144
Infectious Disease	0.772	28
Pediatrics	0.124	13
Obstetrics/Gynecology	0.115	3
Anesthesiology	0.000	1
Ear, Nose and Throat	0.000	0
Pathology	1.000	1
Radiology	0.000	2
Surgery	0.454	16
Community Medicine	0.000	1
Total	0.362	827

Targeting could be aided by looking at where physicians are located. Lower proportions of physicians in work-based clinics, free-standing clinics and hospital outpatient departments or ERs are aware of the package. Informing work-based physicians on the TB-DOTS package is important as their clientele are most likely members of PHIC and would therefore be eligible for coverage.

Table 124. Proportion of physicians who are aware of PHIC-TB DOTS package, by clinic type
Base: Reference specialties

Clinic Type	Proportion	N
Free-standing	0.437	326
Hospital-based	0.489	318
Hospital-Outpatient/ER	0.398	96
HMO-based	0.567	23
Community-based	0.466	8
School-based/University-based/ER	0.428	4
Work-based	0.284	9
Others	0.709	6
Total	0.457	790

Information campaigns on the PHIC TB-DOTS package can be directed at the cities of Bacoor, Cebu, Dumaguete, Manila, Quezon, and Zamboanga (Table 125). These sites show the least proportion of physicians aware of the TB-DOTS package.

Table 125. Proportion of physicians who are aware of TB-DOTS package, by city
Base: Reference specialties

City	Proportion	N
Angeles	0.506	28
Bacolod	0.587	32
Bacoor	0.288	12
Batangas	0.748	9
Cabanatuan	0.615	19
Cagayan de Oro	0.589	21
Cebu	0.400	91
Cotabato	0.632	3
Dagupan	0.601	8
Davao	0.597	90
Dumaguete	0.424	12
Iloilo	0.469	75
Laoag	0.772	8
Lucena	0.901	5
Manila	0.420	76
Naga	0.700	21
Ozamis	0.593	7
Puerto Princesa	0.904	11
Quezon	0.384	201
Roxas	0.512	18
Tacloban	0.504	22
Zamboanga	0.370	21
Total	0.457	790

The argument for expanding the coverage of TB-DOTS training is strengthened by looking at the source of information about the PHIC TB-DOTS package. About 15 percent of those who are aware of the package obtained information about it from the TB-DOTS training. Nearly 45 percent obtained information from TB-DOTS training and from PhilCAT and PhilTIPS. PhilHealth brochures and orientation were sources for about 5 percent of the physicians. There is scope for expanding joint efforts with the PHIC for information about the package as only about 5 percent got their information from PHIC.

Table 126. Distribution of physicians by source of information about PHIC TB-DOTS package
Base: Reference specialties

Source of information	Proportion
TB-DOTS training	0.121
PhilCAT	0.122
PhilTIPS	0.017
Seminars	0.065
Medical convention	0.011
Consultations with other MDs	0.015
DOH publications/circulars	0.012
Special lectures/symposia	0.005
Philhealth brochures/orientation	0.078
Short-term training course	0.006
Pharmaceutical brochures	0.070
Medical textbooks	0.152
Medical journals	0.052
Radio, TV programs	0.141
Web-based sources	0.134
Total	1.000

The foregoing tables indicate that there is scope for increasing interventions in some of the sites. However, it is not yet clear which sites should be prioritized and what kinds of interventions should be targeted at these sites. To help in such an analysis, we construct a matrix which ranks the various sites according to four elements: (i) the reported level of DOTS engagement, (ii) actual practice consistent with DOTS elements, (iii) the exposure of the replication site to interventions and (iv) the level of difficulty in implementing interventions in the sites.

The first two elements can be considered as the target outcomes of policy- the increase in the proportions of TB treating physicians who not only report awareness and adoption of DOTS but also actually practice the elements of DOTS. The reported level of DOTS engagement includes the extent physicians are aware of, report adoption of and or report being certified DOTS referring physicians or providers in a replication site. The actual practice of DOTS elements considers the extent of physician knowledge, as measured by mean vignette scores and passing rates, and usage of DOTS protocols in case finding and case holding. Also included here are directly observed treatment aspects and recording and monitoring. Sites which rank relatively low in these aspects are therefore the natural targets of increased interventions by PhilTIPS.

The third element measures the extent to which interventions have reached TB treating physicians. Sites are ranked according to (i) the proportions of physicians who have had TB DOTS training, (ii) the proportions of physicians who are aware of the TB-DOTS

package and (iii) the proportions of physicians who acquired information on TB in the last year. This element can in turn be related to the target outcomes. Those who have low outcomes and low interventions can then be the focus of future undertakings. However, those with low outcomes and yet a high level of exposure to interventions may indicate areas where improvements in interventions may be necessary in terms of targeting or content.

The last element recognizes that implementing interventions in some sites may be much more difficult, and thus more costly, than in others. One factor that would impact on the level of difficulty is the sheer size of the TB treating physician population. Thus, replication sites are ranked according to the number of reference physicians. Another factor relates to the difficulty in locating these physicians, either through their places of work or through the physician organizations. General practitioners, who are more likely practicing in free-standing clinics and who are not likely to be members of specialty societies, would therefore be more difficult to locate and target. Thus, the proportion of general practitioners among the reference population is also used as an indicator. Response rates per site, and proportion of physicians who allowed themselves to be interviewed as a proportion of the total roster, are also included as an indicator of the level of difficulty. Presumably, those who declined to be interviewed are either busy or not predisposed to new ideas.

Tables 127 to 130 show the matrices for each of the elements. For each item or indicator for each element, the sites are ranked and divided equally into three groups; high, medium and low. Sites are assigned numeric values according to these rankings, 1 for high, 2 for medium and 3 for low. These values are added across indicators; lower numbers thus indicate relatively high rankings for the element. These sums are then used to construct tercile cutoffs, which are then used to finally rank sites according to high, medium and low.

Table 127 indicates that by the selected measures of level of engagement, Bacolod, Batangas, Cebu, Cotabato and Ozamis cities rank the lowest.

Table 127. Sites by reported level of DOTS engagement

City	Awareness of TB DOTS	Adoption of TB DOTS	Certified DOTS referring physician	Certified DOTS providers	Overall
Angeles	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Bacolod	LOW	LOW	MEDIUM	LOW	LOW
Bacoor	HIGH	HIGH	LOW	LOW	MEDIUM
Batangas	MEDIUM	MEDIUM	LOW	LOW	LOW
Cabanatuan	HIGH	HIGH	HIGH	MEDIUM	HIGH
Cagayan de Oro	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu	LOW	LOW	MEDIUM	MEDIUM	LOW
Cotabato	MEDIUM	MEDIUM	LOW	LOW	LOW
Dagupan	HIGH	HIGH	LOW	LOW	MEDIUM
Davao	HIGH	HIGH	HIGH	LOW	HIGH
Dumaguete	LOW	LOW	MEDIUM	HIGH	MEDIUM
Iloilo	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
Laoag	HIGH	HIGH	MEDIUM	HIGH	HIGH
Lucena	HIGH	HIGH	LOW	MEDIUM	MEDIUM
Manila	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM
Naga	LOW	LOW	HIGH	MEDIUM	MEDIUM
Ozamis	LOW	LOW	LOW	HIGH	LOW
Puerto Princesa	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
Quezon	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Roxas	HIGH	HIGH	HIGH	LOW	HIGH
Tacloban	LOW	LOW	MEDIUM	HIGH	MEDIUM
Zamboanga	LOW	LOW	MEDIUM	HIGH	MEDIUM

Ozamis City also ranks low as far as the practice of DOTS elements. The other site that ranks low is Zamboanga City.

Table 128. Sites by actual practice of DOTS elements

City	Use Sputum	Prescription Coincides with SCC	Vignette Score	Passing Rate	Written Report	Separate Records	Overall
Angeles	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM
Bacolod	MEDIUM	HIGH	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
Bacoor	LOW	HIGH	MEDIUM	LOW	HIGH	LOW	MEDIUM
Batangas	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	HIGH
Cabanatuan	LOW	LOW	MEDIUM	LOW	MEDIUM	HIGH	MEDIUM
Cagayan de Oro	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM
Cotabato	MEDIUM	LOW	HIGH	HIGH	LOW	LOW	MEDIUM
Dagupan	HIGH	HIGH	HIGH	HIGH	LOW	LOW	HIGH
Davao	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	HIGH	MEDIUM
Dumaguete	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	MEDIUM
Iloilo	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM
Laoag	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Lucena	HIGH	MEDIUM	LOW	MEDIUM	HIGH	LOW	MEDIUM
Manila	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Naga	HIGH	MEDIUM	HIGH	LOW	LOW	HIGH	MEDIUM
Ozamis	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Puerto Princesa	HIGH	LOW	HIGH	HIGH	LOW	HIGH	HIGH
Quezon	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM
Roxas	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	HIGH	HIGH
Tacloban	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM
Zamboanga	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW

The big cities such as Manila, Quezon City, Cebu and Bacoor have low exposure to the selected interventions. However, the cities of Ozamis, Dumaguete, and Zamboanga also have low exposure to interventions.

Table 129. Sites by exposure to interventions

City	Awareness of PHIC TB-DOTS package	Training in TB-DOTS	Obtained TB information in the last year	Overall
Angeles	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Bacolod	MEDIUM	MEDIUM	HIGH	MEDIUM
Bacoor	LOW	LOW	MEDIUM	LOW
Batangas	HIGH	HIGH	HIGH	HIGH
Cabanatuan	HIGH	HIGH	MEDIUM	HIGH
Cagayan de Oro	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Cebu	LOW	LOW	LOW	LOW
Cotabato	HIGH	LOW	HIGH	MEDIUM
Dagupan	MEDIUM	LOW	LOW	LOW
Davao	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Dumaguete	LOW	MEDIUM	LOW	LOW
Iloilo	LOW	MEDIUM	MEDIUM	MEDIUM
Laoag	HIGH	HIGH	HIGH	HIGH
Lucena	HIGH	HIGH	MEDIUM	HIGH
Manila	LOW	LOW	LOW	LOW
Naga	HIGH	HIGH	LOW	MEDIUM
Ozamis	MEDIUM	LOW	LOW	LOW
Puerto Princesa	HIGH	HIGH	HIGH	HIGH
Quezon	LOW	MEDIUM	LOW	LOW
Roxas	MEDIUM	HIGH	HIGH	HIGH
Tacloban	MEDIUM	MEDIUM	HIGH	MEDIUM
Zamboanga	LOW	LOW	MEDIUM	LOW

From the selected indicators of level of difficulty, it can be seen that the big cities such as Manila and Quezon City are difficult sites. However, Angeles is also a difficult site based on the response rate and the proportion of general practitioners.

Table 130. Sites by level of difficulty of interventions

	Response rate	Number of reference MDs	Proportion of GPs	Overall
Angeles	HIGH	MEDIUM	HIGH	HIGH
Bacolod	HIGH	HIGH	LOW	MEDIUM
Bacoor	HIGH	MEDIUM	MEDIUM	MEDIUM
Batangas	HIGH	LOW	LOW	LOW
Cabanatuan	MEDIUM	MEDIUM	HIGH	MEDIUM
Cagayan de Oro	MEDIUM	HIGH	MEDIUM	MEDIUM
Cebu	MEDIUM	HIGH	MEDIUM	MEDIUM
Cotabato	LOW	LOW	LOW	LOW
Dagupan	MEDIUM	LOW	HIGH	MEDIUM
Davao	MEDIUM	HIGH	MEDIUM	MEDIUM
Dumaguete	LOW	LOW	HIGH	LOW
Iloilo	MEDIUM	HIGH	LOW	MEDIUM
Laoag	LOW	LOW	HIGH	LOW
Lucena	HIGH	MEDIUM	MEDIUM	MEDIUM
Manila	HIGH	HIGH	MEDIUM	HIGH
Naga	LOW	MEDIUM	LOW	LOW
Ozamis	MEDIUM	LOW	HIGH	MEDIUM
Puerto Princesa	LOW	LOW	MEDIUM	LOW
Quezon	HIGH	HIGH	MEDIUM	HIGH
Roxas	LOW	MEDIUM	LOW	LOW
Tacloban	MEDIUM	MEDIUM	LOW	LOW
Zamboanga	LOW	MEDIUM	HIGH	MEDIUM

Table 131 summarizes these results. It can be seen from the table that some areas where it is relatively easy to implement interventions have already high levels of exposure. Examples are Batangas City, Laoag City, Puerto Princessa City, and Roxas City. It is notable that outcomes in these areas are also high. PhilTIPS can perhaps concentrate on areas with low levels of outcomes and exposure to interventions where the level of difficulty implementing such interventions is not that high. One such area is Ozamis City. Other areas with low outcomes, relatively low exposure to interventions and where level of difficulty is medium include the cities of Cebu, Cotabato, and Zamboanga. Manila and Quezon City are ranked medium when it comes to outcomes, have low levels of exposure to interventions perhaps due to the high level of difficulty intervening in these sites. While PhilTIPs can intervene in areas with medium outcomes, medium rank in terms of interventions and level of difficulty, the costs of interventions would be higher as the harder to reach areas are left.

Table 131. Summary site matrix

City	Level of engagement	Actual practice of DOTS elements	Exposure to interventions	Level of difficulty in implementing interventions
Angeles	MEDIUM	MEDIUM	MEDIUM	HIGH
Bacolod	LOW	MEDIUM	MEDIUM	MEDIUM
Bacoor	MEDIUM	MEDIUM	LOW	MEDIUM
Batangas	LOW	HIGH	HIGH	LOW
Cabanatuan	HIGH	MEDIUM	HIGH	MEDIUM
Cagayan de Oro	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Cebu	LOW	MEDIUM	LOW	MEDIUM
Cotabato	LOW	MEDIUM	MEDIUM	LOW
Dagupan	MEDIUM	HIGH	LOW	MEDIUM
Davao	HIGH	MEDIUM	MEDIUM	MEDIUM
Dumaguete	MEDIUM	MEDIUM	LOW	LOW
Iloilo	HIGH	MEDIUM	MEDIUM	MEDIUM
Laoag	HIGH	HIGH	HIGH	LOW
Lucena	MEDIUM	MEDIUM	HIGH	MEDIUM
Manila	MEDIUM	MEDIUM	LOW	HIGH
Naga	MEDIUM	MEDIUM	MEDIUM	LOW
Ozamis	LOW	LOW	LOW	MEDIUM
Puerto Princesa	HIGH	HIGH	HIGH	LOW
Quezon	MEDIUM	MEDIUM	LOW	HIGH
Roxas	HIGH	HIGH	HIGH	LOW
Tacloban	MEDIUM	MEDIUM	MEDIUM	LOW
Zamboanga	MEDIUM	LOW	LOW	MEDIUM

V. Summary

This report has sought to present the findings of the survey on TB case finding and management practices of private physicians conducted in line with the following study objectives: (i) generate a profile of private physicians who provide adult TB and TB-DOTS services, (ii) examine private physician TB case management practices across practice settings and specialization, with particular attention to variations in TB DOTS protocols, and (iii) examine private physician capacity to provide DOTS services across practice settings and specializations.

Roster validation activities generated a physician roster of 2,552 physicians in the replication sites. While the entire physician roster was enumerated during survey operations in order to meet the PhilTIPS mandated target number of respondent physicians, complete enumeration was hindered by (i) refusals and (ii) non-availability during the interview period. Thus, a total of only 1535 physicians were interviewed. The presence of relatively high non-response rates in the physician dense sites of Manila and Quezon City necessitated the use of adjustment factors to mitigate the impact of non-response. To account for refusals and non-availability (sampling) probability weights were thus employed as adjustment factors.

Analysis of the survey responses revealed the following relevant findings and their implications, on the profile of private physicians providing adult TB services, variations in their TB case management and their capacity to provide DOTS services.

A. Physicians Providing Adult TB Services: profile and case management practices

- Not all physicians belonging to the reference specialties are TB treating, and physicians belonging to non-reference specialties do manage TB cases. The proportion of TB treating physicians varies across replication sites. It was also noted that in sites where implementing TB DOTS is less costly on the part of the patient (school-based and work-based clinics), less than 40 percent of physicians are TB treating.

    - ***Implications***: Programs and interventions targeted only at reference specialties may overlook a significant segment of TB treating physicians. From the proportion of TB treating physicians, this may not be too worrisome unless there are some sites where more TB treating physicians belong to the non-reference specialties.
    - ***Interventions***: The long term goal of interventions should be targeted to all physicians, although in the short-term, reference specialties could be prioritized. Provide at least information about TB-DOTS to non-TB treating physicians in school-based and work-based clinics.

- TB treating physicians see a significant number of patients, both in absolute terms and in relation to total patients. TB treating physicians see about one TB patient every other day, and about 1 in ten patients are TB patients.

    - ***Implication***: The private sector cannot be ignored in solving the TB problem. These numbers also have implications on the number of TB patients that are managed utilizing different protocols (non-DOTS).

- For non-TB treating physicians, only about 20 percent of adult suspect TB patients are referred to centers that utilize TB DOTS.

    - ***Implication***: There is scope for increasing referrals to facilities that practice TB-DOTS
    - ***Intervention***: Interventions can be designed so as to encourage non-TB treating physicians to refer to facilities that are most likely utilizing TB-DOTS in the management of patients.

- Of patients referred by TB treating physicians, majority are referred to other private providers for care, only about 1/3 are referred to DOTS utilizing centers. Among TB treating physicians, majority of referrals are to the public sector, hospitals and RHUs and CHOs. On the other hand, among non-TB treating physicians, referrals are confined to the private sector.

- On average, TB treating physicians do not have sufficient knowledge about TB-DOTS as indicated by vignette scores that are used to measure knowledge of clinical practice guidelines. TB treating physicians obtained average scores of 81 percent and only 60 percent reached the cutoff. The figures are slightly higher for TB treating physicians belonging to reference specialties; 83 percent average score and 69 percent reaching the cutoff. General practitioners posted lowest average vignette scores which are below the cutoff. Those in school-based clinics and other types of clinics had low vignette scores and low proportions exceeding the cutoff. Relating mean scores and passing rates with each other reveal distributional aspects of scores, i.e., some locations have low scores but high passing rates and higher mean scores but low passing rates. These imply wide variations in the vignette scores of physicians in some sites, with some exhibiting outliers at the low end of the range of scores and some sites showing outliers on the high end of the scores.

    - ***Implications***: If knowledge translates to actual practice, then the higher one's score is, the more faithful his TB practice is to the clinical elements of TB DOTS. Training for GPs needs to be prioritized over other reference specialties, also those for school-based and other types of clinics. A less than 100 percent passing rate in the vignette means that there is still insufficient knowledge about the clinical practice guidelines on TB-DOTS of TB-treating physicians. Variations in

scores across sites imply that knowledge of clinical practice guidelines remain uneven in some sites.
  - ***Interventions***: Training can be focused on those groups/sites that scored relatively low and whose passing rates are also low.

- About 45 percent of TB treating physicians still use x-ray exclusively as primary diagnostic tool for suspect TB patients, with variations across specialties, clinic types and location. HMO physicians report highest utilization of AFB smear.

  - ***Implication***: TB treating physicians are not yet conforming to the clinical practice guidelines regarding the management of pulmonary TB.
  - ***Interventions***: Training on, and dissemination of clinical practice guidelines may be warranted. Advocate a payment scheme in the TB-OP package that would pay for the sputum exam first and x-ray only for category III patients.

- Only about one-fourth of TB treating physicians belonging to the reference specialties employ treatment regimens that coincide with short-course chemotherapy (SCC) with infectious disease specialists and pulmonologists registering the highest proportions. Those in hospital OPDs and school based clinics also register low proportions.

  - ***Implication***: Application of the SCC is still limited among TB treating physicians. This coincides with the vignette scores and outcomes.
  - ***Interventions***: Training and dissemination of clinical practice guidelines may be warranted.

- About 31 percent of TB treating specialists among the reference specialists sees their TB patients for follow-up consultation after one month. Infectious disease specialists and pulmonologists are more likely to see their TB patients for follow-up consultations within one month after the start of treatment compared with other TB treating physicians belonging to the reference specialties.

- Majority of TB treating physicians among the reference specialist prefer fixed dose packaging.

  - ***Implication***: This is consistent with the DOTS preferred mode of packaging due to convenience.

- Indirect means of monitoring drug intake are employed by most TB treating physicians. Reports of treatment partners, either oral or written are employed by only 10 percent of TB treating MDs belonging to the reference specialties.

  - ***Implication***: Since only ten percent use a more reliable monitoring device, patient compliance may be lower for patients who see private physicians.

- Records of TB patients are not separated from records of all other patients. Less than 10 percent separate records. Physicians practicing in community based, school based and work-based clinics report the highest percentage.

    - ***Implications***: This could imply that the added costs of complying with reporting requirements may be high. Since records are not separated, getting an accurate measure of the prevalence of TB would be difficult. Compliance to the CUP requirements to submit summary records is likely to be low.
    - ***Interventions***: Sanctions can be imposed on physicians who do not submit summary reports. Design of sanctions should encourage that reports not only be submitted but that accurate reports be submitted as well.

- General practitioners have the most different profile of TB outcomes, reporting low completion rates and high failure rates. Patients lost to follow-up accounts for a non-trivial proportion of all TB patients, especially for general practitioners. TB outcomes are not necessarily related to vignette outcomes, as indicated by the TB outcomes by site.

    - ***Implications***: It is possible that the insufficient knowledge on TB DOTS, as indicated by vignette scores, translates into poor outcomes for general practitioners. The substantial proportion of patients lost to follow-up of general practitioners highlight the importance of more proactive monitoring of these patients. Knowledge of CPGs is necessary but not sufficient condition for achieving acceptable TB outcomes. Apart from knowledge of clinical practice guidelines, other factors such as patient monitoring and patient willingness to comply with the recommended protocol are important in achieving good TB outcomes.
    - ***Interventions***: More intensive training on clinical practice guidelines may be warranted for those groups who have low proportions of patients who complete treatment. In the short term, encouraging groups that have high proportions of patients lost to follow-up and/or low proportions of patients who complete treatment to refer patients to TB DOTS centers may improve TB outcomes.

- Variations exist for consultation fees and laboratory fees across specialties, type of clinic and location. Specialists charge higher than general practitioners, physicians in hospital based clinics charge higher than those in other types of clinics and the highest fees are charged in Quezon City. At current fees and actual services, the DOTS regimen is at least revenue neutral if not revenue enhancing for the private physician.

    - ***Implications***: With current fees, the DOTS regimen is just as expensive as the actual regimen. Flexible referring arrangements may have to be instituted (where physicians can retain management of the patients while avoiding the costs of monitoring and direct observation of drug intake).

With average monthly clinic expenses ranging from P10,000 to P17,000, the physician needs about 40 to 68 consultations a month to recover costs. The estimated fees for consults give the participation constraint for the physician to refer patients to DOTS centers. Using this analysis, while GPs have a lower participation constraint, they could be providing lower quality services, as evidenced by the vignettes.

- Estimates of average monthly incomes of physicians, which are most likely to be understated because of refusals, indicate the highest income for pulmonologists. Mean incomes vary substantially by location.

- About 78 percent of all TB treating physicians are accredited with either PHIC or private insurance with general practitioners showing the least proportion.

    - ***Implication***: If they do not have to be accredited to get reimbursement, then the potential of PHIC accreditation as a means to ensure compliance to clinical practice guidelines is reduced. Since most TB treating physicians are accredited and have experience with third party payors, the potential of insurance as a means to encourage TB DOTS is heightened.

B. TB DOTS Awareness and Adoption: Levels of engagement and case management variations across types of engagement

- About 70 percent of all MDs are aware of TB DOTS while about 72 percent of all TB treating MDs are aware of TB DOTS.

- While TB DOTS awareness rates are expected to be higher among TB treating doctors, this is not the case for general practitioners. There are wide variations in awareness rates across sites. There is a reduction in awareness rates as the base changes from all doctors to TB treating doctors. TB DOTS awareness is lowest among work-based doctors.

    - ***Implications***: General practitioners can be the focus or target of information campaigns. Information campaigns can be redirected toward certain sites. Changes in awareness rates in the sites (as the base changed from all doctors to TB treating doctors) could indicate that there were TB DOTS interventions that were not very well-targeted, i.e., interventions reached doctors who actually do not have a TB practice and should therefore have a low priority in terms of intervention targeting. If on the other hand, there were no interventions in these cities as of the time of the survey, these numbers would then indicate the potential TB referring doctors and TB treating physicians. There are some knowledgeable physicians who can be encouraged to refer to TB DOTS centers. There is scope for increasing awareness of TB-DOTS among work-based physicians considering that the costs to patients and physicians of implementing TB-DOTS in the workplace may be lower.

- Awareness of TB DOTS does not automatically translate to adoption, of all physicians who are aware, only about 29 percent adopt. While 78 percent of all TB treating MDs are aware, only about 35 percent report adoption. Adoption rates vary across sites.

    - ***Implications*:** Information is not everything. Other factors may come into play in influencing adoption.

- Out of those adopting TB DOTS among the reference specialties, the most common level of engagement is being a DOTS referring physician (52 percent), followed by being a DOTS provider (26 percent).

    - ***Implications***: Uneven proportions of certified DOTS referring physicians point to areas where efforts can be focused, i.e, general practitioners, hospital outpatient departments/ERs, free standing clinics.

- Reported awareness of DOTS tends to be positively associated with the total vignette score across reference specialties with pulmonologists obtaining the highest average total vignette score. Across the different replication sites, respondents who report awareness of DOTS tend achieve higher total vignette scores with physicians in Dagupan City obtaining the highest average total vignette score.

    - ***Implication***: Physicians who are aware of TB DOTS seem to show greater knowledge of clinical practice guidelines.

- The mean score of physicians who claim to adopt DOTS barely meets the cutoff rate of 82. About 60 percent of those who claim to adopt have scores exceeding the cutoff score. Among DOTS-engaged physicians, certified DOTS-referring physician have the highest aggregate vignette scores and passing rate while members of PHILCAT and PhilHealth certification committee have the lowest average score and passing rate. Quite unexpectedly, certified DOTS providers who are supposed to have had more intensive training on TB DOTS posted lower scores and passing rates relative to DOTS referring physicians.

    - ***Implication***: While DOTS engaged physicians have better knowledge about clinical practice guidelines than those who are not engaged, the knowledge that they possess still seems insufficient.
    - ***Intervention***: There may be a need for interventions that would reinforce the knowledge of physicians about clinical practice guidelines even among those who are already engaged in DOTS.

- Similar to the general trend, those who report adoption of DOTS tend to obtain higher total vignette scores across types of clinics and replication sites. Among respondent

physicians who report adoption of DOTS, those who also report certification as DOTS referring physicians tend to obtain higher total vignette scores

- Actual practice of DOTS elements is more prevalent among those who report DOTS awareness compared with those who do not, and for those who report DOTS adoption compared with those who are not adopting.
    - The proportion of those who use the sputum smear exam is higher among those who report awareness of DOTS. Awareness of DOTS however does not ensure adoption of the sputum smear exam as the diagnostic tool since 36.84 percent of the DOTS aware still exclusively use the x-ray test as the primary diagnostic tool. The proportion of those who use the sputum smear exam is higher among those who report adoption of DOTS compared to those who report non-adoption of DOTS. Again, reported adoption of DOTS does not necessarily lead to complete adoption of the sputum smear exam since 28 percent of those who report adoption of DOTS use x-ray tests exclusively.
    - The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is higher among physicians who report awareness of DOTS relative to those who do not. The proportion of physicians whose prescribed TB drug regimen coincides with the SCC is lower among physicians who report adoption of DOTS relative to those who do not.
    - Only around 10 percent of those who report awareness of DOTS check the treatment partner report. This indicates that reported awareness of DOTS may not necessarily lead to the application of more stringent methods of drug intake monitoring. The tabulations on differences of monitoring drug intake across levels of engagement so far suggest that the monitoring aspect may be harder to push compared to the clinical aspects of DOTS.
    - The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report awareness of DOTS appears to be higher compared to physicians who do not report awareness of DOTS. However, only around 37 percent of physicians who report DOTS awareness see their patient within the first month. The proportion of those who see their TB patients within two months after initiation of treatment among physicians who report adoption of DOTS appears to be slightly higher compared to physicians who do not report adoption of DOTS.
    - There are appears to be no difference in the preferred mode of TB drug packaging between physicians who report awareness of DOTS and physicians who do not.
    - ***Implication***: There seems to be a correlation between intentions and actual practice.

C. Determinants of Awareness and Adoption

- Regression results for reported awareness of TB-DOTS show that:

  - Those who are accredited with insurance are less likely to be aware than those who are not.
  - Doctors with more recent TB training, i.e., within the last year, are more likely to be aware of TB DOTS.
  - General practitioners, family medicine specialists, general internists, internists with subspecialty training, infectious disease specialists, and other specialists are less likely to be aware of TB DOTS compared to pulmonologists.
  - Hospital based physicians, including those in ER/OPDs, as well as those in work-based clinics are more likely to be aware of TB DOTS relative to those in free standing clinics.
  - Members of specialty societies and those engaged in teaching and research are also more likely to be aware.

  - ***Implications***: Information campaigns should target (i) older physicians, (ii) those who had less recent TB training, (iii) those in free-standing clinics, (iv) non-members or specialty societies, and (v) GPs, internists and other non-reference specialty physicians.

- Regression results for awareness of individual elements of DOTS indicate that

  - Members of specialty societies as well as those who are engaged in teaching and research are more likely to be aware of all the elements of TB DOTS. Those who have mixed practices are also more likely to be aware of the diagnosis and recording elements.
  - Physicians having more recent TB training are more likely to be aware of the directly observed treatment and continuous supply of drugs components of TB DOTS. More recent TB training however does not seem to make the physician more aware of the other TB DOTS elements.
  - While having multiple clinics increases the likelihood that a physician reports awareness of TB DOTS, the same association can not be observed with regards the component elements of TB DOTS. Thus physicians with multiple practices may just be as uninformed about TB DOTS compared to physicians with single clinics.

  - ***Implication*:** These results indicate that effort is still needed to raise the awareness and knowledge of physicians regarding TB DOTS, especially on its elements.

- Regressions of the likelihood of exceeding the cutoff vignette score indicate that:

    - Physicians who had training in TB DOTS were more likely to at least satisfy the cutoff score.
    - However, physicians who are currently aware of the PHIC TB DOTS package are less likely to make the cutoff. This implies that for these physicians to provide adequate DOTS services that can be reimbursed by PHIC, they would have to undergo further training.
    - As in the awareness models, younger physicians are more likely to make the cutoff score.
    - General internists as a whole are more likely to exceed the cutoff relative to all other specialties, while it is only in Manila where pulmonologists are more likely to make the cutoff relative to general internists. Those in hospital based clinics, including those in OPDs/ERs are also more knowledgeable.
    - Those with mixed practices are more likely to meet the cutoff score. This confirms the hypothesis that physicians holding public appointments have greater access to knowledge about tuberculosis.
    - The acquisition of DOTS knowledge is also driven by market forces. For every one percent change in the ratio of TB patients to all patients, the likelihood of making the cut increases by almost 14 percent.

    - ***Implications*:** Benefit considerations matter; physicians with larger TB patient to total patient ratios seek knowledge on clinical practice guidelines. However, awareness of the PHIC TB out-patient benefit package may not increase physician knowledge without corresponding interventions providing TB DOTS training.

- Regression results for reported adoption indicate that:

    - Physicians with multiple clinics are more likely to adopt TB DOTS.
    - Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to adopt TB DOTS. This may indicate that the PHIC TB out-patient benefit package does represent a financial incentive for physicians to adopt TB DOTS and thus can be used to motivate greater private physician participation in the provision of TB DOTS.
    - Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to adopt TB DOTS. This indicates that training from PhilCAT or PhilTIPS does convince physicians of the merits of DOTS.
    - Similar to the case of TB DOTS awareness, physicians who had less recent TB training were less likely to adopt TB DOTS. These results lend credence to the validity of conducting TB DOTS information dissemination among physicians.

- Physicians practicing in clinics with x-ray machines were less likely to adopt while physicians practicing in clinics with sputum collecting equipment are more likely to adopt TB DOTS.
- Pulmonologists are also more likely to adopt TB DOTS compared to physicians engaged in other clinical specialties. This is interesting since the logit regression of vignette scores indicated that pulmonologists were not more knowledgeable of clinical practice guidelines.
- Physicians in work-based clinics are more likely to adopt TB DOTS. This result gives indications that work based DOTS programs may be starting to reap some modicum of success.

- ***Implication***: Again, the results indicate that financial incentives such as the PHIC TB out-patient benefit package are viewed favorably by physicians and serve as motivation for TB DOTS adoption. Coupled with the result that TB DOTS training is positively associated with TB DOTS adoption, these herald positive developments that should influence the direction of TB DOTS interventions.

- Regression results for physicians seeking certification as DOTS referring physicians indicate that:

  - Physicians who have insurance accreditation are more likely to seek certification as DOTS referring physicians.
  - Physicians with multiple clinics, who are more likely to have a larger TB patient load and a larger number of PHIC covered patients, are more likely to seek certification as DOTS referring physicians. Consequently, these physicians may be more attracted to the financial incentive (PHIC TB out-patient benefit package payments) that certification as DOTS referring physician brings.
  - Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS referring physicians.
  - Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS referring physicians. This indicates that training from PhilCAT or PhilTIPS not only convinces physicians of the clinical merits but also of the financial merits of TB DOTS.
  - Physicians practicing in clinics with x-ray machines are less likely to seek certification while physicians practicing in clinics with sputum collecting equipment are more likely to seek certification as DOTS referring physicians.
  - Pulmonologists are also more likely to seek certification as DOTS referring physicians.
  - Physicians based in HMO clinics and hospital OPD/emergency rooms are more likely to seek certification as DOTS referring physicians.

- Physicians who had less recent TB training are less likely to seek certification as DOTS referring physicians.

- Regression results for physicians seeking certification as DOTS providers indicate that:

  - Physicians who have insurance accreditation are more likely to seek certification as DOTS providers.
  - Physicians who report awareness of the PHIC TB out-patient benefit package are more likely to seek certification as DOTS providers.
  - Physicians who have received TB DOTS training from PhilCAT or PhilTIPS are more likely to seek certification as DOTS providers.
  - This is further supported by the result that physicians practicing in clinics with x-ray machines were less likely to seek certification while physicians practicing in clinics with sputum collecting equipment were more likely to seek certification as DOTS providers.

  - ***Implication***: These results indicate that financial incentives influence physician behavior to the extent that physicians seek DOTS certification, an activity that certainly incurs some costs.

- Results on the use of AFB sputum smear indicate that:

  - Physicians accredited with private insurance firms (including HMO accreditation) are less likely to use the AFB sputum smear exam.
  - Members of specialty societies are more likely to use the AFB sputum smear exam. This is probably due to the "quality" consideration where members of specialty societies have greater exposure to clinical practice guidelines.
  - Physicians who are aware of the PHIC TB out-patient benefit package but perform poorly in the vignette (low vignette diagnosis scores) as well as physicians who perform well in the vignette but are not aware of the PHIC TB out-patient benefit package are less likely to use the AFB sputum smear exam. The opposite result is observed with respect to physicians who are aware of the PHIC TB out-patient benefit package and perform well in the vignette (high vignette diagnosis scores).
  - Physicians who are older or had less recent TB training are also less likely to apply the AFB sputum smear exam. This indicates that the use of the AFB smear exam is a relatively recent development.

  - ***Implication****:* These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the AFB sputum smear exam.

- Results on regressions for the use of the SCC regimen indicate that:

    - Teaching physicians are more likely to use the SCC as drug regimen. This coincides with the result that physicians who had less recent TB training are also less likely to apply the SCC.
    - Physicians with greater TB patient densities (greater proportion of TB patients relative to total patients) are less likely to prescribe the SCC. This probably reflects the institutional paradigm that physicians with greater clinical experience tend to follow their own treatment regimen.
    - Physicians who are aware of the PHIC TB out-patient benefit package are less likely to use the SCC drug regimen.
    - However, physicians who are both aware of the PHIC TB out-patient benefit package and perform well in the vignette (high vignette drug scores) are more likely to use the SCC drug regimen.

    - ***Implication***: These results indicate that awareness of financial incentives and knowledge of clinical practice guidelines are both needed to motivate physicians to apply the SCC drug regimen.

- Results for separation of TB patient records show that:

    - Physicians accredited with private insurance firms (including HMO accreditation) are less likely to separate records of TB patients.
    - Members of specialty societies are more likely to separate the records of TB patients.
    - Physicians who own the clinic practice are less likely to separate the records of TB patients. This probably stems from the greater effort and possibly cost of maintaining separate records.
    - Physicians however with greater TB patient densities (high proportion of TB patients relative to total patients) are more likely to separate the records of TB patients.
    - Physicians trained by PhilTIPS are more likely to separate the records of TB patients.
    - Physicians who are aware of the PHIC TB out-patient benefit package are more likely to separate the records of TB patients. This indicates that awareness of financial incentives may motivate physicians to separate the records of TB patients.
    - Physicians who perform well in the vignettes however are less likely to separate the records to TB patients.

    - ***Implication***: This indicates that knowledge of clinical practice guidelines or the clinical aspects of DOTS may not necessarily translate into knowledge of the non-clinical elements of DOTS.

- Results for monitoring drug intake via treatment partner report show that:

    - Physicians with multiple clinics are more likely to monitor daily drug intake using the treatment partner report.
    - Physicians engaged in teaching and research are more likely to monitor daily drug intake using the treatment partner report.
    - Likewise, private physicians who also have clinical practices in public health facilities are more likely to monitor daily drug intake using the treatment partner report.
    - Physicians who are aware of the PHIC TB out-patient benefit package are more likely to monitor daily drug intake using the treatment partner report.

    - ***Implications***: These results show that individually, neither awareness of financial incentives nor knowledge of clinical practice guidelines may be sufficient to ensure physician practice of TB DOTS in its entirety. Interventions have to be instituted so that these provide not only financial incentives but knowledge as well. Furthermore, the results indicate that each aspect of TB DOTS has to be given separate thought particularly since knowledge of the clinical aspect of TB DOTS does not necessarily translate to knowledge of the non-clinical aspects of TB DOTS**.**

D. Intervention Points

- About two-thirds of physicians obtained TB information in the last year. However, there are still about fifteen percent obtained who TB information more than five years ago. Among the reference specialties, pulmonologists show the greatest proportion of physicians who obtained TB training relatively recently while general practitioners show the lowest proportion of obtaining TB information in the last year.

- Only slightly more than a fourth of TB treating physicians has had training in TB-DOTS. For reference specialties, this figure is at about 35 percent.

    - ***Implications***: There is therefore significant room for the expansion of training programs. Such programs can be directed at general practitioners, family medicine specialists and internists as these groups exhibit the lowest proportion of those who have had training. Expansion of training programs can also be directed at the third of pulmonologists who have had no training in TB-DOTS.

- Only about 36 percent of all TB treating physicians are aware of the PHIC package. Internists with subspecialties are the least aware, followed by general practitioners, family medicine specialists and general internists. Lower proportions of physicians in work-based clinics, free-standing clinics and hospital outpatient departments or ERs are aware of the package.

- ***Implications***: Information campaigns on the TB-DOTS package can be targeted to these specialties.
- There is scope for expanding joint efforts with the PHIC for information about the package as only about 5 percent of physician got their information from PHIC.

- PhilTIPS can perhaps concentrate on areas with low levels of outcomes and exposure to interventions where the level of difficulty implementing such interventions is not that high. One such area is Ozamis City. Other areas with low outcomes, relatively low exposure to interventions and where level of difficulty is medium include cities of Cebu, Cotabato, and Zamboanga.

While PhilTIPs can intervene in areas with medium outcomes, medium rank in terms of interventions and level of difficulty, the costs of interventions would be higher in the areas which are more difficult to reach.

