A public-private partnership for TB control in Timika, Papua Province, Indonesia

M. Ardian,*†‡ E. Meokbun,* L. Siburian,†‡ E. Malonda,§ G. Waramori,‡ P. Penttinen,†‡ J. Lempoy,‡
E. Kenangalem,*¶ E. Tjitra,# P. M. Kelly**†††‡‡

* District Ministry of Health, Timika, † International SOS, Tembagapura, ‡ Public Health and Malaria Control
Department, PT Freeport Indonesia, Timika, § Rumah Sakit Mitra Masyarakat, Timika, ¶ National Institute of
Health Research and Development–Menzies School of Health Research Programme, Timika, # National Institute
of Health Research and Development, Ministry of Health, Jakarta, Indonesia; ** Menzies School of Health Research,
Darwin, †† Institute of Advanced Studies, Charles Darwin University, Darwin, Northern Territory, ‡‡ National Centre
for Epidemiology & Population Health, Australian National University College of Medicine & Health Sciences,
Canberra, Australian Capital Territory, Australia

SUMMARY

SETTING: A district-level tuberculosis (TB) control programme in Papua Province, Indonesia.

OBJECTIVE: To describe a successful partnership between the District Health Department, a private company and non-governmental health care providers.

METHODS: Routinely collected surveillance data were analysed. A conceptual model was constructed to describe TB control in the district. Data were compared with the National TB Control Programme (NTP) performance indicators.

RESULTS: Funding for the programme's TB clinic is provided by a private company (PT Freeport Indonesia). The NTP provides the policy framework, treatment guidelines and some supplies. TB clinic staff are included in training programmes and the TB laboratory in the provincial quality assurance system. TB clinic staff are responsible for diagnosis, treatment, default tracing, recording and reporting, health education and community mobilisation. The largest proportion of TB patient referrals came from the community hospital (41%). The TB notification rate (311/100 000), TB-HIV (human immunodeficiency virus) co-infection (12%) and multidrug-resistant (MDR) TB (2%) are significantly higher in Mimika, but the treatment success rate for smear-positive patients (91%) is similar to Indonesian national figures.

CONCLUSIONS: For true progress in attaining the United Nations Millennium Development Goals for TB in Indonesia, innovative local solutions utilising public-private partnerships are essential. The Mimika model is one such solution that should be tested elsewhere.

KEY WORDS: tuberculosis; health services; public-private partnership; Indonesia

DEVELOPING COUNTRIES bear the major brunt of the 8.8 million new cases of TB and the 1.7 million TB deaths every year.[1] A cost-effective health intervention exists for TB control and treatment through the World Health Organization (WHO) strategy known as DOTS.[1] In 2000, the World Health Assembly adopted global TB control targets for 2015 to halt and reverse the rising incidence of TB.[2]

With an estimated incidence of 627 000 patients and 143 000 deaths per year, Indonesia is ranked third in the WHO list of high-burden countries.[1] The DOTS-based Indonesian National TB Control Programme (NTP) has been operating since 1996 and has 98% district level coverage. Treatment success rates for sputum smear-positive patients are high (>85%), but notification rates, despite the notable recent improvements, remain low (39% in 2004). One reason for this low notification rate is the large number of patients treated in hospitals and private clinics who are not notified to the NTP.[1] A pilot programme for involving hospitals and chest clinics in one province increased case finding and led to a national policy change, but it has not yet been widely adopted.[3] Public-private partnerships (PPP) in DOTS, an important plank of the STOP-TB Global Plan, is one way of addressing this low case-finding rate.[4]

This paper describes a systematic approach to TB control taken in a rural Indonesian district, involving a partnership between the district health service, a mining company, a community hospital and private practitioners.

SETTING

Geography

Timika, in Mimika District, Indonesia, has an estimated population of 131 000 and an estimated annual growth rate of 10–14%, mainly due to economic migration to the area from other parts of Indonesia. The town lies in the south of Papua Province.

Health services

Government health services for the whole population of Mimika District are supplemented by the mining company, PT Freeport Indonesia (PTFI), which operates one of the largest gold and copper mines in the world and is the main employer in the district. PTFI directly or indirectly supports two hospitals, five community health care clinics and several mine-site clinics. The community hospital, Rumah Sakit Mitra Masyarakat (RSMM), is funded indirectly by PTFI through local non-governmental organisations (LPMAK and Caritas Timika). Freeport Indonesia's Public Health and Malaria Control (PHMC) programme provides primary health care to the members of seven Papuan tribes affected by the mining operations. The mine clinics and hospitals are managed by International SOS, a private health care provider specialising in health care at remote locations, which also provides professional staff and management for the PHMC.

