Evaluating the potential impact of the new Global Plan to Stop TB: Thailand, 2004–2005

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Objective WHO's new Global Plan to Stop TB 2006–2015 advises countries with a high burden of tuberculosis (TB) to expand case-finding in the private sector as well as services for patients with HIV and multidrug-resistant TB (MDR-TB). The objective of this study was to evaluate these strategies in Thailand using data from the Thailand TB Active Surveillance Network, a demonstration project begun in 2004.

Methods In October 2004, we began contacting public and private health-care facilities monthly to record data about people diagnosed with TB, assist with patient care, provide HIV counselling and testing, and obtain sputum samples for culture and susceptibility testing. The catchment area included 3.6 million people in four provinces. We compared results from October 2004–September 2005 (referred to as 2005) to baseline data from October 2002–September 2003 (referred to as 2003).

Findings In 2005, we ascertained 5841 TB cases (164/100 000), including 2320 new smear-positive cases (65/100 000). Compared with routine passive surveillance in 2003, active surveillance increased reporting of all TB cases by 19% and of new smear-positive cases by 13%. Private facilities diagnosed 634 (11%) of all TB cases. In 2005, 1392 (24%) cases were known to be HIV positive. The proportion of cases with an unknown HIV status decreased from 66% (3226/4904) in 2003 to 23% (1329/5841) in 2005 ($P < 0.01$). Of 4656 pulmonary cases, mycobacterial culture was performed in 3024 (65%) and MDR-TB diagnosed in 60 (1%).

Conclusion In Thailand, piloting the new WHO strategy increased case-finding and collaboration with the private sector, and improved HIV services for TB patients and the diagnosis of MDR-TB. Further analysis of treatment outcomes and costs is needed to assess this programme's impact and cost effectiveness.

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Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. **الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.**

Background

Tuberculosis (TB) remains one of the world's leading causes of severe illness and death, particularly in developing countries. Since 1993, efforts to control TB have focused on a strategy known as DOTS, which emphasizes passive case detection and standardized, directly observed treatment of sputum smear-positive TB cases.[1] Widespread adoption of DOTS has greatly expanded the number of patients cured of TB, but global TB incidence and mortality have not declined.[2] Major reasons for the failure to control TB include incomplete case-finding, inadequate and abundant TB care delivered by clinicians working outside national TB programmes, and the emergence of multidrug-resistant TB (MDR-TB) and HIV-associated TB.[2] Recognizing these problems, in 2006 WHO launched the Global Plan to Stop TB 2006–2015, which calls upon countries to expand and enhance the DOTS strategy and also to implement collaboration between TB and HIV programmes, improve the diagnosis and treatment of MDR-TB, establish public–private partnerships, enable and promote research, strengthen existing health systems, and empower patients and communities.[3]

Global efforts to control TB have focused most intensely on 22 countries designated by WHO as having a high burden of TB; together these account for >80% of the world's TB cases. In 2006, Thailand ranked 18th on the list of high-burden countries; an estimated 90 000 people develop TB annually giving an annual incidence of 135 TB cases per 100 000 people.[4] Case notifications were declining in Thailand until an explosive HIV epidemic in the 1990s resulted in a sudden increase in TB cases. HIV-associated TB now accounts for an estimated 15% of all TB cases in Thailand.[4] A WHO review

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in 2003 of Thailand's TB programme recommended that Thailand strengthen its recording and reporting system, its laboratory services for TB patients, collaborative activities between TB and HIV programmes, and partnerships with the private sector.[5]

In response to the recognized limitations of the DOTS strategy and to the findings of the programme review, in October 2004 we began implementing a demonstration project of enhanced TB control in selected provinces in Thailand, incorporating strategies that are now recommended as part of the new Global Plan to Stop TB. We report here on findings from the first year of this demonstration project, which provided a unique opportunity to measure the potential impact of the new Global Plan in a high-burden country.

Methods

Setting

The Thailand TB Active Surveillance Network is a partnership between Thailand's Ministry of Public Health, the Bangkok Metropolitan Administration, the United States Centers for Disease Control and Prevention, and the Research Institute of Tuberculosis, Japan. It involves all districts in three provinces (Chiang Rai, Phuket, Ubon-ratchathani) and two districts in Bangkok. The catchment area includes 3 557 249 people (according to a 2004 population estimate), 50 public health-care facilities and 279 private health-care facilities.