VI. Appendix I Technical Tables

A. Roster and Respondent Profile

Table 1.Type of Sample
Base: All MDs

Sample type	N	%
PhilTIPS Sample	507	33.03
PhilTIPS Replacement	748	48.73
PhilTIPS +	128	8.34
Snowball	152	9.90
Total	1,535	100.00

Table 2.Snowball vs. roster-identified
Base: All MDs

Sample type	N	%
Roster-identified	1,383	90.10
Snowball	152	9.90
Total	1,535	100.00

Table 3.Number of excluded specialties by site
Base: All MDs

City	%	N
Angeles	0.00	41
Bacolod	11.11	54
Bacoor	0.00	16
Batangas	0.00	11
Cabanatuan	0.00	29
Cagayan de Oro	44.81	154
Cebu	8.28	157
Cotabato	43.75	16
Dagupan	6.67	15
Davao	3.82	157
Dumaguete	5.00	20
Iloilo	2.65	113
Laoag	5.56	18
Lucena	0.00	9
Manila	5.56	144
Naga	0.00	30
Ozamis	6.25	16
Puerto Princesa	28.57	21
Quezon	3.38	325
Roxas	49.09	55
Tacloban	58.24	91
Zamboanga	4.65	43
Total	14.01	1,535

Table 4.Projected number of physicians by specialty
Base: All MDs

Specialty	Raw	Projected
General Practice	324	573
Family Medicine	230	316
General Internal Medicine	310	796
Internal Medicine w/ Subspecialty	266	837
Pulmonology	154	263
Infectious Disease	36	51
Pediatrics	59	1181
Obstetrics/Gynecology	43	456
Anesthesiology	20	201
Ear, Nose and Throat	9	159
Opthalmology	8	11
Orthopedics	5	7
Pathology	5	8
Psychiatry	3	47
Radiology	11	254
Surgery	48	874
Community Medicine	2	54
Other Specialties	2	149
Total	1,535	6,237

Table 5.Physicians by Gender
Base: All MDs

Gender	Wtd. %	N
Male	50.97	746
Female	49.03	789
Total	100.00	1,535

Table 6.Physicians by Religion
Base: All MDs

Religion	Wtd. %	N
Roman Catholic	85.50	1,283
Protestant	4.67	104
Iglesia ni Kristo	1.02	26
Islam	0.87	17
Aglipay	0.30	10
Born-again Christian	4.17	47
Others	2.80	32
Adventist	0.54	11
Mormon	0.04	2
Jehovah's Witness	0.06	2
None	0.02	1
Total	100.00	1,535

Table 7.Physicians by Region
Base: All MDs

Region	Wtd. %	N
Ilocos Region	2.05	33
Central Luzon	1.76	70
Southern Tagalog	1.78	57
Bicol Region	0.59	30
Western Visayas	9.68	222
Central Visayas	10.95	177
Eastern Visayas	1.89	91
Western Mindanao	1.67	43
Northern Mindanao	3.82	170
Southern Mindanao	7.63	157
Central Mindanao	0.61	16
NCR	57.56	469
Total	100.00	1,535

Table 8.Physicians by location of medical school
Base: All MDs

Location	Wtd. %	N
Metro Manila	62.24	721
Visayas	27.39	555
Mindanao	3.69	130
Luzon excluding NCR	6.37	117
US/UK	0.28	6
Others	0.02	1
Total	100.00	1,530

Table 9.Physicians by years of practice
Base: All MDs

Years of practice	Wtd. %	N
Less than 5 years	8.33	167
5 to less than 10 years	17.77	311
10 to less than 20 years	29.12	567
20 to less than 30 years	22.60	257
30 years and more	22.18	221
Total	100.00	1,523

Table 10.Physicians by location of residency training
Base All MDs

Location	Wtd. %	N
Metro Manila	61.33	548
Visayas	20.76	373
Mindanao	8.98	163
Luzon excluding NCR	3.97	83
US/UK	2.28	46
Asia	0.02	1
Others	2.66	4
Total	100.00	1,218

Table 11.Physicians by location of subspecialty training
Base: All MDs

Location	Wtd. %	N
Metro Manila	73.93	462
Visayas	1.31	13
Mindanao	0.22	3
Luzon excluding NCR	0.99	8
US/UK	14.75	47
Asia	0.73	8
Others	8.07	8
Total	100.00	549

Table 12.Physicians by status in specialty society (G13.1)
Base: All MDs

Status	Wtd. %	N
Regular member	48.84	479
Associate member	5.61	96
Diplomate	13.29	147
Fellow	31.30	451
Others	0.96	26
Total	100.00	1,199

Table 13.Physicians by status in specialty society (G13.2)
Base: MDs who are members of a specialty or subspecialty society

Status	Wtd. %	N
Regular member	18.99	228
Associate member	2.52	60
Diplomate	4.43	71
Fellow	18.54	223
Others	3.81	11
98	51.71	606
Total	100.00	1,199

B. Professional position, PHIC and insurance accreditation

Table 14.Proportion of physicians with professional positions or appointments, by specialty
Base: All MDs

Specialty	Proportion	N
General Practice	0.288	321
Family Medicine	0.349	226
General Internal Medicine	0.371	308
Internal Medicine w/ Subspecialty	0.552	265
Pulmonology	0.533	152
Infectious Disease	0.706	36
Pediatrics	0.338	59
Obstetrics/Gynecology	0.210	43
Anesthesiology	0.774	20
Ear, Nose and Throat	0.025	9
Opthalmology	0.519	8
Orthopedics	0.489	4
Pathology	0.320	5
Psychiatry	0.939	3
Radiology	0.103	11
Surgery	0.563	48
Community Medicine	0.500	2
Other Specialties	1.000	2
All	0.419	1522

Table 15.Proportion of physicians by type of professional position/appointment
Base: All MDs with professional positions/appointments

Professional Position / Appointment	Proportion	N
Teaching faculty	0.534	643
Research	0.044	643
Hospital administration	0.095	643
Officer of professional society	0.192	643
Government official	0.069	643
Government employee	0.076	643
Others	0.232	643
Consultant	0.006	643
HMO Coordinator	0.003	643
Medical examiner surgery	0.001	643
Medical mission coordinator	0.001	643

Table 16.Proportion of MDs that are PhilHealth-accredited, by specialty, Base: All MDs

Specialty	Proportion	N
General Practice	0.397	318
Family Medicine	0.611	223
General Internal Medicine	0.718	306
Internal Medicine w/ Subspecialty	0.883	265
Pulmonology	0.884	150
Infectious Disease	0.790	36
Pediatrics	0.814	59
Obstetrics/Gynecology	0.676	43
Anesthesiology	0.977	20
Ear, Nose and Throat	0.991	9
Opthalmology	0.906	8
Orthopedics	1.000	5
Pathology	0.000	5
Psychiatry	1.000	3
Radiology	0.603	10
Surgery	0.900	48
Community Medicine	0.500	2
Other Specialties	1.000	2
All	0.772	1512

Table17.Proportion of MDs that are PhilHealth-accredited, by clinic type Base: All MDs

Clinic type	Proportion	N
Free-standing	0.694	593
Hospital-based	0.915	641
Hospital-Outpatient/ER	0.762	166
HMO-based	0.458	35
Community-based	0.636	15
School-based/University-based/ER	0.811	25
Work-based	0.541	25
Others	0.643	12
All	0.772	1512

Table 18.Proportion of MDs that are PhilHealth-accredited, by city
Base: All MDs

City	Proportion	N
Angeles	0.622	40
Bacolod	0.738	54
Bacoor	0.314	16
Batangas	0.920	11
Cabanatuan	0.620	29
Cagayan de Oro	0.792	152
Cebu	0.762	155
Cotabato	0.660	15
Dagupan	0.957	14
Davao	0.804	153
Dumaguete	0.824	20
Iloilo	0.879	110
Laoag	0.304	18
Lucena	1.000	8
Manila	0.599	143
Naga	0.791	30
Ozamis	0.484	16
Puerto Princesa	0.712	21
Quezon	0.823	319
Roxas	0.785	55
Tacloban	0.877	90
Zamboanga	0.864	43
All	0.772	1512

Table 19.Proportion of MDs that are accredited by private insurance companies, by specialty
Base: All MDs

Specialty	Proportion	N
General Practice	0.217	318
Family Medicine	0.448	224
General Internal Medicine	0.553	306
Internal Medicine w/ Subspecialty	0.603	263
Pulmonology	0.566	152
Infectious Disease	0.550	36
Pediatrics	0.330	58
Obstetrics/Gynecology	0.497	43
Anesthesiology	0.188	20

Specialty	Proportion	N
Ear, Nose and Throat	0.034	9
Opthalmology	0.470	8
Orthopedics	1.000	5
Pathology	0.000	5
Psychiatry	0.939	3
Radiology	0.016	11
Surgery	0.651	48
Community Medicine	1.000	2
Other Specialties	0.007	2
All	0.438	1513

Table 20.Proportion of MDs that are accredited by private Insurance Companies, by clinic type
Base: All MDs

Clinic type	Proportion	N
Free-standing	0.248	597
Hospital-based	0.595	638
Hospital-Outpatient/ER	0.606	165
HMO-based	0.951	35
Community-based	0.471	15
School-based/University-based/ER	0.201	26
Work-based	0.529	25
Others	0.286	12
All	0.438	1513

Table 21.Proportion of MDs that are accredited by private insurance Companies, by city
Base: All MDs

City	Proportion	N
Angeles	0.479	41
Bacolod	0.474	54
Bacoor	0.314	16
Batangas	0.427	11
Cabanatuan	0.450	29
Cagayan de Oro	0.457	153
Cebu	0.603	155
Cotabato	0.205	15
Dagupan	0.072	14
Davao	0.492	153
Dumaguete	0.164	20
Iloilo	0.351	111
Laoag	0.266	17
Lucena	0.615	8
Manila	0.426	143
Naga	0.542	30
Ozamis	0.397	16
Puerto Princesa	0.452	21
Quezon	0.419	319
Roxas	0.504	55
Tacloban	0.633	89
Zamboanga	0.218	43
All	0.438	1513

C. Training and general sources of information

Table 22.Physicians who attended specific seminars/training
Base: All MDs

Training	Proportion	N
Evidence-based medicine	0.723	1,520
Infectious disease management	0.595	1,517
Others	0.372	1,482

Table 23.Physicians by most frequently used source of information
Base: All MDs

Source of information	Wtd. %	N
Medical journals	71.25	1,019
Medical handbooks	4.60	72
Pharmaceutical brochures	11.32	68
Purely web-based sources	10.21	205
Consultations with other MDs	0.88	24
Radio, TV programs	0.06	2
DOH publications/circulars	0.80	24
Others	0.82	30
Medical seminars	0.06	3
Total	100.00	1,447

Table 24.Distribution of physicians who utilize reference materials for drug dosaging during patient consultation
Base: All MDs

Reference materials for drug dosaging	Wtd. %	N
Does not utilize	8.73	196
Does utilize	91.27	1,327
Total	100.00	1,523

Table 25.Physicians who utilize reference materials for drug dosaging, by type of material
Base:

Source of information	Proportion	N
MIMs	0.928	1,327
Medical handbooks	0.252	1,327
My own formulary	0.120	1,327
Hospital or medical school formulary	0.127	1,327
Purely web-based materials	0.043	1,327
Clinical practice guidelines/management algorithms	0.205	1,327
Others	0.140	1,327
Medical textbooks	0.013	1,327

Table 26.Physicians by instance of last continuing medical education activity attended
Base: All MDs

Last CME attended	Wtd. %	N
Less than a year ago	88.36	1,404
1 to less than 3 years ago	7.89	81
3 to less than 5 years ago	1.38	16
5 or more years ago	2.37	22
Total	100.00	1,523

Table 27.Physicians by last continuing medical education activity attended
Base: All MDs

CME type	Wtd. %	N
Medical convention	60.08	818
Seminars	10.83	181
Refresher courses	0.31	10
Short-term training courses	1.65	30
Special lectures, symposia	21.56	410
Others	2.59	58
Post-graduate courses	2.98	15
Total	100.00	1,522

D. Vignette completion and source of TB information

Table 28.Length of time to complete vignettes
Base: All MDs

Completion time in minutes	Wtd. %	N
1-5	8.33	145
6-10	50.29	782
11-15	31.21	415
16-20	6.49	119
21 or more	3.68	51
Total	100.00	1,512

Table 29.Length of time since last information on TB management was received
Base: All MDs

TB Information Years	Wtd. %	N
Less than a year ago	58.29	1,059
1 to less than 3 years ago	21.66	264
3 to less than 5 years ago	1.88	48
5 or more years ago	18.16	155
Total	100.00	1,526

Table 30.Primary source of information on adult pulmonary TB management
Base : All MDs

Source of information	Wtd. %	N
Medical journals	15.92	226
Medical handbooks	3.15	42
Pharmaceutical brochures/medical representatives	3.19	45
Medical textbooks	7.60	47
Web-based sources	2.93	21
Consultations with other MDs	4.26	48
Radio, TV programs	0.09	4
DOH publications/circulars	2.05	58
Medical conventions	22.50	382
Special lectures/symposia	27.44	430
Others	8.45	152
Seminars	2.41	70
Total	100.00	1,525

E. MD clinic location

Table 31.Proportion of MDs with more than one clinic, by type of facility
Base: MDs who hold clinic in other facilities

Type of facility	Proportion	N
Private hospital-based	0.482	771
Stand-alone clinic	0.383	771
Community-based clinic	0.030	771
Work-based clinic	0.144	771
HMO clinic	0.026	771
Government hospital	0.227	771
Private hospital outpatient dept. or ER	0.060	771
Others	0.085	771

Table 32.Distribution of physicians holding clinic in other facilities, by specialty
Base: All MDs

Specialty	Proportion	N
General Practice	0.361	322
Family Medicine	0.604	226
General Internal Medicine	0.539	309
Internal Medicine w/ Subspecialty	0.653	265
Pulmonology	0.631	152
Infectious Disease	0.511	36
Pediatrics	0.610	59
Obstetrics/Gynecology	0.500	43
Anesthesiology	0.191	20
Ear, Nose and Throat	0.955	9
Opthalmology	0.386	8
Orthopedics	0.621	5
Pathology	0.624	5
Psychiatry	0.062	3
Radiology	0.032	11
Surgery	0.666	48
Community Medicine	0.500	2
Other Specialties	1.000	2
All	0.559	1525

Table 33.Distribution of physicians holding clinic in other facilities, by clinic type
Base: All MDs

Clinic type	Proportion	N
Free-standing	0.535	603
Hospital-based	0.591	642
Hospital-Outpatient/ER	0.682	167
HMO-based	0.372	35
Community-based	0.717	15
School-based/University-based/ER	0.365	26
Work-based	0.507	25
Others	0.696	12
All	0.559	1525

Table 34.Distribution of physicians holding clinic in other facilities, by city
Base: All MDs

City	Proportion	N
Angeles	0.562	41
Bacolod	0.243	54
Bacoor	0.778	16
Batangas	0.433	11
Cabanatuan	0.843	29
Cagayan de Oro	0.454	153
Cebu	0.616	155
Cotabato	0.038	15
Dagupan	0.943	14
Davao	0.158	155
Dumaguete	0.667	20
Iloilo	0.417	113
Laoag	0.774	18
Lucena	0.503	8
Manila	0.546	144
Naga	0.425	30
Ozamis	0.288	16
Puerto Princesa	0.104	21
Quezon	0.683	323
Roxas	0.586	55
Tacloban	0.361	91
Zamboanga	0.414	43
All	0.559	1525

Table 35.Physicians by number of facilities with regular clinic hours
Base: All MDs

Number of clinics	Wtd. %	N
1	44.31	764
2	27.98	424
3	17.02	212
4	8.95	87
5	1.20	28
6	0.31	10
7	0.13	6
9	0.05	2
11	0.02	1
13	0.03	1
Total	100.00	1,535

Table 36.Physicians by time allocation across clinics
Base: All MDs

Time allocation	Wtd. %	N
Most time spent in reference clinic	59.13	385
Most time spent in other clinic(s)	24.61	236
Equal time spent in all clinics	16.26	147
Total	100.00	768

Table 37.Physicians by mean proportion of total working hours spent seeing patients in all facilities
Base: All MDs

Type of patient	Wtd. %
Inpatient	24.36
Outpatient	75.64

Table 38.Physicians by years of practice in reference clinic
Base: All MDs

Years of practice	Wtd. %	N
Less than 5 years	35.76	617
5 to less than 10 years	19.84	375
10 to less than 20 years	19.81	333
20 to less than 30 years	19.44	122
30 years and more	5.15	71
Total	100.00	1,518

Table 39.Physicians by ownership of the reference clinic
Base: All MDs

Clinic ownership	Wtd. %	N
Fully owned	42.65	628
Partially owned	21.77	394
Not owned	35.58	500
Total	100.00	1,522

Table 40.Physicians by form of compensation in the reference clinic
Base: MDs who do not own the reference clinic

Form of compensation	Wtd. %	N
Employed with salary	41.25	182
On retainer	17.10	54
MD receives fee for service from owner	24.51	78
Basic pay plus fee for service	15.04	57
Others	2.10	21
Total	100.00	392

F. Reference clinic profile

Table 41.Clinic location
Base: All MDs

Location	Wtd. %	N
Physician residence	18.57	132
Commercial building	13.29	270
Commercial building with other clinics	15.99	258
Medical arts building of hospital	28.65	511
Outpatient or ER of hospital	11.97	246
Factory or office premises	3.41	27
Others	4.60	58
School-based	3.53	31
Total	100.00	1,533

Table 42.Number of days reference clinic is open during the week
Base: All MDs

Number of days	Wtd. %	N
1	1.43	38
2	4.36	94
3	14.61	181
4	2.37	64
5	25.78	297
6	44.13	706
7	5.25	67
By appointment	2.06	76
Total	100.00	1,523

Table 43.Number of MDs in the clinic
Base: All MDs

Number of MDs	Wtd. %	N
1	46.01	624
2	15.36	336
3	9.92	206
4	8.09	106
5	10.44	92
6	6.17	79
7	1.68	24
8	0.46	15
9	0.23	5
10	0.24	7
11	0.34	7
12	0.06	2
14	0.41	11

Number of MDs	Wtd. %	N
15	0.17	4
16	0.10	2
17	0.02	1
19	0.05	1
20	0.06	2
24	0.04	2
27	0.02	1
28	0.02	1
30	0.03	1
35	0.02	1
39	0.06	2
Total	100.00	1,532

Table 44.Number of employees
Base: All MDs

Number of employees	Wtd. %	N
None	19.96	256
1	63.99	832
2-5	10.94	288
6-10	4.34	106
more than 10	0.76	29
Total	100.00	1,511

Table 45.Presence of medical technologists
Base: All MDs

Number of medtechs	Wtd. %	N
None	94.15	1,123
1	3.73	69
2	1.38	36
more than 2	0.73	21
Total	100.00	1,249

Table 46.Presence of equipment in good working condition
Base: All MDs

Equipment	Proportion	N
Microscope	0.107	1527
Sputum processing materials	0.045	1527
Microscope and sputum processing materials	0.043	1527
X-ray	0.115	1527
Exam table, BP, weighing scale, thermometer, stethoscope, latex gloves	0.829	1527
Ultrasound	0.060	1527

Table 47.Proportion of MDs by condition of the facility as observed by the enumerator
Base: All MDs

Condition	Proportion	N
Generally clean from the outside	0.9117	1527
Generally clean from the inside	0.9455	1528
Has a waiting area for patients	0.9933	1528
Has sufficient seating area for patients	0.8784	1526
Has adequate light	0.9596	1522
Has a place where the patient can wash his or her hands	0.9049	1527
Has continuously available water during clinic hours	0.9093	1516
Has a special trash can for the dispose of biological specimens	0.5194	1517
Has a separate sputum collection area that is well-ventilated, open air and that is isolated from all other patients	0.3225	812

Table 48.Proportion of MDs by condition of the examination area as observed by the enumerator
Base: All MDs

Condition	Proportion	N
Enclosed	0.793	1518
Has adequate auditory privacy	0.760	1504
Has a place where the MD can wash his or her hands	0.908	1518
Has an up-to-date log or book where laboratory results are recorded	0.710	1470

G. Referrals

Table 49.Proportion of MDs by type of referral
Base: All MDs

Type of referral	Proportion	N
Refers patients out to other MDs	0.957	1522
Accepts patients referred by other MDs	0.740	1494

Table 50.Mean number of referrals to other MDs in an average week, by type of facility
Base: : All MDs that make referrals

Type of facility	Mean number	N
Rural health unit	1.477	1409
Government hospital	3.044	1403
Another private clinic	3.273	1391
Private hospital	2.887	1403
Other facilities	0.436	1409

Table 51.Mean number of referrals by other MDs in an average week, by type of facility
Base: All MDs

Type of facility	Mean number	N
Rural health unit	1.914	1480
Government hospital	0.834	1477
Another private clinic	4.309	1475
Private hospital	1.598	1476
Other facilities	0.514	1462
Companies	0.012	1468

Table 52.Mean proportion of referrals with written correspondence from the referring physician
Base: All MDs

	Mean proportion	N
Referrals with written correspondence	0.710	1137

Table 53.Mean proportion of patients seen each week for which diagnostic procedures are ordered, by specialty
Base: All MDs

Specialty	Mean proportion	N
General Practice	0.590	314
Family Medicine	0.585	221
General Internal Medicine	0.680	306
Internal Medicine w/ Subspecialty	0.793	262
Pulmonology	0.719	152
Infectious Disease	0.727	35
Pediatrics	0.541	58
Obstetrics/Gynecology	0.415	43
Anesthesiology	0.215	15
Ear, Nose and Throat	0.293	8
Opthalmology	0.223	8
Orthopedics	0.850	4
Pathology	0.548	2
Psychiatry	0.383	3
Radiology	0.176	9
Surgery	0.558	47
Community Medicine	0.600	2
Other Specialties	0.599	2
All	0.570	1491

Table 54.Mean proportion of laboratory tests ordered which are done at the reference clinic, by specialty
Base: All MDs

Specialty	Mean proportion	N
General Practice	0.157	270
Family Medicine	0.178	187
General Internal Medicine	0.228	260
Internal Medicine w/ Subspecialty	0.206	238
Pulmonology	0.174	130
Infectious Disease	0.259	28
Pediatrics	0.061	50
Obstetrics/Gynecology	0.015	38
Anesthesiology	0.007	15
Ear, Nose and Throat	0.851	7
Opthalmology	0.221	7
Orthopedics	0.215	4
Pathology	0.548	2

Specialty	Mean proportion	N
Psychiatry	0.680	2
Radiology	0.343	4
Surgery	0.007	44
Community Medicine	0.400	2
Other Specialties	0.000	2
All	0.152	1290

Table 55.Number of referrals
Base: All MDs

Number of referrals	Wtd. %	N
None	66.46	842
1-2	17.85	149
3-5	8.16	154
6-10	5.81	64
11 or more	1.72	45
Total	100.00	1,254

Table 56.By type of facility patients were referred to
Base: All MDs

Type of facility	Proportion	N
Another private physician's clinic	0.474	381
RHU or CHO	0.287	360
Private hospital	0.075	351
Public hospital	0.299	354
TB-DOTS center	0.171	349
Physician's other clinic	0.016	346
Others	0.061	310

Table 57.Main reasons for referral by type of facility
Base: All MDs who refer adult patients diagnosed or suspected to have TB

Type of facility	Reason	Wtd. %	N
Another private physician's clinic	Serious TB case	51.16	204
	Others	40.83	204
	To reduce cost to patient	3.40	204
RHU or CHO	To reduce cost to patient	92.69	105
	Others	5.25	105
	Serious TB case	1.37	105
Private hospital	Serious TB case	50.57	25
	Others	17.78	25
	Current doctor will be unavailable	14.38	25
Public hospital	To reduce cost to patient	91.35	32
	Serious TB case	5.56	32
	Current doctor will be unavailable	2.00	32
TB-DOTS center	To reduce cost to patient	82.03	59
	Others	11.47	59
	Serious TB case	5.54	59
Physician's other clinic	To reduce cost to patient	50.99	3
	Serious TB case	49.01	3
Others	Others	86.09	11
	Serious TB case	8.93	11
	To reduce cost to patient	4.98	11

H. Patient Load and patient characteristics

Table 58.Physicians by number of patients seen last month in the reference clinic
Base: All MDs

Number of patients	Wtd. %	N
0-49	28.37	367
50-99	15.57	227
100-199	19.82	318
200-399	19.34	347
400-599	10.30	142
600 or more	6.60	102
Total	100.00	1,503

Table 59.Mean proportion of patients seen last month in the reference clinic, by type of financing scheme
Base: All MDs

Type of patient	Mean proportion	N
Self-paying	0.742	1433
Covered by PhilHealth	0.046	1433
Covered by private insurance/HMOs	0.087	1433
Covered by company health benefits	0.054	1433
Charity	0.070	1433

Table 60.Mean proportion of patients seen last month in the reference clinic, by patient age
Base: All MDs

Type of patient	Mean proportion	N
Children	0.262	1482
Adults	0.738	1482

Table 61.Mean proportion of patients seen last month in the reference clinic who were admitted to a hospital, by specialty
Base: All MDs

Specialty	Mean proportion	N
General Practice	0.162	313
Family Medicine	0.125	219
General Internal Medicine	0.144	302
Internal Medicine w/ Subspecialty	0.161	253
Pulmonology	0.133	149
Infectious Disease	0.118	34
Pediatrics	0.159	59
Obstetrics/Gynecology	0.054	42
Anesthesiology	0.948	18
Ear, Nose and Throat	0.085	9
Ophthalmology	0.100	8
Orthopedics	0.155	5
Pathology	0.500	1
Psychiatry	0.191	3
Radiology	0.017	6
Surgery	0.160	47
Community Medicine	0.172	2
Other Specialties	0.001	2
All	0.159	1472

Table 62.Mean proportion of patients seen last month in the reference clinic, by type of case
Base: All MDs

Type of case	Mean proportion	N
Surgical	0.1191686	1478
Non-surgical	0.8808314	1478

Table 63.Mean number of patients by type of TB patient
Base: All TB-treating MDs with adult TB patients
that sought their consultation for the first time

Type of patient	Mean number	N
Newly diagnosed TB patients	6.007	1023
Unable to complete previous course of therapy	1.232	1021
New TB patients referred for continuation of therapy	0.511	1021
Multi-drug resistant cases	0.600	1020
Relapse cases	0.278	1021
Unresponsive to treatment	0.103	1019

Table 64.Average proportion of TB patients by treatment outcome
Base: All MDs

Treatment outcome	Proportion	N
Completed treatment	0.6544	960
Were lost to follow-up	0.1641	943
Transferred to a private MD/facility	0.0146	882
Transferred to a public MD/facility	0.0451	894
Failed treatment	0.0445	902
Died of TB complications	0.0041	899

I. TB services prescribed

Table 65.By service, number of MDs who prescribe quantity of service per month
Base: All MDs

Consultation											
Number of Service	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10
1	903	675	908	561	640	459	968	48	29	32	23
2	109	22	9	4	7	4	6	1	0	0	0
3	10	0	0	0	0	0	0	0	0	0	0
4	5	1	2	1	1	1	1	1	1	0	0

X-ray											
Number of Service	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10
1	951	82	392	165	90	27	831	32	11	11	10
2	4	1	0	0	0	0	2	0	0	0	0
3	0	0	0	1	0	0	0	0	0	0	0

AFB smear											
Number of Service	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10
1	434	97	301	70	61	24	306	11	6	6	2
2	8	1	8	0	0	0	3	0	0	0	0
3	343	36	136	26	31	8	186	6	0	1	0
4	3	1	1	1	1	1	4	0	0	0	0
5	2	0	0	0	0	0	0	0	0	0	0
6	1	0	0	0	0	0	0	0	0	0	0

J. TB Diagnosis

Table 66.By primary diagnostic tool to determine cure
Base: All TB treating MDs

Diagnostic tool	Wtd. %	N
Chest X-ray	47.88	422
AFB smear	15.53	169
PPD	0.11	3
Chest X-ray and AFB smear	35.61	438
Others	0.83	19
Sputum culture	0.04	1
Total	100.00	1,052

Table 67.By primary diagnostic tool for new suspect TB patients
Base: All TB treating MDs

Diagnostic tool	Wtd. %	N
Chest X-ray	51.69	458
AFB smear	9.47	137
PPD	0.38	7
Chest X-ray and AFB smear	36.89	439
Others	1.46	8
Sputum culture	0.12	2
Total	100.00	1,051

Table 68.Main reasons by type of diagnostic tool for new suspect TB patients
Base: All TB treating MDs

Diagnostic tool		Reason	Wtd. %	N
Chest X-ray	Reason 1	Patients can afford it	39.46	458
		Most accessible to patients	23.50	458
		Results are readily available	11.33	458
	Reason 2	Easiest procedure for patients, most comfortable for patients	36.41	394
		Most accessible to patients	25.97	394
		Most reliable results	17.28	394
AFB smear	Reason 1	Patients can afford it	36.54	137
		Most reliable results	34.34	137
		Recommended by experts	11.53	137
	Reason 2	Most accessible to patients	23.71	109
		Most reliable results	22.67	109
		Recommended by experts	22.35	109
PPD	Reason 1	Patients can afford it	40.60	7
		Most accessible to patients	26.57	7

Diagnostic tool		Reason	Wtd. %	N
		Results are readily available	26.57	7
	Reason 2	Most reliable results	53.13	7
		Easiest procedure for patients, most comfortable for patients	19.29	7
		Results are readily available	12.54	7
Chest X-ray and AFB smear	Reason 1	Patients can afford it	30.24	438
		Most accessible to patients	24.21	438
		Most reliable results	16.34	438
	Reason 2	Most reliable results	27.11	389
		Results are readily available	21.56	389
		Recommended by experts	13.48	389
Others	Reason 1	Results are readily available	85.23	8
		Most reliable results	5.77	8
		Tool can also detect other accompanying pulmonary diseases	3.61	8
	Reason 2	Easiest procedure for patients, most comfortable for patients	88.75	6
		Results are readily available	5.61	6
		Others*	2.23	6
Sputum culture	Reason 1	Tool can also detect other accompanying pulmonary diseases	73.32	2
		Most reliable results	26.68	2
	Reason 2	Recommended by experts	73.32	2
		Results are readily available	26.68	2

Table 69.By location where primary diagnostic tool is performed
Base: All TB treating MDs

Diagnostic tool	Location	Wtd. %	N
Chest X-ray	Private hospital X-ray	40.63	457
	Another private Free-standingnding X-ray	20.14	457
	Laboratory in reference clinic	20.12	457
AFB smear	RHU/CHO	30.62	136
	Private hospital laboratory	26.88	136
	Laboratory in reference clinic	23.81	136
PPD	Laboratory in reference clinic	73.43	7
	Another private clinic with laboratory	26.57	7
Chest X-ray and AFB smear	Private hospital laboratory/X-ray	33.46	437
	Another private clinic with laboratory/X-ray	27.15	437
	Laboratory in reference clinic	21.76	437
Others	Private hospital laboratory/X-ray	94.03	7
	Laboratory in reference clinic	3.95	7
	Another private clinic with laboratory/X-ray	2.02	7
Sputum culture	Another private Free-standingnding laboratory	73.32	2
	Private hospital laboratory	26.68	2

Table 70 Proportion of physicians who use a secondary diagnostic tool for new suspect TB patients, by specialty
Base: All TB treating MDs

Specialty	Proportion	N
General Practice	0.540	213
Family Medicine	0.539	183
General Internal Medicine	0.653	248
Internal Medicine w/ Subspecialty	0.577	174
Pulmonology	0.681	146
Infectious Disease	0.793	29
Pediatrics	0.703	19
Obstetrics/Gynecology	0.120	4
Anesthesiology	0.085	4
Ear, Nose and Throat	0.000	1
Pathology	0.000	1
Radiology	0.000	4
Surgery	0.610	21
Community Medicine	0.000	2
All	0.544	1049

Table 71.Proportion of physicians who use a secondary diagnostic tool for new suspect TB patients, by city
Base: All TB treating MDs

City	Proportion	N
Angeles	0.712	35
Bacolod	0.409	51
Bacoor	0.772	13
Batangas	0.704	9
Cabanatuan	0.435	23
Cagayan de Oro	0.762	39
Cebu	0.466	118
Cotabato	0.325	13
Dagupan	0.969	10
Davao	0.634	116
Dumaguete	0.729	16
Iloilo	0.795	86
Laoag	0.765	13
Lucena	0.545	7
Manila	0.414	99
Naga	0.560	27

City	Proportion	N
Ozamis	0.533	13
Puerto Princesa	0.358	14
Quezon	0.522	259
Roxas	0.814	20
Tacloban	0.691	33
Zamboanga	0.524	35
All	0.544	1049

Table 72.Proportion of physicians who use a secondary diagnostic tool for new suspect TB patients, by clinic type
Base: All TB treating MDs

Type of clinic	Proportion	N
Free-standing	0.429	451
Hospital-based	0.693	408
Hospital-Outpatient/ER	0.764	123
HMO-based	0.629	28
Community-based	0.563	11
School-based/University-based/ER	0.646	7
Work-based	0.077	15
Others	0.187	6
All	0.544	1049

Table 73.By secondary diagnostic tool for suspected new TB patients
Base: All TB treating MDs

Diagnostic tool	Wtd. %	N
Chest X-ray	21.65	133
AFB smear	39.97	268
PPD	20.55	125
Bronchoscopy	0.67	8
Sputum culture	13.86	68
Others	3.30	24
Total	100.00	626

Table 74.By reason for using secondary diagnostic tool
Base: All TB treating MDs

Diagnostic tool		Reason	Wtd. %	N
Chest X-ray	Reason 1	Reliability of tool/Screening or confirmatory	74.59	132
		To describe extent of disease	8.64	132
		Convenience/patient's choice	4.70	132
	Reason 2	Reliability of tool/Screening or confirmatory	29.69	70
		Tool for patient education	16.71	70
		To describe extent of disease	11.81	70
AFB smear	Reason 1	Reliability of tool/Screening or confirmatory	56.50	261
		To describe extent of disease	23.87	261
		Adherence to guidelines (other than clinical)	4.82	261
	Reason 2	Reliability of tool/Screening or confirmatory	59.79	92
		To rule out/check for comorbidities	12.02	92
		To describe extent of disease	10.00	92
PPD	Reason 1	Reliability of tool/Screening or confirmatory	67.71	122
		Convenience/patient's choice	13.90	122
		To describe extent of disease	8.77	122
	Reason 2	Reliability of tool/Screening or confirmatory	54.31	54
		Required for referral to DOTS center	18.41	54
		Inexpensive/cheaper	10.14	54
Bronchoscopy	Reason 1	Reliability of tool/Screening or confirmatory	71.78	8
		Others	15.87	8
		Immediacy of results	12.35	8
	Reason 2	Access/availability	40.96	3
		To rule out/check for comorbidities	32.74	3
		To describe extent of disease	26.30	3
Sputum culture	Reason 1	Adherence to guidelines (other than clinical)	48.24	68
		Reliability of tool/Screening or confirmatory	30.71	68
		To describe extent of disease	16.75	68
	Reason 2	Reliability of tool/Screening or confirmatory	80.73	31
		To describe extent of disease	9.37	31
		To rule out/check for comorbidities	5.33	31
Others	Reason 1	Reliability of tool/Screening or confirmatory	66.79	24
		To rule out/check for comorbidities	17.91	24
		To describe extent of disease	8.57	24
	Reason 2	Reliability of tool/Screening or confirmatory	47.43	7
		Inexpensive/cheaper	28.33	7
		To describe extent of disease	17.11	7

Table 75.Proportion of physicians who are aware of facilities that offer AFB smear tests, by specialty
Base: All TB treating MDs

Specialty	Proportion	N
General Practice	0.965	213
Family Medicine	0.970	183
General Internal Medicine	0.961	250
Internal Medicine w/ Subspecialty	0.964	175
Pulmonology	1.000	146
Infectious Disease	1.000	29
Pediatrics	1.000	19
Obstetrics/Gynecology	1.000	4
Anesthesiology	0.158	4
Ear, Nose and Throat	1.000	1
Pathology	1.000	1
Radiology	1.000	4
Surgery	0.994	21
Community Medicine	1.000	2
All	0.977	1052

Table 76.Proportion of physicians who are aware of facilities that offer AFB smear tests, by city
Base: All TB treating MDs

City	Proportion	N
Angeles	0.898	35
Bacolod	1.000	51
Bacoor	1.000	13
Batangas	1.000	9
Cabanatuan	0.918	24
Cagayan de Oro	1.000	39
Cebu	0.935	118
Cotabato	0.880	13
Dagupan	1.000	10
Davao	0.989	116
Dumaguete	1.000	16
Iloilo	1.000	86
Laoag	1.000	13
Lucena	1.000	7
Manila	0.957	100
Naga	0.966	27

City	Proportion	N
Ozamis	1.000	13
Puerto Princesa	1.000	14
Quezon	0.987	260
Roxas	1.000	20
Tacloban	1.000	33
Zamboanga	0.950	35
All	0.977	1052

Table 77.Proportion of physicians who are aware of facilities that offer AFB smear tests, by clinic type
Base: All TB treating MDs

Type of clinic	Proportion	N
Free-standing	0.978	453
Hospital-based	0.977	409
Hospital-Outpatient/ER	0.957	123
HMO-based	1.000	28
Community-based	1.000	11
School-based/University-based/ER	1.000	7
Work-based	0.985	15
Others	1.000	6
All	0.977	1052

Table 78.By facilities that offer AFB smear exams
Base: All TB treating MDs

Type of facility	Proportion	N
Laboratory in reference clinic	0.134	1024
Another private clinic with laboratory	0.263	1024
Another private Free-standingnding laboratory	0.284	1024
Private hospital laboratory	0.534	1024
RHU/CHO	0.432	1024
Others	0.072	1024
Public hospital	0.119	1024

K. Drug prescription patterns

Table 79.Proportion of MDs who prescribe drugs in blister packs, fixed dose or loose drugs, by specialty
Base: All TB treating MDs

Specialty	Loose drugs	Blister pack	Fixed dose	N
General Practice	0.023	0.623	0.354	212
Family Medicine	0.024	0.619	0.358	182
General Internal Medicine	0.022	0.544	0.435	247
Internal Medicine w/ Subspecialty	0.024	0.665	0.312	172
Pulmonology	0.008	0.467	0.525	143
Infectious Disease	0.000	0.394	0.606	29
Pediatrics	0.000	0.596	0.404	19
Obstetrics/Gynecology	0.000	0.120	0.880	4
Anesthesiology	0.000	0.541	0.459	3
Ear, Nose and Throat	0.000	0.000	1.000	1
Pathology	0.000	1.000	0.000	1
Radiology	0.000	0.206	0.794	4
Surgery	0.087	0.389	0.524	21
Community Medicine	0.000	1.000	0.000	2
All	0.024	0.505	0.470	1040

Table 80. Proportion of MDs who prescribe drugs in blister packs, fixed dose or loose drugs, by city
Base: All TB treating MDs

City	Loose drugs	Blister pack	Fixed dose	N
Angeles	0.000	0.500	0.500	35
Bacolod	0.000	0.725	0.275	49
Bacoor	0.000	0.612	0.388	13
Batangas	0.000	0.704	0.296	9
Cabanatuan	0.083	0.458	0.460	24
Cagayan De Oro	0.023	0.492	0.486	39
Cebu	0.006	0.626	0.368	115
Cotabato	0.000	0.433	0.567	13
Dagupan	0.000	0.985	0.015	10
Davao	0.027	0.587	0.387	114
Dumaguete	0.000	0.883	0.117	16
Iloilo	0.000	0.749	0.251	84
Laoag	0.000	0.731	0.269	13
Lucena	0.000	0.848	0.152	7
Manila	0.122	0.316	0.562	99

City	Loose drugs	Blister pack	Fixed dose	N
Naga	0.000	0.325	0.676	27
Ozamis	0.000	0.591	0.410	13
Puerto Prinsesa	0.000	0.216	0.784	14
Quezon City	0.008	0.429	0.564	259
Roxas	0.000	0.669	0.331	20
Tacloban	0.024	0.645	0.331	33
Zamboanga	0.027	0.445	0.528	34
All	0.024	0.505	0.470	1040

Table 81.Proportion of MDs who prescribe drugs in blister packs, fixed dose or loose drugs, by clinic type
Base: All TB treating MDs

Type of clinic	Loose drugs	Blister pack	Fixed dose	N
Free-standing	0.035	0.458	0.507	448
Hospital-based	0.010	0.558	0.432	402
Hospital-Outpatient/ER	0.025	0.573	0.402	123
HMO-based	0.000	0.888	0.112	28
Community-based	0.260	0.312	0.428	11
School-based/University-based/ER	0.000	0.562	0.438	7
Work-based	0.000	0.094	0.906	15
Others	0.000	0.502	0.498	6
All	0.024	0.505	0.470	1040

Table 82.By reason for choosing drug packaging
Base: All TB treating MDs

Drug packaging		Reason	Wtd. %	N
Blister pack	Reason 1	Convenience for patients	59.472	598
		More accurate dosaging	12.5356	598
		Availability	9.1353	598
	Reason 2	Patient compliance	38.4159	27
		Recommended by experts	27.788	27
		Price	8.4019	27
Fixed dose	Reason 1	Convenience for patients	60.3409	421
		More accurate dosaging	17.0854	421
		Availability	11.4025	421
	Reason 2	Patient compliance	55.3855	27
		Price	16.0152	27
		Easier to monitor drug intake	11.5786	27
Loose drugs	Reason 1	Price	62.4604	19
		Convenience for patients	16.6049	19
		More accurate dosaging	13.482	19

Table 83.Proportion of MDs aware of facilities that offer free TB drugs and the proportion who refer patients to it, by specialty
Base: All TB treating MDs

Specialty	Aware	N	Refer	N
General Practice	0.964	213	0.938	205
Family Medicine	0.966	183	0.875	178
General Internal Medicine	0.974	250	0.840	243
Internal Medicine w/ Subspecialty	0.916	174	0.809	161
Pulmonology	0.977	146	0.830	143
Infectious Disease	1.000	29	0.914	29
Pediatrics	0.946	19	0.995	18
Obstetrics/Gynecology	1.000	4	1.000	4
Anesthesiology	0.115	4	0.371	2
Ear, Nose and Throat	1.000	1	1.000	1
Pathology	1.000	1	1.000	1
Radiology	1.000	4	0.993	4
Surgery	0.909	21	0.667	18
Community Medicine	1.000	2	1.000	2
All	0.947	1051	0.874	1009

Table 84.Proportion of MDs aware of facilities that offer free TB drugs and the proportion who refer patients to it, by city
Base: All TB treating MDs

City	Aware	N	Refer	N
Angeles	0.907	35	0.881	33
Bacolod	0.986	51	0.959	50
Bacoor	0.840	13	0.870	11
Batangas	0.852	9	1.000	8
Cabanatuan	1.000	24	0.919	24
Cagayan de Oro	1.000	39	0.978	38
Cebu	0.921	118	0.957	113
Cotabato	1.000	13	0.609	13
Dagupan	1.000	10	0.956	10
Davao	0.883	115	0.836	114
Dumaguete	1.000	16	0.937	15
Iloilo	0.995	86	0.958	85
Laoag	1.000	13	0.802	13
Lucena	1.000	7	0.607	7
Manila	0.883	100	0.895	97
Naga	1.000	27	0.917	27
Ozamis	1.000	13	0.949	13
Puerto Princesa	1.000	14	0.836	14
Quezon	0.970	260	0.833	243

City	Aware	N	Refer	N
Roxas	1.000	20	0.889	20
Tacloban	0.873	33	0.748	29
Zamboanga	0.907	35	0.927	32
All	0.947	1051	0.874	1009

Table 85.Proportion of MDs aware of facilities that offer free TB drugs and the proportion who refer patients to it, by clinic type
Base: All TB treating MDs

Type of clinic	Aware	N	Refer	N
Free-standing	0.953	453	0.945	437
Hospital-based	0.973	408	0.778	392
Hospital-Outpatient/ER	0.924	123	0.772	116
HMO-based	1.000	28	0.984	28
Community-based	1.000	11	1.000	11
School-based/University-based/ER	1.000	7	0.905	7
Work-based	0.508	15	0.981	12
Others	1.000	6	0.838	6
All	0.947	1051	0.874	1009

Table 86.By facilities that offer free TB drugs
Base: All TB treating MDs

Type of facility	Proportion	N
RHU/CHO	0.967	1012
Private not-for-profit organizations	0.162	1012
Private clinics	0.048	1012
Public hospital pharmacies	0.114	1012
Company clinic	0.019	1012
Others*	0.001	1012
School clinic	0.001	1012
DOTS center	0.070	1012

Table 87.By source of drugs of patients
Base: All TB treating MDs

Source of drugs	Wtd. %	N
Private not-for-profit organizations	4.51	21
Private clinics	2.34	12
RHU/CHO	8.18	153
Public hospital pharmacies	1.37	16
Company-provided	1.55	6
Purchased at private drugstores	81.12	817
Others	0.22	3
Don't know	0.09	1
School clinic	0.09	2
DOTS center	0.53	13
Total	100.00	1044

Table 88 By number of months drug is prescribed
Base: All TB treating MDs

Number of months	Rifam picin	Isoniazid	Etham butol	Strepto mycin	Pyrazi namide	Antibiotic	Other Drug
0.3	0	0	0	0	0	2	0
0.5	0	0	0	0	0	1	0
0.75	0	0	0	0	0	1	0
1	1	0	2	16	2	6	1
1.5	0	0	0	3	0	0	0
2	40	43	354	104	809	4	0
2.5	2	1	6	1	3	0	0
3	23	20	42	10	42	2	0
3.5	0	0	0	1	0	0	0
4	29	29	32	6	22	1	0
4.5	2	3	4	0	3	0	0
5	2	1	3	1	0	0	0
6	925	912	502	18	112	5	4
7	1	1	1	0	0	0	0
7.5	1	1	0	0	0	0	0
8	1	1	1	0	0	0	0
9	3	4	2	0	0	1	0
10	1	1	1	0	0	0	0
12	3	8	2	0	1	1	0
18	0	1	0	0	0	0	0