TB control

In recognition of the unmet needs of TB patients in the district, the PHMC negotiated an agreement with the District Health Office (Dinas Kesehatan) in 1997 to assist with the provision of a TB control programme for the whole district. TB patients are referred from other health providers to the TB clinic for confirmation of diagnosis and treatment. The TB clinic is housed in the Dinas Kesehatan (DinKes) community health centre building, but is staffed and financed by the PHMC. The treatment provided through the PHMC programme is free to all Mimika residents. A well-equipped laboratory service is provided by the PHMC at the same site and performs sputum smear microscopy using the Ziehl-Neelsen method, routine blood counts and human immunodeficiency virus (HIV) testing.[5]

METHOD

Modelling TB control in Mimika

A conceptual model was constructed using the method proposed by Ullah et al.[6] In this model, the essential elements of DOTS are classified into 16 key functions for TB control (see Table 1 and Figure 1). The main players are represented by bold boxes, and other influential organisations by normal boxes. The links between the organisations are represented by lines and the key components are attributed to each according to their contributions.

Table 1 Essential TB control programme service components*

  1 TB control policy and treatment guidelines
  2 High quality diagnostic services
  3 Quality controlled TB laboratory facility
  4 Referral mechanism (or mechanisms)
  5 DOT for TB patients on treatment
  6 System for finding defaulters from treatment (and for encouraging them to re-commence TB treatment)
  7 Setting the fee-for-service level (if such a fee exists)
  8 Logistic issues, including supply of medications, laboratory reagents, essential equipment (e.g., sputum pots, microscopes, etc.)
  9 Reliable and comprehensive recording and notification system, including treatment outcome
 10 Monitoring, supervision and evaluation of service providers
 11 Coordination
 12 Training
 13 Health education/health promotion
 14 Community mobilisation
 15 Quality assessment of diagnosis
 16 Feedback

* Adapted from Ullah et al., 2004.[6]
TB = tuberculosis; DOT = directly observed treatment.

Data management

An enhanced surveillance system for TB patients recorded in the District TB Register was implemented by the PHMC in 2000. Under this system, TB patient data are routinely collected as part of normal clinical and public health practice. Routine follow-up data are also collected in line with NTP protocols.[7] Data are stored in MS Access™ (Microsoft Corp, Redmond, WA, USA).

The data set was analysed and summary statistics were obtained for the period 2000–2004. Key indicators of TB programme performance were calculated using standard International Union Against Tuberculosis and Lung Disease/WHO formulae[7] and compared with publicly available NTP data.[1] STATA™ (Version 8, STATA Corp, College Station, TX, USA) was used for analysis. Differences in proportions were examined using Pearson's χ^2 test. Statistical significance was reached if $P < 0.05$.
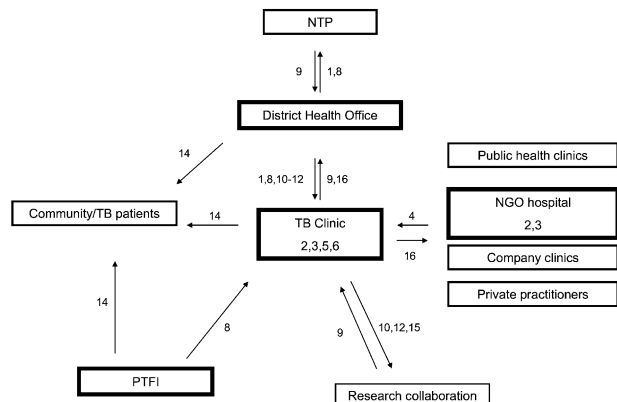

Figure 1 Conceptual model of TB control in Timika (adapted from Ullah et al., 2004).[6] Numbers refer to the service components listed in Table 1. NTP = National TB Control Programme; TB = tuberculosis; NGO = non-governmental organisation; PTFI = PT Freeport Indonesia.

Permission to collect and report on these routinely collected data was obtained from the TB control programme manager in Timika. The study forms part of the collaborative TB project, which has ethical clearance from the Indonesian Ministry of Health in Jakarta.

RESULTS

The PPP model in Mimika District

The TB clinic is the chief implementing agency, with important partnerships with the NTP through DinKes, the hospital (RSMM), other primary health clinics and private medical practitioners (see Figure 1). Funding for the TB clinic, including salaries, infrastructure, logistics and supplies, is provided by the private company PTFI. The NTP, through DinKes, provides the policy framework and treatment guidelines and some supplies. Monthly TB reports, using standard NTP reporting instruments, are sent to DinKes, who also chair quarterly TB meetings. TB clinic staff are included in training programmes and the TB laboratory is included in the provincial DinKes TB laboratory quality assurance system. Diagnosis (including laboratory diagnosis), treatment, default tracing, recording of patients, health education and community mobilisation are all the responsibility of TB clinic staff. An extensive referral and feedback system is in place. An important component of the partnership is the research collaboration which, in addition to research output, has provided clinical training and support and quality assurance of diagnostic services.

Case finding

The TB programme in Mimika uses an enhanced version of the standard DOTS strategy to find TB cases. This includes standard passive case finding from the community health centre adjacent to the TB clinic and, additionally and crucially, includes other clinics and hospitals. The majority of the patients are found using these methods. Other techniques include semi-active case finding through the identification of TB suspects and collection of sputum at remote PHMC health centres and active case finding through pre-employment screening and contact tracing.