Baseline assessment

Before launching this project in October 2004, public health officials collected data from all public and private health facilities in the catchment area and negotiated agreements with these facilities to participate in the project. Data collection involved reviewing clinical and public health records to determine the number and type of TB cases, including those in HIV-infected patients and patients who were not Thai, occurring from October 2002 to September 2003 (hereafter referred to as 2003). This baseline time period was chosen, because provinces in Thailand routinely collect TB programme data using a fiscal year not calendar year, and some sites began implementing selected components of this programme between October 2003 and September 2004, making 2003 the most appropriate baseline year.

Active surveillance, monitoring and evaluation

During the project, public health staff in each province contacted participating health-care facilities in their catchment area at least once per month to obtain standardized information about each newly diagnosed case of TB, to monitor and evaluate the programme's performance, to assist with case-management, and to follow up TB treatment outcomes for cases already being treated. The most important difference between this active surveillance and the baseline system was that public health staff in each province directly contacted (in person or by telephone) medical personnel working in both public and private facilities about case-finding and management each month, rather than relying on passive case reporting.

A case of TB was defined as anyone diagnosed with TB or treated for tuberculous disease. A new case of TB was defined as TB disease occurring in a person who reported having had no previous treatment or <1 month of treatment. Cases of TB occurring in people who are not Thai or in people diagnosed in nongovernmental facilities are not routinely reported to the national TB programme; however, in this project, all cases were included regardless of the patient's nationality or type of health-care facility visited.

Staff recorded data using a modified version of the standard national TB register, entered data into an electronic database, and transferred data via secure Internet connection to the national TB programme.

Diagnosis and treatment

Before and during the implementation of the project, staff at public and private health-care facilities received refresher training about national guidelines for diagnosis, treatment and case-management. Provincial TB programmes were provided with additional resources to support the training of personnel and the monitoring and evaluation of district TB programmes, but routine TB diagnostic services (such as microscopy and radiography) and treatment services were paid for using existing funds, not project-specific funds. Treating physicians were not required as part of this project to follow any specific standard for TB care and treatment. TB programmes recorded on surveillance forms whether patients were directly observed ingesting their TB medicine. Those who might observe treatment included health-care workers, village health volunteers or family members.

Laboratory diagnosis

As part of the demonstration project, we developed the capacity to perform mycobacterial culture at one laboratory in each province. For people who had already been diagnosed with TB, health-care facilities were asked to submit at least one sputum specimen for culture and susceptibility testing, ideally during the first month of TB treatment; sputum culture was not routinely used to diagnose TB. Isolates from Bangkok were also identified and tested for susceptibility to first-line drugs (streptomycin, isoniazid, rifampin, pyrazinamide, ethambutol) at the city's central laboratory; all other isolates were sent from the province-level laboratory to the national TB programme's reference laboratory for identification and susceptibility testing. Methods of sputum culture varied during 2005. Initially, all specimens were cultured on solid media, either Lowenstein–Jensen or Ogawa, but during the course of the project, sites shifted to performing solid culture only on Lowenstein–Jensen and began also to use liquid media culture with an automated reading instrument (BACTEC Mycobacteria Growth Indicator Tube 960, Becton Dickinson, Franklin Lakes, NJ, USA).

TB and HIV

During the project, nurses and physicians from public and private health-care facilities were trained in HIV counselling, testing, and care and treatment. During surveillance visits, these nurses and physicians were also encouraged to provide HIV counselling and testing to TB patients and HIV-related care and treatment to TB patients also infected with HIV. No financial incentives were provided to patients or health-care workers for undergoing or delivering HIV testing. Individual physicians used their own judgement about whether to measure CD4+ T-cell lymphocyte counts (CD4), provide prophylaxis for opportunistic infections or antiretroviral therapy, and manage other clinical conditions. When performed, blood for CD4 testing was usually drawn during the first month of TB treatment.

Ethical review

The protocol for this project was reviewed by the Thai Ministry of Pubic Health and the US Centers for Disease Control and Prevention and categorized as surveillance and implementation of a public health programme; thus it did not require oversight by a human subjects' research institutional review board.

Findings

Baseline assessment

The total number of case notifications in the catchment area was 4978 in 2002, 4904 in 2003, and 5289 in 2004. Of the 4904 TB cases in 2003 (the baseline year), 4229 were new cases (118/100 000 people) and 2060 were new smear-positive cases (58/100 000 people). The total number of cases managed in all nongovernmental facilities was not known. In 2003, HIV status was known for 1678 (34%) cases, of whom 897 (53%) were HIV-infected and 781 (47%) were not. In 2003, the minimum estimated HIV prevalence among TB patients was 18% (897/4904). Public health-care facilities recorded 200 non-Thai nationals registered for TB treatment.