L. Patient monitoring

Table 89.By schedule of first follow-up consultation
Base: All TB treating MDs

Schedule of follow-up	Wtd. %	N
No follow-up	0.35	7
Less than 2 weeks	8.28	64
2 weeks to less than a month	34.52	321
1 month to less than 2 months	36.17	438
2 months to less than 3 months	19.69	201
3 months to less than 6 months	0.96	16
6 months or more	0.03	1
Total	100.00	1,048

Table 90.By count of TB patients who return for their first follow-up consultation
Base: All TB treating MDs

Percentage	Wtd. %	N
None to less than 25%	4.2539	48
25% to less than 50%	4.7145	63
50% to less than 75%	32.1903	245
75% to 100%	58.8414	669
Total	100	1,025

Table 91.By method for monitoring drug intake
Base: All TB treating MDs

Method	Proportion	N
Check blister pack if used	0.167	932
Ask patient if he/she adhered to/complied with prescription during follow-up consultation	0.930	932
Ask relative or companion of patient during follow-up	0.307	932
Contacting patient through phone or other means during treatment	0.053	932
Infer through patient improvement during follow-up	0.160	932
Through oral report of treatment partner (relative/health worker)	0.051	932
Through written report/treatment card filled by treatment partner (relative/health worker)	0.025	932
Checking whether prescription has been filled/countersigned	0.038	932
Through field work/home visits	0.002	932
Others*	0.007	58

M. Record-keeping

Table 92.By items that are indicated in the records of TB patients
Base: All TB treating

Items	N
Medical history	916
PE results	892
Initial diagnostic results	858
Initial drugs prescribed	659
Follow-up of schedules	693
Follow-up of diagnostic prescription/results	654
Changes in drug regimen prescribed	517
Reactions to drugs	619
Name of treatment partner of patient	144
Daily record of drug intake	196
Fees charged	92
Outcome of treatment	35
Diagnosis of referring physician	1
Duration of treatment	1

Table 93.Proportion of MDs who separate records of TB patients and proportion who notify DOH or CHO, by specialty
Base: All TB treating MDs

Specialty	Separate	N	Notify	N
General Practice	0.158	212	0.159	212
Family Medicine	0.124	183	0.111	183
General Internal Medicine	0.058	249	0.109	250
Internal Medicine w/ Subspecialty	0.040	174	0.028	174
Pulmonology	0.124	145	0.073	146
Infectious Disease	0.060	29	0.062	29
Pediatrics	0.004	19	0.057	19
Obstetrics/Gynecology	0.000	4	0.000	4
Anesthesiology	0.000	4	0.000	4
Ear, Nose and Throat	0.000	1	0.000	1
Pathology	0.000	1	0.000	1
Radiology	0.103	4	0.000	4
Surgery	0.086	21	0.059	21
Community Medicine	0.000	2	0.500	2
All	0.063	1048	0.073	1050

Table 94.Proportion of MDs who separate records of TB patients and proportion who notify DOH or CHO, by city
Base: All TB treating MDs

City	Separate	N	Notify	N
Angeles	0.075	35	0.135	35
Bacolod	0.135	51	0.157	51
Bacoor	0.041	13	0.092	13
Batangas	0.104	9	0.104	9
Cabanatuan	0.136	24	0.353	24
Cagayan De Oro	0.146	39	0.106	39
Cebu	0.023	117	0.164	117
Cotabato	0.240	13	0.120	13
Dagupan	0.000	10	0.031	10
Davao	0.165	115	0.034	115
Dumaguete	0.021	15	0.718	16
Iloilo	0.010	86	0.024	86
Laoag	0.153	13	0.113	13
Lucena	0.000	7	0.000	7
Manila	0.044	100	0.037	100
Naga	0.153	27	0.071	27
Ozamis	0.000	13	0.000	13
Puerto Prinsesa	0.210	14	0.242	14
Quezon City	0.044	259	0.042	260
Roxas	0.182	20	0.049	20
Tacloban	0.210	33	0.124	33
Zamboanga	0.086	35	0.077	35
All	0.063	1048	0.073	1050

Table 95.Proportion of MDs who separate records of TB patients and proportion who notify DOH or CHO, by clinic type
Base: All TB treating MDs

Type of clinic	Separate	N	Notify	N
Free-standing	0.055	453	0.069	453
Hospital-based	0.080	406	0.079	407
Hospital-Outpatient/ER	0.051	122	0.081	123
HMO-based	0.039	28	0.050	28
Community-based	0.384	11	0.184	11
School-based/University-based/ER	0.106	7	0.529	7
Work-based	0.024	15	0.028	15
Others	0.000	6	0.000	6
All	0.063	1048	0.073	1050

N. Income, expenditure and fees

Table 96.Mean monthly income from all sources, by specialty
Base: All TB treating MDs

Specialty	Mean income	N
General Practice	45542.080	178
Family Medicine	35746.260	127
General Internal Medicine	42927.350	163
Internal Medicine w/ Subspecialty	75232.460	106
Pulmonology	108469.900	53
Infectious Disease	43426.670	18
Pediatrics	78195.630	33
Obstetrics/Gynecology	29518.530	29
Anesthesiology	15695.500	15
Ear, Nose and Throat	76125.700	2
Opthalmology	107368.400	6
Orthopedics	123874.300	2
Pathology	69447.840	4
Psychiatry	63840.760	2
Radiology	50262.150	8
Surgery	52683.810	24
Community Medicine	34500.000	2
Other Specialties	60000.000	1
All	54872.890	773

Table 97.Mean monthly income from all sources, by clinic type
Base: All MDs

Type of clinic	Mean income	N
Free-standing	64314.670	303
Hospital-based	54307.540	335
Hospital-Outpatient/ER	49891.020	75
HMO-based	19022.390	20
Community-based	36711.560	5
School-based/University-based/ER	30524.590	17
Work-based	24693.180	12
Others	89464.580	6
All	54872.890	773

Table 98.Mean monthly income from all sources, by city
Base: All MDs

City	Mean income	N
Angeles	47349.120	31
Bacolod	47157.570	27
Bacoor	28270.270	6
Batangas	230000.000	2
Cabanatuan	36558.020	15
Cagayan de Oro	60360.900	93
Cebu	38250.960	101
Cotabato	56828.780	8
Dagupan	47901.230	3
Davao	106339.800	93
Dumaguete	64912.810	15
Iloilo	52967.720	57
Laoag	57193.590	13
Lucena	81463.410	3
Manila	55873.570	51
Naga	103191.300	14
Ozamis	49586.610	7
Puerto Princesa	92305.080	13
Quezon	45759.190	100
Roxas	60757.000	39
Tacloban	71050.090	59
Zamboanga	51005.010	23
All	54872.890	773

Table 99.Mean proportion of income, by type of patients
Base: All MDs

Source of income	Mean proportion of income	N
Outpatients in reference clinic	0.423	867
Outpatients in other clinics	0.135	867
Admitted patients	0.256	867
Others	0.186	867

Table 100.Mean proportion of income, by type of patient financing scheme
Base: All MDs

Source of income	Mean proportion of income	N
Self-paying patients	0.724	800
PhilHealth reimbursements	0.079	800
Other third party payers	0.075	800
Others	0.122	800

Table 101.Mean monthly expenditures, by specialty
Base: All MDs

Specialty	Mean expenditure	N
General Practice	22874.40	101
Family Medicine	12045.44	88
General Internal Medicine	9407.64	143
Internal Medicine w/ Subspecialty	14882.45	130
Pulmonology	11780.09	57
Infectious Disease	9094.92	19
Pediatrics	6658.78	37
Obstetrics/Gynecology	13882.09	32
Anesthesiology	4924.56	7
Ear, Nose and Throat	6095.02	5
Opthalmology	41058.93	6
Orthopedics	31826.55	4
Pathology	43415.09	2
Psychiatry	5685.24	3
Radiology	22532.73	4
Surgery	11820.95	30
Community Medicine	6500.00	1
All	11808.93	669

Table 102.Mean monthly expenditures, by Clinic Type
Base: All MDs

Type of clinic	Mean expenditure	N
Free-standing	12339.54	307
Hospital-based	11021.78	345
Hospital-Outpatient/ER	18728.25	12
Community-based	27275.80	3
Others	5569.53	2
All	11808.93	669

Table 103.Mean monthly expenditures, by City
Base: All MDs

City	Mean expenditure	N
Angeles	13896.71	12
Bacolod	13336.10	32
Batangas	66914.29	3
Cabanatuan	15333.77	8
Cagayan de Oro	10593.14	93
Cebu	7998.34	75
Cotabato	17606.83	12
Dagupan	18158.97	3
Davao	11071.62	101

City	Mean expenditure	N
Dumaguete	29847.20	10
Iloilo	7963.76	86
Laoag	49447.37	3
Lucena	4000.00	1
Manila	14084.62	27
Naga	18279.53	16
Ozamis	29162.20	7
Puerto Princesa	18896.86	18
Quezon	9543.75	53
Roxas	18435.22	24
Tacloban	18878.54	61
Zamboanga	17153.11	24
All	11808.93	669

Table 104.Mean monthly expenditures, by item
Base: All MDs

Expenditure item	Mean expenditure	N
Salaries, allowances and wages of clinic staff	3758.25	669
Utilities	1763.00	669
Medical supplies	1882.82	669
Drugs	1705.42	669
Rent for the clinic space	2069.40	669
Others	230.37	669
Rent and utilities*	4232.07	669

Table 105.Mean proportion of monthly expenditures, by item
Base: All MDs

Expenditure item	Mean proportion	N
Salaries, allowances and wages of clinic staff	0.3156	669
Utilities	0.2104675	669
Medical supplies	0.1462404	669
Drugs	0.0437896	669
Rent for the clinic space	0.2161122	669
Others	0.0141047	669
Rent and utilities*	0.4802652	669

Table 106.Mean fees for initial outpatient consultation, by type of patient
Base: All MDs

Type of patient	Mean fees	N
Insured	216.0944	770
Self-paying	222.1994	1336

Table 107.Mean fees for follow-up outpatient consultation, by type of patient
Base: All MDs

Type of patient	Mean fees	N
Insured	195.8261	759
Self-paying	200.8452	1323

Table 108.Mean proportion of MDs whose initial outpatient consultation Fees differ across insured and self-paying patients, by specialty
Base: All MDs

Specialty	Mean proportion	N
General Practice	0.513	324
Family Medicine	0.499	230
General Internal Medicine	0.569	310
Internal Medicine w/ Subspecialty	0.609	266
Pulmonology	0.619	154
Infectious Disease	0.657	36
Pediatrics	0.465	59
Obstetrics/Gynecology	0.821	43
Anesthesiology	0.017	20
Ear, Nose and Throat	0.025	9
Opthalmology	0.879	8
Orthopedics	0.414	5
Pathology	0.304	5
Psychiatry	0.032	3
Radiology	0.736	11
Surgery	0.242	48
Community Medicine	0.000	2
Other Specialties	0.000	2
All	0.474	1535

Table 109.Mean proportion of MDs whose follow-up outpatient consultation fees differ across insured and self-paying patients, by specialty
Base: All MDs

Specialty	Mean proportion	N
General Practice	0.510	324
Family Medicine	0.507	230
General Internal Medicine	0.560	310
Internal Medicine w/ Subspecialty	0.599	266
Pulmonology	0.625	154
Infectious Disease	0.677	36
Pediatrics	0.466	59
Obstetrics/Gynecology	0.808	43
Anesthesiology	0.017	20
Ear, Nose and Throat	0.044	9
Opthalmology	0.879	8
Orthopedics	0.414	5
Pathology	0.304	5
Psychiatry	0.032	3
Radiology	0.736	11
Surgery	0.242	48
Community Medicine	0.000	2
Other Specialties	0.000	2
All	0.472	1535

Table 110.Mean fees charged to uninsured patients, by type of clinic
Base: All MDs

	Consultation fee						Examination fee			
	New patient		Old patient, simple case		Old patient, complex case		Chest X-ray		TB sputum AFB smear	
Type of clinic	Mean fee	N	Mean fee	N	Mean fee	N	Mean fee	N	Mean fee	N
Free-standing	169.160	437	166.660	438	168.840	430	225.500	77	170.190	42
Hospital-based	295.770	384	286.170	384	289.760	382	368.000	18	378.820	9
Hospital-Outpatient/ER	276.240	110	263.880	110	265.510	106	234.760	9	149.580	5
HMO-based	132.070	14	131.330	14	130.860	13	315.580	2	573.810	2
Community-based	154.430	11	147.660	11	180.440	11	130.000	1	0.000	1
School-based/University-based/ER	0.000	2	0.000	2	0.000	2	0.000	0	0.000	0
Work-based	94.000	4	94.000	4	58.360	4	175.000	2	0.000	0
Others	238.110	5	193.310	5	193.310	5	36.770	2	50.000	1
All	222.130	967	216.160	968	218.910	953	262.490	111	310.570	60

O. TB-DOTS awareness, training and information

Table 111.Physicians by TB-DOTS awareness
Base: All MDs

TB-DOTS awareness	Wtd. %	N
Not aware	30.50	378
Aware	69.50	1146
Total	100.00	1524

Table 112.TB-DOTS awareness by specialty
Base: All MDs

Specialty	Proportion	N
General Practice	0.675	321
Family Medicine	0.838	226
General Internal Medicine	0.798	309
Internal Medicine w/ Subspecialty	0.679	264
Pulmonology	0.993	153
Infectious Disease	0.950	36
Pediatrics	0.724	59
Obstetrics/Gynecology	0.546	43
Anesthesiology	0.793	20
Ear, Nose and Throat	0.037	9
Opthalmology	0.386	8
Orthopedics	0.414	5
Pathology	0.484	5
Psychiatry	0.968	3
Radiology	0.092	11
Surgery	0.740	48
Community Medicine	0.500	2
Other Specialties	0.993	2
All	0.695	1524

Table 113.TB-DOTS awareness by city
Base: All MDs

City	Proportion	N
Angeles	0.781	41
Bacolod	0.676	54
Bacoor	0.944	16
Batangas	1.000	11
Cabanatuan	0.740	29
Cagayan De Oro	0.623	153
Cebu	0.637	155
Cotabato	0.311	15
Dagupan	0.155	14
Davao	0.742	155
Dumaguete	0.899	20
Iloilo	0.599	113
Laoag	0.857	18
Lucena	0.887	8
Manila	0.685	144
Naga	0.796	30
Ozamis	0.651	16
Puerto Prinsesa	0.890	21
Quezon City	0.737	322
Roxas	0.648	55
Tacloban	0.656	91
Zamboanga	0.552	43
All	0.695	1524

Table 114.TB-DOTS awareness by clinic type
Base: All MDs

Type of clinic	Proportion	N
Free-standing	0.580	602
Hospital-based	0.830	642
Hospital-Outpatient/ER	0.805	167
HMO-based	0.329	35
Community-based	0.876	15
School-based/University-based/ER	0.679	26
Work-based	0.860	25
Others	0.753	12
All	0.695	1524

Table 115.Proportion of MDs by identified crucial components of DOTS
Base: All MDs aware of TB-DOTS

DOTS components	Proportion	N
Diagnosis through sputum microscopy	0.437	1146
Continuous supply of drugs	0.577	1146
Recording and reporting system	0.421	1146
Direct observation of drug intake	0.764	1146
Political commitment	0.164	1146
*All previous five elements	0.105	1146
Patient compliance	0.105	1146
Drug regimen	0.022	1146
Free service and drugs*	0.000	1146
Publice/private collaboration	0.001	1146
Prescribed management of patient	0.014	1146
Information dissemination	0.004	1146
Proper education of patients	0.008	1146
Remarks	0.006	1146
Conditions	0.022	1146
Others*	0.001	1146

Table 116.Proportion of MDs by source of information about TB-DOTS
Base: All MDs aware of TB-DOTS

Source of information	Proportion	N
Medical convention	0.284	1146
Seminars	0.343	1146
Refresher courses	0.021	1146
Short-term training courses	0.043	1146
Special lectures/symposia	0.249	1146
Medical journals	0.101	1146
Pharmaceutical brochures	0.098	1146
Medical textbooks	0.025	1146
Web-based sources	0.023	1146
Consultations with other MDs	0.131	1146
Radio, TV programs	0.088	1146
DOH publications/circulars	0.257	1146
TB-DOTS training	0.118	1146
Others	0.000	1146
PhilCAT/PhilTIPS	0.009	1146
Others	0.010	1146
Residency	0.016	1146
Hospitals	0.050	1146
From patients	0.070	1146

Table 117.By instance when TB-DOTS information was acquired
Base: All MDs aware of TB-DOTS

TB-DOTS knowledge	Wtd. %	N
Less than a year ago	33.49	397
More than a year but not more than 3 ye	38.91	357
More than 3 years but not more than 5 y	10.88	146
5 or more years ago	16.71	234
Total	100.00	1,134

Table 118.TB-DOTS training
Base: All MDs aware of TB-DOTS

TB-DOTS training	Wtd. %	N
Without TB-DOTS training	77.46	755
With TB-DOTS training	22.54	390
Total	100.00	1145

Table 119 TB-DOTS training, by specialty
Base: All MDs aware of TB-DOTS

Specialty	Proportion	N
General Practice	0.260	220
Family Medicine	0.280	191
General Internal Medicine	0.308	246
Internal Medicine w/ Subspecialty	0.173	186
Pulmonology	0.695	152
Infectious Disease	0.700	33
Pediatrics	0.169	40
Obstetrics/Gynecology	0.078	20
Anesthesiology	0.015	9
Ear, Nose and Throat	0.256	4
Opthalmology	0.000	3
Orthopedics	0.500	2
Pathology	0.629	2
Psychiatry	0.000	2
Radiology	0.059	4
Surgery	0.189	29
Community Medicine	0.000	1
Other Specialties	0.000	1
All	0.225	1145

Table 120.TB-DOTS training, by city
Base: All MDs aware of TB-DOTS

City	Proportion	N
Angeles	0.397	31
Bacolod	0.471	38
Bacoor	0.197	15
Batangas	0.653	11
Cabanatuan	0.517	22
Cagayan De Oro	0.219	95
Cebu	0.293	119
Cotabato	0.000	5
Dagupan	0.247	11
Davao	0.465	129
Dumaguete	0.084	15
Iloilo	0.519	96
Laoag	0.771	14
Lucena	0.399	7
Manila	0.107	110
Naga	0.506	24
Ozamis	0.150	9
Puerto Prinsesa	0.960	19
Quezon City	0.127	253
Roxas	0.359	36
Tacloban	0.191	60
Zamboanga	0.145	26
All	0.225	1145

Table 121.TB-DOTS training, by clinic type
Base: All MDs aware of TB-DOTS

Type of clinic	Proportion	N
Free-standing	0.213	451
Hospital-based	0.251	482
Hospital-Outpatient/ER	0.221	131
HMO-based	0.495	29
Community-based	0.375	12
School-based/University-based/ER	0.028	17
Work-based	0.070	15
Others	0.102	8
All	0.225	1145

Table 122.By instance when TB-DOTS training was received
Base: All MDs with TB-DOTS training

TB-DOTS training	Wtd. %	N
Less than a year ago	42.80	179
More than a year but not more than 3 ye	35.98	133
More than 3 years but not more than 5 y	9.37	33
5 or more years ago	11.85	30
Total	100.00	375

Table 123.By TB-DOTS trainor
Base: All MDs with TB-DOTS training

TB-DOTS trainor	Wtd. %	N
Specialty society	8.41	39
Pharmaceutical company	2.00	8
DOH	34.56	106
CHO	2.12	11
PHILCAT	25.09	119
PHILTIPS/TIPS	11.43	61
Others	16.39	36
Total	100.00	380

P. Awareness of NTP, CUP and PHIC package

Table 124. Awareness of Manual of Procedures for NTP
Base: All MDs aware of TB-DOTS

MOP for NTP	Wtd. %	N
Not aware	45.31	529
Aware	54.69	616
Total	100.00	1,145

Table 125.Awareness of the Comprehensive and United Policy on Tuberculosis
Base: All MDs aware of TB-DOTS

CUP on TB	Wtd. %	N
Not aware	60.19	673
Aware	39.81	472
Total	100.00	1,145

Table 126.Awareness of PHIC TB-DOTS package
Base: All MDs aware of TB-DOTS

PHIC TB-DOTS package	Wtd. %	N
Not aware	63.58	595
Aware	36.42	550
Total	100.00	1145

Table 127.Awareness of PHIC TB-DOTS package, by specialty
Base: All MDs aware of TB-DOTS

Specialty	Proportion	N
General Practice	0.383	220
Family Medicine	0.439	191
General Internal Medicine	0.490	246
Internal Medicine w/ Subspecialty	0.284	186
Pulmonology	0.757	152
Infectious Disease	0.783	33
Pediatrics	0.103	40
Obstetrics/Gynecology	0.118	20
Anesthesiology	0.959	9
Ear, Nose and Throat	0.000	4
Opthalmology	0.343	3

Specialty	Proportion	N
Orthopedics	0.500	2
Pathology	0.629	2
Psychiatry	0.970	2
Radiology	0.046	4
Surgery	0.443	29
Community Medicine	0.000	1
Other Specialties	0.000	1
All	0.364	1145

Table 128.Awareness of PHIC TB-DOTS package, by city
Base: All MDs aware of TB-DOTS

City	Proportion	N
Angeles	0.464	31
Bacolod	0.540	38
Bacoor	0.312	15
Batangas	0.687	11
Cabanatuan	0.623	22
Cagayan De Oro	0.433	95
Cebu	0.326	119
Cotabato	0.543	5
Dagupan	0.532	11
Davao	0.554	129
Dumaguete	0.178	15
Iloilo	0.325	96
Laoag	0.848	14
Lucena	0.653	7
Manila	0.328	110
Naga	0.663	24
Ozamis	0.813	9
Puerto Prinsesa	0.954	19
Quezon City	0.302	253
Roxas	0.513	36
Tacloban	0.361	60
Zamboanga	0.225	26
All	0.364	1145

Table 129. Awareness of PHIC TB-DOTS package, by clinic type
Base: All MDs aware of TB-DOTS

Type of clinic	Proportion	N
Free-standing	0.294	451
Hospital-based	0.479	482
Hospital-Outpatient/ER	0.269	131
HMO-based	0.576	29
Community-based	0.335	12
School-based/University-based/ER	0.067	17
Work-based	0.122	15
Others	0.539	8
All	0.364	1145

Table 130.Proportion of MDs by source of information about PHIC TB-DOTS package
Base: All MDs aware of TB-DOTS and the PHIC TB-DOTS package

Source of information	Proportion	N
Medical convention	0.265	550
Seminars	0.353	550
Refesher courses	0.015	550
Short term training courses	0.055	550
Special lectures/symposia	0.332	550
Medical journals	0.025	550
Pharmaceutical brochures	0.026	550
Medical textbooks	0.104	550
Web-based sources	0.010	550
Consultation w/other MDs	0.083	550
Radio,TV programs	0.018	550
Internet	0.004	550
DOH publication/circulars	0.197	550
TB-DOTS training	0.225	550
PhilHealth brochures/orientation	0.053	550
PhilCAT	0.115	550
PhilTIPS	0.072	550
Others*	0.134	550
Posters,Leaflets,newsletters	0.011	550
Residency Training	0.003	550
DOTS centers/launch of PPMs	0.011	550
Medical Association	0.003	550

Table 131.Mean proportion of TB patients covered by PHIC TB-DOTS package, by specialty
Base: All MDs adopting TB-DOTS

Specialty	Mean proportion	N
General Practice	0.151	52
Family Medicine	0.153	46
General Internal Medicine	0.206	62
Internal Medicine w/ Subspecialty	0.318	15
Pulmonology	0.112	64
Infectious Disease	0.155	11
Pediatrics	0.094	3
Obstetrics/Gynecology	0.000	2
Anesthesiology	0.000	1
Radiology	0.000	1
Surgery	0.000	8
All	0.131	265

Table 132.Mean proportion of TB patients covered by PHIC TB-DOTS package, by city
Base: All MDs adopting TB-DOTS

City	Mean proportion	N
Angeles	0.217	9
Bacolod	0.123	5
Bacoor	0.026	11
Batangas	0.000	4
Cabanatuan	0.121	9
Cagayan De Oro	0.229	11
Cebu	0.167	32
Cotabato	0.080	2
Dagupan	0.116	8
Davao	0.194	37
Dumaguete	0.000	1
Iloilo	0.133	19
Laoag	0.000	2
Lucena	0.053	2
Manila	0.229	26
Naga	0.000	2
Ozamis	0.000	1
Puerto Prinsesa	0.002	9
Quezon City	0.091	53
Roxas	0.191	9
Tacloban	0.000	10
Zamboanga	0.000	3
All	0.131	265

Table 133.Mean proportion of TB patients covered by PHIC TB-DOTS package, by clinic type
Base: All MDs adopting TB-DOTS

Type of clinic	Mean proportion	N
Free-standing	0.061	116
Hospital-based	0.192	95
Hospital-Outpatient/ER	0.161	31
HMO-based	0.294	9
Community-based	0.000	2
School-based/University-based/ER	0.183	5
Work-based	0.634	3
Others	0.000	4
All	0.131	265

Table 134.Number of physicians who received non-negative payment from PHIC for TB-DOTS patients
Base: All MDs

PHIC payments	N
0	219
150*	1
500	1
750	1
1500	1
2000	1
4000	1
10000	1
Total	226

Q. TB-DOTS adoption

Table 135.Proportion of MDs by reasons for not adopting TB-DOTS, Reason 1
Base: All MDs aware of TB-DOTS but not adopting it

Reason	Wtd. %	N
Averse to treating TB/Not managing TB patients	21.41	117
Lack of information	17.45	133
Not financially viable for MD	15.26	143
Patient characteristics do not merit DOTS	13.29	43
Lack of support services/materials/drugs	12.15	60
Expensive for patients	9.23	68
Lacks resources	3.09	31
Does not find it necessary clinically	2.93	14
Misconceptions	2.25	27
Would rather refer to DOTS center	2.02	23
Others	0.82	10
MD loses control over patient management	0.11	2
Total	100.00	671

Table 136. Proportion of MDs by reasons for not adopting TB-DOTS, Reason 2
Base: All MDs aware of TB-DOTS but not adopting it

Reason	Wtd. %	N
Lack of support services/materials/drugs	24.00	29
Expensive for patients	23.37	43
Averse to treating TB/Not managing TB patients	14.03	23
Not financially viable for MD	11.16	52
Lack of information	9.92	36
Lacks resources	6.51	28
Patient characteristics do not merit DOTS	2.99	11
Would rather refer to DOTS center	2.72	15
Does not find it necessary clinically	1.97	12
Others	1.89	10
Misconceptions	0.85	7
MD loses control over patient management	0.60	4
Total	100.00	270

Table 137.Proportion of MDs by conditions for adopting TB-DOTS, Condition 1
Base: All MDs aware of TB-DOTS but not adopting it

Reason	Wtd. %	N
Sufficient support services/materials/drugs	24.42	122
Patient characteristics merit DOTS	17.91	72
Provision of information	15.47	102
Financially viable for MD	13.99	52
Reduce cost to patients	10.82	45
When already managing TB patients in own clinic	2.93	25
Already referring/will be referring/awaiting certification	2.82	22
Sufficiency of MD resources	2.48	25
Misconceptions	2.17	25
Others	1.93	11
Finds it necessary clinically	1.16	13
Would rather refer to DOTS center	1.11	12
MD convenience	1.03	6
If mandated by government/clinical standards	0.88	9
Changes in DOTS guidelines/policies/coverage	0.88	9
Total	100.00	550

Table 138.Proportion of MDs by conditions for adopting TB-DOTS, Condition 2
Base: All MDs aware of TB-DOTS but not adopting it

Reason	Wtd. %	N
Sufficient support services/materials/drugs	33.49	52
Patient characteristics merit DOTS	30.59	16
Provision of information	13.18	23
Reduce cost to patients	7.67	26
Financially viable for MD	4.14	15
Sufficiency of MD resources	1.98	9
Misconceptions	1.83	5
Changes in DOTS guidelines/policies/coverage	1.19	5
When already managing TB patients in own clinic	1.09	3
If mandated by government/clinical standards	1.06	4
MD convenience	1.01	4
Others	0.91	4
Already referring/will be referring/awaiting certification	0.63	4
Finds it necessary clinically	0.57	1
MD does not lose control over patient management	0.35	1
Would rather refer to DOTS center	0.33	2
Total	100.00	174

Table 139. Adoption of TB-DOTS
Base: All MDs aware of TB-DOTS

TB-DOTS	Wtd. %	N
Does not adopt	71.28	711
Adopt	28.72	434
Total	100.00	1,145

Table 140.Proportion of MDs by level of TB-DOTS engagement
Base: All MDs adopting TB-DOTS

TB-DOTS engagement	Proportion	N
Certified DOTS referring physician	0.600	433
Certified DOTS provider	0.246	433
Operating a certified TB-DOTS center	0.197	432
Member of PPM or private DOTS center diagnostic committee	0.109	433
Member of PHILCAT of PhilHealth certification committee	0.278	432
Active member of a PPM coalition that has set up a DOTS center	0.149	433

R. TB-DOTS management

Table 141.Mean proportions of TB patients managed using TB-DOTS, by specialty
Base: All MDs adopting TB-DOTS

Specialty	Mean proportion	N
General Practice	0.671	84
Family Medicine	0.581	82
General Internal Medicine	0.598	94
Internal Medicine w/ Subspecialty	0.535	39
Pulmonology	0.482	84
Infectious Disease	0.672	16
Pediatrics	0.774	5
Obstetrics/Gynecology	0.767	2
Radiology	1.000	1
Surgery	0.684	9
All	0.642	416

Table 142.Mean proportions of TB patients managed using TB-DOTS, by city
Base: All MDs adopting TB-DOTS

City	Mean proportion	N
Angeles	0.649	16
Bacolod	0.675	10
Bacoor	0.329	11
Batangas	0.618	5
Cabanatuan	0.562	12
Cagayan De Oro	0.625	17
Cebu	0.817	38
Cotabato	0.307	2
Dagupan	0.592	8
Davao	0.598	64
Dumaguete	0.829	2
Iloilo	0.308	38
Laoag	0.752	8
Lucena	0.823	3
Manila	0.555	39
Naga	0.474	3

City	Mean proportion	N
Ozamis	1.000	2
Puerto Prinsesa	0.346	6
Quezon City	0.704	99
Roxas	0.734	14
Tacloban	0.915	14
Zamboanga	0.589	5
All	0.642	416

Table 143.Mean proportions of TB patients managed using TB-DOTS, by clinic type
Base: All MDs adopting TB-DOTS

Type of clinic	Mean proportion	N
Free-standing	0.757	169
Hospital-based	0.555	156
Hospital-Outpatient/ER	0.493	55
HMO-based	0.712	17
Community-based	0.770	3
School-based/University-based/ER	0.822	7
Work-based	0.863	5
Others	0.321	4
All	0.642	416

Table 144.Number of MDs by treatment partner during the intensive andmaintenance treatment phases
Base: All MDs adopting TB-DOTS

Treatment partner	Intensive	Maintenance
Clinic staff	63	44
Patient's relative	276	297
Patient's co-worker	1	3
Barangay health worker	55	53
Others	22	21
None	5	5
Total	422	423

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Private Provider Study Final Report

Volume III
Situational Analysis of Nine TB-DOTS Centers

UPecon Foundation[1]

August 2005

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This volume presents the results of the situational analysis conducted on nine TB-DOTS Centers from August to October 2004. The first part of the volume provides a brief profile of the study sites, including their background and history and typology according to their institutional organization. The second part summarizes the findings relevant to the five elements of DOTS plus some findings on quality aspects of service provision. The third part presents a summary of the findings and enhancements proposed. The appendix to this volume provides the details of the situational analysis for each of the nine study sites.

The findings presented here are based on the three tools utilized in the situation analysis: the facility tool, the provider tool and the patient exit tool. These tools were accomplished mainly through interviews as well as through observation of the facilities and the services provided. Results from the provider and patient exit tools are used to validate and enrich the findings from the facility tool.

I. Introduction

Unlike the physician survey, a purposive sampling strategy was adopted for the situational analysis of DOTS clinics. Due to the limited number of DOTS clinics that were (i) privately run, (ii) located at the replication sites and (iii) not previously the subject of situational analyses conducted by PhilTIPS, only a handful of DOTS clinics were left to choose from. As such, no attempt was made to select DOTS clinics according to alternative private-public mix models although clinics were chosen to achieve, as much as possible, geographic representation. Six DOTS clinics were selected from the Luzon area, with three located in Metro Manila and three outside, while 3 DOTS clinics were selected from the Visayas and Mindanao areas.

The DOTS clinics that were subjects of the SA are the following:

1. Angeles University Foundation Medical Center HMO DOTS Center- Angeles City
2. Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila
3. Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City
4. Health Management and Research Group Foundation – Davao City
5. Philamcare Quezon City Clinic DOTS Center – Quezon City
6. Polymedic General Hospital DOTS Center – Cagayan de Oro City
7. Philippine Tuberculosis Society Inc.- Cebu TB Pavilion – Cebu City
8. Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City
9. UST Adult and Pediatric DOTS Center – Manila City

Although the clinics were not selected according to any pre-defined criteria, some variations in the types of DOTS centers were still achieved (Table 1). Five out of the

nine clinics are owned and operated by either a hospital or a hospital-based foundation. One is HMO operated, while three are run by private foundations or NGOs.

The longer a TB-DOTS center that has been operating the more chances it would have had to fine-tune its systems and operations. However, most of the sample sites commenced providing TB-DOTS services only recently, i.e., at most within a year from the time of the situational analysis. However, three centers have been providing TB-DOTS services for a longer period of time. These centers are Canossa, the Cebu TB Pavilion and the UST TB DOTS clinic. In fact the UST TB DOTS Clinic was the first private TB DOTS center in the country.

Seven out of the nine sites are recipients of PhilTIPS grants, though not all of the grantees rely solely on PhilTIPS for their operational budget. The expenses of Philamcare Quezon City and Angeles University Foundation (AUF) are partly funded by their respective mother organizations while Polymedic General Hospital operations are funded by the hospital and grants from the DOH.

Not all of the clinics are dedicated to providing TB-DOTS services. Thus the TB-DOTS area is part of a multi-specialty clinic or multi-service health center. These centers include Canossa, the Philamcare clinic, the HMRG Foundation and the Angeles University Foundation. Resources of these centers, be it staff or equipment, are shared among the various users.

PhilCAT certification and PhilHealth accreditation allow the clinics to reimburse expenses from insurance claims, thus providing an additional source of revenue. However, most of the centers are not yet PhilCAT-certified and not yet PhilHealth-accredited, although the process of certifying and accreditation is ongoing. Only the UST TB DOTS Clinic is certified by PhilCAT and accredited by PhilHealth.

Staffing patterns of the DOTS centers vary. On the one extreme is Philamcare clinic which does not have any staff dedicated solely to providing DOTS services. However, there are about 5 full-time staff and 4 part-time staff who are assigned to do DOTS work aside from their normal clinic duties. For most of the centers, about 4 to 7 full-time staff members are dedicated to do DOTS work. The most common full-time staff members are the nurse and the field treatment coordinators. Physicians and DOTS administrators are more commonly part-time appointments. (Appendix Table A1. provides a breakdown by designation of the interviewed providers in the study).

Since most of the centers have been in operation for just a few months at the time of the situation analysis, the number of registered or enrolled patients is not yet that high. The number of enrolled patients ranges from 5 to about 32 patients. However, these numbers reflect only those patients that are registered and whose costs of treatment are covered by

the PhilTIPS grant. In the case of Canossa for instance, the number of TB patients is higher because some are funded out of the grant from the German Doctors.

Table 2 provides a classification of the patients interviewed in the SA sites during the two week SA period. Most of the patients interviewed are repeat patients without problems, most likely going to the facility for their drug intake. Dagupan Doctors, Polymedic and HMRG show some new patients who were referred to the facility. The number of referred patients in Polymedic may be attributable to the pharmacy initiative currently being undertaken in Cagayan de Oro. Of note is the absence of new TB patients, either walking in or referred, for AUF, Premiere, PTSI, and UST during the two week period. As some of these facilities recently commenced operations, one would expect that there would be a continuous flow of new patients. This absence could indicate either a small market of TB patients perhaps due to low prevalence rates in the area or deficiencies in information dissemination to potential patients and referring physicians.

The NTP category of diagnosed patients gives an indication of the case severity of patients handled by the SA sites. Most of the patients interviewed are Category I patients (smear positive patients), followed by Category II patients. The exception is Philamcare where most of the patients are smear negative. Canossa has the most varied patient mix with all three categories of patients currently being treated. The patient mix in terms of the category of TB patients has implications on the knowledge required of its staff, most specially the physicians diagnosing and prescribing the requisite treatment regimen.

The catchment area and the specific clientele that the TB DOTS center targets has implications on the ability of the DOTS center to ensure compliance of the patient and for the center to follow-through on the treatment of the patient. On the patient's side, a distant DOTS center would dissuade them from going to the center for drug supply and for directly observed drug intake. On the provider side, patients who are too far are more difficult and more expensive to trace should they default. Catchment area boundaries are strictly enforced by Canossa, Cebu TB Pavillon, UST, and Polymedic. Note that three of these centers have been providing TB-DOTS services for more than two years. Philamcare entertains members no matter where they live or reside. On the other hand, DOTS centers who accept patients from beyond their catchment areas require prospective patients to conform to the enrollment terms. However, patient compliance with these contracts remains to be seen.

An indicator of the time costs of patients in complying with treatment is their employment status. While most of the interviewed SA patients are males of working age (Appendix Tables A3 and A5), for most of the SA sites the proportion of non-working patients is greater than the proportion of working patients. The exception is Philamcare which generally enrolls members from the working population. With non-working enrolled patients, the time costs of going to the DOTS center may be smaller and may therefore increase compliance with directly observed treatment aspects of DOTS.

However, more difficulties with compliance may arise as the DOTS centers begin to receive referrals of employed patients.

With non-working clients, center operations may be during working hours. However, as more working patients are accepted, more flexible opening and closing hours may have to be employed.

II. Elements of the DOTS Strategy

The revised National Tuberculosis Program has adopted the Directly Observed Treatment Short-Course (DOTS) strategy in its objectives to increase case detection and cure rates for tuberculosis in the Philippines. The DOTS strategy has 5 crucial components; (i) diagnosis by sputum smear microscopy, (ii) continuous supply of drugs, (iii) direct observation of drug intake and (iv) standardized records and reports and (v) political commitment. In the following analysis, we present initial findings on the operations of the SA sites that have a bearing on their abilities to fulfill these program elements.

A. Diagnosis by Sputum Smear Microscopy

The National Tuberculosis Program (NTP) indicates as a matter of policy that direct sputum smear microscopy shall be the primary diagnostic tool and that all TB symptomatics must undergo sputum examination, with or without x-ray results. Part of the policy also calls for quality control requiring that sputum microscopy work be undertaken only by adequately trained health personnel and quality control of smear examinations must be observed.

Most of the SA sites rely on sputum smear examination as a diagnostic tool for TB symptomatics, although not exclusively (Table 2). X-ray results are relied on when AFB smear exam results are equivocal or use x-rays as a reference. Some sites accede to patients demand for x-rays and, in fact, offer these services on site. The older SA clinics like Canossa and Cebu TB Pavillon have x-rays within their facilities.

When smear results are not definitive, the NTP policy calls for referral of the case to a Diagnostic Committee for a decision on the case. The presence of a functioning Diagnostic Committee that a facility can call on facilitates the proper diagnosis, categorization and treatment of TB suspects. HMRG, Philamcare, and the Premiere DOTS clinics had no diagnostic committees formed yet at the time of the situation analysis. However, Philamcare resorts to the resident pulmonologist in the clinic or to the TB Diagnostic Committee of the Philamcare UN branch. HMRG consults hospital physicians and MDs from the Davao Chest Center. The others had formed diagnostic committees that seem to meet regularly or as the need arises.