All 50 of the public and 53 private health-care facilities agreed to participate in the project. The 226 private health-care facilities that refused to participate were all small clinics, and only 5 reported in our baseline assessment that they had treated any TB cases in 2003; these 5 reported managing a total of 56 TB cases.

Case-finding

From October 2004 to September 2005 (hereafter referred to as 2005), 5841 TB cases were ascertained in the surveillance area, including 2684 (46%) pulmonary smear-positive cases, 1652 (28%) smear-negative, 320 (5%) with smear status not known or done, 1183 (20%) extra-pulmonary, and 2 (<1%) unknown (Table 1). Compared with case reporting to the national programme in 2003, reporting during the project period was higher (rising from 4904 cases to 5841, a 19% increase), particularly for new pulmonary smear-negative cases (Table 2).

Two populations contributed substantially to the increase in case reporting: patients who did not have Thai nationality and those seen in the private sector. Reporting of cases among people

Table 1. **Characteristics of patients reported to Thailand's Tuberculosis (TB) Active Surveillance Network, Thailand, October 2004–September 2005**

Characteristic	Patients[a] (*n* = 5 841)
Type, anatomic site of TB	
Smear-positive, pulmonary	2 684 (46)
Smear-negative, pulmonary	1 652 (28)
Smear-unknown, pulmonary	320 (5)
Extra-pulmonary	1 183 (20)
Unknown	2 (0)
Category of TB	
New	4 897 (84)
Relapse	142 (2)
Failure	54 (1)
Treatment after default	165 (3)
Transferred in from another TB programme	270 (5)
Other	311 (5)
Unknown	2 (0)
Age (years)	
0–14	137 (2)
15–24	493 (8)
25–34	1 318 (23)
35–44	1 230 (21)
45–54	958 (16)
55–64	650 (11)
⩾65	1 050 (18)
Unknown	5 (0)
Male sex	3 717 (64)
Non-Thai nationality	472 (8)
Previously treated for TB	607 (10)
Previously treated with isoniazid for latent TB infection	71 (1)
Cough lasting >2 weeks at time of diagnosis	3 336 (57)
Ever used injection drugs	84 (1)
In jail or prison at time of diagnosis	95 (2)
Living in migrant or refugee camp	84 (1)
Facility that made TB diagnosis	
Private hospital	625 (11)
Private clinic	9 (0)
Government hospital or clinic	5 183 (89)
Other	21 (0)
Unknown	3 (0)
Facility that provided TB treatment	
Private hospital	555 (10)
Private clinic	3 (0)
Government hospital or clinic	5 275 (90)
Other	7 (0)
Unknown	1 (0)
Treatment observer assigned during intensive phase	
Health-care worker	1 383 (24)
Village health volunteer	26 (0)
Family	3 253 (56)
Other or none	1 134 (19)
Unknown	45 (1)
Chest radiograph	
Normal	197 (3)
Not performed	461 (8)
Unknown	919 (16)
Abnormal	4 264 (73)
Presence of a cavity on chest radiograph (*n* = 4 264)	1 234 (29)

[a] Values are number (percentage). Numbers may not sum to 100 because of rounding.

who did not have Thai nationality increased 136%, from 200 cases in 2003 to 472 in 2005. Increases occurred in all sites: rising from 1 to 61 in Bangkok, 182 to 327 in Chiang Rai, from unknown to 4 in Ubon-ratchathani, and 17 to 80 in Phuket. In 2005, private sector providers reported diagnosing 634 cases (11% of all cases) compared with no cases reported to the national programme in 2003. Most private-sector cases were found in Bangkok (445) and Phuket (92), but all sites reported some cases (60 in Chiang Rai, 37 in Ubon-ratchathani). Of the 634 cases diagnosed in the private sector, 213 (34%) were smear-positive, 118 (19%) smear-negative, 91 (14%) extra-pulmonary, 211 (33%) were pulmonary with smear not done, and 1 had missing data.

Table 2. **Tuberculosis (TB) case-finding before (October 2002–September 2003) and after (October 2004–September 2005) implementation of population-based surveillance, Thailand**

TB classification	No. TB cases reported[a]		% increase in reporting
	2003[b]	2005[c]	
All TB cases	4 904 (138)	5 841 (164)	19
New TB cases	4 229 (119)	4 897 (129)	16
New smear-positive	2060 (58)	2 320 (65)	13
New smear-negative	1 196 (34)	1 386 (38)	16
New extra-pulmonary	973 (27)	1 002 (28)	3

[a] Values in parentheses are number/100 000 people.
[b] October 2002–September 2003.
[c] October 2004–September 2005.

Characteristics of cases

In 2005, most cases occurred in males and people aged 25–44 years (Table 1). Using injected drugs and having status as a migrant or refugee were uncommon. Altogether 10% had previously been treated for TB. Most (57%) cases had had a cough lasting >2 weeks and had abnormal X-rays (73%).

TB and HIV

Of 5841 TB cases identified in 2005, 985 (17%) had known their HIV status before their diagnosis of TB. Of the remaining 4856 cases who did not know their HIV status, 3956 (81%) underwent HIV counselling; 3410 (86%) of those who were counselled agreed to HIV testing. In the end, 1392 (24%) cases were known to be infected with HIV (985, or 70%, of whom knew their HIV status before TB diagnosis); 3120 (53%) were known to be HIV-uninfected; and HIV status was unknown for 1329 (23%). The proportion with unknown HIV status decreased from 66% (3226/4904) in 2003 to 23% (1329/5841) in 2005 (χ^2 $P<0.01$).

CD4 counts were available for 865 (62%) HIV-infected cases (Table 3). The median CD4 count was 58 cells/mm³ (range = 0–2731) and mean 114.6. Only 114 (13%) cases had CD4 counts >200 cells/mm³. Of the 1392 HIV-infected cases, 183 (13%) had been prescribed antiretroviral treatment before their diagnosis of TB; 358 (26%) were prescribed antiretrovirals during TB treatment; 640 (46%) were not prescribed antiretrovirals before or during TB treatment; and data were missing for 211 (15%). Rates of co-trimoxazole use were higher: 504 (36%) were taking co-trimoxazole before their diagnosis of TB and 551 (40%) were prescribed co-trimoxazole during TB treatment.

Culture and drug-susceptibility testing

Of 4656 pulmonary TB cases reported in 2005, 4336 (93%) had at least one sputum smear performed, and 3024 (65%) had at least one sputum culture performed. Of cases with a culture performed, 1928 (64%) were culture-positive for *Mycobacterium tuberculosis*; 1687 (88%) of these were tested for drug susceptibility. No baseline data from 2003 were available.

MDR-TB was diagnosed in 60 cases, 34 (56%) of whom had been previously treated for TB. When using a denominator that included all pulmonary TB cases (regardless of whether sputum culture or drug-susceptibility testing had been performed), the prevalence of MDR-TB in previously treated cases was 5% (26/510) and in previously untreated cases was 1% (34/4146). When using a denominator of only those pulmonary TB cases that were culture positive and had an isolate that underwent drug-susceptibility testing, the prevalence of MDR-TB in previously treated cases was 15% (26/173) and in previously untreated cases was 2% (34/1514).

Discussion

By implementing strategies recommended in the new Global Plan to Stop TB, we increased case-finding, collaboration with the private sector, the HIV-related services provided to TB patients, and the diagnosis of MDR-TB in the first year of a demonstration project in a country with a high burden of TB.

Increases in case-finding were particularly dramatic. Total case notifications fluctuated during 2002–2004, strongly suggesting that the substantial increase in 2005 was attributable to our project, specifically to the inclusion in the surveillance system of non-Thai patients and patients seen in the private sector. A large number of people from other countries live in Thailand. Rates of TB are thought to be high among these populations because many have migrated from countries (such as Cambodia and Myanmar) that have higher TB rates than Thailand.[4] Nevertheless, Thailand's national statistics do not routinely capture data on non-Thais, making it difficult to assess the burden of TB disease and the quality of TB treatment. This project shows that the case-notification rate can be improved by changing the guidelines of the national programme to include reporting on non-Thai patients. Similarly, private-sector providers are believed to treat large numbers of TB patients, particularly in more economically developed regions, such as Bangkok and Phuket.[5]

Various strategies have been attempted throughout the world to promote public–private partnerships in TB control.[6] In this project, we focused first on the sharing of patient data, reasoning that this was a non-threatening first step to take towards engaging the private sector and that efforts to promote DOTS in these facilities would succeed only if there were standardized ways of comparing performance between the national TB programme and the private sector. This project demonstrates the feasibility and impact of including data about

non-Thai patients and patients in the private sector in TB surveillance. Many countries with a high-burden of TB have failed to reach WHO's target of 70% case detection. This project demonstrates how including migrant and private-sector patients may help countries achieve this target.