Table 1. Profile of Sample SA sites

SA Site	Year Established	Type of Organization	Mother Organization	Length of time operating	Funding Support by TIPS?
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	Organized in June 2004, started operations in July	Foundation-owned hospital-based	Angeles University Foundation	As of time of SA, functioning for three months	PhilTIPS grantee
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	Established in 1972, started operations in the same year Start of TB DOTS service provision in 1982 under the auspices of German doctors Providing TB-DOTS services even before PhilTIPS grant Received PhilTIPS grant in June 2004	Community-based clinic owned by an NGO	Canossa Health and Social Center Foundation, Inc.	Started enrolling patients under PhilTIPS grant in June 2004	PhilTIPS grantee
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	In July 2004 started operations under the grant by hiring staff Claimed that that the clinic was already administering DOTS since 2003	Hospital based, foundation	Dr. Vivencio V. Villaflor, Sr. Medical Foundation	Five months formally under PhilTIPS grant More than a year since DOTS was implemented	PhilTIPS grantee
Health Management and Research Group Foundation, Davao City	Foundation was established in 1998 TB-DOTS was established in Sept. 2003 thru a MOA with DOH Regional Health Office	NGO	None	About a year from 2003	PhilTIPS grantee

Philamcare Quezon City Clinic DOTS Center, Quezon City	Organized August 2002, commercial operations in September 2003	HMO based	Philamcare Health Systems	Nearly a year after established	Not a PhilTIPS grantee
Polymedic General Hospital DOTS Center, Cagayan de Oro City	Started commercial operations in April 2004, but claimed to be established only in November 2004	Hospital- based, hospital owned and operated	CDO Polymedic General Hospital		Not a PhilTIPS grantee CDO Polymedic and DOH are sources of support
Premiere General Hospital of Nueva Ecija, Inc. DOTS Center	Initially organized July 2004 Started operations August 2004	Hospital-based DOTS coalition of five member organizations	Premiere General Hospital of Nueva Ecija, Inc.	About 4 months in operation	PhilTIPS grantee
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	Started providing TB –DOTS services under a grant from JICA in 1999 Started providing TB DOTS services in July 2004 under PhilTIPS grant	Private foundation, NGO	Philippine Tuberculosis Society, Inc.	About two months in operation as a PhilTIPS grantee but in existence providing TB DOTS services before that	PhilTIPS grantee Also obtains funding from PTSI
UST Adult and Pediatric DOTS Center, Manila City	MOA with TIPS was only in September 2003 However, was already a DOTS clinic since 1995, one of the first private in the country	Hospital-based	Universtiy of Sto. Tomas Hospital	Eight years in operation	Awarded a Public Private Mix DOTS (PPMD) expansion grant from PhilTIPS

Table 1. Profile of Sample SA Sites, continued

SA Site	Dedicated to DOTS?	Accreditation	Number of full-time personnel	Number of TB DOTS patients	Clientele
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	No, DOTS center is attached to the hospital OPD	DOTS center in the process of being accredited by PhilCAT and PhilHealth MD and OPD of hospital are PHIC accredited	4 full-time (1 MD, 2 FTC, 1 liaison)	Eleven since the start of operations (1 new and 10 revisits)	HMO members and dependents (usually company employed) PHIC members Walk-in paying patients Patients come from Angeles City, Porac, Clark Field, Mabalacat, San Fernando while targeted is only Angeles City
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	Not dedicated to TB-DOTS Provides other services, dental, maternal care, other outpatient services	No PhilHealth accreditation yet but with a pending application in Sept. 2004 Not yet a certified DOTS center by Philcat but there is a pending application.	7 full-time staff (1 TB DOTS facility administrator, 4 midwives, 1 med tech, 1 accountant) 17 part-time staff(1 MD, 1 midwife, 1 med tech, 4 diagnostic committee members, 1 radiologist, 9 health volunteers)	11 enrolled under the PhilTIPS program, 70-80 under the German doctors in the last 9 months	District 1 Zone 8 of Tondo – 16 barangays, very densely populated area Some transient patients
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	Dedicated to TB DOTS services	Expecting to get PhilCAT certification in November PhilHealth accreditation to follow after PhilCAT	2 Full-time staff (Nurse and field treatment coordinator) Part-time staff include the DOTS administrator, Diagnostic Committee Members, and accountant	32 enrolled patients	Supposed to have a coverage area but actually entertains anybody within Pangasinan as long as they agree to the enrollment terms

SA Site	Dedicated to DOTS?	Accreditation	Number of full-time personnel	Number of TB DOTS patients	Clientele
					Patients come from Dagupan, Calasiao, Mangaldan, Lingayen, Binmaley, San Fabian, Malasique, Asingan, Sta. Barbara, Urdaneta, Villasis, Rosales
Health Management and Research Group Foundation, Davao City	Not dedicated to TB DOTS; it provides dental, optical, pediatric services Has pharmacy and laboratory	Not yet accredited Has applied for PhilCAT certification and PhilHealth accreditation	Four (one nurse, two field treatment coordinators and one liaison officer)	27 registered as of 2004	Bias for low income groups Catchment area includes Boulevard, Agdao, Sasa, Lanang and Tibungco.
Philamcare Quezon City Clinic DOTS Center, Quezon City	No, staff perform other duties in the clinic Clinic space for DOTS in the facility	Not yet accredited by PhiLCAT or PHIC, planning to seek accreditation in September 2004	No full-time personnel dedicated to DOTS 5 Full-time personnel assigned to provide DOTS services (1 TB-DOTS administrator, 1 MD, 2 Nurses, 1 Medical technologist) 4 Part-time personnel assigned to DOTS services (1 General Practitioner, 3 Internal Medicine)	January-September 2004 – 19 TB cases registered	Only members of Philamcare are eligible. No limitation as to place of residence or work
Polymedic General Hospital DOTS Center, Cagayan de Oro City	Center is dedicated to DOTS	Pending application for PhilHealth accreditation (April 2004) PhilCAT certified since April 2004	One full time (nurse) and six part-time (TB DOTS facility administrator and 5 diagnostic committee members)	30 cases registered 131 examined	30 barangays of CDO with an estimated population of 260,000

SA Site	Dedicated to DOTS?	Accreditation	Number of full-time personnel	Number of TB DOTS patients	Clientele
					Does not accept patients residing beyond catchment area Most patients referred by 21 referring MDs Clinic caters to urban indigents but accepts patients from higher income classes
Premiere General Hospital DOTS Center, Cabanatuan City	Dedicated to DOTS service provision	Not yet accredited with PhilHealth, lacks diagnostic committee Not yet PhilCAT certified	Full-time – 1 nurse/senior treatment coordinator, 1 field treatment coordinator, Part-time: 1 TB DOTS administrator, 1 DOTS MD, 1 Med tech, 1 accountant	5 enrolled patients out of 22 symptomatics	Residents of Cabanatuan City, almost all current patients are referrals Those not from Cabanatuan are referred to RHUs
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	Dedicated to treating TB cases	Not yet accredited by PhiLCAT or PHIC as of August 2004, process ongoing	Full-time: 7 (1 TB-DOTS administrator, 1 Physician, 1 Nurse, 1 Accountant/bookkeeper, 1 drug supply manager/field treatment coordinator, 2 utility aid/liaison officer)	23 TB cases registered (January to August 2004)	Open to residents from 5 barangays (Sambag 1, Sambag 2, Calamba, Capitol Site and Guadalupe). Population is about 101,043. Catchment area strictly enforced in Cebu so patients are limited to these 5 barangays
UST Adult and Pediatric DOTS Center, Manila City	Dedicated to providing TB DOTS services	Accredited by PhilHealth in July 2003 Certified DOTS center in July 2003	6 Full-time staff (1 Nurse, 1 liaison officer/accountant, 2 medical technologists, 2 field treatment coordinators)	As of 2nd quarter 2004, 10 new and relapse cases	Has specific catchment area, (Manila north of Pasig River, Quiapo, Tondo, Binondo, Sampaloc, San Miguel,

SA Site	Dedicated to DOTS?	Accreditation	Number of full-time personnel	Number of TB DOTS patients	Clientele
			5 Part-time staff (TB DOTS administrator, Physician, 3 diagnostic committee members		Sta. Cruz, Sta. Mesa) Refers patients who do not belong to the catchment area to other facilities Patients outside of catchment area are accepted as long as they guarantee daily visits.

Table 2. Classification of Interviewed TB patients

Facility	New TB Patient: first consultation, walk-in	New TB Patient: first consultation, referred	New TB Patient: first consultation, after default/ re-start TB patient	Repeat Visit w/out problems	Repeat Visit with problems	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	0	5	0	5
Percent	0	0	0	100	0	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	0	1	1	27	1	30
Percent	0	3.33	3.33	90	3.33	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	0	6	0	16	2	24
Percent	0	25	0	66.67	8.33	100
Health Management and Research Group Foundation – Davao City	0	1	0	13	0	14
Percent	0	7.14	0	92.86	0	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	1	0	0	5	0	6
Percent	16.67	0	0	83.33	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0	6	**0**	21	0	27
Percent	0	22.22	0	77.78	0	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	0	0	0	5	0	5
Percent	0	0	0	100	0	100
Philippine Tuberculosis Society Inc.- Cebu TB Pavilion – Cebu City	0	0	0	3	0	3
Percent	0	0	0	100	0	100
UST Adult and Pediatric DOTS Center – Manila	0	0	1	10	1	12
	0	0	8.33	83.33	8.33	100
Total	**1**	**14**	**2**	**105**	**4**	**126**
Percent	0.79	11.11	1.59	83.33	3.17	100

Table 3. Category of Interviewed Diagnosed Patients

Facility	Category I	Category II	Category III	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	4	0	1	5
Percent	80	0	20	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	13	10	6	29
Percent	44.83	34.48	20.69	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	18	5	0	23
Percent	78.26	21.74	0	100
Health Management and Research Group Foundation – Davao City	10	4	0	14
Percent	71.43	28.57	0	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	0	0	6	6
Percent	0	0	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	21	6	0	27
Percent	77.78	22.22	0	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	2	2	1	5
Percent	40	40	20	100
Philippine Tuberculosis Society Inc.- Cebu TB Pavilion – Cebu City	3	0	0	3
Percent	100	0	0	100
UST Adult and Pediatric DOTS Center – Manila	6	6	0	12
Percent	50	50	0	100
Total	**77**	**33**	**14**	**124**
Percent	62.1	26.61	11.29	100

Table 4. Interviewed patients by employment status

Facility	Working	Not Working	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	2	3	5
Percent	40	60	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	8	23	31
Percent	25.81	74.19	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	10	13	23
Percent	43.48	56.52	100
Health Management and Research Group Foundation, Davao City	5	9	14
Percent	35.71	64.29	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	5	1	6
Percent	83.33	16.67	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	12	16	28
Percent	42.86	57.14	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	2	2	4
Percent	50	50	100
Philippine Tuberculosis Society Inc.- Cebu TB Pavilion – Cebu City	1	2	3
Percent	33.33	66.67	100
UST Adult and Pediatric DOTS Center – Manila	4	7	11
Percent	36.36	63.64	100
Total	49	76	125
Percent	39.2	60.8	100

The NTP guidelines call for the collection and analysis of three specimens of sputum, 2 spot and an early morning specimen collected at home. The presence of sputum collection areas on site facilitates the collection of spot specimens and ensures that patients can be supervised as to the proper collection of sputum. The presence of sputum processing on site may also prevent corrupting of specimens and therefore ensure quality of test results. All except one of the SA sites collect sputum on site. Designated sputum collection areas are either within the clinic premises or at the laboratory of the affiliated hospital. The exception is the Philamcare clinic which does not have a designated sputum collection area because of space constraints in the clinic. Samples are taken at home and then submitted to the clinic for evaluation. However, some SA sites were observed to lack supplies, specifically sputum collection cups.

All the SA sites have arrangements for the processing of sputum samples. Those who do the processing within the clinic have the necessary equipment, i.e., microscopes and reagents within the clinic. These include Canossa, Cebu TB Pavilion, and HMRG. Most of the hospital-based SA sites refer sputum processing to the hospital laboratory, the exception being the Polymedic clinic. Philamcare, having no laboratory on site, has an arrangement with the Quezon Institute where sputum samples are sent to them for processing and results are obtained the next day.

Most of the SA sites have some measure of quality assurance for smear results. Results from other laboratories are accepted only if the laboratories are certified by the DOH or have NTP trained microscopists or PhilCAT accredited microscopists. If not, smears are most often repeated on site. However, initial results from Angeles and Polymedic indicate no measures for quality assurance of specimens.

Except for Canossa and PTSI, most of the current patients interviewed in the SA sites were diagnosed in other facilities (Table 6). Majority of the patients were first diagnosed in private hospitals and private clinics (Appendix Table A6).

For those diagnosed in the facility, it seems that chest x-ray was still used exclusively as the diagnostic procedure (Table 7) on some of the patients in some of the sites. For instance, interviewed patients recall having had an x-ray taken but not a sputum sample collected in Angeles, Canossa, Dagupan Doctors, Philamcare, and Premiere. The issue may be of patient recall or lack of patient understanding of the purpose of the procedure that was undertaken. This result may need to be investigated further. For the other sites, the patients recall having had an AFB smear exam and/or an AFB smear and x-ray taken.

Table 5. Selected Diagnosis Elements

SA Site	Diagnostic tool used	Sputum on site?	Equipment	Diagnostic committee?	Quality assurance	Fee policy
Angeles University Foundation Medical Center HMO DOTS Center	Administer both AFB smears and x-ray	Sputum collected and processed at the hospital Sputum collection area is at laboratory	Equipment of OPD is utilized for DOTS	Diagnostic committee is present with 10 members. Meets once a month		Patients pay P 360 pesos for each exam (120 each specimen) to the hospital.
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	Diagnosis based on history symptoms, sputum exams and chest x-rays Unequivocal AFB smear results are sent to the diagnostic committee	There is a designated sputum collection and microscopy area Sputum collected is examined immediately	Sputum collecting containers, microscope and x-ray machine are available	Diagnostic Committee present with 6 members (2 pulmonoligists, 1 radiologist, 1 DOTS MD, 1 NTP coordinator and the DOTS coordinator) Meets as the need arises	Microscopists are Philcat accredited For patients referred from other hospitals, lab exams are repeated	P 10 per sputum examination for a total P 30 per three, P 75 for chest x-ray However, most patients are unable to pay
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	Sputum smear microscopy X-ray ordered if sputum smears are negative and results referred to diagnostic committee	On site sputum collection in a designated area in the clinic. Samples processed at the hospital laboratory which is separated from DOTs clinic by a window.	Supplies available in the collection area Microscope is in the hospital laboratory	Diagnostic committee present Meets once a month	Sputum exam done off site are repeated on site unless performed by an NTP trained microscopist	The hospital charges P 150 per exam (P50 per specimen) This is not the full cost, the rest is subsidized by the foundation

Health Management and Research Group Foundation, Davao City	Sputum AFB smear is main diagnostic tool	Sputum collection is done on site and processed on site as well	Patients bring their own sputum collection containers	No Diagnostic committee They consult physicians from Davao Doctors and Davao Chest Center	The DOH regional office checks the specimens. Therefore they are subject to quality checks	Sputum and x-ray are not free. For AFB smear - P 150 for initial, P 35 for successive P 50 initial consultation
Philamcare Quezon City Clinic DOTS Center, Quezon City	Sputum AFB smear is used for diagnosis	AFB smears are done at home and specimens sent by clinic to Quezon Institute for processing.	No x-ray nor laboratory in facility Major purchase of the clinic exclusively for TB DOTS were sputum collecting containers	No TB diagnostic committee Patients who may be Category III are referred to clinic pulmonologist or to the TB Diagnostic Committee of the UN Philamcare branch.	Sputum samples processed elsewhere are accepted Sputum processing facility (QI) is PhilCAT accredited	No fees are charged the patient for the sputum exam For sputum processing, the clinic pays P150 for three specimens analyzed at the Quezon Institute before treatment, P 50 for successive examinations.

Polymedic General Hospital DOTS Center, Cagayan de Oro City	Sputum smear is most preferred diagnostic tool (all suspects required to undertake sputum) Patient only required to undertake X-ray if three specimens show negative results Patients with abnormal findings referred to diagnostic committee	On site collection of sputum is done. Collection area is located outside for proper ventilation	Microscope, sputum collection containers, slides and reagents are available in the clinic Some equipment not available in clinic are available in hospital Some furniture are on loan from the hospital	Diagnostic Committee is present with 5 members Meets as needed	No indicator of quality assurance	No fees charged for sputum
Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	AFB smear	Sputum collection and processing undertaken at the hospital.	No laboratory equipment within DOTS Center since hospital laboratory does all laboratory work	No diagnostic committee	Accepts AFB Smear if performed by labs accredited by DOH	The DOTS center does not charge for sputum exam. However, the patient pays laboratory services directly to the hospital.

Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	Diagnosis mostly by sputum exam, although honor x-ray results as a reference.	Sputum collection and microscopy is done on site.	Other equipment such as the BP apparatus, thermometer, stethoscope, microscope are available but are not used exclusively for TB-DOTS. At the time of the situational analysis, there were no sputum collecting containers in the facility.	Has TB diagnostic committee consisting of the regional TB coordinator, one pulmonologist, alternate doctors representing the private sector, one radiologist, TB coordinators from the different hospitals and a representative from DOH Meets once a week	Honor sputum results from other laboratories but opt to repeat exam due to doubts about quality of other laboratories.	Consultations and sputum AFB smears are provided free of charge. X-rays are charged P 140
UST Adult and Pediatric DOTS Center, Manila City	Sputum	Spot sputum collected upon initial consult, 2 samples next day Samples sent to UST Hospital laboratory for processing.	Own examination and lab equipment; no x-ray	Diagnostic committee is present with 3 members (radiologist, pulmonologist, infectious disease specialist) Meets every 3rd Thursday of the month	Sputum samples are read by PhilCAT accredited medical technologists	P200 for PPD

Table 6. Interviewed patients diagnosed in the facility

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1	4	5
Percent	20	80	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	22	8	30
Percent	73.33	26.67	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	8	16	24
Percent	33.33	66.67	100
Health Management and Research Group Foundation, Davao City	4	10	14
Percent	28.57	71.43	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	4	2	6
Percent	66.67	33.33	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	7	20	27
Percent	25.93	74.07	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	3	2	5
Percent	60	40	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
Percent	100	0	100
UST Adult and Pediatric DOTS Center – Manila	3	9	12
Percent	25	75	100
Total	55	71	126
Percent	43.65	56.35	100

Table 7. Procedures performed on patients diagnosed in this facility

Facility	Chest X-ray	Sputum AFB Smear	Chest X-ray & AFB Smear	Others	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1	0	0	0	1
Percent	100	0	0	0	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	12	7	2	1	22
Percent	54.55	31.82	9.09	4.55	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	1	7	0	0	8
Percent	12.5	87.5	0	0	100
Health Management and Research Group Foundation, Davao City	0	2	2	0	4
Percent	0	50	50	0	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	4	0	0	0	4
Percent	100	0	0	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0	1	6	0	7
Percent	0	14.29	85.71	0	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1	2	0	0	3
Percent	33.33	66.67	0	0	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	0	0	3	0	3
Percent	0	0	100	0	100
UST Adult and Pediatric DOTS Center – Manila	0	1	2	0	3
Percent	0	33.33	66.67	0	100
Total	**19**	**20**	**15**	**1**	**55**
Percent	34.55	36.36	27.27	1.82	100

Centers that process the sputum exam within the clinic fall into two categories; those who charge patients for the sputum exam and those who do not. Canossa and HMRG charge for the sputum exams done while Cebu TB Pavilion and Polymedic do not charge any fees for the sputum exam. Thus, while the former two can recover some of the costs of the laboratories, the latter two would have to finance the supplies and labor from elsewhere. Philamcare incurs costs of processing the sputum exam at the outside laboratory but these are covered by the patient premiums. Hospital based SA sites that refer the sputum collection and processing to the hospital laboratory do not charge

patients for the sputum exam but patients pay directly to the hospital laboratory. Sputum processing is thus a source of revenue for the mother organizations, in this case, the hospitals.

B. Continuous Supply of Drugs

The NTP guidelines call for short-course regimens as the mode of treatment for the different classifications & types of tuberculosis. Several types and categories of TB patients have been identified, all of which have their corresponding treatment regimens.

Aside from conforming to the typology of TB cases and the corresponding drug regimes, the NTP also calls for the national and/or local governments to ensure the provision of drugs to all sputum positive TB cases. At the DOTS center level, this can be loosely interpreted as ensuring the adequacy of drug supplies for enrolled patients and ensuring that drug supplies will be forthcoming and uninterrupted in the future.

All of the sample sites obtain their drug supplies wholly or partially from the government (Table 8). The newer sites obtained their initial stocks from central DOH, facilitated by PhilTIPS or PhilCAT. Those funded by foundations such as Canossa and Cebu TB Pavillon also obtain drugs from the private foundations supporting them. Shortfalls are sometimes funded by direct purchases such as in the case of Canossa. Most of the SA sites claim to follow the 30 percent buffer stock policy, with the nurse or DOTS administrator managing the inventory of drugs. Most of the SA sites also claim that their drug stocks are sufficient for their current caseloads. This is validated by the information from the patient exit tool where save for one patient, all revisit patients interviewed were supplied with drugs (Table 9).

However, it bears reminding that the number of patients is still not that high so adequacy of drug stocks has not been really tested. An indication of supply constraints is shown in the case of Canossa that claims that buffer stocks are sometimes used up due to the number of patients.

Another way to manage drug stocks and to ensure sufficient supply for a person is to set aside the drugs needed for each person's treatment at the onset of treatment. This ensures that a patient's treatment would not be interrupted if certain drugs are unavailable.

Perhaps due to storage constraints or the perceived sufficiency of drugs, some of the SA sites do not set aside drugs for each patient but store the drugs altogether. Some improvement can therefore be initiated in this area.

Table 8. Selected Aspects of Drug Supply Management

SA Site	Source of drugs	Drugs inventory policy	Sufficient current supply?	Drugs allocated per person?	Securing future supply	Drug fee policy
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	95% of drug supply from government, 3% from donations from Wyeth and Medichem and 2% from drugstores	Drug inventory policy existing according to administrator Facility administrator sees to the drug policy	While 6 months worth of stocks is available according to the administrator, this may not be true from field treatment coordinator anecdotes	No, this is probably because they do not have storage area.	MOA with local government/CHD is not yet existing Plan to increase participation of drug companies as sources of free medicines	Drugs are provided for free
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	PhilTips and German doctors both of which supply 100% of drug requirements of patients enrolled in the respective program Center purchases drugs occasionally but these are not charged to patients	Inventory policy existing Weekly inventory done by NTP coordinator Follow 30% buffer stock policy Drugs from German doctors are received on the 2nd Wed of the month with an extra 10% added for new patients	Yes but due to increasing number of patients, even buffer stocks are sometimes used up			Drugs are provided for free
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	Initial supply from DOH coursed through PhilTIPS but will get future supply from CHO/LGU	Buffer stock policy is followed	Sufficient supply for current number of patients (number of patients + 20%)	Allocated per person although in rubber bands	Plans to get MOA with CHO/LGU	Drugs are provided for free

Health Management and Research Group Foundation, Davao City	DOH regional office is the source of drugs	30% buffer stock policy is followed	There is sufficient supply for the current number of patients	Yes, patients have their own envelopes	MOA with DOH Region 11 is already existing Plan to purchase drugs to add to supply to be prepared	Drugs are provided for free
Philamcare Quezon City Clinic DOTS Center, Quezon City	Drug supply 100% from the government although facilitated by team of PhilCAT In the coming year, drug supply would have to be sourced from the local government units' allocation. This is a cause of concern for the Philamcare management	Written inventory of drugs exists as per enumerator observation DOTS nurse is in charge of inventory	There is sufficient supply of drugs for the current caseload	Once a patient is enrolled his drug supply is set aside	MOA with LGU is still being processed	Drugs are provided for free
Polymedic General Hospital DOTS Center, Cagayan de Oro City	100% from DOH	Presently follows MOA stipulation of keeping 6 month supply of drugs per patient plus 30% buffer stock Replenishment is based on quarterly drug inventory	There is sufficient supply for the current caseload			Drugs are provided for free

Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	Initial supply from DOH coursed through PhilTIPS but will get future supply from CHO/LGU	While 30% buffer stock is supposed to be followed, present buffer stock is 10% of initial drug supply Nurse or DOTS administrator ensures that there is sufficient supply	There is sufficient supply for the current number of patients.	Drugs are not set aside per person	Plan to get MOA with CHO/LGU	Drugs are provided for free
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	Drugs are 50% sourced from the government and 50% sourced privately, i.e., PTSI stocks	Follows the standard inventory policy based on the number of patients actually enrolled plus a buffer stock. Nurse acts as the drug supply manager at the same time	There is sufficient supply for the current caseload.	From pictures of the current drug stocks, it seems that drugs are not allocated per person	Drugs are already being sourced from the City Health Office.	Drugs are provided for free
UST Adult and Pediatric DOTS Center, Manila City	100% of drugs provided by the DOH for free	Maintains the 30% buffer stock policy		Each patient allotted drugs for the duration of treatment		Drugs are provided for free

As to securing future supply of drugs, most of the SA sites have no indications of existing memorandum of agreements with local governments or centers for health development for their drug supply. This is a cause of concern particularly for Philamcare as it was used to having a PhilCAT person facilitate the procurement of their drugs. Those with existing MOAs are HMRG and Cebu TB Pavilion. Securing the MOAs could therefore be areas for improvement for the sites.

C. Direct Observation of Drug Intake

The NTP states that no patient shall be initiated into treatment unless a case holding mechanism for the treatment compliance has been agreed upon by the patient & health workers. Direct observation of drug intake is a mechanism for ensuring treatment compliance. This requires the involvement of a treatment partner who should watch the patient take his drugs daily and reports and traces the patient if he defaults. The health staff, barangay health worker, community volunteers and family members can serve as treatment partners. Direct observation can occur at the health facility, the treatment partner's house and the patient's house. Daily drug intake is supervised during the entire course of treatment.

Most of the SA sites claim to conform to the NTP drug regimen (Table 10). It is in the aspect of the supervised treatment where the SA sites show a lot of variation. Drug dispensing practices and consequently direct observation of drug intake by the clinic staff vary across the sites. Drugs dispensation and direct observation of intake range from daily, every other day, twice a week to once a week. Variations also occur during the intensive and maintenance phase of the treatment, with some sites prescribing more frequent visits to the center for observed drug intake during the intensive phase and then relaxing the frequency during the maintenance phase. It can be observed that the DOTS centers that have been in existence for a longer period of time - Canossa, UST and Cebu TB Pavilion - hew more closely to the standard daily dispensing and observed drug intake. The recently opened DOTS centers more often than not have weekly or twice a week drug dispensing and observation.

The prevalence of clinic staff serving as treatment partners is directly related to the frequency of drug dispensing. Clinic staff and field treatment coordinators function as the initial or primary treatment partners when daily observation of drug intake is followed. Otherwise, family members are the most common treatment partners.

Missing one visit to the health center indicates that a patient is a possible defaulter. This is indicated by at least 4 of the sites. However, due to the infrequent visits, missing one visit may mean that a week's worth of treatment may have been lost. Defaulter tracing mechanisms, although claimed to be existent, have not yet been actually implemented by most of the sites. Exceptions to these are Canossa, Cebu TB Pavilion and UST.

Information from the patient exit tool indicates how these policies are operationalized in practice. Except for about three patients from AUF, all patients interviewed indicate that a treatment partner was assigned to them (Appendix Table A8). For the two patients who were assigned treatment partners, however, family members were assigned. Patients who indicated that family members were their treatment partners were mostly from HMRG, which is inconsistent with its claim that field treatment supervisors are the treatment partners. Patients from Premiere and UST who have family members as treatment partners may be in the latter part of treatment. Clinic staff such as the nurse, midwife and the treatment coordinators are the assigned treatment partners.

Table 12 shows the frequency of seeing a treatment partner who is not a family member. This table has implications on how closely the treatment of the patient can be monitored. Most of the patients interviewed indicate that they see their treatment partner daily even if their treatment partners are clinic staff. Variations occur with PTSI and UST with daily and three times a week contacts. These may be related to the phase of treatment where less frequent contacts are allowed for those in the maintenance phases. However, the widest variation is with Polymedic DOTS Center where daily but also once a week contacts are reported. As indicated in their facility tool, once a week visits are allowed for patients who have "difficulty complying." In these instances, the importance of remote monitoring by the treatment partner becomes all the more important. (Maybe field visits can be undertaken for these patients, at least in the initial phases.)

Enumerator observation of patient and clinic staff contact indicate that for most of the revisit clients interviewed and observed, the drug intake was directly observed by the treatment partner (Table 13). There were some slippages observed for Premier and Dagupan Doctors. However, more instances when drug intake was not observed are reported for AUF and Polymedic. Although Polymedic patients whose drug intake was not observed may have family members as treatment partners, the clinic staff could at least observe their intake when they are present in the clinic since the additional effort may not be substantial anyway.

Part of direct observation of drug intake is the maintenance of treatment cards for the patients. Most of the revisit patients had their treatment cards marked (Table 14). Some slippages occurred for HMRG and PTSI-Cebu. It is notable that treatment cards were marked even if drug intake was not directly observed in the cases of Angeles and Polymedic. The number of patients whose treatment cards were marked exceeds those whose drug intake was observed.

Revisit clients were observed to be mostly reminded of their next appointment by their treatment partners or clinic staff (Table 15). Some slippages occurred for Canossa, Dagupan Doctors, and HMRG. However, about a third of revisit patients observed in Polymedic were not reminded of their next appointment.

Table 9. Revisit patients supplied with TB drugs

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	5	0	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	27	0	27
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	18	0	18
Health Management and Research Group Foundation, Davao City	6	0	6
Philamcare Quezon City Clinic DOTS Center – Quezon City	5	0	5
Polymedic General Hospital DOTS Center – Cagayan de Oro City	22	0	22
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	4	0	4
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	2	1	3
UST Adult and Pediatric DOTS Center – Manila	11	0	11
Total	**100**	**1**	**101**

Table 10. Selected Aspects of DOT

SA Site	Drug regimen	Frequency of DOT	Treatment partners allowed	Defaulter tracing, criteria and mechanism	Implementation of defaulter tracing
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	Follows the NTP drug regimen	Drug dispensing is weekly---- Tuesdays and Thursdays Seems like there is no difference between drug dispensing frequency during maintenance and intensive phase Sometimes drugs are given to relatives and not the patient himself	Family members or guardians Initial treatment partner is MD or clinic staff	Field treatment coordinator follows up through telephone, cellphone and text messages	Proactive texting is being undertaken No patient has defaulted so far
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	Follows drug regimen recommended by NTP for both German MD and PhilTIPS	DOTS is done daily at the health center Mondays-Saturdays and on Sundays, treatment partner goes to the patient's house For patients requiring streptomycin, patients go the clinic daily Treatment partners observe the patient take the drugs even on weekends and holidays	Health volunteers and the NTP coordinator act as the treatment partner Two treatment partners assigned per area Treatment partners earn commission from sale of herbal supplements (P 400 six to seven times a week?)	Currently clinic has no defaulters Patients who miss one visit are considered as possible defaulters Home visits are done If they see patient would have difficulty in complying, they are referred to more convenient facility	If they miss one day, home visits are made immediately Due to strict requirements of German Doctors (0 default rate)

Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	Follows the NTP drug regimen	Patients are given weekly supply of medicines and intake observed during that time, no difference between intensive and maintenance phase Two weeks to one month supply of medicines are given in exceptional cases, i.e., patients live in far flung areas For Category II, Monday to Saturday injections Field treatment coordinators supposed to visit twice a week during intensive phase, and once a week for maintenance phase Most of the time only visits once a week Empty 'banigs" are submitted and checked upon replenishment of drugs Intake is directly observed during drug dispensing schedule	Family members only. Nurse only when intake is observed during dispensing of the drugs in the clinic	Missing one scheduled visit makes one a defaulter Field treatment coordinator visits the defaulter and reports the results the next day FTC dedicates two days a week to trace defaulters	No defaulter so far

Health Management and Research Group Foundation, Davao City		Weekly dispensing of drugs If catchment area is small, drug intake is supervised daily Otherwise, patients visit the clinic weekly	Barangay health workers are the treatment partners Field treatment supervisors are treatment partners who visit them twice a week	Contact numbers are obtained if not the neighbors'	It is the FTC who goes to their house.
Philamcare Quezon City Clinic DOTS Center, Quezon City	NTP drug regimens are followed.	Intensive phase – patients come in every other day for two months. They take the medicine in the clinic for that day and take home the medicines for the other day Maintenance phase – patients come in weekly. They take that day's medicines in front of the nurse and then take home the medicine for the rest of the week. Patients were only given the drugs in most of the instances observed	Treatment partners are those who have influence on the patient – spouse, parents or relatives Nurse acts as a treatment partner when they take the medicines in the clinic	A patient who misses one visit is a possible defaulter. No roving personnel to track defaulters, although identified mechanism is to call the human resource department of their company.	Systematic defaulter tracing not yet warranted by the number of patients.

Polymedic General Hospital DOTS Center, Cagayan de Oro City	Follows the NTP categorization and drug regimen	Daily observation of drug intake is encouraged during intensive and maintenance phase. However, some patients who are perceived to have difficulties complying are allowed to bring home weekly supply of medicines	Nurse is the primary treatment partner for all DOTS patients Household members allowed during weekends and holidays	Basis for screening potential defaulters would be self-reported accounts of patients on their compliance	Nurse checks daily through phone compliance to drug intake
Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	NTP drug regimen followed	For Category I and III patients: Patient visits clinic once a week to get drugs. Field treatment coordinator visits patients once a week for drugs. Therefore drugs given are for three days. For Category II patients: Patients visit clinic everyday Some patients not observed taking the medicines during days when drugs are obtained.	Relatives as home treatment partners and doctors and nurses as clinic treatment partners	One skip makes one a possible defaulter Field treatment coordinator traces	Not yet implemented since there are no defaulters yet

Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	Patterned after the NTP, no deviation from the drug regimen prescribed for the category of TB patients No variation in drug dosaging even if DOT is not daily	Intensive phase - Daily visits to the center for two weeks, except on weekends, then twice a week for the rest of the 8 week intensive phase Maintenance phase - Patients come twice a week---Monday and Thursday--- for their drug supplies Patients who are not diligent or who have insincere treatment partners are not allowed to take home the drugs and are required to come everyday during the whole course of treatment.	Intensive phase – DOTS staff Maintenance phase – DOTS staff and family members Weekends and holidays – family members	Failure to come in for two days makes one a defaulter. Home visits are done by the field treatment partners.	Inspect patient ID for ticks on drugs taken. Interview patient and treatment partner to see if answers are consistent.
UST Adult and Pediatric DOTS Center, Manila City	Follows the NTP drug regimen	First 2 weeks of treatment, daily consult and intake, take home on Saturday and Sunday Succeeding treatment in clinic MWF, take home TThSS	Initially, DOTS Administrator and physician, then nurse, then family members	FTCs do home visits every Thurs PM and Sat AM	

Table 11. Treatment partner assigned to patients

Facility	Nurse	Midwife	Family Member	Sr. Treatment Coordinator / Field Treatment Coordinator	Volunteer Health Worker	Friend/ Officemate	Unidentified	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	2	0	0	0	0	2
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	0	1	0	0	29	0	0	30
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	0	0	2	16	0	2	2	22
Health Management and Research Group Foundation, Davao City	0	0	11	0	1	1	0	13
Philamcare Quezon City Clinic DOTS Center – Quezon City	3	0	1	0	0	1	0	5
Polymedic General Hospital DOTS Center – Cagayan de Oro City	23	0	0	0	0	0	0	23
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1	0	3	0	0	0	0	4
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	0	0	0	0	0	3
UST Adult and Pediatric DOTS Center – Manila	6	1	5	0	0	0	0	12
Total	**36**	**2**	**24**	**16**	**30**	**4**	**2**	**114**

Table 12. Frequency of seeing a treatment partner who is not a family member

Facility	Daily	Three Times a week	Two Times a week	Once a week	Total
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	26	0	0	1	27
Percent	96.3	0	0	3.7	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	15	0	0	0	15
Percent	100	0	0	0	100
Health Management and Research Group Foundation, Davao City	1	1	0	0	2
Percent	50	50	0	0	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	4	0	0	0	4
Percent	100	0	0	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	12	0	0	13	25
Percent	48	0	0	52	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1	0	0	0	1
Percent	100	0	0	0	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1	1	1	0	3
Percent	33.33	33.33	33.33	0	100
UST Adult and Pediatric DOTS Center – Manila	5	2	0	0	7
Percent	71.43	28.57	0	0	100
Total	**65**	**4**	**1**	**14**	**84**
	77.38	4.76	1.19	16.67	100

Table 13. Revisit patients whose treatment partner observed drug intake

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1	4	5
Percent	20	80	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	27	0	27
Percent	100	0	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	16	1	17
Percent	94.12	5.88	100
Health Management and Research Group Foundation, Davao City	6	0	6
Percent	100	0	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	5	0	5
Percent	100	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	8	14	22
Percent	36.36	63.64	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	3	2	5
Percent	60	40	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
Percent	100	0	100
UST Adult and Pediatric DOTS Center – Manila	11	0	11
Percent	100	0	100
Total	80	21	101

Table 14. Revisit patients whose treatment cards were marked

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	4	1	5
Percent	80	20	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	27	0	27
Percent	100	0	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	16	0	16
Percent	100	0	100
Health Management and Research Group Foundation, Davao City	5	1	6
Percent	83.33	16.67	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	4	0	4
Percent	100	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	15	3	18
Percent	83.33	16.67	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	5	0	5
Percent	100	0	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1	2	3
Percent	33.33	66.67	100
UST Adult and Pediatric DOTS Center – Manila	11	0	11
Percent	100	0	100
Total	88	7	95
Percent	92.63	7.37	100

Table 15. Revisit patients who were reminded of next appointment

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	5	0	5
Percent	100	0	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	25	2	27
Percent	92.59	7.41	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	14	2	16
Percent	87.5	12.5	100
Health Management and Research Group Foundation, Davao City	5	1	6
Percent	83.33	16.67	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	4	0	4
Percent	100	0	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	13	8	21
Percent	61.9	38.1	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	5	0	5
Percent	100	0	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
Percent	100	0	100
UST Adult and Pediatric DOTS Center – Manila	11	0	11
Percent	100	0	100
Total	**85**	**13**	**98**
Percent	86.73	13.27	100

D. Recording and Monitoring System

The use of standard reporting systems is a key element of the NTP. The use of these standard forms allows the calculation of the main indicators for evaluation of program success, i.e., cure rates and case detection rates. The standard reports shall cover as well private physicians and private clinics, after agreement with parties concerned has been made.

Most of the SA sites conform with the reporting requirements, except for laboratory counting sheets (Table 16). This is understandable since the laboratory exams are referred to and performed in the hospital laboratories. Quarterly reports are also often not available. For those forms that are available however, most of them are up-to-date and submitted to the TB registry.

E. Political Commitment

In the original NTP, advocating for political commitment meant the assurance by the public sector of free drugs and the commitment of the local government to pursuing TB DOTS as a strategy. For the purposes of the study however, political commitment is interpreted loosely as ensuring the viability and sustainability of the DOTS centers. This means that sufficient resources should be available or generated so as to ensure that DOTS centers would continue to operate even after external financing is reduced.

As an initial step toward these ends, DOTS centers should be able to account for the resources that are utilized to provide TB-DOTS services. The presence of separate books of accounts facilitates the tracking of expenses and revenues for the DOTS center (Table 17). Most of the newer TB-DOTS centers that are PhilTIPS grantees maintain separate books of accounts following the template provided by PhilTIPS. Most of these sites are also dedicated to DOTS services, thus the ease of maintaining separate books of accounts. Older TB-DOTS establishments and those not dedicated to DOTS follow their usual accounting rules and financial statements and usually do not maintain on a regular basis separate books of accounts.

For the newly established DOTS centers, the PhilTIPS grant is main source of funding for clinic operations. For DOTS centers that are owned by foundations, the mother organization provides some amount of funding. For Philamcare, the lone for-profit establishment, its clinic operations are funded from annual budgets. Revenues from patient fees do not form a significant revenue source for the SA sites. Pricing practices and policies are not yet established or defined for most of the SA sites. As such, some of the SA sites have identified expansion of fee for service and the approval of PhilHealth accreditation as future undertakings.

The major expense item for the SA sites is salaries and wages, usually about 65 percent. It would seem that the PhilTIPS grantees follow the suggested salaries and wages from the Memorandum of Agreement with PhilTIPS (Table 18).

A source of revenue that can be tapped by the DOTS centers is reimbursement from Philhealth under the TB-DOTS package. At the time of the SA, most of the sites were still working on their PHIC acccreditation. Once accredited however, the centers could maximize these reimbursements by actively advertising or seeking TB patients who are PHIC members. Majority of the interviewed patients during the two week SA period were not PhilHealth members which is consistent with the result that most of them are

not employed (Table 19). Exceptions are Philamcare and Polymedic. The centers could therefore seek tie-ups with the regional or local PHIC to get referrals for patients.

F. Quality Considerations

Patients put a premium on quality service. More often than not it is the reason why patients patronize the current facility. Table 20 indicates the reasons forwarded by patients as to why they patronize the current facility when they are aware of another DOTS center. In this sense, the patient responders had a choice of which DOTS facility to utilize. Poor quality service in the other facility is the most commonly cited reason. Preference for the provider in the current facility and long waiting times can also be considered as aspects of quality and these are also commonly cited. Costs, in terms of drugs or other services are reasons for the choice but not as often cited as quality.

The quality of care provided in the current SA sites can be analyzed utilizing structural, process and outcome indicators of quality. Structural measures of quality partly refer to the adequacy and quality of inputs that are utilized in the provision of the service. Some indicators of adequacy of inputs, i.e., sputum collection materials, equipment, and drug supply, have already been analyzed in relation to the elements of DOTS.

A rough indication of the adequacy of staff is shown in Table 21. It lists the various tasks performed in DOTS and the various interviewed providers designated in each facility performing these duties. Staff adequacy is indicated by the presence of providers performing each of the tasks, and for each of the tasks, the presence of multiple providers that can assist in the various duties even on a part-time basis. In analyzing this table however, adequacy of the staff should be considered in relation to the current number of patients in the facility. One limitation of the table is that it does not have the responses of some of the part-time staff that were not interviewed during the two-week SA period.

Almost all of the SA sites have assigned providers performing the various tasks related to DOTS. Performance of sputum microscopy is understandably absent in those sites where sputum samples are sent elsewhere for processing. One notable site is the Polymedic DOTS center where the full-time nurse performs all of the tasks related to DOTS. While there are other part-time physicians that assist the nurse especially in case finding and case holding, the day to day operations are left to just one full-time staff to perform. This may preclude the center from being more conscientious in undertaking tasks related to directly observed drug intake, such as patient intake of drugs, seeing patients more frequently and reminding patients if their next appointment, as indicated in the previous tables.

Another indicator of quality is the competence of the physician providers, specifically with respect to the clinical practice guidelines on the treatment of various categories of tuberculosis. Two vignettes, one on the diagnosis and treatment of a smear positive TB case and one on the smear negative TB case, were administered on physicians in the DOTS clinics. Table 22 shows physician providers by whether or not they passed the

vignettes while Table 23 shows the mean scores obtained by the physicians who answered the vignettes in the SA sites[2]. The good news is that 11 of the 13 of the physician providers passed the smear positive case vignette. The even better news is that they managed to show high average scores, higher than the mean score in the physician survey of 81 percent. Physician providers and administrators in these sites are knowledgeable and competent in handling the types of patients that are enrolled in their DOTS centers. Some enhancements or refresher courses can be administered on those who did not pass this vignette.

The results are mixed when it comes to the smear negative case, with only seven of the physicians passing. This highlights the need to have a functioning TB Diagnostic Committee that would diagnose and categorize smear negative patients. However, there is room for improvements in the knowledge about managing category III TB patients. On the net therefore, the Canossa, HMRG, Dagupan, Philamcare, and UST have physician providers who pass both vignettes.

An outcome indicator of quality is the evaluation of patients as to the quality of services that have been provided in the DOTS centers. The following tables outline patient responses on aspects of services provided such as accessibility, length of time spent with providers, educational aspects of the provider encounter, patient involvement in the decision making process and overall satisfaction with the service provided in the clinic.

All patients said they agreed or strongly agreed with the statement that they were "satisfied with the care I received from (their health care provider)…" on the day of their interview (Table 25). Ratings of overall satisfaction do not vary significantly across facilities. While patients in Angeles University Foundation Medical CE gave the lowest rating, they still, on the average, agreed that they were generally satisfied with the care they received on the day of the interview.

Almost all of the patients said that the amount of time spent at the facility was just right. Around 5 percent found the consultation too short and none said that the duration of the consultation was "too long" (Table 26 and Table 27). All patients in 4 facilities said that the amount of time spent during the consultation was "just right." For those who did not think so, more patients thought that the duration of the consultation was "too long" rather than "too short." Considering that the majority of the SA patients were unemployed and thus have lower time costs (or alternatively, their tolerance for longer consultation hours is greater), higher income patients will find such lengthy consultations even "longer." This may have long term implications on the income profile of patients that the SA facilities are attracting and ultimately, sustainability.

[2] Some of the physician providers in the clinics were also respondents in the Private Physician Survey. As part of the survey, the smear positive vignette was also administered. The score in that vignette is considered in this SA if the physician had not answered the first vignette in the SA and when the score in the survey vignette is higher. There was no physician provider interviewed in Polymedic DOTS center during the two week SA period.

Almost all of the patients said that they were satisfied with the doctor's explanation of various aspects of the disease and its treatment (Table 28). All of the patients were satisfied with the doctor's explanation of various aspects of the service, with the exception of some patients in UST and Polymedic DOTS Center. UST was the lone facility where there was dissatisfaction in all aspects mentioned in the above table (Table 29).

Almost all of the patients appear to be satisfied with the manner by which the provider facilitated the flow of information during the consultation (Table 30). The provider involves the patient in the decision making process. He or she is easy to understand, provided enough privacy during the consultation, and gave the impression to the patient that all personal information of the patient would be kept confidential. However, only about 70 percent of the patients said that the education materials provided by the provider were helpful.