A major component of the new Global Plan is the aim of strengthening HIV services for TB patients. Through training, provision of necessary supplies, and aggressive monitoring, we were able to increase rates of HIV testing within a year and to provide patients with co-trimoxazole and antiretroviral treatment. Although more effort is needed to strengthen these linkages, our surveillance system provides an important baseline and ongoing monitoring system for collaborative activities between TB and HIV programmes. In contrast to sub-Saharan Africa, we found that most HIV-infected patients knew their HIV status before being diagnosed with TB and that most presented with advanced immune-system suppression.[7–10] This suggests that efforts to control HIV-associated TB in Thailand should focus on providing routine, rigorous screening for TB disease in people already known to be HIV-infected. Given that the overwhelming majority of cases of TB occurred in people with CD4 counts <200 cells/mm³, providing antiretrovirals and possibly isoniazid preventive therapy to patients above this threshold could also prevent HIV-associated TB in Thailand.[11,12]

This project enhanced the capacity of laboratories to culture mycobacteria and likely increased the diagnosis of MDR-TB. No routine data about MDR-TB are collected in Thailand, but rates were consistent with a 2002 national drug-resistance survey (Thailand Ministry of Public Health, unpublished data, 2002). This component of the project was designed to determine, first, whether it is feasible to provide culture and drug-susceptibility testing for all TB patients and, second, whether it is worth the money and effort. This project has demonstrated the feasibility of increasing province-level laboratory capacity to culture mycobacteria; however, before further conclusions can be drawn, more work is needed to increase the proportion of patients whose samples are cultured and tested for drug susceptibility, to standardize laboratory methods and to ensure that laboratory results are integrated into patient management. Further analysis of data from this project may help inform international policies on the expansion of laboratory capacity to culture mycobacteria, which is a major source of debate given the paucity of data about whether such an expensive and technically demanding intervention can aid TB control in high-burden resource-limited settings.[13]

Table 3. **Characteristics of HIV-infected patients reported to Thailand's Tuberculosis (TB) Active Surveillance Network, Thailand, October 2004–September 2005**

Characteristic	Patients[a] (*n* = 1 392)
CD4 count (cells/mm³)	
0–100	592 (43)
101–200	159 (11)
201–300	67 (5)
>300	47 (3)
Unknown/missing	527 (38)
Receiving antiretroviral therapy	
Already taking before TB diagnosis	183 (13)
Taking during TB treatment	358 (26)
Not taking	640 (46)
Unknown	211 (15)
Among patients receiving antiretroviral treatment, regimen prescribed (*n* = 541)	
Zidovudine/lamivudine/efavirenz	25 (4)
Stavudine/lamivudine/efavirenz	91 (16)
Zidovudine/lamivudine/nevirapine	9 (1)
Stavudine/lamivudine/nevirapine	321 (59)
Other	3 (1)
Unknown	92 (17)
Receiving co-trimoxazole	
Already taking before TB diagnosis	504 (36)
Taking during TB treatment	551 (40)
Not taking	200 (14)
Unknown	137 (11)
Receiving fluconazole	
Already taking before TB diagnosis	272 (20)
Taking during TB treatment	356 (26)
Not taking	476 (34)
Unknown	288 (21)

[a] Values are number (percentage). Numbers may not sum to 100 because of rounding.

This report is subject to several limitations. First, data were collected as part of a surveillance and programme-monitoring project; we searched for and removed duplicate records by comparing names and various demographic and clinical factors, but rigorous attempts to verify the accuracy and completeness of data were not made. Based on audits by programme-monitoring staff, we believe it is unlikely that our results are affected greatly by recording error. Second, laboratory methods were not standardized throughout the period reported, which limits our ability to draw firm conclusions about the performance of laboratories. Third, baseline estimates were calculated from information collected through the national TB programme and its implementation partners. Other reporting systems, such as those for all communicable diseases and for AIDS, collect data about TB in Thailand but were not used because variability in case definitions and absence of critical data (for example, bacteriology, registration status) make it impossible to compare data accurately. Fourth, we reported only about services delivered to patients, not outcomes of TB treatment. This data will be reported separately because of the need to present detailed stratification by various patient characteristics.

Direct costs associated with implementing this project – including technical assistance but excluding the costs of medicines and clinical care routinely

paid for by the public health system (for example, medical exams, microscopy, radiography) – were approximately US$ 80 per TB case (in 2004 US dollars). WHO has estimated the cost per patient treated through the national programme in Thailand to be about US$ 170; other studies from 1997 and 2002 have calculated that direct provider costs are substantially higher (US$ 200–350 per case).[4,14,15] Therefore, this programme required an investment of 20–50% more than is currently spent per TB case. The high cost of this programme can be explained, in part, by the expense of starting up a complex large-scale externally funded project and of supporting the development of capacity for mycobacterial culture.

This demonstration project has already led to important outcomes in Thailand, including adoption of a national policy for HIV counselling and the testing of TB patients, modification of the national TB programme's recording and reporting system to include HIV-related variables and non-Thai status, expansion of public–private partnerships in Bangkok to seven districts, and training in collaboration between TB and HIV programmes for public health officials from nine different Asian countries. This project demonstrates that implementing activities consistent with the new Global Plan to Stop TB is feasible and has had a high yield in one resource-limited country with a high burden of TB. Whether these activities are also cost effective and whether results would be similar in other countries with a high burden of TB is not known, but this project offers an important proof of principle to inform global TB control strategies. ■

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Résumé

Evaluation de l'impact du nouveau Plan mondial « Halte à la tuberculose » 2004-2005 en Thaïlande

Objectif Le nouveau Plan mondial « Halte à la tuberculose » 2006-2015 de l'OMS conseille aux pays supportant une forte charge de tuberculose (TB) de renforcer la participation du secteur privé dans le dépistage de cette maladie et de développer davantage les services destinés aux personnes porteuses du VIH et atteintes d'une tuberculose à bacille multirésistant (TB-MR). La présente étude a pour objectif d'évaluer la mise en œuvre de ces stratégies en Thaïlande à partir des données fournies par le Thailand TB Active Surveillance Network (réseau de surveillance active de la tuberculose en Thaïlande), projet expérimental lancé en 2004.

Méthodes En octobre 2004, nous avons établi des contacts avec des établissements de soins de santé publics et privés pour recueillir des données sur les personnes diagnostiquées comme tuberculeuses, aider à la délivrance de soins de santé, fournir des prestations de conseil et de dépistage concernant le VIH et obtenir des échantillons d'expectorations en vue de pratiquer des cultures et des tests de pharmacosensibilité. La zone de desserte comptait 3,6 millions d'habitants répartis dans quatre provinces. Nous avons comparé les résultats pour la période octobre 2004-septembre 2005 (désignée par 2005) avec des données de référence pour la période octobre 2002-septembre 2003 (désignée par 2003).

Résultats En 2005, nous avons enregistré 5841 cas de TB (164/100 000), dont 2320 nouveaux cas de TB à frottis positif (65/100 000). Par rapport aux résultats fournies par la surveillance passive systématique en 2003, la surveillance active a permis une augmentation de la notification de 19 % pour le nombre total de cas de TB et de 13 % pour le nombre de nouveaux cas de TB à frottis positif. Les établissements privés ont diagnostiqué 634 (11 %) des nouveaux cas de TB. En 2005, 1392 (24 %) cas de TB étaient connus comme séropositifs pour le VIH. La proportion de cas de TB avec un statut VIH inconnu est passée de 66 % (3226/4904) en 2003 à 23 % (1329/5841) en 2005 ($p < 0,01$). Parmi les 4656 cas de TB pulmonaire, 3024 (65 %) ont fait l'objet d'une culture mycobactérienne et 60 (1 %) ont été diagnostiqués comme atteints d'une TB-MR.

Conclusion En Thaïlande, l'expérimentation de la nouvelle stratégie OMS a permis d'accroître le nombre de cas de TB dépistés, de renforcer la collaboration avec le secteur privé et d'améliorer les services liés au VIH à l'intention des personnes tuberculeuses, ainsi que le diagnostic des TB-MR. Une analyse plus poussée des résultats et des coûts thérapeutiques s'impose pour évaluer l'impact du programme et son rapport coût-efficacité.

Resumen

Evaluación del impacto potencial del nuevo Plan Mundial para Detener la Tuberculosis: Tailandia, 2004–2005

Objetivo El nuevo Plan Mundial de la OMS para Detener la Tuberculosis 2006-2015 aconseja a los países que presentan una alta carga de la enfermedad que amplíen la búsqueda de casos en el sector privado, así como los servicios destinados a los pacientes con infección por VIH y tuberculosis multirresistente (TB-MR). El objetivo del estudio fue evaluar esas estrategias en Tailandia utilizando los datos de la Red de Vigilancia Activa de la Tuberculosis del país, un proyecto de demostración iniciado en 2004.