All patients believed that doctors were easy to understand and that their personal information was kept confidential by the doctors (Table 31). However, not everyone felt that they were provided with helpful educational materials, were involved in decision making, and were provided enough privacy during the consultation. None of the patients in PTSI-Cebu reported that they were given helpful educational materials and were involved in the decision making process. Some of these patients likewise reported not getting enough privacy during the consultation.

Almost all patients also found the clinic's schedule and location convenient. Waiting time was also deemed "reasonable" by the patients. However, about 12 percent of the patients, were at one point, refused to be attended to during official clinic hours. Close to 95 percent of the patients seem to be satisfied with the price of the services provided by the centers (Table 31).

All patients interviewed found the clinic days and hours convenient, with the exception of patients in UST where some patients found the clinic hours inconvenient (Table 32). Patients also thought that the location of the facility was also convenient and waiting time reasonable, with the exception of some patients in the Polymedic DOTS Center in Cagayan de Oro. Patients reported that they were never turned away in facilities during official clinic hours, with the exception of Health Management and Research Group Foundation and Polymedic DOTS Center. Only patients in Angeles University Foundation Medical Center, Health Management and Research Group, and UST said that overall costs were reasonable. It would seem that cost is the aspect of accessibility that patients are least satisfied with. Of all SA facilities, it would seem that patients were least satisfied with the accessibility of Polymedic DOTS Center.

Table 16. Selected Aspects of Reporting

SA Site	Recording and reporting forms available	TB registry	Records up to date?
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	No forms for laboratory request for sputum examination No quarterly report on new cases and relapses, counting sheets for treatment outcome and quarterly report on drug inventory and requirements	TB registry forms is available and updated	Some reports, i.e., the TB symptomatics masterlist is not updated nor complete
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	Quarterly report on new cases and relapses, quarterly report on lab activities, counting sheet for lab activities and drug inventory and requirements are not available	TB registry forms are available NTP coordinator in charge of records	Records up to date for available records
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	Reporting and monitoring system present. Forms are the NTP forms	Updated TB registry, legible Reports regularly to DOH and PhilTIPS	Reports are up to date
Health Management and Research Group Foundation, Davao City	All reports are available except counting sheets for laboratory activities	TB registry is available	Most of the reports are up-to-date
Philamcare Quezon City Clinic DOTS Center, Quezon City	Philam has its own laboratory register form , QI is the one doing the counting sheets for laboratory activities	TB registry is available and submitted to the NTP	Most of reports are up to date
Polymedic General Hospital DOTS Center, Cagayan de Oro City	No quarterly report/counting sheets on lab activities	TB registry is available	Reports are up to date

Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	Reporting forms are complete except for laboratory counting sheets	TB registry is available Reports are submitted to PhilTIPS and CHO	Reports are up to date
Philippine Tuberculosis Society, Inc-Cebu TB Pavilion, Cebu City	Most of reports available except for counting sheets for laboratory activities	TB registry is available, complete and up to date	The recording and reporting forms available were up to date and complete
UST Adult and Pediatric DOTS Center, Manila City	Records and reports are available, except for lab reports which are done by the UST Hospital lab	TB registry is available	

Table 17. Selected Financial and Enhancement Aspects

SA Site	Financial management practices	Funding source	Expenditure structure	Revenue structure	Pricing practices	Other revenue enhancing practices	Future enhancements
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	Maintains separate book of accounts for the DOTS center Prepare separate financial statements	84.5% (1.095 million pesos) of project cost from TIPS, rest from counterpart of hospital About 15.5% from the foundation as counterpart PhilTIPS also provide technical support, e.g. help in accounting systems, financial planning, clinic enhancements	For the year, expects to spend 823,000 or 63.5% of project cost for salaries and fees	Patient fees 60% HMO reimbursements 15% PHIC 18% (?) Other institutions (2%) Government grants (3%) Private grants (2%) No other non-monetary external sources	Uses market rates for comparable services, otherwise uses RITM rates for special tests	Price discrimination, patients who are able to pay for their sputum tests are taken in. Those who are unable to pay are referred to RHUs. In the future, they are planning to seek PhilHealth accreditation	Expansion to San Fernando and Mabalacat – help facilitate establishment of DOTS centers To generate additional income through sale of vaccines, vitamins, etc..

Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City		German doctors and PhilTIPs provide funding for patients 100% of operating budget come from private grants PhilTIPS pays for a portion of the salaries of DOTS administrator, DOTS MD, NTP coordinator, microscopist and accountant PhilTIPS pays entire salary of liaison officer	65% of the payroll is supported by PhilTIPS	Most are charity patients, minimal fees are charged for diagnostic services		Sale of herbal supplements/medicines	Plans to link up with barangay officials for TB case finding and other TB related activities
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	DOTS clinic employs standard bookkeeping practices Prepares annual budget and regular accounting statements	Foundation and PhilTIPS Hospital shoulders the salary of the microscopist	Monthly salaries amount to about P 39,000 a month	No fees are charged			Plans to set up other DOTS centers in other high density areas

Health Management and Research Group Foundation, Davao City	Just uses their old system even if TIPS has a template	Before, 20% from government, 80% from HMRG Now, 100% PhilTIPS DOH regional office provides medicines, sputum containers and AFB reagents	Total budget is about P 1 million, of which 65% is for salaries of clinic staff. The next biggest item are transport costs for FTCs and supplies and materials		Just use a 5% mark-up for reagents that are purchased.	Charge for medical certificates at a rate that is cheaper than other private facilities	Push through with accreditation Put up a separate room for TB-DOTS Beefing up of referral system

Philamcare Quezon City Clinic DOTS Center, Quezon City	No separate accounting and financial reporting for the TB-DOTS facility Revenues and expenditures are just included in the clinic budget	Clinic budget wholly financed by the mother organization Aside from the clinic budget, Philamcare also pays for the salary of relievers when the staff go on training PhilCAT provides forms and drugs to the clinic. Technical assistance is being provided by a Center for Disease Control – PhilCAT representative who helps the clinic (1) obtain the forms and the drug supply (2) responds to queries of the clinic staff, (3) weekly visits, and (4) monitoring adherence to NTP forms	Costing the share of DOTS in the clinic budget is not performed on a regular basis. Estimates on the DOTS expenses reveal that average monthly expenses amount to about P 3,311.92 (assuming the current patient load.) The following items account for the expenses : Salaries: 27%, Professional fees:14.7%, Premises: 45.9%, Medical supplies .3%, Personnel 4.1%, Pro-tech increase 6.7%	Enrolled patients do not pay for the services availed in the clinic as part of the insurance agreement.			Relocation to the Delos Santos Medical Center. This relocation should facilitate the devotion of an exclusive area as well as equipment for DOTS The set-up of laboratory and diagnostic facilities for DOTS, as well as the devotion of exclusive staff Increase census and enrollment of DOTS patients is also being planned.

Polymedic General Hospital DOTS Center, Cagayan de Oro City	DOTS center has a separate system of accounting from the CDO Polymedic General Hospital Center does a liquidation of expenses every month	100% of the monthly revolving fund is supported by PhilCAT Mother organization does not provide a regular annual budget but provides support in the form of space and selected equipment and fixtures	Monthly revolving fund amounting to P 80,000 of which 15,000 is for wages P 131,500 allocated for advocacy and training of referring MDs and treatment partners	No fees charged			Plans to intensify advocacy by conducting symposia for NGOs and GOs Additional training for referring physician, treatment partner and defaulter tracing Plans to link up with public sector, i.e., hospitals for DOTS implementation

Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	The clinic has books of accounts for the assets, liabilities, revenues and expenses separate from the hospital	Drugs come from PhilTIPS, plan is to get drugs from LGU		Patients are not charged for services.			Plan to cover the rest of Nueva Ecija but they recognize that CHO will only give free drugs for Cabanatuan residents No enhancements in systems Plan to conduct a public information campaign

Philippine Tuberculosis Society, Inc-Cebu TB Pavilion, Cebu City	Accounting procedures mainly follow those of the main office. PhilTIPS transactions are recorded utilizing the PhilTIPS recommended template but if there are no special instructions from PhilTIPS, the current main office methodology is being followed Follows the template being required by PhilTIPS for its financial transactions and recording so that separate cashiering operations are maintained for PhilTIPS funds.	Operating resources are sourced 75% from private grants and 25% from government grants	The operating budget for 2004 is about P 487,400. This is broken down into the following: Supplies and materials :P 45,000 (9.2%) Salary of clinic staff: P 333,000 (68%) Training : P 52,400 (10.75%) MOOE: P30,000 (6.15%) Transportation:P 12,000 (2.46%) Communication: P 15,000 (3.07%)	Except for x-ray, services currently offered for free.	X-ray fees determined by head office, and branch to take stock of local conditions. Aside from x-ray fees, there are still no revenues forthcoming although the facility expects to charge PhilHealth patients once it becomes accredited.		There are plans to charge fees but the bases for the fees are not yet determined

UST Adult and Pediatric DOTS Center, Manila City	No financial reports since 2003 when TB Foundation Inc became bankrupt Clinic's liaison officer and DOTS Admin prepare clinic accounts Finances/accounting done by UST Hospital's treasurer	1.12 M grant from TIPS in 2004 Start-up funds from TB Foundation	1.12 M grant from PhilTIPS expended for salaries (55%) and 40% to direct costs P0.716M counterpart is expended for salaries (64%) and the rest for other direct costs	P200 fee for PPD			Expand fee for service to make clinic income-generating

Table 18. Primary Funding Sources

SA Site	PhilTIPS Grant, in PhP	Counterpart, in PhP
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1,095,400 Salaries and expert fees ----------727,000 Equipment ----------144,000 Travel----------36,400 Training----------164,000 Other Direct Costs----------24,000	170,400 Salaries and expert fees ----------96,000 Equipment ---------- Travel---------- Training---------- Other Direct Costs----------74,400
Canossa Health and Social Center Foundation, Inc. – Lingap Lusog, Manila City	1,120,000 Salaries and expert fees ----------727,993 Equipment ----------345,000 Travel---------- Training----------22,800 Other Direct Costs----------24,267	557,700 Salaries and expert fees ----------156,000 Equipment ---------- Travel---------- Training----------13,000 Other Direct Costs----------388,700
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	1,120,000 Salaries and expert fees ----------610,500 Equipment ----------206,000 Travel----------25,000 Training----------180,000 Other Direct Costs----------98,500	372,000 Salaries and expert fees ----------306,000 Equipment ---------- Travel---------- Training---------- Other Direct Costs----------66,000

Health Management and Research Group Foundation, Davao City	1,120,000 Salaries and expert fees ----------717,000 Equipment ----------215,000 Travel---------- Training----------36,000 Other Direct Costs----------152,000	1,198,500 Salaries and expert fees ----------739,500 Equipment ----------20,000 Travel---------- Training----------24,000 Other Direct Costs----------415,000
Philamcare Quezon City Clinic DOTS Center, Quezon City	Not a grantee	Average monthly DOTS expenses Salaries……..895.63 Professional fees…… …487.50 Premises……1,521.32 Medical supplies……13.00 Personnel……..135.85 Pro-tech increase……..222.36
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1,120,000 Salaries and expert fees ----------648,000 Equipment ----------246,000 Travel---------- Training----------52,400 Other Direct Costs----------173,600	432,216 Salaries and expert fees ----------177,216 Equipment ----------26,000 Travel---------- Training---------- Other Direct Costs----------229,000
Polymedic General Hospital DOTS Center, Cagayan de Oro City	Not a grantee	Monthly wage bill (Nurse)……15,000 Monthly revolving fund……..80,000 Advocacy and training……131,150
Premiere General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	1,120,000 Salaries and expert fees ----------648,000 Equipment ----------55,000 Travel----------72,000 Training----------200,000 Other Direct Costs----------145,000	273,400 Salaries and expert fees ---------- Equipment ----------42,400 Travel---------- Training---------- Other Direct Costs----------231,000

UST Adult and Pediatric DOTS Center, Manila City	1,120,000 Salaries and expert fees ----------558,000 Equipment ----------90,000 Travel---------- Training----------21,000 Other Direct Costs----------451,000	716,600 Salaries and expert fees ----------455.000 Equipment ---------- Travel---------- Training---------- Other Direct Costs----------261,600

Table 19. Profile of patients by PHIC membership

Facility	Non-member	Member	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	2	3	5
Percent	40	60	100
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	25	6	31
Percent	81	19	100
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	16	7	23
Percent	70	30	100
Health Management and Research Group Foundation, Davao City	11	3	14
Percent	79	21	100
Philamcare Quezon City Clinic DOTS Center – Quezon City	2	4	6
Percent	33	67	100
Polymedic General Hospital DOTS Center – Cagayan de Oro City	12	16	28
Percent	43	57	100
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	4		4
Percent	100	0	100
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	2	1	3
Percent	67	33	100
UST Adult and Pediatric DOTS Center – Manila	9	3	12
Percent	75	25	100
Total	83	43	126
Percent	66	34	100

Table 20. Patient reasons for choosing the current facility when another one is nearer

Facility	Inconvenient Clinic Hours	Too Far	Poor Quality Service	Want to be Anonymous	Drugs, Services are not Given for Free	More Expensive there
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	0	0	0	0
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog, Manila	1	4	3	0	2	0
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	0	0	9	1	4	2
Health Management and Research Group Foundation, Davao City	0	0	1	0	0	0
Philamcare Quezon City Clinic DOTS Center – Quezon City	0	0	0	0	1	0
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0	0	2	3	0	2
Premier General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	0	0	0	0	0	0
UST Adult and Pediatric DOTS Center – Manila	0	0	1	0	0	0
Total	**1**	**4**	**16**	**4**	**7**	**4**

Facility	Prefer Provider in Current Facility	Long Waiting Time	Referred Here	Member of HMO	Not aware of others	Treatment started here	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	1	0	0	0	1
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	1	0	1	0	0	0	12
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	0	0	1	0	0	0	17
Health Management and Research Group Foundation, Davao City	2	1	2	0	0	0	6
Philamcare Quezon City Clinic DOTS Center – Quezon City	0	0	0	3	0	0	4
Polymedic General Hospital DOTS Center – Cagayan de Oro City	3	1	2	0	0	0	13
Premier General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City	1	1	0	0	0	0	2
UST Adult and Pediatric DOTS Center – Manila	1	2	0	0	1	1	6
Total	**8**	**5**	**7**	**3**	**1**	**1**	**61**

Table 21. Tasks performed by interviewed providers

Angeles University Foundation Medical Center HMO DOTS Center, Angeles City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
TB DOTS Administrator	1	1	1	1	1	1
Field Treatment Coordinator	1	2	0	1	1	1
Liaison Officer	1	1	0	0	1	0
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog, Manila						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Physician	1	1	1	0	0	1
Midwife	3	4	2	0	2	4
Medical technologist	0	0	0	1	0	0
Health Volunteer	3	8	1	2	2	8
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Physician	1	1	1	1	1	1
Medical technologist	0	0	0	1	0	0
Others	1	1	1	0	1	1
Field Treatment Coordinator	0	0	1	0	0	1

Health Management and Research Group Foundation, Davao City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
TB DOTS Clinic Administrator	1	0	1	0	0	1
Physician	1	0	1	0	0	0
Midwife	0	1	0	0	1	1
Medical technologist	0	0	0	2	0	1
Senior Treatment Coordinator	1	0	1	0	1	1
Field Treatment Coordinator	1	1	0	0	0	1
Philamcare Quezon City Clinic DOTS Center – Quezon City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Physician	5	0	1	0	0	5
Nurse	1	1	1	0	1	1
Polymedic General Hospital DOTS Center – Cagayan de Oro City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Nurse	1	1	1	0	1	1

Premier General Hospital of Nueva Ecija, Inc. DOTS Center, Cabanatuan City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Physician	1	0	1	0	1	1
Medical Technologist	0	0	0	1	0	0
Senior treatment Coordinator	1	1	1	0	1	1
Field Treatment Coordinator	0	1	1	1	1	1
Philippine Tuberculosis Society, Inc-Cebu TB Pavilion, Cebu City						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
Physician	1	0	0	0	0	0
Nurse	2	2	2	0	2	2
Field treatment Coordinator	1	1	0	0	1	1
UST Adult and Pediatric DOTS Center – Manila						
Designation	**Case Finding**	**Treatment partner**	**Case Holding**	**Sputum Microscopy**	**Drug Management**	**Health Education**
TB DOTS Clinic Administrator	1	0	1	0	1	1
Nurse	1	1	1	0	1	1
Field treatment Coordinator	3	2	3	0	3	3

Table 22. Distribution of SA Site Physicians interviewed by vignette outcomes

Facility	Vignette 1		Vignette 2		Both vignettes	
	Fail	Pass	Fail	Pass	Fail	Pass
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City		1	1		1	
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila		1		1		1
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City		1		1		1
Health Management and Research Group Foundation, Davao City	1	1	1	1	1	1
Philamcare Quezon City Clinic DOTS Center – Quezon City		5	3	2	3	2
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City		1	1		1	
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1			1	1	
UST Adult and Pediatric DOTS Center – Manila		1		1		1

Table 23. Average Vignette Scores of SA site physicians

Facility	Average Score		
	Vignette 1	Vignette 2	N
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0.892	0.167	1
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	0.896	0.873	1
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	0.950	0.722	1
Health Management and Research Group Foundation, Davao City	0.892	0.597	2
Philamcare Quezon City Clinic DOTS Center – Quezon City	0.904	0.695	5
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	0.892	0.346	1
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	0.694	0.950	1
UST Adult and Pediatric DOTS Center – Manila	0.855	0.988	1

Table 24. Distribution of Patients by Response to the Question on Overall Satisfaction with Care Received on the Day of Interview

Response	N	Freq
Strongly Agree	93	73.81
Agree	32	25.40
Total	125	99.21

Table 25. Mean Rating of Overall Satisfaction with Care Received on the Day of Interview, by Facility

Facility	Mean Rating*	N
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	2.0	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	1.2	31
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	1.5	23
Health Management and Research Group Foundation, Davao City	1.3	14
Philamcare Quezon City Clinic DOTS Center – Quezon City	1.2	5
Polymedic General Hospital DOTS Center – Cagayan de Oro City	1.0	28
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1.5	4
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1.3	3
UST Adult and Pediatric DOTS Center – Manila	1.0	12
ALL	1.3	125

*1= Strongly agree, 2=Agree, 3=Uncertain, 4=Disagree, 5=Strongly Disagree (to the question on overall satisfaction with the care received on the day of interview)

Table 26. Distribution of Patients, by Satisfaction with Length of Time Spent in the Clinic

Response	N	Percent
Too short	6	4.8
Too long	0	0.0
Just right	119	95.2
Total	125	100.00

Table 27. Mean Rating of the Duration of the Consultation, by Facility

Facility	Mean Rating	N
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	3.0	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	3.0	31
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	2.9	24
Health Management and Research Group Foundation, Davao City	2.9	14
Philamcare Quezon City Clinic DOTS Center – Quezon City	2.7	6
Polymedic General Hospital DOTS Center – Cagayan de Oro City	2.8	26
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	3.0	4
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	2.3	3
UST Adult and Pediatric DOTS Center – Manila	3.0	12
ALL	2.9	125

*1= Too short, 3=Just right, 5=Too long

Table 28. Proportion of Patients Who Were Satisfied with Provider's Explanation of TB and its Treatment, by specific aspects of the consultation

Doctor's Explanation of:	N	Percent
Nature of Illness	123	97.62
The examinations/ procedures before they were performed	123	98.40
The results of the examinations/ procedures	125	98.43
All other questions and concerns	123	97.62

Table 29. Proportion of Patients who were Satisfied with the Doctor's Explanation, by Specific Aspects of the Service and Facility

Facility	Nature of Illness	Exam Procedures	Exam Results	Other Concerns
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1.0	1.0	1.0	1.0
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	1.0	1.0	1.0	1.0
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	1.0	1.0	1.0	1.0
Health Management and Research Group Foundation, Davao City	1.0	1.0	1.0	1.0
Philamcare Quezon City Clinic DOTS Center – Quezon City	1.0	1.0	1.0	1.0
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0.9	1.0	1.0	1.0
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1.0	1.0	1.0	1.0
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1.0	1.0	1.0	1.0
UST Adult and Pediatric DOTS Center – Manila	0.9	0.9	0.9	0.9
ALL	1.0	1.0	1.0	1.0

Table 30. Proportion of Patients Who Were Satisfied with Provider's Handling of Decision-making Process, by specific aspects of the decision-making process

Specific Aspects of the Decision-making Process	N	Percent
Doctor was easy to understand	126	100.00
Patient involvement	116	91.34
Privacy	122	96.83
Confidentiality of personal information	125	100.00
Helpfulness of education materials that were provided	90	71.43

Table 31. Proportion of Patients Who were Satisfied with Doctor's Handling of the Decision-making Process, by Specific Aspects of the Decision-making Process and Facility

Facility	Easy to understand	Provided Helpful Materials	Involved the Patient in Decision Making	Enough Privacy	Information Kept Confidential
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1.0	1.0	1.0	1.0	1.0
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	1.0	1.0	0.9	1.0	1.0
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	1.0	1.0	0.9	1.0	1.0
Health Management and Research Group Foundation, Davao City	1.0	1.0	1.0	1.0	1.0
Philamcare Quezon City Clinic DOTS Center – Quezon City	1.0	1.0	1.0	1.0	1.0
Polymedic General Hospital DOTS Center – Cagayan de Oro City	1.0	0.6	1.0	0.9	1.0
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1.0	1.0	1.0	1.0	1.0
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1.0	0.0	0.0	0.7	1.0
UST Adult and Pediatric DOTS Center – Manila	1.0	1.0	0.8	1.0	1.0
ALL	1.0	0.9	0.9	0.97	1.0

Table 32. Proportion of Patients Who Found the Services Accessible, by specific aspects of accessibility

Specific Aspects of Accessibility of Service	N	Percent
Convenience of clinic hours	125	98.43
Convenience of clinic days	127	100.00
Convenience of location	125	98.43
Waiting time was a "reasonable amount of time"	126	99.21
Refused to be attended to during clinic hours at any point of entire treatment phase	15	11.81
Overall cost of service is reasonable	112	94.92

Table 33. Proportion of Patients who Found the Facility Accessible, by Specific Aspects of Access and Facility

Facility Name	Proportion of patients who found					
	clinic hours are convenient	clinic days are convenient	location is convenient	waiting time is reasonable	was never turned away	overall costs to be reasonable
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1.00	1.00	1.00	1.00	1.00	1.00
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	1.00	1.00	1.00	1.00	1.00	0.97
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	1.00	1.00	1.00	1.00	1.00	0.92
Health Management and Research Group Foundation, Davao City	1.00	1.00	1.00	1.00	0.86	1.00
Philamcare Quezon City Clinic DOTS Center – Quezon City	1.00	1.00	1.00	1.00	1.00	0.67
Polymedic General Hospital DOTS Center – Cagayan de Oro City	1.00	1.00	0.93	0.96	0.75	0.71
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1.00	1.00	1.00	1.00	1.00	0.80
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	1.00	1.00	1.00	1.00	1.00	0.33
UST Adult and Pediatric DOTS Center – Manila	0.83	1.00	1.00	1.00	0.50	1.00
ALL	0.98	1.00	0.98	0.99	0.88	0.88

III. Summary of Findings and Suggested Enhancements

Summary of Major SA Findings and Suggested Enhancements of DOTS Clinics*

DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	Both sputum and x-rays are used and administered in the hospital; Diagnostic Committee (DC) is constituted; exam fees charged	Current stocks adequate, with drug inventory policy; drugs not dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic not required; dispensing policy not clear; allows family members to be treatment partners; defaulter tracing thru phone, texting	TB registry is updated; but no quarterly reports on treatment progress and outcomes; no request forms for hospital lab exams	Maintains book of accounts; 84.5% of operating budget supported by PhilTIPS grant; low cost-recovery rate due to limited number of patients (paying or insured); 63.5% of operating expenses is on staff salaries; use market/RITM rates for fees; refer non-paying patients to RHUs; not yet PhilHealth accredited; site physician passed vignette 1 but failed vignette 2
	Verify further the procedures in the use of x-ray tests; verify quality of AFB smear tests done in hospital; adopt QA	*Expedite MOA with LGU; secure storage area; dedicate drugs per patient*	*Clarify frequency of drug dispensing during intensive and maintenance phases undertake periodic home visits*	*Verify and encourage the use of quarterly reports to monitor treatment progress and outcomes; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential clients; rationalize user fees to improve cost recovery rates; further evaluate and upgrade DOTS capability of the site physician*

Canossa Health and Social Center Foundation, Manila City	Both sputum and x-rays are used and administered in the hospital; DC is constituted; exam fees charged; PhilCAT accredited	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; no MOA yet with LGU/DOH; drugs provided for free	Follow NTP drug regimen; DOT is done; clear dispensing policy; medical staff as treatment partners; defaulter tracing thru home visits	TB registry is updated; but no quarterly reports on treatment progress and outcomes;	Does not seem to maintain own book of accounts; 65% of payroll supported from PhilTIPS grant; low cost-recovery rate due to high number of charity patients; no pricing schedule; not yet PhilHealth accredited; site physician passed both vignettes
	Verify quality of AFB smear; adopt QA	*Facilitate MOA with LGU/DOH; secure storage area; dedicate drugs per patient*	*Maintain current standards and procedures*	*Verify and encourage the use of quarterly reports to monitor treatment progress and outcomes; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential paying clients; adopt user fees to recover costs*
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City	AFB smear mainly, but also x-rays sometimes used; samples sent to hospital for processing; DC constituted; exam fees charged by hospital; repeat exams of previous external lab tests	Current and buffer stocks adequate for current patients, with drug inventory policy; drugs dedicated per patient; drugs provided for free; no MOA yet with CHO/LGU	Follow NTP drug regimen; daily DOT in clinic is not required; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits	TB registry is updated and submitted to DOH and PhilTIPS; with quarterly reports on treatment progress and outcomes	Employs standard bookkeeping practices; currently, relies private PhilTIPS grant and from hospital; total monthly salary about P39,000; no user fees; not clear if PhilHealth accredited due to lack of DC; the sole cite physician passed both vignettes 1 and 2
	Verify quality of AFB smear tests done in hospital	*Facilitate MOA with LGU/DOH*	*Verify DOT compliance at home*	*Maintain current standards and procedures*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation.*

Health Management and Research Group Foundation, Davao City	Use AFB smear which is mainly done on site; no DC constituted, but rely on external consultants; exam fees charged; DOH-region checks specimen	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; MOA with DOH-Region 11; drugs provided for free	No information on drug regimen; daily DOT in clinic not required; drug dispensing weekly; treatment partners are BHWs and FTCs; FTCs do home visits to trace defaulters	TB registry is updated; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Uses own financial mgt system; currently, relies 100% on PhilTIPS grant for operating expenses; 65% of operating expenses is on staff salary; charge 5% mark-ups; not yet PhilHealth accredited; only one of the two site physicians passed vignette 1 or vignette 2
	Constitute a Diagnostic Committee *Verify quality of AFB smear; adopt QA*	*Maintain current standards and procedures*	*Verify drug regimen followed*	*Verify and encourage the use of counting sheets for lab exams; verify submission of TB registry to NTP*	*Facilitate PhilHealth accreditation; rationalize manpower to cut labor costs; advertise the clinic to potential client; rationalize user fees to improve cost-recovery rate; further evaluate and upgrade DOTS capability of the site physician*
PhilamCare-QC Clinic DOTS Center, Quezon City	Use AFB smear only, but specimens collected at home or elsewhere are accepted; no TB DC constituted; No fees collected in clinic.	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in the clinic; clear dispensing policy; medical staff and family members as treatment partners; no own defaulter tracing mechanism	TB registry is updated and submitted to NTP; with quarterly reports on treatment progress and outcomes and other reports	No separate accounting and financial reporting system for the DOTS clinic; wholly supported by mother organization; no fees charged to enrolled patients who are insured with mother organization; all 5 site physicians passed vignette 1, but only 2 passed vignette 2

	Constitute a Diagnostic Committee	*Facilitate MOA with LGU*	*Develop own defaulter tracing mechanism*	*Maintain current standards and procedures*	*Maintain current standards and procedures further evaluate and upgrade DOTS capability of the site physician*
Polymedic General Hospital DOTS Center, Cagayan de Oro City	Use AFB smear mainly and on site; DC constituted; no exam fees charged	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encouraged; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing self-reported accounts of patients; nurse phone-in follow ups	TB registry is updated; but no quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Maintains own book of accounts; relies on PhilCAt support; no fees charged to patients; not clear if PhilHealth accredited; no vignette administered to the site physician; some patient dissatisfaction with MD explanation of service, location and waiting time
	Adopt indicators of quality assurance Verify quality of AFB smear	*Verify if drugs dedicated per patient*	*Verify DOT also through periodic home visits*	*Verify and encourage the use of counting sheets for lab exams; verify submission of TB registry to NTP*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; verify or facilitate PhilHealth accreditation; verify DOTs capability of the site physician, possibly through vignettes, improve processes to increase explanation of service and to reduce waiting time.*

Premier General Hospital of Nueva Ecija, Inc. DOTS Clinic, Cabanatuan City	AFB smear mainly, tests done in the hospital; no DC constituted; exam fees charged by hospital; accepts previous results only from DOH accredited labs	Current and buffer stocks adequate, with drug inventory policy; drugs not dedicated per patient; no MOA yet with LGU; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is followed; dispensing policy clear; treatment partners are the MDs, nurses and family members; no defaulter tracing mechanism	TB registry is updated and submitted to CHO and PhilTIPS; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Maintains own book of accounts; current stock of drugs from PhilTIPS; patients are not charged for the services; no or expenditure structure patients to RHUs; not clear if PhilHealth accredited; the sole site physician passed vignette 1 but failed vignette 2
	Verify quality of AFB smear tests done in hospital; constitute DC, adopt QA	*Facilitate MOA with LGU/DOH; dedicate drugs per patient*	*Adopt defaulter tracing mechanism*	*Verify and encourage the use of counting sheets for lab exams*	*Verify revenue and expenditure structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation; further evaluate and upgrade the DOTS capability of the site physician.*

Philippine Tuberculosis Society Inc-Cebu TB Pavilion, Cebu City	Both sputum and x-rays are used and administered on site; DC is constituted; no fees for AFB smear; X-ray fees charged; repeat of previous external lab tests	Current and buffer stocks adequate, with drug inventory policy; drugs do not seem to be dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encourage; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits, ID system and patient interviews	TB registry is updated; with quarterly reports on treatment progress and outcomes; no counting sheets for lab exams	Uses own financial mgt system; currently, relies private sources to support 75% of operating expenses; 68% of operating expenses is on staff salary; all services are for free except x-rays; not clear if PhilHealth accredited; the sole site physician failed vignette 1 but passed vignette 2, patients not given educational materials nor involved in decision making, not enough privacy given
	Maintain current standards and procedures, Verify quality of AFB smear; adopt QA	*Verify MOA with the LGU and whether drugs are dedicated per patient*	*Maintain current standards and procedures*	*Verify submission of TB registry to NTP; verify and encourage the use of counting sheets for lab exams;*	*Verify revenue structures; adopt user fees to recover costs; advertise to potential patients; facilitate PhilHealth accreditation; further evaluate and upgrade the DOTS capability of the site physician, provide educational materials, improve process to involve patients in decision making and afford privacy*

UST Adult and Pediatric DOTS Center, Manila City	Policy is AFB smear only; samples sent to hospital for processing; DC constituted; However, sputum and x-rays are used and administered on site; DC is constituted; fees for PPD charged; PhilCAT accredited	Current and buffer stocks adequate, with drug inventory policy; drugs dedicated per patient; drugs provided for free	Follow NTP drug regimen; daily DOT in clinic is encouraged; dispensing policy clear; treatment partners are the nurses and family members; defaulter tracing thru home visits	TB registry is updated; with quarterly reports on treatment progress and outcomes; counting sheets for lab exams available from hospital	No own financial mgt system; currently, relies heavily on PhilTIPS grant; 55% of PhilTIPS grant spent on staff salary; charge fees for PPD; not clear if PhilHealth accredited; the sole cite physician passed both vignettes 1 and 2, some dissatisfaction with MD explanation of service and clinic hours
	Maintain current standards and procedures Verify quality of AFB smear; adopt QA	*Verify if there's MOA with DOH;*	*Maintain current standards and procedures*	*Verify submission of TB registry to NTP; verify and encourage the use own records of counting sheets for lab exams*	*Verify revenue structures; rationalize user fees to improve cost recovery rate; advertise to potential patients; facilitate PhilHealth accreditation, improve process to provide patients explanations*
DOTS Clinic	Sputum Exams	Drug Supply	DOT	Recording and Monitoring	Quality and Sustainability
OVERALL	Most rely on AFB smear; a few have no DCs; quality of hospital lab facilities unknown	Current drug supply adequate only for current patients	All compliant with NTP-prescribed drug regimen, but not with daily DOT. Defaulter tracing mechanism also weak in many clinics.	All have complete and updated TB registry, but not all have quarterly reports on treatment progress and outcomes. Also, not all submit their TB registry to DOH/NTP	Weak financial management system; heavy reliance on external support; poor cost-recovery performance; poor prospects for financial sustainability; variable DOTS capability within sites.

	Consitute DCs and verify quality of hospital lab facilities	*Secure long term supply through MOA with government sources; project future drug needs*	*Verify DOT compliance thru periodic home visits of clinic staff.*	*Facilitate submission of TB registry to NTP; verify and develop or strengthen other recording system*	*Verify revenue and expenditure structures; facilitate adoption of user fees to recover costs; information and dissemination campaign targeted to potential clients and patients; facilitate PhilHealth accreditation; implement continuing DOTS training/education programs .*

*Itals are suggested follow through activities or specific actions for TIPS to enhance the private DOTS clinics.

IV. Appendix I: Selected Provider and Patient Profiles

Table A1. Designation of Interviewed Providers

Facility	TB DOTS Clinic Administrator	Physician	Nurse	Midwife	Medical Technologist	Others	Senior Treatment Coordinator	Field Treatment Coordinator	Health Volunteer	Liaison Officer	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	1							2		1	4
Canossa Health and Social Center Foundation, Manila City		1		4	1				8		14
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic, Dagupan City		1			1	1		1			4
Health Management and Research Group Foundation, Davao City	1	1		1	2		1	1			7

PhilamCare-QC Clinic DOTS Center, Quezon City		5	2								7
Polymedic General Hospital DOTS Center, Cagayan de Oro City			1								1
Premier General Hospital of Nueva Ecija, Inc. DOTS Clinic, Cabanatuan City		1			1		1	1			4
Philippine Tuberculosis Society Inc-Cebu TB Pavilion, Cebu City		1	2					1			4
UST Adult and Pediatric DOTS Center, Manila City	1		1					3			5
Total	**3**	**10**	**6**	**5**	**5**	**1**	**2**	**9**	**8**	**1**	**50**

Table A2. Number of patients interviewed

Facility	Number of patients interviewed
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	31
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	24
Health Management and Research Group Foundation, Davao City	14
Philamcare Quezon City Clinic DOTS Center – Quezon City	6
Polymedic General Hospital DOTS Center – Cagayan de Oro City	28
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	5
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3
UST Adult and Pediatric DOTS Center – Manila	12
Total	**128**

Table A3. Interviewed patients by gender

Facility	Male	Female	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	3	2	5
Percent	60.00	40.00	100.00
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	18	13	31
Percent	58.06	41.94	100.00
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	18	6	24
Percent	75.00	25.00	100.00
Health Management and Research Group Foundation, Davao City	9	5	14
Percent	64.29	35.71	100.00
Philamcare Quezon City Clinic DOTS Center – Quezon City	5	1	6
Percent	83.33	16.67	100.00
Polymedic General Hospital DOTS Center – Cagayan de Oro City	14	14	28
Percent	50.00	50.00	100.00
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	2	3	5
Percent	40.00	60.00	100.00
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
Percent	100.00	0.00	100.00
UST Adult and Pediatric DOTS Center – Manila	7	5	12
Percent	58.33	41.67	100.00
Total	**79**	**49**	**128**
Percent	61.72	38.28	100.00

Table A4. Classification of TB, interviewed patients

Facility	Pulmonary	Extra pulmonary	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	5	0	5
Percent	100.00	0	100.00
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	26	1	27
Percent	96.30	3.7	100.00
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	23	0	23
Percent	100.00	0	100.00
Health Management and Research Group Foundation, Davao City	14	0	14
Percent	100.00	0	100.00
Philamcare Quezon City Clinic DOTS Center – Quezon City	6	0	6
Percent	100.00	0	100.00
Polymedic General Hospital DOTS Center – Cagayan de Oro City	25	1	26
Percent	96.15	3.85	100.00
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	5	0	5
Percent	100.00	0	100.00
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
Percent	100.00	0	100.00
UST Adult and Pediatric DOTS Center – Manila	10	2	12
Percent	83.33	16.67	100.00
Total	117	4	121
Percent	96.69	3.31	100.00

Table A5. Interviewed patients by age

Facility	Minimum Age	Average Age	Maximum Age	Number of patients
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	27	41	58	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	20	38	67	31
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	20	38	69	24
Health Management and Research Group Foundation, Davao City	18	41	66	14
Philamcare Quezon City Clinic DOTS Center – Quezon City	21	33	42	6
Polymedic General Hospital DOTS Center – Cagayan de Oro City	20	44	71	28
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	18	38	67	5
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	36	51	67	3
UST Adult and Pediatric DOTS Center – Manila	18	38	58	12
Total				**128**

Table A6. Treatment partner is assigned to all patients

Facility	Yes	No	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	2	3	5
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	30	0	30
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	20	0	20
Health Management and Research Group Foundation, Davao City	13	0	13
Philamcare Quezon City Clinic DOTS Center – Quezon City	5	0	5
Polymedic General Hospital DOTS Center – Cagayan de Oro City	23	0	23
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	4	0	4
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	3	0	3
UST Adult and Pediatric DOTS Center – Manila	12	0	12
Total	**112**	**3**	**115**

Table A7. Interviewed patients by Educational attainment

Facility	None	Some Elem	Elementary	Some High	High School	Vocational	Some Coll	College	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	1	0	2	1	1	0	5
Percent	0.00	0.00	20.00	0.00	40.00	20.00	20.00	0.00	100.00
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	0	1	5	8	7	4	3	3	31
Percent	0.00	3.23	16.13	25.81	22.58	12.9	9.68	9.68	100.00
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	0	2	5	2	4	2	3	6	24
Percent	0.00	8.33	20.83	8.33	16.67	8.33	12.50	25.00	100.00
Health Management and Research Group Foundation, Davao City	0	1	1	5	3	0	3	1	14
Percent	0.00	7.14	7.14	35.71	21.43	0.00	21.43	7.14	100.00
Philamcare Quezon City Clinic DOTS Center – Quezon City	0	0	0	0	0	2	2	2	6
Percent	0.00	0.00	0.00	0.00	0.00	33.33	33.33	33.33	100.00
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0	1	3	2	8	0	5	9	28
Percent	0.00	3.57	10.71	7.14	28.57	0.00	17.86	32.14	100.00
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	1	2	0	1	1	0	0	0	5
Percent	20.00	40.00	0.00	20.00	20.00	0.00	0.00	0.00	100.00
Philippine Tuberculosis Society, Inc- Cebu TB Pavilion, Cebu City	0	0	1	1	1	0	0	0	3
Percent	0.00	0.00	33.33	33.33	33.33	0.00	0.00	0.00	100.00
UST Adult and Pediatric DOTS Center – Manila	1	0	4	0	1	2	3	1	12
Percent	8.33	0.00	33.33	0.00	8.33	16.67	25.00	8.33	100.00
Total	**2**	**7**	**20**	**19**	**27**	**11**	**20**	**22**	**128**
Percent	1.56	5.47	15.63	14.84	21.09	8.59	15.63	17.19	100.00

Table A8. Interviewed patients by facility first diagnosed

Facility	Barangay Health Station	Rural Health Center	District Hospital	Provincial Hospital	Regional Hospital	Private Hospital	Private Clinic	School clinic	Others	Total
Angeles University Foundation Medical Center HMO DOTS Center, Angeles City	0	0	0	0	0	1	3	0	0	4
Percent	0.00	0.00	0.00	0.00	0.00	25.00	75.00	0.00	0.00	100.00
Canossa Health and Social Center Foundation, Inc. – Lingap-Lusog – Manila	0	0	3	0	0	2	3	0	0	8
Percent	0.00	0.00	37.50	0.00	0.00	25.00	37.50	0.00	0.00	100.00
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	0	0	2	3	0	9	2	0	0	16
Percent	0.00	0.00	12.50	18.75	0.00	56.25	12.50	0.00	0.00	100.00
Health Management and Research Group Foundation, Davao City	1	0	0	0	1	1	7	0	0	10
Percent	10.00	0.00	0.00	0.00	10.00	10.00	70.00	0.00	0.00	100.00
Philamcare Quezon City Clinic DOTS Center – Quezon City	0	0	0	0	0	0	2	0	0	2
Percent	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Polymedic General Hospital DOTS Center – Cagayan de Oro City	0	1	0	2	0	10	6	0	0	19
Percent	0.00	5.26	0.00	10.53	0.00	52.63	31.58	0.00	0.00	100.00
Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City	0	0	0	0	0	0	1	0	1	2
Percent	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00	100.00
UST Adult and Pediatric DOTS Center – Manila	0	0	0	0	0	7	1	1	0	9
Percent	0.00	0.00	0.00	0.00	0.00	77.78	11.11	11.11	0.00	100
Total	1	1	5	5	1	30	25	1	1	70
Percent	1.43	1.43	7.14	7.14	1.43	42.86	35.71	1.43	1.43	100

V. Appendix II: Situational Analysis Highlights per SA Site

A. ANGELES UNIVERSITY FOUNDATION MEDICAL CENTER HMO DOTS CENTER, ANGELES CITY

1. Profile

1.1 Facility Setup

1.1.1 Background and History

- The clinic was set up primarily in response to PhilTIPS' call for proponents to establish TB-DOTS clinics which will be provided with financial support from PhilTIPS and with assistance from Medichem (a drug company). They also wanted to address the high incidence of TB in Angeles City.
- No feasibility plan was conducted. The main consideration was the availability of funds from PhilTIPS.
- The facility was organized in June 2004 and started commercial operations in July 2004. It is registered with the SEC.

1.1.2 PhilHealth Accreditation and DOTS Certification

- As of October 2004, the facility's application for PhilHealth accreditation and DOTS certification is still pending. The PhilHealth is scheduled to visit the facility for evaluation on 16 November 2004.

1.1.3 Location and Catchment Area

- The AUF HMO-DOTS Clinic is a foundation-owned hospital-based clinic located along the MacArthur Highway, Lourdes Sur East in Angeles City.
- Physically, the clinic occupies a section of the Out-Patient Department (OPD) of the AUF hospital.
- The defined catchment area is Angeles City. However, the actual catchment area is bigger with only about 40% of the patients coming from Angeles City while around 60% come from Clark Field, San Fernando, Magalang, Mabalacat and Porac.