Métodos En octubre de 2004 empezamos a ponernos en contacto cada mes con servicios de atención sanitaria públicos y privados a fin de registrar los datos pertinentes sobre las personas con diagnóstico de tuberculosis, contribuir a la asistencia a los enfermos, ofrecer asesoramiento y pruebas del VIH y obtener muestras de esputo para la realización de cultivos y pruebas de sensibilidad. La zona de captación abarcaba a 3,6 millones de personas en cuatro provincias. Comparamos los resultados de octubre de 2004 a septiembre de 2005 (en adelante 2005) con los datos de partida correspondientes al periodo de octubre de 2002 a septiembre de 2003 (en adelante 2003).

Resultados En 2005 evaluamos 5841 casos de tuberculosis (164/100 000), incluidos 2320 casos bacilíferos nuevos (65/100 000). En comparación con la vigilancia pasiva sistemática de 2003, la vigilancia activa aumentó la notificación de todos los casos de tuberculosis en un 19%, y de los casos bacilíferos

nuevos en un 13%. Los servicios privados diagnosticaron el 11% (634) de todos los casos de tuberculosis. En 2005 se detectaron 1392 (24%) casos VIH-positivos. La proporción de casos con serología VIH desconocida disminuyó del 66% (3226/4904) en 2003 al 23% (1329/5841) en 2005 ($p < 0,01$). De 4656 casos pulmonares, se realizó un cultivo micobacteriano en 3024 (65%), y se diagnóstico TB-MR en 60 (1%).

Conclusión En Tailandia, la aplicación piloto de la nueva estrategia de la OMS aumentó la búsqueda de casos y la colaboración con el sector privado, y además mejoró los servicios de VIH para los enfermos tuberculosos y el diagnóstico de TB-MR. Es necesario seguir analizando los resultados terapéuticos y los costos a fin de evaluar el impacto y la costoeficacia de este programa.

ملخص

تقييم الأثر المحتمل للخطة العالمية الجديدة لدحر السل في تايلند، 2004-2005

الغرض: توصي الخطة العالمية الجديدة التي وضعتها منظمة الصحة العالمية لدحر السل للحقبة 2006-2015 البلدان التي تنوء بعبء ثقيل من السل بتوسيع نطاق اكتشاف الحالات في القطاع الخاص، وتوسيع نطاق الخدمات المقدَّمة للمرضى المصابين بفيروس الإيدز وبالسل المقاوم لأدوية متعدِّدة. واستهدفت هذه الدراسة تقييم هذه الاستراتيجيات في تايلند، باستخدام البيانات المستمدة من شبكة الترصُّد النشط للسل في تايلند، وهو مشروع إرشادي بدأ تنفيذه في عام 2004.

الطريقة: بدأ الباحثون في تشرين الأول/أكتوبر الاتصال بمرافق الرعاية الصحية الخاصة والعامة كل شهر لتسجيل البيانات المتعلقة بالأشخاص الذين شخِّصت حالتهم بالسل، وللمساعدة في تقديم الرعاية للمرضى، ولتقديم التوعية حول العدوى بفيروس الإيدز وفحص المصابين به، والحصول على عينات من البلغم لزراعتها وإجراء اختبار الحساسية. وشملت منطقة الخدمة الطبية 3.6 مليون شخص في أربع محافظات. وقام الباحثون بمقارنة النتائج للفترة من تشرين الأول/أكتوبر 2004 إلى أيلول/سبتمبر 2005 (والمشار إليها بعام 2005) مع البيانات الأساسية للفترة من تشرين الأول/أكتوبر 2002 إلى أيلول/سبتمبر 2003 (والمشار إليها بعام 2003).

الموجودات: تأكد للباحثين، في عام 2005، وجود 5841 حالة سل (100.000/164)، منها 2320 حالة جديدة إيجابية لطاخة البلغم (100.000/65). وبالمقارنة بين أسلوب الترصُّد الروتيني السلبي في عام 2003 وبين الترصُّد النشط، تبين أن الترصُّد النشط أدى إلى زيادة التبليغ عن جميع حالات السل بنسبة 19%، وإلى زيادة التبليغ عن الحالات الجديدة الإيجابية اللطاخة بنسبة 13%. وقد شخصت مرافق القطاع الخاص 634 حالة من جميع حالات السل (أي بنسبة 11%). وفي عام 2005، تم تشخيص 1392 حالة (أي نسبة 24%) بأنها إيجابية لفيروس الإيدز. ولوحظ انخفاض نسبة الحالات غير المعروف وضعها بالنسبة لفيروس الإيدز من 66% (4904/3226) في عام 2003 إلى 23% (5841/1329) في عام 2005 (الاحتمالية <0.01). وأجريت مزرعة للمتفطرات لعدد 3024 حالة من جملة 4656 حالة سل (أي لنسبة 65%)، وتم تشخيص السل المقاوم لأدوية متعدِّدة في 60 حالة (حوالي 1%).

الاستنتاج: أدى التنفيذ الارتيادي لاستراتيجية منظمة الصحة العالمية الجديدة في تايلند إلى زيادة اكتشاف الحالات وإلى تعزيز التعاون مع القطاع الخاص، وإلى تحسين خدمات تشخيص الإيدز بين مرضى السل، وإلى تشخيص السل المقاوم لأدوية متعدِّدة. ويستلزم الأمر مزيداً من التحليل لحصائل وتكاليف المعالجة لتقييم أثر هذا البرنامج ومردوديته.

References

1. Raviglione MC, Pio A. Evolution of WHO policies for tuberculosis control, 1948–2001. *Lancet* 2002;359:775-80.
2. Dye C, Watt CJ, Bleed DM, Hosseini SM, Raviglione MC. Evolution of tuberculosis control and prospects for reducing tuberculosis incidence, prevalence, and deaths globally. *JAMA* 2005;293:2767-75.
3. World Health Organization. *The Global Plan to Stop TB 2006–2015: actions for life towards a world free of tuberculosis.* Geneva: WHO; 2006 (WHO/HTM/STB/2006.35).
4. World Health Organization. *Global tuberculosis control: surveillance, planning, financing. WHO report 2005.* Geneva: WHO; 2005. (WHO/HTM/TB/2005.349).
5. World Health Organization, Regional Office for South-East Asia. *Third review of the national tuberculosis programme in Thailand, 17–28 November 2003.* New Delhi: WHO; 2004 (SEA-TB-267).
6. World Health Organization. *Public–private Mix for DOTS: practical tools to help implementation.* Geneva: WHO; 2003 (WHO/CDS/TB/2003.325).
7. Martin DJ, Sim JG, Sole GJ, Rymer L, Shalekoff S, van Niekirk AB, et al. CD4+ lymphocyte count in African patients co-infected with HIV and tuberculosis. *J Acquir Immune Defic Syndr Hum Retrovirol* 1995;8:386-91.
8. Teck R, Ascurra O, Gomani P, Manzi M, Pasulani O, Kusamale J, et al. WHO clinical staging of HIV infection and disease, tuberculosis and eligibility for antiretroviral treatment: relationship to CD4 lymphocyte counts. *Int J Tuberc Lung Dis* 2005;9:258-62.
9. Morris L, Martin DJ, Bredell H, Nyoka SN, Sacks L, Pendle S, et al. Human immunodeficiency virus–1 RNA levels and CD4 lymphocyte counts, during treatment for active tuberculosis, in South African patients. *J Infect Dis* 2003;187:1967-71.
10. Abouya L, Coulibaly IM, Wiktor SZ, Coulibaly D, N'kragbo M, N'gbo A, et al. The Côte d'Ivoire national HIV counseling and testing program for tuberculosis patients: implementation and analysis of epidemiologic data. AIDS 1998;12:505-12.
11. Badri M, Wilson D, Wood R. Effect of highly active antiretroviral therapy on incidence of tuberculosis in South Africa: a cohort study. Lancet 2002; 359:2059-64.
12. Woldehanna S, Volmink J. Treatment of latent tuberculosis infection in HIV infected persons. *Cochrane Database Syst Rev* 2004;1:CD000171.
13. Stop TB New Diagnostics Working Group, *Strategic plan 2006-2015.* Available at: http://www.stoptb.org/wg/new_diagnostics/assets/documents/SP%20Stop%20TB%20Dia%20WG%20-FINAL-Dec2005.pdf
14. Sawert H, Kongsin S, Payanandana V, Akarasewi P, Nunn PP, Raviglione MC. Costs and benefits of improving tuberculosis control: the case of Thailand. *Soc Sci Med* 1997;44:1805-16.
15. Kamolratanakul P, Hiransithikul N, Singhadong N. Cost analysis of different types of tuberculosis patients at tuberculosis centers in Thailand. *Southeast Asian J Trop Med Public Health* 2002;33:321-30.