1.1.4 Equipment, Laboratory and Clinic Infrastructure

- The clinic has access to a complete list of equipments necessary to provide DOTS services. However, the facility has no exclusive use of these equipments, which were procured prior to the establishment of the DOTS clinic and originally for the use of the OPD section of the hospital.

- The available examination equipments include stethoscope, BP apparatus, examination table, thermometer and weighing scale (claimed by the person in charge to be used exclusively for TB-DOTS services). The existing laboratory equipments include microscope, masks, sputum collecting containers, disposable needles and syringes, sharp containers, AFB reagents, glass slides (box), cover slips (box) and sterile cotton swabs.
- Available furniture and other equipments in the clinic include electric fans (wall-mounted, ceiling, exhaust), cabinet, tables, x-ray machine.
- The medical and laboratory equipment were bought upon recommendation of the laboratory staff and following the prescribed standards for a tertiary facility.
- No estimate of the procurement costs of the pre-existing equipments is provided.
- The only additional equipments that were procured after the DOTS clinic was set up are a laptop computer, computer printer and scanner. These were bought in September 2004 for a total of P106,000.
- The clinic's floor area for the TB DOTS facility is approximately 20 square meters. The area is not set based on prescribed standards. The DOTS facility is within the hospital's OPD unit which occupies an area of nearly 80 sq. meters.
- The DOTS facility is found to be generally clean inside and outside, with a waiting area and adequate seats (25 seats, approximately) for patients. It also has an AC unit and a wall fan, but no exhaust fan, and is adequately lighted.
- However, the following are not found within the TB DOTS clinic: water supply for drinking and washing of hands, sink, water system, soap and garbage containers.
- There is also adequate visual privacy but not auditory privacy in the examination room. The examination room is a 2 x 2 meter room with 1 office table and 2 chairs for patients.

1.1.5 Accessibility and Clinic Hours

- The official daily DOTS clinic hours are between 9 a.m. and 5 p.m. There is a daily break from 12 to 1: p.m.
- It is open 5 days a week, from Monday to Friday.
- It can be reached through telephone or through 2 mobile phone numbers. The main contact person is the facility administrator.
- The facility is accessible by public transportation. However, it has no parking area and no clear sign that indicates its name.
- No process flowchart was observed.

1.1.6 Future Plans and Enhancements

- From August-October 2004, the following enhancements in activities or improvements in SOPs were accomplished: installation of additional air-

conditioning units (for the comfort of patients), installation of an exhaust fan (for better ventilation), procurement of laptop computer (for mobile proceedings and activities), training of physicians and conference of diagnostic committee (for case finding operations), and collaboration with the regional hospital and the local government of Angeles City.

- For the future, the clinic is planning to ensure its sustainability through the following: (i) PhilHealth accreditation, (ii) tap pharmaceutical companies as sources of free medicines, (iii) generate additional income through the sale of vaccines, medicines and vitamins.
- Also, it plans to assist in the establishment of DOTS centers in San Fernando and Mabalacat.
- A link up with the public sector is also planned. Specifically, a local referral system is intended to ensure the continuous supply of drugs and to complete medication. Also, a linkage with the National Coordinating Committee for Public-Private Mix DOTS (PPMD) units is planned for oversight supervision and coordination and to ensure that its own activities are aligned with NTP standards (for the common goal of TB-free Philippines).

1.2 Organizational Setup

1.2.1 Personnel Complement and Staff Schedule

- The clinic has an organizational chart.
- The actual number of personnel is equal to the planned number of hires, except for the diagnostic committee (DC) members. There are now 10 DC members in all or 7 more than the planned number. All in all, there are now 18 full-time and part-time staff members.
- The full-time staff members are: 1 physician, two field-treatment coordinators and 1 liaison officer. The part-time staff members are: 1 TB-DOTS facility administrator, 1 nurse, 2 medical technologists and 10 diagnostic committee members.
- The facility administrator is also the DOTS physician.
- The facility administrator, physician, field treatment coordinators and liaison officers work from 9 am to 5 pm everyday. All other staff members do not have specific schedules, although they can be found everyday in the AUF Hospital.
- The OPD section has 41 MDs who are PhilHealth accredited, 7 of them are certified DOTS referring physicians and 1 attending physician is an accredited DOTS provider.
- One physician is designated for consultation during official clinic hours.

1.2.2 Compensation Scheme and Non-monetary Benefits

- Except for the members of the diagnostic committee, all other staff members are paid a monthly salary: P10,000 each for the facility administrator, physician and nurse; and P8,000 each for the medical technologist, field treatment coordinator and liaison officer. Each member of the diagnostic committee gets P350 per patient.
- None of the staff members receive non-financial benefits.

1.3 Performance Evaluation

1.3.1 Internal Evaluation

- Staff performance is evaluated once every month, using the following criteria: attendance, patient service enthusiasm, performance as treatment partner, record-keeping, documentation and update of records.

1.3.2 External Evaluation

- In October 2004, the clinic underwent an external evaluation conducted by PhilTIPS staff. During this assessment, the external evaluator did the following: compare and verify the TB register with the laboratory register and with the treatment cards, review the treatment cards and the laboratory register, interview health workers and patients, conduct physical inventory of logistics and other supplies, inform or advise the health workers of the findings from the visit, and financial evaluation.

1.4 Financial Setup

1.4.1 Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- The estimated total project cost is about P1.296 million pesos. Of this amount, about 84.5 percent (1.095 million pesos) came from PhilTIPS, while the remaining 15.5 percent was the counterpart share of the Clinic. About P823,000 pesos (63.5 percent) is allotted for salaries and fees of experts during the first year of operation.

1.4.1.2 *Pre-operating and Capital Expenditures*

- The only capital expenditures are laptop, scanner and printer worth 106,000 pesos. The pre-operating expenses were 36,000 pesos for pre-deployment training and workshops, and 12,000 pesos for fixed operating expenses for pre-operating stage.

1.4.1.3 *Expenditure Items and Operating Budget*

- The clinic's total operating budget for August 2004 is P97,108.50. This amount is allocated as follows: P54,000 for salary, P6,305 for training, P2,738 for travel and transportation, P18,029 for equipment and P16,036 for other direct expenses.

1.4.2 Revenues

1.4.2.1 *Services and Fee Structure*

- Aside from financial support of 1,025,950 pesos, the clinic also received technical support from PhilTIPS.
- The clinic generates some revenues from patients fees (60%), insurance payments from PhilHealth (18%), insurance payments from HMO (15%), insurance payments from others institutions (2%), government grants (2%), and private grants (3%).
- Initially, the clinic planned to provide the following services: consultation (initial and follow up), sputum smear exam (before treatment and successive treatment), drugs, X-ray and others ("selected" culture and sensitivity). All of these services are now actually provided. The clinic neither planned for nor provides on site a sputum culture service.
- For a fee, however, it collects sputum on site and brings the specimen elsewhere for sputum culture.
- To determine which of its patients to charge fully for drugs or services, the clinic adopts the rule that if a patient can afford to pay the sputum microscopy services, then he/she is charged for the full cost of treatment. If the patient is not able to pay for the smear test, then he/she is referred to the RHU for free drugs and other TB services.
- The clinic charges the same fees for a similar service to insured and non-insured patients. The uniform fee schedule is as follows: P250 for the initial consultation, P200 for follow up consultation, P360 each for the initial and successive sputum exam, P500 for sputum culture, P220 for X-ray and P1,500 for sensitivity tests.

- The bases for setting the fees are the standard fees charged by other specialties (for consultation), prevailing market rates (for sputum exam and X-ray), and prevailing RITM rates (for sputum culture and sensitivity tests).
- Drugs are provided free of charge to all categories of patients.

1.4.2.2 *Payment Schemes*

- About 90% of the patients use their HMO coverage to pay for consultation fees and X-ray fees. About 10% of the patients pay out of their pockets for consultation fees, sputum smear exams and sputum culture. About 1% of the patients have their employers pay for their consultation fees.
- As of October 2004, the DOTS clinic had only 11 patients and 8 of them have no reported occupation. Hence, the revenue sources and fees reported above must pertain to that of the OPD.

1.4.3 Financial Planning, Reporting and Management

1.4.3.1 *Financial Statements*

- The facility has a financial management system. It maintains a separate book of accounts for the recording and record-keeping of all transactions, an internal and external reporting system, a treasury and cashiering operations, budgeting and financial planning, and others (co-sharing, fund raising, third-party payor).
- The facility prepares, on a regular basis, specific and detailed balance sheets and income statements that are submitted to external auditing.
- It also has for the year 2004 an approved operating budget with detailed information on expected revenues and expenses.

1.4.3.2 *Treasury and Cashiering Systems*

- Although reported as separate, again, since the DOTS clinic is only 5 months in existence as of October 2004, it is likely that these financial and accounting practices are not fully implemented or that they must refer to the OPD as a whole.

1.4.4 Financial Planning

- The clinic reports that they perform financial planning, particularly budgeting and sourcing of revenues.

1.4.5 Financial support

1.4.5.1 *Monetary*

- The clinic has a mother organization (Angeles University Foundation) which provides budget support. The mother organization finances 10% of the salary, 5% of the maintenance and expenses, 3% of the transportation expenses, and 2% of other expenses of the clinic.
- Aside from financial support of 1,025,950 pesos, the clinic also receives technical support from PhilTIPS (total funding of P1.095M).

1.4.5.2 *Non-Monetary*

- In addition the mother organization provides the clinic space, furniture, personnel and a computer system.
- Apart from those previously mentioned, the clinic does not receive other non-monetary external support.

1.5 Service statistics

- As of October 2004, the DOTS clinic has a total of 11 patients, of which one is a new patient and the rest are old patients.
- In October 2004, the total number of TB symptomatics examined was 10, 7 of whom are male. Seven of them submitted 3 sputum specimens. Of the 10 patients, 1 is smear-positive, 8 are smear-negative and 1 is a failure. Of these, 6 are classified as Category I, 1 as category II and 3 as Category III patients.
- Thus far, it has discovered 2 smear-positive cases. The ages of the patients range from 25 to above 65 years.
- Further, 9 of the patients have pulmonary TB, while 1 patient has extra-pulmonary TB.
- No treatment outcome is reported yet since all 10 patients have just started treatment.

2. Operating policies

2.1 General Operating Procedures

- The facility follows standard operating procedures for patient diagnosis, patient treatment, patient follow-up and financial reporting and accounting. However, these SOPs are not codified.
- All private clients are attended to by a private physician.
- All charity patients are referred to charity institutions or RHUs for treatment.

- There is an existing mechanism to deal with emergency cases. For patients that show minor adverse drug reactions (ARD), they are treated at the OPD as emergency cases. Other patients that show ARD are referred from the OPD to the ER.

2.2 Provision of Drugs and Management of Drug Supply

- The clinic gets 95% of its TB drug supply from the government, 3% from Wyeth-Medichem (private drug companies) and 2% from drugstores.
- It has 6-months worth of stock of TB drugs.
- Drugs are dispensed twice a week (Tuesdays and Thursdays) to the family members or treatment partners of the patients.
- The TB-DOTS facility administrator and physician ensure that there is uninterrupted drug supply for patients.

2.3 IEC and TB Education

- The facility provides health education through counseling and distribution of IEC materials.
- The IEC materials consist of a flip chart and brochures and pamphlets. The flip charts target patients while the brochures and pamphlets focus on educating patients, treatment partners and the general public.
- In addition, the clinic conducts individual discussion with TB patients, patient's family members and treatment partners. So far, nine meetings with the TB patients and together with their family members and treatment partners have been conducted for the purpose. The first meeting was held on October 21, 2004 and the next scheduled meeting is on October 28, 2004.
- No group discussions were conducted so far.

3. TB Case Management

3.1 TB Case Finding

3.1.1 Diagnostic Procedure

- Diagnosis is through clinical, radiologic and microscopic methods following NTP standards.
- There is no sputum collection area within the clinic. Sputum specimens are collected in the hospital laboratory.
- The diagnostic services offered are sputum AFB on site, sputum AFB on referral, sputum culture on site, sputum culture on referral and X-ray.

3.1.2 Diagnostic Committee

- The members of the TB Diagnostic Committee are a pulmonogist, a radiologist, the DOTS coordinator, an internist, a chief nurse, an RCC TB coordinator, an RCC-NTP nurse and an epidemiologist-master educator.

3.2 TB Case Holding

3.2.1 Drug Regimen

- Drug dispensing is twice weekly.
- For Category I and II patients, the frequency of DOT treatment is day 0 (start of treatment) and then the follow up treatment comes 2 months and 4 months after day 0. For Category II patients, the frequency of DOT is day 0 and then the follow up visits are 3 months, 5 months, and 8 months after the start of treatment.
- The clinic has the following TB drugs on stock and which it distributes for free: Type I (RHZ), Type II (HR), Ethambutol (400 mg), Streptomycin (1g), INH tab (mg), PZA tab (500 mg), 4-drugs FDC tables, 3-drugs FDC tablets and 2-drugs FDC tablets. There is written inventory of these drugs, but the drugs are not stored by expiry date and the system of 'first-expiry, first out" is not followed.
- No estimate of the storage cost of drugs is provided.
- The patient is referred to private drugstores to obtain other TB drugs not available in the facility.
- The facility has enough TB drugs on stock for its currently enrolled patients. For the past six months, it has not refused any patient nor has interrupted treatment of any patient due to non-availability of drugs.

3.2.2 Treatment Partner

- The initial treatment partner is the MD or clinic staff. While at home, the treatment partner is the patient's relative or guardian.
- Twelve treatment partners are reported: 10 family members and 2 others.
- All treatment partners are given a regular conference every 2 months.

3.2.3 Directly Observed Treatment

- DOT was not observed during the interview.
- For Category I and II patients, DOT treatment is only on day 0 (start of treatment) and then on the follow up treatments 2 months and 4 months after day 0. For Category II patients, the DOT is only on day 0 and on the follow up visits are 3 months, 5 months, and 8 months after the start of treatment.

3.2.4 Patient Follow-up and Defaulter Tracing

- The field treatment coordinators do continuous follow-ups, including updating of patient's address, through mobile phones, telephones and text messages.

3.3 Referral System

- Referrals to the clinic come from MDs and non-MDs.
- Some patients who go to the DOTS clinic are referred to government health centers for medicine and surveillance.

3.4 Reporting and Recording

3.4.1 Reporting and Recording Forms

- The facility has a masterlist of TB symtomatics. However, the masterlist is not updated, legible or complete.
- It has a laboratory register and treatment cards.
- It has no form for laboratory request for sputum examination and identification card. Neither does it have quarterly reports on new cases and relapses, counting sheets for treatment outcome and quarterly reports on drug inventory and requirements.
- However, it has quarterly reports and counting sheets for laboratory activities, but which are kept and maintained at the hospital.

3.4.2 TB Registry

- The clinic has a TB registry form that is updated.

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through AFB Smear Test

- The facility has demonstrated capacity to provide AFB smear test. It also appears that it adhered to the initial diagnostic method used on the 10 patients it had in October 2004
- However, it still does not have a dedicated laboratory facility. This could pose a problem in the future as more and more TB patients will enroll and who will have to compete with other hospital patients for laboratory services.

4.1.2 Continuous Drug Supply

- There are enough TB drugs on stock for the six-month treatments for all patient categories.
- However, current inventory management is poor. Drugs are not dedicated on a per patient basis and no system of "expiry first, out first" is followed. This situation may be allowed initially when the clinic has only 10 patients, but not when it has significantly more patients.
- Further, whether drugs will be continuously available after the current stock runs out depends a lot on the results of the clinic's attempt to collaborate with the local government of Angeles City and the regional hospital.

4.1.3 Recording and Reporting System

- The clinic has a system of recording and reporting its TB patients. However, this system works for its current low patient load, but will have to be improved to cater to more patients.

4.1.4 Direct Observation of Drug Intake

- Concern must be raised about the clinic's practice of dispensing TB drugs to treatment partners instead of requiring the patient himself or herself to secure the drugs and take the drugs on site.

4.1.5 Political Commitment

- It is clear to the facility administrators that the financial sustainability of the clinic is paramount. To ensure this, certain revenue enhancing plans are considered.
- However, ways to reduce the current operating expenses – especially salaries and wages – must be explored, until such time the patient load has risen to warrant the current compensation rates. Using for example the current fees for sputum smear test (P360), it would take 150 patient contacts to recover the P54,000 paid in August 2004 as compensation to the clinic staff.
- Hence, to ensure its financial sustainability, clinic must adopt any or a combination of the following: a more aggressive case finding strategy that involves community-level advocacy, a long term budget support from PhilTIPS and other sources, or cut down on operating expenses.

B. CANOSSA HEALTH AND SOCIAL CENTER FOUNDATION (CHSC), Inc.-LINGAP LUSOG, MANILA CITY

1. Profile

1.1 Facility Setup

1.1.1 Background and History

- CHSC was established in 1972 in a reclaimed area in Tondo to provide for health needs of the community's indigent members.
- It is registered with the Securities and Exchange Commission (SEC).
- It is owned by an NGO.
- A new health center was constructed in its current location in Tondo.
- It is not solely dedicated to the provision of TB DOTS since other services are provided such as outpatient care, dental care, maternal care
- TB DOTS provision began in 1982 under the auspices of the German Doctors as a result of the increasing number of TB patients seeking care in the clinic.
- In 1989, a satellite clinic was established in Bulihan, Cavite because many of the Tondo patients who were relocated to Bulihan would still go back to Canossa for their TB medication.
- The TB Program was suspended in 1997-98 due to lack of enrollees but was resumed in 1999 after an appeal was made to the German Doctors.
- The newly-opened DOTS clinic was named Lingap Lusog in 2000
- The clinic applied for a PhilTIPS grant in April 2004, grant was approved on June 12, 2004

1.1.2 PhilHealth Accreditation and DOTS Certification

- CHSC is not yet not PhilHealth accredited, although there is a pending application for accreditation (submitted in September 2004)
- Likewise is not yet a certified DOTS center, although there is pending application for certification (submitted in September 2004)

1.1.3 Location and Catchment Areas

- Main location and catchment areas is District 1 Zone 8 of Tondo which includes 16 densely populated barangays
- In addition, clinic receives patients from Batangas, Laguna, and Mindanao
- Target clientele are indigent members of the community

1.1.4 Equipment, Laboratory, and Clinic Infrastructure

- The CSHC has a floor area of 1500 square meters, 120 square meters of which had been allotted to the TB DOTS facility.
- All equipment programmed to be acquired were actually purchased. These are: Stethoscope, BP apparatus, Examination table, Thermometer, Weighing scale, Microscope, Masks, Sputum collecting containers, Disposable needles and syringes, Sharp container, AFB reagents, Glass slides, Cover slips, Sterile cotton swabs, Wall mounted, ceiling, and exhaust fans, Cabinet, Table, X-ray machine, Cleaning supplies
- All these equipment are used exclusively for the provision of TB DOTS services.
- The facility does not have a supply of drinking water/glasses. Patients are required to bring their own water.

1.1.5 Accessibility and Clinic Hours

- Clinic is open 6 days a week, Monday-Friday
- Opens at 8 AM, closes at 5 PM; Lunch break at 12 NN to 1 PM
- Has one landline number (shared by the entire health center)

1.1.6 Future Plans and Enhancements

- Plans to "streamline the clinic into becoming a community-based health program"
- Plans to link up with the public sector, in particular, with (i) RHUs, for immunization of patients, (ii) with barangay officials, for TB case finding and participation in other TB-related activities to increase TB awareness
- Enhancements include: (i) ongoing PhilHealth and PhilCAT accreditation application, (ii) enrolled patients under PhilTIPS

1.2 Organizational Set-up

1.2.1 Personnel Complement and Staff Schedule

- Clinic has 7 full-time staff and 17 part-time staff
- Full-time staff consists of: 1 TB DOTS facility administrator, 4 midwives, 1 medical technologist, and 1 accountant
- Part-time staff consists of: 1 physician, 1 midwife, 1 medical technologist, 4 diagnostic committee members, 1 radiologist, and 9 health volunteers
- The TB DOTS administrator reports daily from Monday to Sunday, 8 AM to 5PM.
- The midwife reports daily from Monday to Saturday, 8 AM to 5 PM.
- The physician reports thrice weekly (TThS), 8 AM to 5 PM.

- The medical technologist reports daily from Tuesday to Saturday, 8 AM to 5 PM.
- The radiologist reports every Tuesdays, 8 AM to 5 PM.
- Health volunteers report daily from Monday to Saturday, 8AM to 12 NN.

1.2.2. Compensation Scheme and Non-financial Benefits

- The full time staff members receive monthly salaries: (i) TB DOTS facility administrator P10,000, (ii) NTP coordinator P10,500, (iii) Liaison officer 7,000, (iv) Medical technologist P7,500, and (v) Accountant P6,675
- The part time Physician gets P13,000/ month
- Diagnostic committee members do not receive compensation
- Health volunteers, who act as treatment partners, receive a commission of P400 six to seven times a week or earn about P2,657 per month from the sale of herbal medicine.
- All paid staff except health volunteers have SSS, PhilHealth, and Pag-IBIG fund benefits
- Health volunteers receive free meals.

1.3 Performance Evaluation

1.3.1 Internal Evaluation

- Regular evaluation of staff performance is conducted: monthly for health volunteers and weekly for the NTP coordinator and DOTS administrator.

1.3.2 External Evaluation

- No external evaluation has been conducted on the facility

1.4 Financial Set up

1.4.1 Expenditures

1.4.1.1 *Salaries and other Operating Expenditures*

- Monthly wage bill: P54,675 (excluding health volunteers)
- No information on other expenditure items

1.4.1.2 *Pre-operating and Capital Expenditures*

- To set up the TB DOTS facility, capital expenditures amounting to 1,000,000 pesos were incurred
- Financial support to set up the facility was obtained from private individuals in the form of cash and in-kind donations

1.4.1.3 *Expenditure Items and Operating Budget*

- No information on expenditure items except for monthly wage bill

1.4.2 Revenues

1.4.2.1 *Services and Fee Structure*

- The following services are offered at the facility: initial and follow-up consultation, sputum spear examination, drugs, and x-ray.
- The facility does not provide sputum culture services because facility lacks reagents. Samples are sent to Makati for this service.
- Other services provided are: (i) provision of health education through counseling and IEC materials, and (ii) feeding programs.
- The facility provides the following drugs, free of charge: Type 1 (HRZ), Type II (HR), Ethambutol (400 mg), Streptomycin (1mg), INH tab, RFP syrup (100mg/tsp 60 ml), 4-drugs FDC tablets, 3-drugs FDC tablets, 2-drugs FDC tablets, Antihistamines, Pyridoxine, Aspirin/ NSAID, Allopurinol, Antipyretics, PZA tab (400 mg) , INH syrup (200 mg/5ml 60 ml), Vitamins, Anti-asthma drugs, and Antibiotics
- A minimal fee is charged for diagnostic services: 10 pesos per sputum exam and 75 pesos per x-ray
- However, most patients are unable to pay for the examinations done for them.

1.4.2.2 *Payment Schemes*

- Paying patients pay from out of their pockets (facility is not yet PhilHealth accredited)

1.4.3 Financial Reporting and Management

- No financial statements prepared
- The Canossa Provincial Institution which does the accounting and centralization of the revolving funds for all Canossa institutions.

1.4.4 Financial Planning

- The funds generated through the cooperative's various fund raising activities (sale of herbal medicine, candle making, lantern making, solicitations from private individuals) are sent to the Canossa Provincial Institution which does the accounting and centralization of the revolving funds for all Canossa institutions.

1.4.5 Financial Support

1.4.5.1 *Monetary*

- 100% of the operating budget is supported by private grants
- Cost sharing between PhilTIPS and Canossa for salaries of DOTS staff: 74% of total payroll is funded by PhilTIPS
- Donations from private individuals have been used to fund capital expenditures of the clinic
- A cooperative was established in the clinic, where the members are the clinic's TB patients and health volunteers. The funds generated through the cooperative's various fund raising activities (sale of herbal medicine, candle making, lantern making, solicitations from private individuals) are sent to the Canossa Provincial Institution which does the accounting and centralization of the revolving funds for all Canossa institutions.

1.4.5.2 *Non-monetary*

- 100 % of drug requirements are financed by PhilTIPS and German Doctors

1.5 Service Statistics

- In the last 9 months, total number of TB patients registered is (a maximum of) 91, 11 of whom were enrolled under the PhilTIPS program and 70-80, under the German Doctors.
- No statistics were made available for the patients of the German Doctors program.
- For the PhilTIPS patients, ages of male patients range from 35-64 years old; ages of female patients range from 25-44 years old

2 Operating Policies

2.1 General Operating Procedures

- Each area or block of the catchment area is assigned to 2 health volunteers, who act as community organizers as well as treatment partners.

- TB patients come from the OPD of the CHSC as well as referrals from other clinics and hospitals.
- To qualify or to be enrolled in the DOTS clinic, one has to comply with what are stipulated in the "Kasunduan Form" of the clinic, which include the consultation schedule
- Sputum examinations to be done once daily for 3 consecutive days. If the result is positive, examination will be repeated every month and every two months if results are negative.
- DOTS protocol is followed
- Follow-up consultations are required.
- TB patients are prohibited from drinking alcohol, smoking, and gambling.
- Attendance at formation activities of the center is compulsory.

2.2 Provision of Drugs and Management of Drug Supply

- The clinic receives TB drugs from the German Doctors and PhilTIPS. The German Doctors deliver TB drugs every 2nd Wednesday of the month, with a 10% additional provision for possible new patients.
- NTP coordinator does a weekly inventory of drugs.
- Clinic follows the 30% buffer stock policy. However, due to the increasing number of TB patients, buffer stock is sometimes used up.
- There is a written inventory for all drugs provided by the facility.
- All drugs are stored by expiry date.
- There is a system of "first expiry, first out" for all drugs.

2.3 IEC and TB Education

- The following IEC materials are available in this facility: flip chart, brochure, poster, comics, and flyers.
- All IEC materials are designed to target TB patients. Additionally, there are brochures/pamphlets made for providers.
- Individual discussions are held regularly with patients and with treatment partners. In the last month, 2 such discussions were held with patients and 4 with treatment partners.
- Group discussions are likewise held regularly, with separate meetings for TB patients and treatment partners. Health volunteers hold a group discussion with their respective blocks every Monday. In the last 3 months, 12 such discussions were held with TB patients and another 12 with treatment partners.
- Among the key messages conveyed during discussions are the following: (i) regular drug intake of a combination of drugs, (ii) side effects of TB drugs, (iii)

importance of support from family/ treatment partner, (iv) other matters such as environmental problems, work, and personal problems.

- TB management related issues are likewise taken up during the weekly group meetings with TB patients.

3. TB Case Management

3.1 TB Case Finding

3.1.1. Diagnostic Procedure

- TB patients are diagnosed based on history, symptoms, sputum exams, and chest x-rays.
- Sputum AFB is done on site.
- Sputum collection is done in a designated area in the facility which is open area.
- Specimens are sent directly to the microscopy area which is adjacent to the sputum collection area and examined immediately.
- Quality assurance measures include: (i) policy of repeating initial laboratory exams for referrals from other hospitals, and (ii) PhilCAT accreditation of microscopists, (iii) meeting the laboratory equipment standards set by the German Doctors.

3.1.2 Diagnostic Committee

- The Committee has 6 members: DOTS administrator, NTP coordinator, 1 DOTS physician, 2 pulmonologists, and 1 radiologist.
- The Committee is tasked to review equivocal results of laboratory examinations.
- Meetings are held as needed.

3.2 TB Case Holding

3.2.1 Drug Regimen

- The clinic follows the NTP recommendations.
- Modifications on drug dosaging are based on the weight of the patient. Weighing of patient is done monthly.

3.2.2 Treatment Partner

- Health volunteers act as treatment partners. The current set of volunteers has been serving the community for the past 5 years.

- The NTP coordinator also acts as a treatment partner. The current coordinator has been a volunteer for the past 32 years.
- Treatment partners observe patients take their medication even on weekends and holidays.
- Treatment partners are supervised by the NTP coordinator through their weekly meetings. Updates, lectures, and tests are regularly given to treatment partners by the NTP coordinator and DOTS physician.

3.2.3 Directly Observed Treatment

- Directly observed intake of drugs are done daily from Monday to Saturday at the Center. On Sundays, treatment partners go to the patients' houses to observe patients take drugs. Patients taking Streptomycin are required to go to the clinic daily for their medication.

3.2.4 Patient Follow-up and Defaulter Tracing

- Patients who miss one day in the required daily visits to the center are seen as potential defaulters. Home visits are made immediately.
- Patients who have difficulty in complying with daily visits to the center are referred to a more conveniently located facility.
- Center strictly implements the requirement of daily visits since German Doctors require 97% completion of medication, 90% cure rate and zero default rate.

3.3 Referral System

- Facility accepts patients referred from other facilities.
- Referred patients are required to repeat initial laboratory examinations.
- Patients are referred to other facilities if patients find it inconvenient to go to the CSHC for their daily drug intake.

3.4 Reporting and Recording

3.4.1 Recording and Reporting Forms

- The facility has the following recording forms: TB symptomatics masterlist, laboratory request form for sputum examination, laboratory register, treatment card, identification card, TB registry, referral/ transfer form. The person designated to fill up these forms is the NTP coordinator.
- The facility has the following reporting forms and counting sheets: quarterly report on laboratory activities, counting sheets for laboratory activities, counting sheets for treatment outcome, and quarterly report on drug inventory and

requirement. The person designated to fill up the quarterly report on laboratory activities, counting sheets for laboratory activities is the Medical Technologist. The NTP Coordinator is designated to fill up the counting sheets for treatment outcome and quarterly report on drug inventory and requirement.

- The facility did not have quarterly reports on new cases and relapses as of the time of interview but intended to start having this in October 2004.
- The facility has no financial accounts and statements.
- The following summary reports are submitted to the German Doctors and NTP: quarterly report on laboratory activities, counting sheets for laboratory activities, quarterly report on new cases and relapses, counting sheets for treatment outcome, and quarterly report on drug inventory and requirement.

3.4.2 TB Registry

- The facility has a TB Registry

4. Adherence to TB DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Microscopy

- TB patients are diagnosed based on history, symptoms, sputum exams, and chest x-rays.
- Sputum AFB is done on site.
- Sputum collection is done in a designated area in the facility which is open area.
- Specimens are sent directly to the microscopy area which is adjacent to the sputum collection area and examined immediately.

4.1.2 Continuous Supply of Drugs

- Due to increasing number of patients, buffer stock of drugs is sometimes used up.

4.1.3 Recording and Reporting System

- The clinic complies with NTP reporting requirements

4.1.4 Direct Observation of Drug Intake

- Because Center has to comply with German Doctors' stringent requirements, the Center strictly implements its "Kasunduan" with patients. DOTS is strictly implemented.

4.1.5 Political Commitment

- Volunteer system works because volunteers (i) face financial incentives in the form of commissions from the sale of herbal medicine, (ii) are community organizers and would thus have personal ties with community members

C. DAGUPAN DOCTORS VILLAFLOR MEMORIAL HOSPITAL DOTS CLINIC, DAGUPAN CITY

1. Profile

1.1. Facility Setup

1.1.1. Background and history

- The Dagupan Doctors Villaflor Memorial Hospital (DDVMH) DOTS clinic was founded under the auspices of the Dr. Vivencio V. Villaflor, Sr. Medical Foundation which provided the DOTS clinic's logistics.
- The DDVMH started operations as a DOTS clinic March 2004 but began commercial operations July 2004. Before operating as a DOTS center, a TB clinic was already present at the DDVMH and was purportedly administering DOTS as early as 2003.
- The DDVMH is a DOTS-dedicated hospital based clinic.
- It is a PhilTIPS grantee but part of its financial support is drawn from the foundation which provided counterpart support in terms of clinic space, equipment, supplies.

1.1.2. PhilHealth Accreditation and DOTS Certification

- The DDVMH DOTS clinic expects to get PhilHealth accreditation as a DOTS center after it receives PhilCAT certification.

1.1.3. Location and Catchment Area

- Although the DDVMH was initially developed to service a specific coverage area, since its inception as a DOTS center, it has accepted TB patients from all over Pangasinan as long as the patients agree to the terms of enrollment.
- At present, most of its patients come from the following municipalities: Dagupan, Calasiao, Mangaldan, Lingayen, Binmaley, San Fabian, Malasique, Asingan, Sta. Barbara, Urdaneta, Villasis, Rosales.

1.1.4. Equipment, Laboratory and Clinic Infrastructure

- The DDVMH DOTS clinic does not have its own laboratory. Instead, patients are referred to the hospital laboratory for the sputum exam.
- Sputum collection however is carried out in the clinic.
- The only equipment that the hospital laboratory did not have to acquire upon the operation of the DOTS clinic was the microscope. The hospital laboratory had to acquire reagents for the sputum exam.
- The DOTS clinic acquired sputum collecting equipment and supplies upon onset of operation.

1.1.5. Accessibility and Clinic Hours

- The DOTS clinic is open from 8-12 am and 1-4 pm on weekdays; from 9-12 am during Saturdays.

1.1.6. Future Plans and Enhancements

- The Vivencio V. Villaflor Sr. Medical Foundation also plans to set up other DOTS centers in other high population density areas in Pangasinan.

1.2. Organizational Setup

1.2.1. Personnel Complement and Staff Schedule

- The only full-time personnel in the DOTS clinic are the nurse and the field treatment coordinator.
- The DOTS facility administrator and the members of the diagnostic committee are only affiliated with the DOTS clinic on a part-time basis.

1.2.2. Compensation Scheme and Non-Financial Benefits

- The DOTS clinic personnel are compensated on a fixed monthly salary basis.
- The clinic staff is covered by SSS and PhilHealth benefits.

1.3. Performance Evaluation

1.3.1. Internal Evaluation

- Internal evaluation is undertaken by the hospital using the staff evaluation criteria that the hospital uses for its staff.

1.3.2. External Evaluation

- PhilTIPS visits the DOTS clinic from time to time
- Quality assurance of AFB sputum smear exams done by the hospital laboratory is conducted by the CHO twice a month.

1.4. Financial Setup

1.4.1. Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- The DOTS facility administrator and the DOTS physician receive Php 10,000 a month while the nurse and field treatment coordinator receive Php 8,000 a month.

1.4.1.2 *Pre-Operating and Capital Expenditures*

- Initial capital outlay was around PhP 450,000.

1.4.1.3 *Expenditure Items and Operating Budget*

- The operating budget as based on monthly salaries is around PhP39,000 a month.

1.4.2. Revenues

1.4.2.1 *Services and Fee Structure*

- The DOTS clinic does not charge patients user fees. Patients, however, have to pay for sputum exams performed by the hospital laboratory.
- Although patients have to pay for laboratory fees, these are provided at a discounted rate of PhP 50 per sputum exam (The medical foundation subsidizes the sputum exam of DOTS clinic patients.)

1.4.2.2 *Payment Schemes*

- The DOTS clinic does not charge patients user fees.

1.4.3. Financial Reporting and Management

1.4.3.1 *Financial Statements*

- The DOTS clinic employs standard bookkeeping practices and uses financial statements like the balance sheet.

1.4.3.2 *Treasury and Cashiering Systems*

- Disbursements are on a cash basis.

1.4.4. Financial Planning

- The DOTS clinic prepares an annual budget which it submits to both the medical foundation and PhilTIPS. The clinic also submits regular accounting statements to PhilTIPS.

1.4.5. Financial Support

1.4.5.1 *Monetary*

- The monetary grant is provided by the PhilTIPS project but counterpart funding is also provided by the Dr. Vivencio V. Villafor Sr. Foundation.
- Counterpart funding of the foundation is through the salary of the microscopist paid for by the hospital.

1.4.5.2 *Non-Monetary*

- The PhilTIPS project has also given equipment such as computers and printers.
- The Dr. Vivencio V. Villafor Sr. Medical Foundation also provides logistical support.

1.5. Service Statistics

- Since its operation as a DOTS clinic, the DDVMH has examined more than 60 TB symptomatics.
- At present, the DOTS clinic has 32 registered TB patients, all of whom a pulmonary cases.
- Only 22 of the 32 TB patients are newly diagnosed cases. Among the rest, 3 were relapse cases and 2 were treatment failures.

2. Operating Policies

2.1. General Operating Procedures

- The DDVMH DOTS clinic enrolls prospective patients as long as they are either sputum positive or sputum negative but recommended for enrollment by the Diagnostic Committee.
- The DOTS clinic accepts referrals.
- The DOTS clinic also recognizes sputum results done outside the hospital laboratory as long as these are from DOH certified laboratories.

2.2. Provision of Drugs and Management of Drug Supply

- The DOTS clinic initially got its TB drug supply from PhilTIPS but intends to enter into a MOA with the CHO for the purpose of securing its drug supply.
- The DOTS clinic has a drug supply buffer stock policy. The buffer stock is equivalent to 20% of the drug supply needed by the present TB patient load. The DOTS administrator is responsible for ensuring that the buffer stock is adequate although there is no specific schedule for checking the adequacy of the buffer stock.
- Whenever a TB patient is enrolled, the supply of TB drugs needed for treatment is secured and separated from the drug inventory. To distinguish the quantity needed by each patient, the drugs allocated for each patient are wrapped separately and tied with rubber bands.
- TB drugs are provided free of charge.

2.3. IEC and TB Education

3. TB Case Management

3.1. TB Case Finding

3.1.1. Diagnostic Procedure

- The AFB sputum smear exam is the primary diagnostic tool.
- When a TB symptomatic is found to be smear negative, x-ray exams are also ordered and submitted to the diagnostic committee for further evaluation.
- The DOTS clinic has a sputum collection area but the sputum specimen is processed in the hospital laboratory (the laboratory is physically separated from the DOTS clinic but is easily accessible through a window adjacent to both facilities).
- Laboratory results of sputum exams done outside the DDVMH hospital are not recognized unless the laboratory exam was performed by an NTP trained microscopist in a DOH accredited facility.

3.1.2. Diagnostic Committee

- Sputum negative patients are enrolled into the DOTS center as long as they are recommended by the diagnostic committee which regularly meets once a month.

3.2. TB Case Holding

3.2.1. Drug Regimen

- Category I and III patients are given their weekly supply of medicines when they visit the DOTS clinic and drug intake is observed during that time. There is no difference in the type of DOT applied between intensive and maintenance phases.
- Two weeks to one month supply of medicines are, however, given in exceptional cases, i.e., patients live in far flung areas
- Category II patients, however, have to visit the DOTS clinic from Monday to Saturday for the Streptomycin injections.
- Field treatment coordinators are supposed to visit TB patients twice a week during intensive phase, and once a week for maintenance phase.
- Most of the time, however, the field treatment coordinator can only visit patients once a week.
- Empty blister packs or foils 'banigs" are submitted and checked upon replenishment of drugs.

3.2.2. Treatment Partner

- Most of the treatment partners are family members. The nurse acts as the facility treatment partner only when the TB patient goes to the DOTS clinic for the weekly drug supply. The exceptions to the norm are Category II patients who have to visit the clinic daily for streptomycin injections done in the clinic.

3.2.3. Directly Observed Treatment

- DOT or observation of drug intake by non-family member treatment partner is conducted either when patient visits DOTS clinic or the treatment partner visits the patient (once a week).

3.2.4. Patient Follow-up and Defaulter Tracing

- The field treatment coordinator visits the defaulters and reports the results the next day. There have been no defaulters so far. The field treatment coordinator dedicates at least two days a week for tracing defaulters.
- A TB patient is identified as a defaulter when the patient misses one scheduled visit. The reason for this is that Category I and III patients only make weekly visits.

3.3. Referral System

- The DOTS clinic accepts referrals from non-clinic affiliated physicians

3.4. Reporting and Recording

3.4.1. Recording and Reporting Forms

- The DOTS clinic maintains a reporting and monitoring system. The reporting and recording forms used follow the NTP standard.
- The DOTS clinic records are up to date.

3.4.2. TB Registry

- The DOTS clinic submits the required NTP forms regularly to both the DOH and PhilTIPS
- The TB registry is both up to date and legible.

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Sputum microscopy is the primary diagnostic tool although x-rays are also used

4.1.2 Continuous Supply of Drugs

- The DOTS clinic initially got its TB drug supply from PhilTIPS but intends to enter into a MOA with the CHO for the purpose of securing its future drug supply.
- The DOTS clinic has a drug supply buffer stock policy. The buffer stock is equivalent to 20% of the drug supply needed by the present TB patient load.

4.1.3 Recording and Reporting System

- The DOTS clinic maintains a reporting and monitoring system. The reporting and recording forms used follow the NTP standard and are up to date.

4.1.4 Direct Observation of Drug Intake

- DOT not strictly implemented due to patient location. DOT is observed only during patient visits to the clinic.

4.1.5 Political Commitment

D. HEALTH MANAGEMENT AND RESEARCH GROUP (HMRG) FOUNDATION, DAVAO CITY

1. Profile

1.1 Facility Set-up

1.1.1 Background and History

- The Health Management and Research Group Foundation, Inc. (HMRG) is a non-government foundation put up in 1998
- The facility operates three programs, the Primary Health Care Maintenance Program, Rational Distribution, Procurement and Use of Drugs and the Men's Responsibilities in Gender and Development, popularly known as MR. GAD
- The HMRG is one of four PPM DOTS Centers located in Davao City. It offers not only TB DOTS services but its guest doctors provide dental, optical and pediatric medical services as well. It also operates its own pharmacy and laboratory.
- Signed a Memorandum of Understanding with the DOH Regional Health Office in September 2003.

1.1.2 PhilHealth Accreditation and DOTS Certification

- Not yet accredited by PhilHealth, submitted assessment form in July 2004 to PhilCAT
- Not yet certified as DOTS Center, PhilTIPS assisting in the certification

1.1.3 Location and Catchment Area

- Located at the center of Davao City
- Catchment area mapped out by the Regional Coordinating Committee of DOH
- Catchment area includes Boulevard, Agdao, Sasa, Lanang and Tibungco

1.1.4 Equipment, Laboratory and Clinic Infrastructure

- HMRG clinic area airconditioned, separate consultations rooms, most laboratory and office facilities present even before TB DOTS
- No separate rooms for TB DOTS patients; sputum collection done outside between main facility and lab/pharmacy
- There is a waiting area with 10 seats
- Clinics has running water, sink, garbage cans, 3 air-conditioning units, 3 exhaust fans, tables and cabinets
- Laboratory and examination equipment available; no x-ray machine

1.1.5 Accessibility and Clinic Hours

- Open Mondays to Fridays 8 AM to 5 PM, and 8 AM to 12 NN on Saturdays
- Landline telephone available

1.1.6 Future Plans and Enhancements

- Improve clinic facilities, create separate room specifically for TB DOTS
- Purchase computers
- Follow-up PhilHealth accreditation
- Purchase own supply of drugs
- Sponsor basic DOTS workshop in October 2004
- Purchase TV set for TV information dissemination
- Develop comics in the Cebuano dialect as IEC materials

1.2 Organizational Set-up

1.2.1 Personnel Complement and Staff Schedule

- 1 part time TB DOTS Facility Administrator (9AM-5PM M-F, 9-12 Sat)
- 2 part time Physicians (1-5 PM M-F)
- 1 full time Nurse (8AM-5PM M-F, 8-12 Sat)
- 1 full time Liaison Officer (8AM-5PM M-F, 8-12 Sat)
- 2 full time Field Treatment Coordinators (8AM-5PM M-F and 8-12 Sat)

1.2.2 Compensation Scheme and Non-financial Benefits

- Staff members receive monthly salary but not non-financial benefits

1.3 Performance Evaluation

1.3.1 Internal Evaluation

- Currently, performance evaluation done every 6 months for new staff and once yearly for old staff following HMRG policies
- TB DOTS Administrator meets with staff weekly every Friday
- Now that there is a grant form PhilTIPS, evaluation to be done twice a year

1.3.2 External Evaluation

- Yes one recently done in June 2004
- DOH-Manila, WHO, and PhilCAT Regional Office evaluate monthly the TB register, treatment cards, lab register, supplies, slides and drugs

1.4 Financial Set-up

1.4.1 Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- The grant from PhilTIPS is used as such: 63% for salaries, 8% for supplies and materials, 7.7% for transport
- Of the cost-share of HMRG, about 60% for salaries and expert fees, 35% for other direct costs (rental, supplies and materials, repairs and maintenance of office and lab equipment, power and water, communication, honoraria of Diagnostic members, improvement of PPMD unit)

1.4.1.2 *Pre-operating and Capital Expenditures*

- Spent about P60T for training, workshops and pre-operations
- Almost P1M worth of medicines, some sputum containers and AFB reagents come from DOH Region XI

1.4.1.3 *Expenditure Items and Operating Budget*

- Before PhilTIPS, 20% of operating resources from government and 80% from HMRG
- Now 100% from PhilTIPS

1.4.2 Revenues

1.4.2.1 *Services and Fee Structure*

- P150 sputum smear initial consultation, P35 succeeding exams
- P50 fee for initial consultation
- P20 fee for issuance of medical certificates
- 5% mark-up for reagents purchased by the clinic

1.4.2.2 *Payment Schemes*

1.4.3 Financial Reporting and Management

1.4.3.1 *Financial Statements*

- Accounting and reporting done using HMRG forms
- Now uses PhilTIPS forms

1.4.3.2 *Treasury and Cashiering Systems*

- Separate books of accounts, including treasury accounts now that PhilTIPS requires them. Used to be lumped with other HMRG accounts

1.4.4 Financial Planning

- Separate books of accounts, reports of the finances, treasury accounts, budgets for the TB DOTS facility now that PhilTIPS requires them

1.4.5 Financial Support

1.4.5.1 *Monetary*

- P1.12M from PhilTIPS; about 63% for salaries, 19% for equipment
- P1.198M cost-share of HMRG, about 60% for salaries and expert fees, 35% for other direct costs (rental, supplies and materials, repairs and maintenance of office and lab equipment, power and water, communication, honoraria of Diagnostic members, improvement of PPMD unit)

1.4.5.2 *Non-monetary*

- Free drugs (100%), NTP forms, IEC Materials, some supplies from DOH Region XI
- Clinic space and some furniture from HMRG

1.5 Service Statistics

- As of June 2004, a total of 74 male and 39 female TB symptomatics were examined
- As of June 2004, 27 TB cases registered; 2 in 2003
- As of June 2004, 17 were new smear-positive cases, 7 were new smear-negative cases, 2 relapse cases, 1 return after default
- As of June 2004, 24 were category 1
- As of June 2004, 7 were cured, 2 defaulters; 16 were new sputum-positive cases which were smear-negative at the end of 2-3 months treatment
- As of June 2004, most (25) had family members as treatment partners

2. Operating Policies

2.1 General Operating Procedures

- Follows NTP Manual of Procedures

2.2 Provision of Drugs and Management of Drug Supply

- 100% of drugs provided by DOH free
- Maintains 30% buffer stock
- Each patient allotted drugs for the duration of treatment
- Nurse/SFTC assures continuous supply of drugs

2.3 IEC and TB Education

- Flip charts, brochures/pamphlet, posters, comics available
- Individual counseling with patients and treatment partners
- Group discussions/lectures with patients and relatives

3. TB Case Management

3.1 TB Case Finding

3.1.1 Diagnostic Procedure

- Sputum Microscopy is the main procedure, sputum samples taken on site
- Specimens read at their own clinic but oftentimes referred to Davao Chest Center or City Health Office for reading

3.1.2 Diagnostic Committee

- Does not have own Diagnostic Committee
- Utilizes TB Diagnostic Committees in Davao, particularly the one based in Davao Chest Center
- The City Health Office Diagnostic Committee is composed of 1 Radiologist, more than 11 Pulmonologists, 1 Infectious Disease Specialist, and 1 Family Medicine Specialist

3.2 TB Case Holding

3.2.1 Drug Regimen

- If patient is located nearby, daily dispensing of drugs is done. Otherwise, drugs are dispensed weekly

3.2.2 Treatment Partner

- Family members act as treatment partner

- In some areas where there are Barangay Health Workers (BHW), they act as treatment partners who supervise daily drug intake

3.2.3 Directly Observed Treatment

- Uses NTP Manual of Procedures
- They follow PPMDOTS which specifies that dispensing should be done weekly
- They do not strictly follow DOT in the clinic

3.2.4 Patient Follow-up and Defaulter Tracing

- FTCs monitor patients once a week

3.3 Referral System

- Refers patients to other facilities based on catchment area
- Refers mainly to health centers

3.4 Reporting and Recording

3.4.1 Recording and Reporting Forms

- Nurse/FTCs/DOTS Administrator/Liaison Officer prepare and keep records of TB symptomatic masterlist, laboratory request forms, laboratory register, treatment cards, ID cards, TB register, referral/transfer forms, quarterly reports on new and relapse cases, counting sheets for treatment outcome, quarterly report on drug inventory and requirement, balance sheets, income statements, cash flow statements; except counting sheets for laboratory activities
- Reports, except counting sheets for laboratory activities, submitted to Regional NTP Coordinator, City Health Office and PhilTIPS

3.4.2 TB Registry

- TB Registry is prepared by nurse

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Sputum microscopy is the main diagnostic procedure

4.1.2 Continuous Supply of Drugs

- Although they have continuous supply of drugs from DOH and are still able to maintain 30% buffer stock, they have plans of directly purchasing and storing drugs for their own inventory

4.1.3 Recoding and Reporting System

- The clinic has continuously utilized the HMRG forms, but has also started complying with the requirements of PhilTIPS

4.1.4 Direct Observation of Drug Intake

- Due to lack of full time staff and vastness of the catchment area, DOT is not strictly observed. Drugs are dispensed weekly either to patients or to treatment partners.

4.1.5 Political Commitment

E. PHILAMCARE QUEZON CITY CLINIC DOTS CENTER, QUEZON CITY

1. Profile

1.1. Facility Setup

1.1.1. Background and History

- Covered by MOA (2003-2005) between PHILCAT and Philamcare for the implementation of DOTS in their clinics
- PhilCAT is tasked to identify resources to institute changes and provide assistance in instituting measures to address deficiencies in training while PhilTIPS is tasked to provide technical assistance.
- MOA's primary goal is to compare family-based DOTS to clinic-based DOTS.

1.1.2. PhilHealth Accreditation and DOTS Certification

- Not yet accredited by PhilHealth nor certified by PhilCAT
- Administrator feels that the only requirement that they cannot fulfill for accreditation is the presence of a sputum collection area.

1.1.3. Location and Catchment Areas

- DOTS clinic is a scant 3 square meter area in Philamcare clinic (144 sq. m)
- Located close to St. Luke's and delos Santos hospitals
- No defined catchment area as long as patients are members whose membership is at least 4 months active, diagnosed to have TB and willing to be enrolled.
- They accept referrals as long as they meet membership requirements.

1.1.4. Equipment, Laboratory and Clinic Infrastructure

- There is no laboratory in the facility
- No x-ray in facility
- Most equipment were already existing in the clinic and none are exclusively for DOTS
- Major purchase of the clinic exclusively for TB DOTS were sputum collecting containers
- No written inventory of equipment and supplies (even for sputum cups).

1.1.5. Accessibility and Clinic Hours

- Open 6 days a week, 8-5 on weekdays, 7:30-3:30 on Saturdays
- Accessible by public transport
- Clinic usually opens earlier which is favorable to those who work. Patients usually come from 7-8 am to take their medicines and then go to work.

1.1.6. Future Plans and enhancements

- Among the plans for the DOTS clinic include the facility relocation to the delos Santos Medical Center. This relocation should facilitate the devotion of an exclusive area as well as equipment for DOTS
- The set-up of laboratory and diagnostic facilities for DOTS, as well as the devotion of exclusive staff for DOTS is also being planned.
- Increased census and enrollment of DOTS patients is also being planned.

1.2. Organizational Setup

1.2.1. Personnel Complement and Staff Schedule

- Although staff assigned to DOTS work full-time in the Philamcare clinics, they are not dedicated to TB-DOTS service delivery.
- Staff assigned to DOTS service delivery comprises one DOTS facility administrator, one general practitioner, 2 nurses and one medical technologist.
- Part-time staff who also assist in servicing TB-DOTS patients include 4 physicians; one general practitioner and 3 internal medicine specialists
- The full-time DOTS administrator and the nurses are available 6 days a week during clinic hours. At least one physician, either the full-time or part-time physician is also available daily during clinic hours.
- All of the 5 assigned to DOTS work are certified DOTS referring physicians.

1.2.2. Compensation Scheme and non-financial benefits

- Full-time staff is paid salaries, part-time staff receives monthly retainers' fees. These salaries are part of the clinic budget and cover all duties in the clinic, not only for DOTS.
- Other compensation include insurance, food allowance, uniform allowance, and rice subsidy
- There is no additional compensation or honoraria for doing DOTS work for the personnel.

1.3. Performance Evaluation

1.3.1. Internal evaluation

- Staff members are regularly evaluated utilizing a standard company form. This is not a DOTS service evaluation form

1.3.2. External evaluation

- External evaluation is done by the Center for Disease Control as part of its evaluation of the public private mix DOTS project.

1.4. Financial Setup

1.4.1. Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- Estimates from the Philamcare accountant on the DOTS expenses in the Quezon City Clinic reveal that average monthly expenses for DOTS amount to about P 3,311.92 (assuming the current patient load.)

1.4.1.2 *Pre-operating and Capital Expenditures*

1.4.1.3 *Expenditure items and operating budget*

- The financial requirements of the TB-DOTS facility are fully supported by the mother organization in the form of the clinic budget which essentially comes from the premiums of members
- The major additional expenses of the clinic that arise out of the provision of TB-DOTS services are the: (i) payment for the sputum cups, (ii) cost of messenger services to submit the sputum to an outside laboratory for processing, and (iii) the processing of the sputum specimens. For sputum processing, the clinic pays P150 for three specimens analyzed at the Quezon Instititute before treatment, P50 for successive examinations. However, these are still covered by the clinic expenses.
- Other expense items directly related to the provision of DOTS include those of the physician time and the paperwork. Additional mobile phone load credits are also provided to nurses who conduct defaulter tracing.
- At the present time, these expenses are not yet so high as to warrant separate financial recording.
- As the facilities and personnel in the clinic are not dedicated to DOTS services, costing the share of DOTS in the clinic budget is not performed on a regular basis.

- The following items are identified:

  - Salaries: P 895.63 (27%)
  - Professional fees: P 487.50 (14.7%)
  - Premises: P 1,521.32 (45.9%)
  - Medical supplies P 13.00 (.3%)
  - Personnel: (allocated and confi) P 135.85 (4.1%)
  - Pro-tech increase P 222.36 (6.7%)

- Expenses for premises comprise the biggest share in the expenses. This is the allocated overhead of the clinic. The next biggest item is salaries and professional fees.

1.4.2. Revenues

1.4.2.1 *Services and fee structure*

- Clinic does not provide AFB smear nor x-ray on site. These services are referred out. Patients are not charged for these services even if these are referred.
- Enrolled patients do not pay for the services availed in the clinic since these are part of the insurance agreement.
- Drugs are provided for free.

1.4.2.2 *Payment Schemes*

- Enrolled patients are members of the Philamcare HMO. Services are paid for by their premium payments.

1.4.3. Financial Reporting and Management

- There is no separate accounting and financial reporting for the TB-DOTS facility
- Revenues and expenditures are just included in the clinic budget

1.4.3.1 *Financial Statements*

- Financial statements prepared refer to the entire clinic operations and not only to TB DOTS

1.4.3.2 *Treasury and Cashiering Operations*

- This is not relevant since no payments are required from enrolled members.

1.4.4. Financial Planning

- Financial planning is conducted only in relation to the annual planning exercise for the whole clinic

1.4.5. Financial support

1.4.5.1 *Monetary*

- Aside from the clinic budget, Philamcare also pays for the salary of relievers when the staff members attend training

1.4.5.2 *Non-Monetary*

- PhilCAT provides forms and drugs to the clinic.
- Technical assistance is being provided by a Center for Disease Control – PhilCAT representative who helps the clinic (i) obtain the forms and the drug supply from the NTP central office and deliver these weekly to Philamcare, (ii) respond to queries of the clinic staff, (iii) conduct weekly visits, and (iv) monitor completion of NTP forms

1.5. Service Statistics

- As of the second quarter of 2004, the following were provided services:
  - TB suspects examined: 142
  - TB suspects who submitted 3 sputum specimens: 84
  - Smear positive cases discovered: 4
  - TB cases registered: 19 (as of third quarter 2004)
  - Of these patients, 10 completed treatment, one was cured, 1 transferred out and 7 are still ongoing treatment
- The number of TB cases enrolled or registered is quite few compared with the average patient load of the clinic which is about 200-350 a day.

2. Operating Policies

2.1. General Operating Procedures

2.2. Provision of Drugs and Management of Drug Supply

- 100% of the drug supply is from the government although facilitated by team from PhilCAT.

- In the coming year, drug supply would have to be sourced from the local government units' allocation. This is a cause of concern for the Philamcare management
- Written inventory of drugs exists

2.3. IEC and TB Education

- Flip chart, brochures and pamphlets targeting patients, treatment partner or any client of the facility are available
- Individual discussions, during patient visits, are held with the TB patient and the treatment partner

3. TB Case Management

3.1. TB Case Finding

3.1.1. Diagnostic Procedure

- AFB smears are done at home and specimens are sent by the clinic to QI for processing. Results are obtained after two days and patients are referred to MD for evaluation
- Patients are instructed on proper sputum collection.
- The clinic accepts procedures done elsewhere.

3.1.2. Diagnostic Committee

- There is no existing TB diagnostic committee in the clinic
- Patients who may be Category III are referred to clinic pulmonologist or to the TB Diagnostic Committee of the UN Philamcare branch.

3.2. TB Case Holding

3.2.1. Drug Regimen

- NTP drug regimens are followed.

3.2.2. Treatment Partner

- Enrollment contract requires the assignment of a treatment partner
- Treatment partners are those who have influence on the patient – spouse, parents or relatives
- Nurse acts as a treatment partner when they take the medicines in the clinic.
- Treatment partners are oriented by nurse about their role

3.2.3. Directly Observed Treatment

- Intensive phase – patients come in every other day for two months. They take the medicine in the clinic for that day and take home the medicines for the other day
- Maintenance phase – patients come in weekly. They take that day's medicines in front of the nurse and then take home the medicine for the rest of the week.
- While the patients are supposed to take their drugs in front of the nurse when they get their drug supplies, no directly observed treatment was observed in some cases. Patients were only given the drugs in most of the instances observed.

3.2.4. Patient Follow-up and Defaulter Tracing

- So far patients are compliant. A patient who misses one visit is a possible defaulter.
- No roving personnel to track defaulters, although one possible way is to call the HR department of their company.
- Defaulter tracing not yet warranted by the number of patients.

3.3. Referral system

3.4. Reporting and Recording

3.4.1. Recording and Reporting Forms

- Philamcare has its own laboratory register form although Quezon Institute does the counting sheets for laboratory activities

3.4.2. TB registry

- Reports are submitted to the NTP

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Although sputum microscopy is the tool of choice, AFB smears are done at home and specimens are sent by the clinic to QI for processing.
- There is no defined area for sputum collection in the clinic

4.1.2 Continuous Supply of Drugs

- 100% of the drug supply is from the government although facilitated by team from PhilCAT.
- In the coming year, drug supply would have to be sourced from the local government units' allocation. This is a cause of concern for the Philamcare management

4.1.3 Recording and Reporting System

- Philamcare has its own laboratory register form although Quezon Institute does the counting sheets for laboratory activities because sputum testing is done there

4.1.4 Direct Observation of Drug Intake

- While the patients are supposed to take their drugs in front of the nurse when they get their drug supplies, no directly observed treatment was observed in some cases. Patients were only given the drugs in most of the instances observed.

4.1.5 Political Commitment

F. POLYMEDIC GENERAL HOSPITAL DOTS CENTER, CAGAYAN DE ORO CITY

1 Profile

1.1 Facility Setup

1.1.1 Background and History

- The clinic was initially organized in November 2003 but commercial operations started only in April 2004
- Clinic is dedicated to TB DOTS services
- It is owned and operated by the hospital

1.1.2 PhilHealth Accreditation and DOTS Certification

- Not yet PhilHealth accredited, although there is a pending application for accreditation (submitted in April 2004)
- It is a PHILCAT-certified DOTS center; certification granted in April 2004

1.1.3 Location and catchment areas

- Located at the Polymedic MRI Bldg at Yacapin St., Cagayan de Oro City
- Site of the DOTS center was chosen primarily because of the availability of ventilated space in the building and also for its accessibility to public transport as it is very near the Cogon market.
- 30 barangays of Cagayan de Oro city, with an estimated population of 260,000
- In addition, patients come from Bukidnon and Lanao, particularly Marawi City, but these are referred back to their barangays
- Target clientele: urban indigent although patients belonging to middle income class are also accepted.

1.1.4 Equipment, Laboratory, and Clinic Infrastructure

- A floor area of 40 square meters was allotted to the TB DOTS facility: 15 square meters for the treatment room and 25 square meters for the medicine and microscopy room
- All equipment that were programmed to be acquired were actually purchased. These include: Examination table, Weighing scale, Microscope, Masks, Sputum collecting containers, Disposable needles and syringes, Sharp container, AFB reagents, Glass slides, Sterile cotton swabs, Exhaust fan, Cabinet, Table, Drinking water/glasses, Cleaning supplies
- Some furniture and equipment that are not available in the TB DOTS clinic are available in the hospital

- Some furniture and equipment in the facility (i.e., stethoscope, BP apparatus, electric fans) are owned by the hospital but on loan to the facility
- Some medical supplies (i.e., disposable needles and syringes/ AFB reagents) were donated by the DOH

1.1.5 Accessibility and Clinic Hours

- Clinic is open 5 days a week, Monday-Friday
- It opens at 8 AM, closes at 5 PM; lunch break at 12 NN to 1 PM
- Has two landline numbers and one mobile phone number

1.1.6 Future Plans and Enhancements

- Plans to intensify advocacy by conducting symposia for NGOs and GOs
- Additional training for (i) referring physicians, (ii) treatment partners, (iii) defaulter tracer
- Plans to link up with the public sector in the form of networking with public hospitals for DOTS implementation

1.2 Organizational Set-up

1.2.1 Personnel Complement and Staff Schedule

- 1 full-time staff consisting of 1 nurse
- 6 part-time staff consisting of: 1 TB DOTS facility administrator, 5 diagnostic committee members
- The TB DOTS facility administrator does not have a fixed worked schedule
- The nurse reports daily from Monday to Friday

1.2.2 Compensation Scheme and Non-financial Benefits

- TB DOTS facility administrator does not receive any compensation
- The nurse receives P15,000/ month
- Diagnostic committee members do not receive any compensation
- There are no fringe benefits:

1.3 Performance Evaluation

1.3.1 Internal Evaluation

- Annual performance evaluation of staff is usually done by DOH and PhilCAT
- Performance evaluation forms are not available

1.3.2 External Evaluation

- An external evaluation was conducted on the facility last June 2004. This was conducted by the Provincial NTP coordinator, City NTP coordinator, and PhilCAT.
- The following activities were undertaken during the evaluation: (i) comparison of TB register with laboratory register, (ii) comparison of TB register with treatment cards, (iii) review of treatment cards, (iv) review of laboratory register, (v) physical inventory of logistics and other supplies, and (vi) findings from the visit were relayed to health worker.

1.4 Financial Setup

1.4.1 Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- Monthly wage bill is P15,000

1.4.1.2 *Pre-operating and Capital Expenditures*

- Existing fixtures and equipment of the CDO Polymedic Clinic were used to set up the TB DOTS facility; thus, no capital outlays were made.
- Pre-operating expenses were entirely shouldered by PhilCAT

1.4.1.2 *Expenditure Items and Operating Budget*

- The facility operates with a monthly revolving fund amounting to P80,000.
- Also, P131,150 is allocated for advocacy and training of referring physicians and treatment partners.

1.4.2 Revenues

1.4.2.1 *Services and Fee Structure*

- The facility provides the following services: sputum smear examinations and supervision of drug intake, counseling, and distribution of IEC materials.
- Consultation is done by the referring physicians.
- X-rays are performed at the CDO Polymedic General Hospital.
- The following drugs are offered at the facility: Type 1 (HRZ), Type II (HR), Ethambutol (400 mg), Streptomycin (1mg), INH tab, PZA tab (500 mg), 4-drugs FDC tablets, 3-drugs FDC tablets, and 2-drugs FDC tablets
- All services available at the TB DOTS facility are provided for free.

1.4.2.2 *Payment Schemes*

- Not applicable (all services are provided for free)

1.4.3 Financial Reporting and Management

1.4.3.1 *Financial Statements*

- The DOTS center has a system of accounting separate from the CDO Polymedic General Hospital.
- The Center does a liquidation of operating expenses every month.

1.4.4 Financial Planning

1.4.5 Financial Support

1.4.5.1 *Monetary Support*

- P80,000 monthly revolving fund for operating expenses and a separate allocation (P131,150) for advocacy and training were given by PhilCAT.
- The revolving fund covers salaries, consumables, transportation, communications, meetings, and other expenses.

1.4.5.2 *Non-monetary Support*

- The DOH provides in-kind support in the form of drugs and other supplies. The monetary value of this support is estimated at P45,000.
- Its mother organization, the CDO Polymedic General Hospital, does not provide the TB DOTS facility a regular annual budget. It only provides support in the form of space and selected equipment and fixtures.

1.5 Service Statistics

- From April to August 2004, the facility had a total of 30 patients in the TB registry.
- A total of 131 TB symptomatics were examined in the same time period.
- For both male and female registered TB patient, below 14 years old is the modal age group.
- The majority of TB Patients were had pulmonary TB, were newly diagnosed (smear positive), and fall under Category 1.
- So far, there had only been one defaulter and one who transferred out of the facility.

2 Operating Policies

2.1 General Operating Procedures

- Most patients are referred by the facility's 21 referring physicians from both public and private sectors.
- Patients who live outside Cagayan de Oro City are referred back to their respective barangays.

2.2 Provision of Drugs and Management of Drug Supply

- Memorandum of Agreement with DOH and PhilCAT stipulates that a 6-month supply of drugs will be provided for every patient referred to the facility including a 30% buffer stock
- Replenishment of drugs is based on the quarterly drug inventory.
- The TB DOTS facility administrator and nurse are responsible for keeping drug supply for patients uninterrupted.
- There is a written inventory for all drugs provided by the facility.
- All drugs are stored by expiry date.

2.3 IEC and TB Education

- The following IEC materials are available in this facility: flip chart, brochure, poster, and comics.
- All IEC materials are designed to target TB patients and their relatives as well as the general public.
- Individual discussions are held with patients and members of their families. These are usually done during the patient's initial visit to the facility.
- No group discussions are held at the facility.

3. TB Case Management

3.1 TB Case Finding

3.1.1 Diagnostic Procedure

- Sputum smear examination is the most preferred diagnostic tool of the DOTS center.
- All identified TB symptomatics are required to undergo sputum smear examination before treatment is initiated.
- A patient is required to have a chest x-ray only if his/her three sputum examinations showed negative results.
- AFB smear on site

3.1.2 Diagnostic Committee

- The Committee has 5 members who meet only as needed.
- The Committee is tasked to review equivocal results of laboratory examinations.

3.2 TB Case Holding

3.2.1 Drug Regimen

- Facility follows NTP recommendations.
- All positive TB cases are required to undergo DOT during intensive and maintenance phases.
- No patient is allowed to initiate treatment unless he or she and the health provider have agreed upon a case holding mechanism for the patient.

3.2.2 Treatment Partner

- The DOTS center nurse serves as the treatment partner of all patients, except during weekends and holidays, when a household member takes over observation of drug intake.

3.2.3 Directly Observed Treatment

- Directly observed intake of drugs are done daily from Monday to Friday at the Center. On weekends and holidays, a designated household member observes the patient take their medication.
- Patients are required and encouraged to visit the facility for their drug intake but those who cannot comply with the required daily visits are asked to go to the facility on a weekly basis.

3.2.4 Patient Follow-up and Defaulter Tracing

- During weekends, the nurse will usually call the designated household member to check whether the patient had taken his/her medication.
- Patients who visit the facility only on a weekly basis are checked on by the nurse through daily phone calls.

3.3 Referral System

- Facility accepts patients referred by the facility's 21 referring physicians, from both public and private health facilities.
- Patients who live outside Cagayan de Oro are referred back to their respective barangays.

3.4 Reporting and Recording

3.4.1 Recording and Reporting Forms

- The facility has the following recording forms: TB symptomatics masterlist, laboratory request form for sputum examination, laboratory register, treatment card, identification card, TB registry, referral/ transfer form. The person designated to fill up these forms is the nurse.
- The facility has the following reporting forms and counting sheets: quarterly report on laboratory activities, counting sheets for laboratory activities, quarterly report on new cases and relapses, counting sheets for treatment outcome, and quarterly report on drug inventory and requirement. Except for the quarterly report on laboratory activities and counting sheets for laboratory activities, these forms are accomplished by the nurse.
- The forms relating to laboratory activities are filled up by the medical technologist of the CDO Polymedic General Hospital. Copies of these forms are provided to the nurse.
- Quarterly reports on new cases and relapses, counting sheets for treatment outcome, and quarterly reports on drug inventory and requirement are submitted to the City Health office of the DOH.
- The facility has no balance sheets, income statements, and cash flow statements.
- The only financial statement the center has is a Revolving Fund Summary of Replenishment. The nurse is also the one assigned to accomplish this.

3.4.2 TB Registry

- The nurse keeps a TB Registry

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Sputum smear examination is the most preferred diagnostic tool of the DOTS center.

4.1.2 Continuous Supply of Drugs

- Memorandum of Agreement with DOH and PhilCAT stipulates that a 6-month supply of drugs will be provided for every patient referred to the facility including a 30% buffer stock

4.1.3 Recording and Reporting Forms

- NTP required forms are completed although the facility has no balance sheets, income statements, and cash flow statements

4.1.4 Direct Observation of Drug Intake

- DOT is practiced although not strictly. For the patients who go to the clinic daily, DOT is practiced Mondays-Fridays. On weekends and holidays, treatment partners/family members do the DOT

4.1.5 Political Commitment

G. PHILIPPINE TUBERCULOSIS SOCIETY Inc. – CEBU TB PAVILION, CEBU CITY

1. Profile

1.1. Facility Setup

1.1.1. Background and history

- Cebu TB Pavillon began offering TB-DOTS services in September 1999 under a JICA grant which was negotiated by the central office.
- The focus of that undertaking was on indigent patients.
- It was approached by PhilTIPS with a grant to continue functioning as a TB-DOTS center but taking services into a higher level. The main differences envisioned with the current effort include the generation of revenues, the expansion of services and establishment of a different track record, for example, in visiting patients.

1.1.2. PhilHealth Accreditation and DOTS Certification

- Process of accreditation ongoing. As of August, facility was waiting for visit of the PhilCAT accreditation team
- While SA was being conducted, center was in the process of setting up various equipment. As per the checklist, DOTS administrator felt that the signage was the only one lacking

1.1.3 Location and Catchment Areas

- Five central barangays comprise the targeted catchment area; Sambag 1, Sambag 2, Calamba, Capitol Site, and Guadalupe.
- Originally granted only a few sitios in the 5 barangays by the city government (15000 population) but TIPS requested more people so the catchment area population was increased to about 101,043
- Accepts walk-in as well as referred patients.
- Patients not residing in the catchment area are referred to nearest center where patient resides.

1.1.4 Equipment, Laboratory and Clinic Infrastructure

- Had only recently purchased computers, cameras and photocopier, i.e., mostly non-clinical equipment for the formation of the TB-DOTS center under the PhilTIPS grant.

- Other equipment such as the BP apparatus, thermometer, stethoscope, microscope are available but are not used exclusively for TB-DOTS.
- At the time of the situational analysis, there were no sputum collecting containers in the facility.

1.1.5. Accessibility and Clinic Hours

- The clinic is open 5 days a week, Monday to Friday from 8 am to 4:30 pm.
- Staff available on weekends if required
- TB DOTS offered 5 days a week in the facility
- Accessible by public transport

1.1.6. Future Plans and Enhancements

- The current milestones in the PhilTIPS grant are the future enhancements that are being planned
- There are plans to charge fees but the bases for the fees are not yet determined.

1.2. Organizational Setup

1.2.1 Personnel Complement and Staff Schedule

- Seven full time staff members work in the facility. They are: 1 TB-DOTS administrator, 1 Physician, 1 Nurse, 1 Accountant/bookkeeper, 1 drug supply manager/field treatment coordinator, 2 utility aid/liaison officer and a microscopist.
- The schedule of the full-time staff is the same as the clinic operating hours.
- Of the full-time staff, the physician is PhilHealth-accredited and is a certified DOTS provider.

1.2.2 Compensation Scheme and Non-financial Benefits

- Compensation of the staff is mostly composed of salaries. The physician and the DOTS administrator are paid P10,000 a month, the field treatment coordinators, the cashier and liaison officer and the bookkeeper-typist are each paid P6,500 a month, the microscopist is paid P7804 and the utility worker P6964 for a monthly wage bill of P67,268.
- The salaries of the physician, DOTS administrator, field treatment coordinators, and the cashiers/liaison officers are charged to the grant while the salaries of the microscopist and the utility worker form part of the counterpart financing of PTSI.

1.3. Performance Evaluation

1.3.1. Internal evaluation

- There is no system in place at the moment for evaluating staff performance.

1.3.2. External evaluation

- External evaluation has been performed in the facility, the latest one being in August 2004
- This was conducted by PhilTIPS in the process of the evaluation for the grant.
- The City Health Department of Cebu City also provides quality control, quality assurance training

1.4. Financial Setup

1.4.1. Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- Total salaries paid out amount to P 333,000 for 2004

1.4.1.2 *Pre-operating and Capital Expenditures*

- To set up the TB-DOTS facility under the current PhilTIPS grant, the facility spent about a total of P 242,448 for the purchase of office equipment (P 216,600), the renovation of the clinic space (P 15,000) and for utilities, communications and supplies (P10,848)
- Expenses for office equipment were 100% funded by the grant.
- The facility did not need to incur any additional expenses for the pre-operating stage since it existed before the PhilTIPS grant.
- Trainings were offered by various groups for free, while the development of protocols is still ongoing.

1.4.1.3 *Expenditure Items and Operating Budget*

- The operating budget for 2004 is about P 487,400, broken down into the following:
  - Supplies and materials : P 45,000 (9.2%)
  - Salary of clinic staff: P 333,000 (68%)
  - Training : P 52,400 (10.75%)

- MOOE: P30,000 (6.15%)
- Transportation: P 12,000 (2.46%)
- Communication: P 15,000 (3.07%)

- This amount does not included expenses for TB drugs that are provided for free by the local government.
- Operating resources of the facility are sourced 75% from the private grant (PhilTIPS) and 25% from a grant from a government grant.

1.4.2. Revenues

1.4.2.1 *Services and Fee Structure*

- Clinic offers initial and follow-up consultation, sputum smear examinations, x-ray.
- Except for x-ray, services currently offered are free. There is still no basis for determining the fees to be charged for the services.
- X-ray fees determined by head office, however, it was subsequently reduced by PTSI Cebu due to competition from other providers of x-ray.
- Aside from x-ray fees, there are still no revenues forthcoming although the facility expects to charge PhilHealth patients once it becomes accredited.

1.4.2.2 *Payment Schemes*

1.4.3. Financial Reporting and Management

- The facility does not maintain a financial management system for the operation of the DOTS facility.
- However, it does follow the template being required for PhilTIPS for its financial transactions and recording so that separate cashiering operations are maintained for PhilTIPS funds.

1.4.3.1 *Financial Statements*

- Monthly expense reports are generated and submitted mainly for replenishment of funds from PhilTIPS.
- These reports also included the planned expenses and actual expenses.

1.4.3.2 *Treasury and Cashiering Operations*

- Accounting procedures mainly follow those of the main office. PhilTIPS transactions are recorded utilizing the PhilTIPS recommended template but if there are no special instructions from PhilTIPS, the current main office methodology is being followed.

- Separate cashiering operations are maintained for PhilTIPS funds.

1.4.4. Financial planning

- The Memorandum of Agreement signed between PhilTIPS and Cebu Pavillon serves as the guide for the financial planning of the facility
- The facility administrator was assisted by the central office in the preparation of the financial plan.

1.4.5. Financial support

1.4.5.1 *Monetary*

- Grant from PhilTIPS and counterpart support from Cebu TB Pavillion

1.4.5.2 *Non-Monetary*

- Non-monetary support has come from the City Health Government in Cebu in terms of training for the staff and quality assurance.

1.5. Service Statistics

- For January to August 2004, the following services were performed
  - Number of symptomatics examined: 196
  - Number of sputum smear positive cases: 59
  - Number of TB cases registered: 23
  - Number of smear positive cases: 23

2. Operating Policies

2.1. General Operating Procedures

- Operating procedures are centrally-determined by PTSI. Patient diagnosis, treatment and guidelines essentially based on the Manual of Procedures (MOP)

2.2. Provision of Drugs and Management of Drug Supply

- Drugs are 50% sourced from the government and 50% sourced privately, i.e., PTSI stocks
- Nurse also acts as the drug supply manager
- Follows the standard inventory policy based on the number of patients actually enrolled plus a buffer stock.

2.3. IEC and TB Education

- Flip charts, posters, brochures, comics are available
- Individual discussions held with TB patients and their families

3. TB Case Management

3.1. TB Case finding

3.1.1. Diagnostic Procedure

- Diagnosis mostly by sputum exam, although they also recognize x-ray results as a reference.
- Sputum microscopy is done in-house. They honor sputum results from other laboratories but opt to repeat exam due to doubts about quality of other laboratories.
- If patient comes in for a chest x-ray, it is granted but sputum is also collected.
- Sputum microscopy results and chest x-ray are the criteria for eligibility.
- For sputum negative cases with x-ray results, DOTS physician confirms whether case is a TB case. For sputum positive and if sputum microscopy is done in house, the senior treatment coordinator is allowed to make the diagnosis.

3.1.2. Diagnostic Committee

- Has TB diagnostic committee with the following members: Regional TB coordinator, one pulmonologist, alternate doctors representing the private sector, one radiologist, TB coordinators from the different hospitals and a representative from DOH
- Group of MDs, nurses and TB coordinators meeting once a week
- Signatories are radiologist, doctors from private sector and the pulmonologist.

3.2. TB Case Holding

3.2.1. Drug Regimen

- Patterned after the NTP, no deviation from the drug regimen prescribed for the category of TB patients

3.2.2. Treatment Partner

- DOTS staff are identified as treatment partners first, family members second.
- During intensive phase – partners are DOTS staff
- During maintenance phase – partners are DOTS staff and family members
- During weekends and holidays – partners are family members

3.2.3. Directly Observed Treatment

- Clinic allows patients, with family member acting as a treatment partner, to take home 1-2 days supplies of medicines. They allow a little flexibility because of private patients who are working.
- During intensive phase: daily visits to the center for two weeks, except on weekends, then twice a week for the rest of the 8 week intensive phase
- During the maintenance phase: patients come twice a week on Mondays and Thursdays for their drug supplies
- Patients who are not diligent or who have insincere treatment partners are not allowed to take home the drugs and are required to come everyday during the whole course of treatment.
- No variation in drug dosaging even if DOT is not daily.

3.2.4. Patient Follow-up and Defaulter Tracing

- Failure to come in for two days makes one a defaulter.
- Home visits are done by the field treatment partners.
- Inspects patient ID for ticks on drugs taken.
- Interviews patient and treatment partner to see if answers are consistent.

3.3. Referral System

- Accept referrals from public and private MDs within the catchment area.
- Already did the mapping of MDs who are potential referral MDs but need to be trained by PhilCAT and accredited to be referring MDS.

3.4. Reporting and Recording

3.4.1. Recording and Reporting Forms

- No counting sheets for laboratory activities
- The recording and reporting forms available were up to date and complete

3.4.2. TB Registry

- The TB registry was available, complete and up to date.

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Diagnosis mostly by sputum exam, although they also recognize x-ray results as a reference

4.1.2 Continuous Supply of Drugs

- Drugs are 50% sourced from the government and 50% sourced privately, i.e., PTSI stocks

4.1.3 Recording and Reporting Forms

- NTP-required forms complete but no counting sheets for laboratory activities

4.1.4 Direct Observation of Drug Intake

- Clinic does not strictly comply with daily DOT practice. Daily DOT for first two weeks if intensive case, thereafter twice weekly. Treatment partners implement DOT during weekends and other days
- Flexibility allowed for patients who work

4.1.5 Political Commitment

H. PREMIER GENERAL HOSPITAL OF NUEVA ECIJA Inc. DOTS CENTER, CABANATUAN CITY

1. Profile

1.1. Facility Setup

1.1.1. Background and History

- The Premiere General Hospital DOTS clinic was organized July 2004 under the auspices of the Premiere General Hospital of Nueva Ecija, Inc.
- Although initial organization of the DOTS clinic was on July 2004, actual operations started a month later. At the time of the situation analysis it had been operating for 4 months.
- The Premiere General Hospital DOTS clinic is a hospital-based facility and is operated as a corporation.
- A DOTS coalition of five member organizations also supports the Premiere General Hospital DOTS clinic.
- Operationally, the Premiere General Hospital DOTS clinic is a dedicated DOTS center.

1.1.2. PhilHealth Accreditation and DOTS Certification

- The DOTS clinic has not yet received PhilHealth's accreditation for the TB OP benefit package. The remaining unfulfilled eligibility requirement is PhilCAT certification.
- PhilCAT certification is pending due to the DOTS clinic lack of a diagnostic committee.

1.1.3. Location and Catchments Area

- The DOTS clinic catchments area covers the city Cabanatuan.
- All of the currently-enrolled patients are residents of Cabanatuan City.
- Almost all the current patients were referred by non-clinic physicians.
- TB symptomatics not from Cabanatuan who consult are referred to RHUs.

1.1.4. Equipment, Laboratory and Clinic Infrastructure

- The DOTS clinic does not have dedicated laboratory equipment and patients are referred to the hospital laboratory for diagnostic exams.

1.1.5. Accessibility and Clinic Hours

- The DOTS clinic is accessible since it is along the highway.
- The clinic operating hours are 8-12 am and 1-5 pm from Monday to Friday.

1.1.6. Future Plans and Enhancements

- The organizers of the DOTS clinic plan to expand coverage so that residents of the entire Nueva Ecija province would benefit from DOTS treatment. They recognize, however, that the main difficulty with this plan is that the CHO of Cabanatuan will only provide free TB drugs for Cabanatuan residents so separate MOAs would have to be entered into with other municipalities.
- There are no planned enhancements for the applied DOTS system.
- There is however, a plan to conduct a public information campaign to inform the public about TB and DOTS treatment.

1.2. Organizational Setup

1.2.1. Personnel Complement and Staff Schedule

- There are 2 full-time personnel employed by the DOTS clinic: 1 nurse who also doubles up as the senior treatment coordinator and 1 field treatment coordinator.
- There are 3 part-time personnel: 1 TB DOTS administrator, 1 DOTS physician and 1 accountant.
- The clinic physician is a certified DOTS provider.

1.2.2. Compensation Scheme and Non-Financial Benefits

- Clinic personnel are paid on a fixed monthly salary basis.

1.3. Performance Evaluation

1.3.1. Internal Evaluation

- There is no mechanism for evaluating staff performance.

1.3.2. External Evaluation

- PhilTIPS conducts external audits.

1.4. Financial Setup

1.4.1. Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- The DOTS administrator and physician each receive Php 10,000 a month.
- The DOTS nurse receives Php 8,000 a month.
- The Field Treatment Coordinator receives Php 6,000 a month.
- The accountant receives Php 5,885 a month.

1.4.1.2 *Pre-Operating and Capital Expenditures*

- The DOTS clinic total pre-operating expenditures amounted to Php 81, 253.
- The DOTS clinic total capital expenditures amounted to Php 294,829.

1.4.1.3 *Expenditure Items and Operating Budget*

- The DOTS clinic total operating budget for 2004 amounted to Php 1,507,000.

1.4.2. Revenues

1.4.2.1 *Services and Fee Structure*

- The DOTS clinic does not charge user fees and is a dedicated DOTS center.
- Although services are provided free of charge, patients have to pay the hospital laboratory fees for the sputum exam.

1.4.2.2 *Payment Schemes*

- There are no applicable payment schemes since the DOTS clinic does not charge user fees.

1.4.3. Financial Reporting and Management

1.4.3.1 *Financial Statements*

- The DOTS clinic has books of accounts for the assets, liabilities, revenues and expenses separate from the hospital.
- The DOTS clinic employs standard accounting forms such as income statements and balance sheets.

1.4.3.2 *Treasury and Cashiering Systems*

- The DOTS clinic employs cashiering operations.

1.4.4. Financial Planning

- The DOTS clinic keeps track of its expenses through a budget which is also used for financial planning

1.4.5. Financial Support

1.4.5.1 *Monetary*

- The DOTS clinic received a monetary grant from PhilTIPS.

1.4.5.2 *Non-Monetary*

- The DOTS clinic gets free drugs from DOH coursed through PhilTIPS. In the future, however, the DOTS clinic expects to enter into a MOA with the CHO/LGU for its TB drug supply.

1.5. Service Statistics

- The DOTS clinic has so far been visited by 22 TB symptomatics, 5 of which have been enrolled.
- All of the 5 enrollees are pulmonary cases and 4 of these were sputum positive.
- There are 2 Category II patients, a return after default case and a relapse case.

2. Operating Policies

2.1. General Operating Procedures

- The DOTS clinic only enrolls residents of Cabanatuan City.

2.2. Provision of Drugs and Management of Drug Supply

- Initial supply from DOH coursed through PhilTIPS but will get future supply from CHO/LGU
- The organizers of the DOTS center expect to enter into a MOA with the CHO/LGU for its future TB drug supply.
- The DOTS clinic maintains a 30% buffer stock policy. At present, the buffer stock is 10% of the initial drug supply.

- The existing drug supply is sufficient for the current number of patients but there appears to be no specific system for ensuring that each enrolled patient has an ensured supply of drugs i.e. drugs are not necessarily pre-allocated to ensure that each enrollee has adequate drug supply.
- The nurse or DOTS administrator ensures that there is sufficient supply of TB drugs.
- TB drugs are given free of charge.

2.3. IEC and TB Education

- Patients, relatives of patients and treatment partners are provided flipcharts, brochures and comics
- Discussions are held with patients and treatment partners
- Posters are also used to inform the general public

3. TB Case Management

3.1. TB Case Finding

3.1.1. Diagnostic Procedure

- The AFB smear is the primary TB diagnostic tool employed by the DOTS clinic.
- Sputum collection and processing is undertaken by the hospital laboratory and the patient pays hospital laboratory directly.
- AFB Smear exam results from other laboratories are accepted if these are performed by DOH accredited laboratories.

3.1.2. Diagnostic Committee

- At present there is no diagnostic committee.

3.2. TB Case Holding

3.2.1. Drug Regimen

- For Category I & III patients: patient visits clinic once a week to get drugs. Field treatment coordinator visits patients once a week for drugs. Therefore drugs given are for three days.
- For Category II patients: Patients visit clinic everyday

3.2.2. Treatment Partner

- Relatives serve as home treatment partners while the physician and nurse serve as clinic treatment partners.

3.2.3. Directly Observed Treatment

- Actual DOT not practiced since patients do not take their TB medicines even during days when patients are given TB drugs in the DOTS center.

3.2.4. Patient Follow-up and Defaulter Tracing

- Although a defaulter tracing system has been developed, it has not yet been evaluated and implemented since there have been no defaulters since start of operations.
- One skipped or missing visit identifies a prospective defaulter.
- The field treatment coordinator traces defaulters.

3.3. Referral System

- The DOTS clinic accepts referrals. At the moment, almost all enrolled patients are referrals.

3.4. Reporting and Recording

3.4.1. Recording and Reporting Forms

- Reporting forms are complete except for laboratory counting sheets.
- The reports of the DOTS clinic are up to date.

3.4.2. TB Registry

- The DOTS clinic regularly submits reports to PhilTIPS and the CHO.

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- The AFB smear is the primary TB diagnostic tool employed

4.1.2 Continuous Supply of Drugs

- Initial supply from DOH coursed through PhilTIPS but will get future supply from CHO/LGU through a MOA
- The DOTS clinic maintains a 30% buffer stock policy. At present, the buffer stock is 10% of the initial drug supply.
- The existing drug supply is sufficient for the current number of patients but there appears to be no specific system for ensuring that each enrolled patient has an ensured supply of drugs i.e. drugs are not necessarily pre-allocated to ensure that each enrollee has adequate drug supply.

4.1.3 Recording and Reporting System

- Reporting forms are complete except for laboratory counting sheets.
- The reports of the DOTS clinic are up to date.

4.1.4 Direct Observation of Drug Intake

- Actual DOT not practiced since patients do not take their TB medicines even during days when patients are given TB drugs in the DOTS center.

4.1.5 Political Commitment

I. UST ADULT AND PEDIATRIC DOTS CENTER, MANILA CITY

1. Profile

1.1. Facility Set-up

1.1.1 Background and History

- First DOTS clinic in the Philippines, established in May 1995, at the UST Hospital's Outpatient Department
- Operated by the TB Clinic Foundation, Inc starting April 1996, working with PhilCAT
- Signed MOA with DOH in August 1996 for free medicines
- Children's TB Clinic opened in January 1998, in collaboration with the Santissimo Rosario Parish
- In December 2002, merged the Adult and pediatric TB clinics
- Accredited by the PhilHealth in July 2003
- Received Master TB Educator Award Grant from PhilTIPS in October 2003 to incorporate the APMC-approved TB core curriculum and the DOTS strategy in the school's medical curricula
- New clinic inaugurated in March 2004, operational for adults in April 2004, and for pediatrics in June 2004
- In July 2004, awarded a Public-Private Mix DOTS (PPMD) expansion grant from PhilTIPS

1.1.2 PhilHealth Accreditation and DOTS Certification

- Accredited by PhilHealth in July 2003
- Certified DOTS Center in July 2003

1.1.3 Location and Catchment Area

- Located at the UST Hospital, Sampaloc, Manila
- Caters to clients from Manila north of Pasig River, Quiapo, Tondo, Binondo, Sampaloc, San Miguel, Sta. Cruz, Sta. Mesa
- Patients outside of catchment area accepted as long as they can guarantee daily visits for DOTS

1.1.4 Equipment, Laboratory and Clinic Infrastructure

- Has its own clinic area, with airconditioned waiting/reception room with seats, separate adult and pediatric and consultation rooms, and sputum collection room with exhaust fan

- With running water, sink, garbage cans, 1 air-conditioning unit, 7 exhaust fans, desktop and laptop computers, refrigerator, cabinets
- Laboratory requirements processed at the UST Hospital, although microscope and sputum-collection equipment available
- Patients buy own needles and syringes, pay for drinking water

1.1.5 Accessibility and Clinic Hours

- Open 10AM-6PM Mondays-Fridays; 8AM-12NN, 1-4PM on Saturdays
- With landline telephone

1.1.6 Future Plans and Enhancements

- Improve clinic facilities
- Expand fee-for-service system

1.2. Organizational Set-up

1.2.1 Personnel Complement and Staff Schedule

- 1 part time TB DOTS Facility Administrator (3-6PM M-F)
- 1 part time Physician (3-6 PM MWF)
- 1 full time Nurse (10AM-6PM M-F)
- 1 full time Accountant/Liaison Officer (10AM-6PM M-F)
- 2 full time Medical Technologists (c/o UST Hospital)
- 3 part time Diagnostic Committee members, meet once every 3rd Thurs of month
- 2 full time Field Treatment Coordinators (10AM-6PM M-F and 8-12, 1-4 Sat)

1.2.2 Compensation Scheme and Non-financial Benefits

- Nurse and Medical Technologists receive basic pay with fee for service
- Nurse receives hazard pay, 10% discount on medicines, food allowance, rice subsidy, free consultations
- Medical Technologists get OT pay for doing/reading AFB smears plus same benefits as Nurse
- Accountant and Field Treatment Coordinators (FTCs) receive monthly salaries
- TB DOTS Administrator and Physician did not receive salary from 1995-2002 but receives monthly salary now; benefits include right to practice in the hospital without paying right-to-practice fee, and 10% discount on medicines

1.3 Performance Evaluation

1.3.1 Internal Evaluation

- Currently no performance evaluation for Accountant/Liaison Officer and FTCs but supervised daily by Nurse and DOTS Administrator and Physician
- Nurse evaluated once yearly by the UST Hospital head nurse

1.3.2 External Evaluation

- PhilHealth and PhilCAT evaluate TB Registry, treatment cards, laboratory registry, interview health worker and patients, inform health worker of findings from visit

1.4 Financial Set-up

1.4.1 Expenditures

1.4.1.1 *Salaries and Operating Expenses*

- For year 2004-2005, salaries and expert fees comprised 56% of approved budget
- 39% allocated to direct costs (supplies, rent, transport and comm., utilities, repairs and maintenance, meetings, etc)
- Rest of budget for equipment and training

1.4.1.2 *Pre-operating and Capital Expenditures*

- Spent about P192T for renovation of clinic
- Spent P90T for equipment

1.4.1.3 *Expenditure Items and Operating Budget*

- P1.12 M grant from PhilTIPS expended for salaries (55%) and 40% to direct costs
- P0.716M counterpart is expended for salaries (64%) and the rest for other direct costs

1.4.2 Revenues

1.4.2.1 *Services and Fee Structure*

- Patient out-of-pocket expense for PPD (P200) and x-ray
- Drugs provided free

1.4.2.2 *Payment Schemes*

- Patients pay for PPD (P200) and x-ray

1.4.3 Financial Reporting and Management

1.4.3.1 *Financial Statements*

- At present Accounting/handling of finances are done by the UST Hospital's Treasurer's office
- Clinic's DOTS Administrator and Liaison Officer prepare budget proposal for submission to and approval of UST Hospital Treasurer

1.4.3.2 *Treasury and Cashiering Systems*

- Treasury and Cashiering operations done by the UST Hospital treasurer

1.4.4 Financial Planning

- Clinic's DOTS Administrator and Liaison Officer prepare budget proposal for submission to and approval of UST Hospital Treasurer

1.4.5 Financial Support

1.4.5.1 *Monetary*

- Initially, source of funds were grants from TB Clinic Foundation, Inc
- 2004 grant from PhilTIPS (1.12M); of this, 55% goes to salaries and expert fees, 40% to other direct costs, the rest to training and equipment
- P716,600 counterpart funds, of which 64% goes to salaries and expert fees, the rest to other direct costs

1.4.5.2 *Non-monetary*

- Free drugs from DOH
- Space and some furniture from UST Hospital
- Some supplies free from Medical Representatives from pharmaceuticals (cotton balls)

1.5 Service Statistics

- For 2003, a total of 26 new and relapse cases were registered; 13 males, 13 females
- For 2003, 10 were new smear-positive cases, 13 were new smear-negative cases, 3 were new extra-pulmonary TB cases
- As of 2nd quarter of 2004, 10 new and relapse cases were registered, 4 males, 6 females; 5 were new smear-positive cases, 4 new smear-negative cases, and 1 new extra-pulmonary TB
- Of the 24 cases registered as of July 2003, 7 returned after default; 13 classified as Category 1, 11 Category 2; 7 cured, 9 completed treatment, 7 defaulters

2. Operating Policies

2.1. General Operating Procedures

- Follows DOTS Manual of Procedures

2.2. Provision of Drugs and Management of Drug Supply

- 100% of drugs provided by DOH free
- 30% buffer stock
- Each patient allotted drugs for the duration of treatment

2.3. IEC and TB Education

- Flip charts, brochures/pamphlet, posters available
- Individual discussions with patients
- Group discussions/lectures with patients and relatives

3. TB Case Management

3.1. TB Case Finding

3.1.1. Diagnostic Procedure

- Sputum Microscopy is the main procedure, spot sample is taken upon initial consult, next 2 samples next day
- Samples sent to UST Hospital Laboratory for processing by PhilCAT-accredited Medical Technologists

3.1.2. Diagnostic Committee

- Composed of 1 Radiologist, 1 Pulmonologist, 1 Infectious Disease Specialist
- Meets every 3rd Thursdays of the month starting September 2004

3.2. TB Case Holding

3.2.1. Drug Regimen

3.2.2. Treatment Partner

- Initially, the DOTS Administrator/Physician acted as treatment partner
- In July 2004 UST Hospital provided the clinic with its own nurse who acted as treatment partner
- Family members act as treatment partners

3.2.3. Directly Observed Treatment

- Uses NTP Manual of Procedures, PhilCAT's Manual for TB Management in the Philippines, and Philippine Clinical Practice Guidelines on the Diagnosis, Treatment and Control of Pulmonary Tuberculosis for adults
- For pediatric patients, they use the National Consensus on Childhood TB
- During first 2 weeks of treatment, patient visits clinic daily for drug intake, takes home drugs on Saturdays and Sundays
- For the rest of the treatment schedule, drugs are dispensed every MWF, taken home on TThSS

3.2.4. Patient Follow-up and Defaulter Tracing

- Treatment partners sign treatment cards after DOT intake of drugs
- Patients bring cards for verification of clinic nurse during next visit
- FTCs do home visits on Thursdays PM and Saturdays AM

3.3. Referral System

- Has a network of referring physicians
- MDR cases referred to Makati Medical Hospital
- New patients with no x-rays yet are referred to the UST Hospital's radiology department

3.4. Reporting and Recording

3.4.1. Recording and Reporting Forms

- Clinic Nurse/FTCs/DOTS Administrator/Liaison Officer prepare and keep records of TB symptomatic masterlist, laboratory request forms, laboratory register, treatment cards, ID cards, TB register, referral/transfer forms, quarterly reports on new and relapse cases, counting sheets for treatment outcome, quarterly report on drug inventory and requirement, balance sheets, income statements, cash flow statements
- UST Hospital medical technologists prepare and keep quarterly reports and counting sheets for laboratory activities
- Reports are regularly submitted to DOH-NCR

3.4.2. TB Registry

- Prepared by clinic nurse

4. Adherence to DOTS

4.1 Assessment of DOTS Practice

4.1.1 Diagnosis through Sputum Microscopy

- Sputum Microscopy is the main procedure, spot sample is taken upon initial consult, next 2 samples next day

4.1.2 Continuous Supply of Drugs

- 100% of drugs provided by DOH free
- 30% buffer stock
- Each patient allotted drugs for the duration of treatment

4.1.3 Recording and Reporting System

- NTP reporting and recording system followed

4.1.4 Direct Observation of Drug Intake

- Not strictly followed since DOT is observed only twice weekly

4.1.5 Political Commitment

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Private Provider Study
Final Report

Volume IV
Project Activities

UPecon Foundation[1]

August 2005

[1] Private Provider Study team of Dr. Aleli D. Kraft, Mr. Carlos Antonio Tan, Jr., Dr. Stella A. Quimbo, Dr. Joseph J. Capuno, Ms. Ermi Amor F. Yap, Dr. Noel Juban, and Dr. Magdalena Cabaraban. The field operations were undertaken by the Research Institute for Mindanao Culture (RIMCU) and the team headed by Dr. Noel Juban. The UPecon Foundation acknowledges funding assistance from the Philippine Tuberculosis Initiatives for the Private Sector (PhilTIPS) under USAID Prime Contract No. 492-C-00-02-00031.

I. Pre-survey Operations

A. Survey Roster Development and Validation

In developing the survey roster, the take off point was the IMS listing of reference specialists that PhilTIPS provided to the UPecon team. This listing was augmented and supplemented using various physician rosters obtained from specialty societies and other published sources. The revised roster was then subjected to field validation.

Field validation of the survey roster commenced February 2004 and lasted until April 2004. The validation activity took longer than originally anticipated because of difficulties encountered in the identification of enumerated physicians/clinics. These difficulties were further compounded by the inability of some field teams to conduct actual ocular verification of physician practice in medical facilities that, as a matter of policy, refused access to survey activities.

The field validation activity revealed problems with the survey roster. The average attrition or rate of invalid roster entries in all 22 replication sites was 44 percent even when less discerning physician identification methods, using key informants as opposed to actual ocular verification, were employed. In Quezon City, Manila, Davao City, and Iloilo City where physician populations are high, the UPecon study team conducted a second round of roster validation. Apart from higher than average attrition rates observed in these sites, another factor that prompted the team to re-validate the roster was that field operations continued to reveal physicians previously not identified by the various physician lists employed. Thus, re-validation was also undertaken with the objective of re-augmenting the survey roster.

For this second round of validation, additional measures were undertaken, including

- Cross-checking against lists of clinics registered with the city's business permits/licensing office, followed by ocular inspection and visits to selected clinics
- Ocular inspection and visits to hospitals in Quezon City and Manila and cross-checking against the physician lists obtained from the facilities' administrative staff
- Cross-checking against the RX Pinoy website, followed by phone calls to newly-identified physicians to verify whether these physicians were indeed practicing in Manila or Quezon City
- Soliciting help from the medical representatives of PHAREX in validating clinic addresses in the Manila and Quezon City rosters
- Cross-checking against the PhilHealth list of accredited physicians followed by verification of newly identified physicians from the Davao City and Iloilo City PhilHealth list with key informants

- Asking physicians in the roster about colleagues who they think have clinics in the survey sites ("snowballing") and subsequently validating these additional physician names.

The revalidation and re-augmentation of the survey roster in Manila, Quezon City, Iloilo City and Davao City necessitated the redraw of the samples for these replication sites.

Although Cebu City and Tacloban have large physician populations, revalidation of survey roster was not carried out because the survey operations in these replication sites were too advanced by the time the decision to undertake revalidation was made. For these sites, however, the field staff resorted to snowballing and interviewing key informants to verify location of physicians during the survey proper.

Although operational difficulties prevented the desired level of invalid roster entry filtering, the roster validation activity still resulted in a net reduction of almost 3,000 physicians from the original IMS roster. The preponderance of invalid entries in the IMS roster is borne out by the fact that the pre-survey enumeration listed out a reduced number of 8,288 physicians compared to the IMS enumeration of 10,100 physicians even with the addition of new physician previously not identified by the IMS roster.

As a result of unfiltered invalid roster entries especially for high physician population sites as well as high attrition rates in all sites, the UPecon study team informed PhilTIPS regarding the difficulty of reaching the targeted number of 2,200 respondent physicians. At that point, the sample to population ratio was already around 25 percent and could increase with additional filtering of invalid physician roster entries and refusals during actual survey operations. Thus, in many sites the physician roster was exhausted before the (original) targeted number of physician respondents in a site was attained.

Development of the Survey Instruments

The activities related to the development of the survey instruments commenced in the early part of February 2005. Final versions of the physician and patient exit questionnaires were finished and printed during the third week of April. As the following activities were undertaken, it is to be noted that drafting of the questionnaires involved not only the central team but also the field teams, MD experts as well as PhilTIPS staff:

- ***Determination of questionnaire format***. In developing the survey instruments, the core team decided to adopt a landscape format, relatively big fonts and, as much as possible, pre-coded answers. These were designed to make the instruments interviewer-friendly. Major blocks were arranged in order not to clue-in the physicians toward certain protocols.
- ***Determination of interview methodology***. Due to the busy nature of physician practices, it was suggested that the questionnaires be self-administered and left with the physician to ensure higher rate of completion. However, it was decided that the instruments were to be interviewer-administered so as to avoid lost

questionnaires, "leading" the physicians to certain answers especially since there were vignettes, and frequent callbacks to follow up questionnaires.

- ***Initial drafting***. Drafts of the physician and patient exit questionnaires were initially written by the central team.
- ***Consultation and revision***. Several meetings attended by members of the field teams and physician consultants were also conducted. These elicited comments on the medical terms and TB practice conditions which were included in the revisions to the questionnaires. Initial drafts of the questionnaires were submitted to PhilTIPS for comments. Suggested revisions by PhilTIPS, specifically on the differences in DOTS engagement were included in the questionnaires.
- ***Drafting of physician vignettes***. As a means to describe variations in TB case management practices, TB case vignettes were included in the physician instrument. Two infectious disease specialists, Dr. Marissa Alejandria and Dr. Regina Berba, were asked to formulate the vignettes, the corresponding scoring system and the method of administration. The vignettes were the only part of the questionnaires that were self-administered but the enumerator still supervised its accomplishment during the interview. Open-ended questions were eschewed in favor of objective-type questions in order to facilitate scoring. Four vignettes corresponding to smear positive, smear negative, relapse and complicated TB cases were drafted. These were pared down to two; the smear negative and smear positive TB case vignettes as these were the most common cases. While these two vignettes were successfully pre-tested, PhilTIPS' concerns about the length of the questionnaire were heeded and only the smear positive TB case vignette was included in the final physician questionnaire.
- ***Drafting of line by line instructions and field manual for training***. Drafting of line-by-line instructions was simultaneously undertaken with the drafting of the questionnaires. This served to document the decisions and definitions discussed in the consultative meetings. The line-by-line instructions formed part of the field operations manual that was utilized during the training of the team leaders and interviewers and served as the reference for the field work.
- ***Pre-testing of questionnaires***. The pre-testing of the questionnaires was made as an integral part of the training of the team leaders. In order not to contaminate the sample, pre-testing of the physician and patient exit questionnaires was held in Marikina City, a non-replication and non-survey site. Interviews were conducted during a two-day period, the first for the physician questionnaire and the second day for the patient exit, with pairs of team leaders from the Luzon and Visayas-Mindanao groups collaborating for each interview. Armed with UPecon introductory letters, the physicians were generally accommodating despite the short notice. On the whole, it was observed that once the MD allowed himself to be interviewed, they usually follow through and answer all the questions. The questions were readily answered. No violent reactions against the vignettes were exhibited. Some alternative codes and answers were generated. Based on the field experience, some suggested improvements in the order of the blocks and the questions were generated. As there were relatively few patients interviewed, more patients were interviewed at the Philippine General Hospital by Dr. Juban's

team and at the German Doctors' Clinic in Cagayan de Oro by Dr. Cabaraban's team during the following week.

- ***Revision and finalization of questionnaires***. After the pre-test, the major revision in both the physician and patient questionnaire consisted of re-sequencing the major blocks of questions and the questions within each block. For the physician questionnaire, the blocks on TB management and TB DOTS KAP were transferred to the beginning. This was also in response to PhilTIPS technical staff suggestion to secure this information first. General questions on the physician's practice were placed at the latter part of the questionnaire. For the patient exit, the questions were re-sequenced in order to more closely follow the diagnosis and treatment process. The observation blocks in the patient exit questionnaire were removed and instead included in the SA tools.
- ***Questionnaire translation and printing***. There was no need to translate the English physician questionnaire to any dialect since it was deemed that physicians could readily understand the questions as written. Since the patient exit interviews were to be conducted in four sites only, it was determined that translation to Tagalog and Visayan were all that was needed. Tagalog questionnaires were to be utilized in Quezon City as well as in Davao City and Cagayan de Oro City. The Visayan questionnaires were to be used in Cebu City, Davao City and Cagayan de Oro City. The final versions were printed and copies of the same submitted to PhilTIPS[2]. The quantity of questionnaires printed was more than that required by the sample to allow for spoilage.

B. Other Pre-survey Activities

1. Obtaining the doctor's consent

To encourage the participation of sampled physicians in the survey, endorsement letters were solicited from medical associations and city mayors. With the help of PhilTIPS, letters of endorsement were obtained from the Philippine Medical Association, the Philippine College of Physicians, Philippine College of Surgeons, Philippine Society for Microbiology and Infectious Diseases, and the Philippine Foundation for Lung Health Research and Development.

As an expression of appreciation for participating in the survey, tokens were purchased for the sample physicians and their secretaries or clerks as well as the TB patient participants in the exit survey. The CD-ROM "TB-DOTS eShelf 1" from PhilTIPS was reproduced and copies were given to sample physicians. This was also deemed to assist in information dissemination on TB-DOTS. Pouch bags were purchased as tokens for secretaries and patients. These tokens were also given during the pre-test of the questionnaires and were appreciated by the interviewees.

[2] Copies of the printed questionnaire formed part of the third deliverable of UPecon submitted last April 23, 2004.

2. *Training*

a. Central level training of team leaders

Central level training of team leaders was held last March 29 to April 2, 2004 at the UP School of Economics. Eleven team leaders from the Luzon and the Visayas-Mindanao field teams attended the training, together with the two field supervisors and other members of the field staff. Members of the core team led the training with Dr. Juan Antonio Perez of PhilTIPS giving the overview.

The first two and half days consisted of lectures and interactive sessions on both the survey organization and field strategies. Lectures and open fora were conducted on the project overview, overview of the sampling strategy and sample selection, as well as detailed discussion of the line by line instructions for the physician and patient exit instruments. Mock interviews were also held during the third day so as to hammer out issues and further questions. This also served as a sharing session with the team leaders suggesting different ways of asking the questions.

The last two days (1-2 April 2004) were spent pre-testing the questionnaires in Marikina City. Only the included specialties were sought out in the pre-test. Debriefing on the pre-test was held in the evenings during which remaining issues and suggestions on revisions were discussed.

b. Field level training of interviewers

Field level training of interviewers was held on April 21-24, 2004 in Cagayan de Oro City for the Visayas-Mindanao field team. While about 20 interviewers were recruited, only 15 were rendered fit for the data gathering and were thus trained.

Training of interviewers for the Luzon team was held last May 5-8, 2004 in Binangonan, Rizal. About 32 interviewers were trained for the Luzon team.

The training of interviewers essentially followed the same structure as the training of the team leaders, as line by line instructions for each of the instruments were discussed. Mock interviews and practice interviews with local physicians were also held.

II. Survey Operations

A. Deployment of Field Teams

Survey operations in the Visayas-Mindanao sites commenced April 28, 2004 with the deployment of field teams to Cagayan de Oro. Survey operations in the Luzon replications sites began May 17, 2004 in Quezon City.

The schedule of deployment of field teams by site is shown in Tables 1 and 2. As expected, the amount of time spent per site generally increased with physician population. In sites with high physician populations – including Davao City, Iloilo City, Cebu City, Quezon City, and Manila, the field teams had great difficulty in validating the roster. This caused subsequent delays in conducting the actual interviews with physicians.

Survey operations in Visayas-Mindanao were completed in October 2004 while survey operations in Luzon were completed in December 2004.

1. Response rates

The response rate for the entire survey is estimated at 60 percent. The lowest response rates were experienced in Quezon City and Manila, wherein some large hospitals denied access to our interviewers. Excluding Quezon City and Manila, the average response rate is about 70 percent.

2. Completed Interviews

A total of 1,535 physicians were interviewed, with the breakdown per site shown in Table 3. An average of 7 callbacks was experienced by the interviewers before a questionnaire was completed.

Table 1
Luzon Field Team

Site	Deployment	Date Started	Date Completed	No. of Interviewers (excluding team leaders)
Angeles City	1st deployment 2nd deployment (including snowballing)	May 24, 2004 Oct. 20, 2004	June 6, 2004 Oct. 22, 2004	12 2
Naga City	1st deployment 2nd deployment (exhaustion of sample list)	May 19, 2004 Oct. 25, 2004	June 12, 2004 Oct. 29, 2004	2 1
Lucena City	1st deployment 2nd deployment (including snowballing)	May 24, 2004 Aug. 5, 2004	June 2, 2004 Aug. 9, 2004	4 1
Quezon City	1st deployment 2nd deployment (including snowballing)	May 17, 2004 June 23, 2004	May 22, 2004 Sept. 9, 2004	32 32
Cabanatuan City	1st deployment 2nd deployment (including snowballing)	May 24, 2004 Oct. 11, 2004	June 5, 2004 Oct. 16, 2004	4 1
Batangas City		May 24, 2004	June 5, 2004	8
Dagupan City		May 24, 2004	June 6, 2004	4
Cavite City	1st deployment 2nd deployment (including snowballing)	May 24, 2004 Oct. 11, 2004	June 5, 2004 Oct. 16, 2004	8 4
Manila City	(including snowballing)	Sept.10, 2004	Dec. 1, 2004	17
Laoag City	Exhaustion of sample list (including snowballing)	Sept. 20, 2004	Oct. 14, 2004	2
Puerto Princesa	Exhaustion of sample list (including snowballing)	Sept.14, 2004	Sept. 22, 2004	15

Table 2
Visayas-Mindanao Field Team

Site	Deployment	Date Started	Date Completed	No. of Interviewers
Cagayan de Oro City	1st deployment	April 28, 2004	May 9, 2004	15
	2nd deployment	July 12, 2004	July 31, 2004	2
	3rd deployment (snowballing)	Aug. 12, 2004	Aug. 15, 2004	5
	4th deployment (snowballing)	Aug. 16, 2004	Aug. 30, 2004	10
Cebu City (3 months data gathering)	1st deployment	May 13, 2004	May 23, 2004	15
	2nd deployment	May 24, 2004	June 30, 2004	4
	3rd deployment	July 1, 2004	July 31, 2004	4
	4th deployment (snowballing)	Sept. 1, 2004	Sept. 16 2004	4
Dumaguete City		May 24, 2004	May 29, 2004	4
Bacolod City	1st deployment	May 29, 2004	June 12, 2004	4
	2nd deployment (exhaustion of sample list)	Oct. 16, 2004	Oct. 26, 2004	4
Roxas City		June 14, 2004	June 22, 2004	4
Iloilo City		May 27, 2004	June 26, 2004	5
Tacloban City		May 27, 2004	June 26, 2004	4
Davao City		June 28, 2004	Aug. 12, 2004	5
Cotabato City	1st deployment	July 29, 2004	Aug. 5, 2004	2
	2nd deployment (exhaustion of sample list)	Oct. 16, 2004	Oct. 26, 2004	2
Ozamis City	1st deployment	May 6, 2004	May 8, 2004	3
	2nd deployment	June 30, 2004	July 2, 2004	1
	3rd deployment (exhaustion of sample list)	Oct. 16, 2004	Oct. 26, 2004	2
Zamboanga City	1st deployment	June 30, 2004	Aug. 15, 2004	2
	2nd deployment (exhaustion of sample list)	Oct. 16, 2004	Oct. 26, 2004	2

Table 3
Summary of Validated Roster and Completed Interviews per Site

Site	Original Roster Size	Validated Roster Size (including exhaustion of sample and snowball)	Completed Questionnaires
Angeles City	147	67	41
Bacoor City	71	32	16
Batangas City	46	23	11
Cabanatuan City	93	38	29
Dagupan City	45	19	15
Lucena City	34	26	9
Laoag City	25	21	18
Manila City	1950	349	141
Naga City	75	37	30
Puerto Princesa City	54	26	21
Quezon City	4006	727	328
Bacolod City	160	86	54
Cagayan de Oro City	396	211	154
Cebu City	852	220	157
Cotabato City	33	18	16
Davao City	312	207	157
Dumaguete City	59	23	20
Iloilo City	547	168	113
Ozamis City	33	20	16
Roxas City	145	64	55
Tacloban City	372	118	91
Zamboanga City	117	52	43
TOTAL	**9572**	**2552**	**1535**

B. Data Editing, Encoding, and Processing

1. Encoding program

After the finalization of the survey instruments, activities related to the development of the encoding programs were initiated. Technical specifications for the encoding programs were drafted by the central team. Among these specifications were: (i) double entry encoding system and comparison of separately encoded data to vet out errors, (ii) provision for raw and clean data columns for the data screens, (iii) data screens that approximate the appearance of the questionnaire page, (iv) consistency and error trapping routines, and (v) provision for additional codes. Bids for the development of the encoding programs were solicited based on these specifications and program proposals were evaluated as to how closely they hewed to the specifications. A programmer was contracted during the latter half of May 2004 and encoding programs for both the physician and patient exit questionnaire were completed by July 2004. Revisions were then undertaken based on test runs using actual accomplished questionnaires. Although almost all questions in the survey instruments had pre-coded answers, the encoding program had to include additional codes that were identified in the course of editing the completed questionnaires.

2. Central office data editing

While the questionnaires were edited in the field by the team leaders and by the field supervisors, another layer of editing was performed at the central level to rectify field editing and enumerator errors as well as to ensure consistency of codes used. A team of four editors was hired to undertake the central editing tasks. The field editors worked closely with the central team so that issues and questions as well as resolutions and decisions on these issues could be clearly documented. The resolutions and decisions were then forwarded to the data encoding programmer so that appropriate revisions to the encoding program can be included.

3. Encoding

Full encoding of the questionnaires proceeded as soon as the questionnaires received from the field were centrally edited. Encoding errors that were identified through the double entry system and in the process of analyzing the data were corrected.

On the whole, the UPecon team found the encoded data to be of acceptable quality standards. This finding was partly based on the reports of central level editors regarding (i) the amount of errors committed, (ii) the types of errors most commonly committed, (iii) the questions that are most likely to be filled up erroneously, and (iv) the enumerators who are most likely to commit errors. Moreover, data quality was also discerned through consistency and robustness checks on the data as data analysis proceeded.

4. Other measures to ensure data quality

Apart from undertaking field and central level editing to ensure data quality, the central team undertook spot checking (abbreviated interview) and random audits (full interview using complete questionnaire) of the Visayas and Mindanao field teams in the latter half of July and the first half of August 2004. Spot checking and random audits of the Luzon sites were undertaken starting October 2004 until January 2005. A random list of physicians was drawn from each of the rosters, comprising about 3 percent in the selected sites. From this list, the spot checkers were tasked to verify (i) whether those physicians reported as invalid by the field teams were indeed invalid, and (ii) from among those reported as valid, whether those reported as interviewed, refused or still to be followed up were in fact interviewed, or refused to be interviewed.

The spot checking and random audits did not reveal any anomalous or fraudulent activities being done by the field teams. Observed interviews were found to conform with the guidelines set out by the central team during the training activities.

Table 4
Schedule of Random Audits and Spot Checks

Site	Date Started	Date Completed	No. of Interviewers	Remarks
Quezon City and Manila City	May 12, 2004	June 7, 2004	3	random verification of roster and spot checks
Cebu City	May 18, 2004	May 21, 2004	1	random verification of roster
Davao City and Cotabato City	July 25, 2004	Aug. 5, 2004	1	44 spot checks and 6 full audits
Bacolod City, Iloilo City and Roxas City	July 31, 2004	Aug. 15, 2004	1	41 spot checks and 7 full audits
Manila City	Oct. 16, 2004	Nov. 30, 2004	1	114 spot checks
Manila City and Quezon City	Jan. 22, 2005	Jan. 31, 2005	1	102 spot checks in Manila and 131 spot checks in Quezon City

III. Situational Analysis (SA) Operations

A. Respondent Identification

Unlike the physician survey, a purposive sampling strategy was adopted for the situational analysis of DOTS clinics. Prospective respondent clinics were chosen from a pre-identified list provided by PhilCAT rather than drawn at random from the said list. Due to the limited number of DOTS clinics that were (i) privately run, (ii) located at the replication sites and (iii) not previously the subject of situational analyses conducted by PhilTIPS, only a handful of DOTS clinics were left to choose from. As such, no attempt was made to select DOTS clinics according to alternative private-public mix models although clinics were chosen to achieve, as much as possible, geographic representation. Six DOTS clinics were selected from the Luzon area, with three located in Metro Manila and three outside, while 3 DOTS clinics were selected from the Visayas and Mindanao areas. A list of 13 clinics was then submitted to PhilTIPS which approved nine for the situational analysis.

From the initial list of clinics submitted, eight clinics were selected and one additional clinic not in the list was requested to be included by PhilTIPS in the SA. This was the Polymedic General Hospital DOTS Center in Cagayan de Oro City, a participant in the current PhilTIPS pharmacy initiative. In the course of seeking consent for the SA and in the process of ocular inspections and initial contacts just before deployment itself, it was found that that two of the proposed SA clinics were still in the setting-up process and thus were not yet fully operational. They had very limited or no TB patients treated with the DOTS protocol. These centers were the Roberto Oca Health Services Center and the FriendlyCare Cebu clinic. Replacements were, therefore, sought for these clinics.

The DOTS clinics that were the subjects of the SA were the following:

1. UST Adult and Pediatric DOTS Center – Manila
2. Canossa Health and Social Center Foundation, Inc.– Manila
3. Philamcare Quezon City Clinic DOTS Center – Quezon City
4. Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City
5. Angeles University Foundation Medical Center HMO DOTS Center – Angeles City
6. Premier General Hospital of Nueva Ecija, Inc. DOTS Center – Cabanatuan City
7. Philippine Tuberculosis Society Inc., Cebu TB Pavilion – Cebu City
8. Polymedic General Hospital DOTS Center– Cagayan de Oro City
9. Health Management and Research Group Foundation – Davao City

Although the clinics were not selected according to pre-defined criteria, some variation in the types of DOTS centers was still achieved. Five out of the nine clinics are hospital based, one is HMO operated, while three are run by NGOs. It is noteworthy that the sample includes one of the first private TB DOTS centers in the country.

B. Development of the SA instruments

The bases for the development of the SA instruments were the tools that PhilTIPS utilized in the conduct in 2003 of SA in five existing DOTS centers. The proposed revisions to the tool were discussed and approved in a meeting of UPecon with PhilTIPS technical personnel. The revisions of the tools are summarized below.

1. ***Drafting of separate "Facility Tool"***

A separate "Facility Tool" was drafted that consists of questions on the facility history, background, organization and staffing as well as financial aspects. The questions were culled out from the existing tools and reorganized in order to avoid redundancies in the existing tools. In particular, the Facility Tool combined 4 existing tools: (i) Tool 7: Financial Tool, (ii) Tool 8: Interview Guide for Clinic History and Background, (iii) Tool 1: Inventory of TB-DOTS Clinic Facilities, selected blocks on staffing, evaluation, and fees, and (iv) Tool 2: Interview Guide for TB-DOTS Service Providers, block on Institutional Commitment. The proposed respondent to this tool would either be the DOTS administrator or manager of the facility. It is expected that this person would have a deeper background and knowledge of the institutional history of the facility.

2. ***Deletion of focus group discussion tools***

Two tools, Tool 5: Focus Group Discussion for Referring Physicians and Tool 6: Focus Group Discussion Guide for Treatment Partners, were not included among the proposed tools to be used. The team decided not to use these tools since some of the information contained in the FGDs can be gleaned from the results of the survey. Further, it was noted that it would have been difficult to conduct the FGD for treatment partners since the two week SA period was too short to invite participants, set the date for the FGD and organize the discussions.

3. ***Modifications per tool***

The following are the changes implemented for the specific tools:

- Tool 1: Inventory of TB DOTS Clinic Facilities, Recording, Equipment, and Services Provided. The questions were reorganized so that the "ASK" and "OBSERVE" questions are in separate blocks. This is just to make it more convenient for the interviewer to plan their time and to make the interview process more efficient.
- Tool 2: Interview Guide for TB DOTS Service Providers. The questions were re-sequenced with the demographic and background information on the education and training of the provider coming first. The tool was reorganized so that, based on the tasks and functions that a particular provider performs, only the appropriate follow-up questions are asked of them. For instance, questions on the diagnosis and initiation of treatment would be asked of the

person responsible for the diagnosis and treatment. With these revisions, the tool is more focused on the actual service provision.

- Tool 3: Observation Guide for Interaction between TB Patient and Service Provider. The instructions were clarified, especially those for multiple responses. The responses were renumbered for encoding purposes.
- Tool 4: Exit Interview for TB DOTS Patients. The questions were reorganized into major blocks, for instance, socio-demographic, patient satisfaction, procedures and services performed or obtained. After the questions were finalized, the tool was translated to the dialect corresponding to the site.

C. Training of Field Teams

Training of the field teams for the situational analysis was held last August 10-13, 2004 at the UP School of Economics. Similar in structure to the training for the survey teams, two days of the training were spent familiarizing the teams on the objectives, techniques and the SA tools while the last two days were for the conduct of exercises in administering the tools in actual TB-DOTS centers. Debriefing was held during the last day of the exercise to solicit comments and suggestions as to how the tools can be improved, as well as to hammer out strategies for administering the tools in the actual SA sites.

After a brief overview of the TIPS and the private provider study, the training session proceeded with an overview of the SA methodology. Conducted by Dr. Marilou Costello of PhilTIPS, the session provided a clearer understanding of the data expectations and focus that the SA should provide. It also provided a perspective on how the SA methodology is expected to assist in the design of interventions and the evaluation of the impacts of the same. After this overview, two consultants involved in previous SA exercises of PhilTIPS presented SA techniques and the results from previous SA exercises. The presentation on SA techniques provided helpful hints on seeking the consent of the facility, and on preparatory activities that can be done to facilitate the conduct of the SA and to ensure that as many provider-patient interactions can be observed. The presentation on results from previous SA exercises provided insights as to the variations in how TB-DOTS is implemented that the SA teams should watch out for in the SA of facilities that would be conducted.

The training proceeded with the central team conducting an overview of the SA tools as well as general instructions for the SA. Line by line instructions for the Facility, Patient and Provider tools were then discussed.

The second part of the training had the field teams going to two non-sample DOTS centers to conduct implementing the SA tools. The Luzon field team conducted the exercise at the UNILAB DOTS Center while the Visayas-Mindanao field team conducted the exercise at the FriendlyCare DOTS Center in Cubao. Both teams were able to interview the persons in charge of the DOTS Center, the TB-DOTS providers, either physicians or non-physicians, as well as some patients.

It was noted in the exercise that the Facility tool was quiet lengthy and the interview may have to be administered at different times. It was therefore suggested that the teams schedule several appointments with the DOTS administrators in the SA sites to ensure that all blocks of the Facility Tool are answered. The other major observation that came out of the exercise is that some of the information asked for in the financial blocks of the Facility Tool may not be known to the person in charge or the TB DOTS administrator, especially in TB DOTS facilities that are parts of multi-specialty or multi-practice clinics. As such there may be some difficulties culling out the information from the existing financial statements. A revised strategy for obtaining the information was thus proposed where members of the central team would be the ones to obtain the information and the teams would just follow-up or schedule appointments with the accountants or budget officers of the facility.

D. Pre-deployment Activities for Situational Analysis

After the training and after the sites were finalized, letters were sent to the sample SA sites outlining the objectives of the SA and seeking their consent to the exercise. The letters also detailed the various required documents as well as the activities that would be conducted in the facility in order that there would be no surprises during the conduct of the SA. An endorsement letter from PhilTIPS was also sought and was sent to accompany the UPecon letters. Upon consent to the exercise, it was requested that the administrators sign the conforme and send the letter back to UPecon. Copies of the signed consent were then given to the field teams to bring with them during the conduct of the SA. All of the sample SA sites consented and sent back to UPecon the letters of consent.

As gestures of appreciation for participation in the SA, small tokens for the providers and patients were given. The same tokens provided to respondents in the survey were given to the participants in the SA.

As a precautionary measure, masks were provided to the enumerators. This was to ensure that they do not get infected as they interview TB patients and are exposed to the TB bacilli in the DOTS facilities.

E. Deployment Schedule

The SA activities started in the first week of September 2004 and lasted until the end of October 2004 (see Table 5. Deployment for Situational Analysis). Teams consisted of at least one physician who would be administering the provider tool as well as helping in the observation of the provider-patient interaction. Three teams each were in Luzon and Visayas-Mindanao, with each of the Luzon teams handling two SA sites.

F. Encoding

Editing and encoding of the patient exit and provider tools were performed by the central team. Encoding was started in October 2004 and completed in December 2004.

Table 5
Deployment for Situational Analysis

Site	Date Started	Date Completed	No. of Interviewers
Philippine Tuberculosis Society Inc., Cebu TB Pavillon– Cebu City	Sept. 1, 2004	Sept. 16, 2004	3 including one MD
Health Management and Research Group Foundation – Davao City	Aug. 31, 2004	Sept. 14, 2004	3 including one MD
Polymedic General Hospital DOTS Center– Cagayan de Oro	Sept. 7, 2004	Sept. 24, 2004	3 including one MD
UST Adult and Pediatric DOTS Center – Manila City	Sept. 6, 2004	Sept. 16, 2004	2 including one MD
Philamcare Quezon City Clinic DOTS Center – Quezon City	Sept. 20, 2004	Oct. 2, 2004	2 including one MD
Canossa Health and Social Center Foundation, Inc.– Manila City	Oct. 3, 2004	Oct. 16, 2004	3 including one MD
Premier General Hospital of Nueva Ecija, Inc. – Cabanatuan City	Oct. 17, 2004	Oct 30, 2004	2 including one MD
Dagupan Doctors Villaflor Memorial Hospital DOTS Clinic – Dagupan City	Oct .17, 2004	Oct. 30, 2004	2 including one MD
Angeles University Foundation Medical Center HMO DOTS Center– Angeles City	Oct. 18, 2004	Oct. 29, 2004	3 including one MD