Figure 2 provides information on the source of referral for the 851 patients diagnosed in 2003–2004. Most TB patient referrals came from the community hospital (348, 40.9%), followed by the community health services and mine clinics, while 103 patients (12.1%) were found during contact tracing surveys.

Ethnicity and TB

Ethnic background and type of TB are shown in Table 2. The proportion of Papuan and non-Papuan patients closely resembles the ethnic mix of the popula-
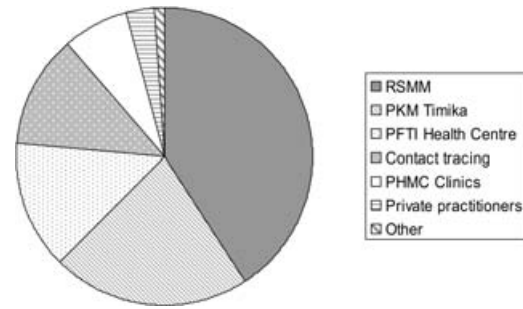

Figure 2 Referral patterns of TB patients notified to the District TB Register, 2003–2004. RSMM = Rumah Sakit Mitra Masyarakat; PKM = *puskesmas* (community health centre); PTFI = PT Freeport Indonesia; PHMC = Public Health and Malaria Control.

tion in the district, although reliable population denominators are difficult to obtain in this rapidly growing population. In both ethnic groups pulmonary TB was the most common site of disease, although Papuan patients were significantly less likely to have a positive sputum smear. Papuan patients had a higher than expected proportion of extra-pulmonary TB.

Case holding

Treatment for TB in Timika follows the standard Indonesian NTP protocol.[7] TB treatment is not directly observed by a health worker for all doses. Patients come to the clinic weekly during the intensive phase of treatment (the first 2 months: daily rifampicin [R], isoniazid [H], pyrazinamide and ethambutol in standard doses) and fortnightly during the continuation phase (4 months of daily RH). Patients on TB treatment are closely monitored by a medical officer at the TB clinic, and are seen at least three times for clinical review, and more frequently if clinically indicated.

The PHMC encourages TB patients to participate in their treatment in a responsible manner. This is achieved by educating the patient about the disease and the need for a long period of treatment. Patients' commitment to the treatment is further ensured by a deposit of Indonesian Rupiah 200 000 (approximately US$ 20). Local Papuan patients and those with genuine

Table 2 Case finding by site of disease and ethnicity, Mimika District, 2000–2004

Site of disease	Papuan n (%)	Non-Papuan n (%)	Total n (%)	P value
Pulmonary TB				
Smear-positive	539 (31.2)	331 (55.3)	870 (37.4)	<0.0001
Smear-negative	468 (27.1)	103 (17.2)	571 (24.6)	
Not done	199 (11.5)	42 (7.0)	241 (10.4)	
Total	1206 (69.9)	476 (79.5)	1682 (72.4)	<0.0001
Extra-pulmonary TB	519 (30.1)	123 (20.5)	642 (27.6)	<0.0001
Total	1725	599	2324	

TB = tuberculosis.

Table 3 Treatment outcome, new smear-positive pulmonary TB patients, Mimika District, 2000–2004

Performance indicator	2000 n (%)	2001 n (%)	2002 n (%)	2003 n (%)	2004 n (%)	Total n (%)
Case finding						
Total cases	445	486	538	445	410	2324
New smear-positive PTB	162 (36)	153 (32)	191 (31)	170 (38)	194 (47)	870 (37)
Treatment outcome						
Cure	130 (80)	124 (81)	166 (87)	148 (87)	148 (76)	724 (84)
Treatment completed	4 (2)	3 (2)	—	4 (2)	4 (2)	15 (2)
Default	13 (8)	16 (10)	15 (8)	13 (8)	26 (13)	83 (10)
Failure	—	—	—	1 (1)	1 (1)	2 (0)
Died	4 (2)	7 (5)	4 (2)	4 (2)	10 (5)	29 (3)
Transferred out	11 (7)	3 (2)	—	—	5 (3)	19 (2)
No information	—	—	6 (3)	—	—	6 (1)
Other						
TB-HIV	—	4 (0)	14 (3)	14 (3)	22 (5)	54 (2)

TB = tuberculosis; PTB = pulmonary tuberculosis; HIV = human immunodeficiency virus.

financial constraints are exempt. The full amount is returned, along with a prize (a T-shirt), once the patient has completed the full course of treatment.

Treatment completion has remained consistently high and, apart from in 2004, cure has exceeded 80% (Table 3). Default from treatment has generally been below 10%, and treatment failure and death are both rare events. Consistently small numbers of patients have left Mimika after starting treatment and transferred to other TB treatment units.

Threats to TB control in Timika

Previous studies have demonstrated that resistance to any drug was relatively common (13.9%), but that multidrug-resistant tuberculosis (MDR-TB) was rare (2%).[5] Testing for HIV is offered as part of the TB control programme. About two thirds of TB patients agree to be tested for HIV. HIV-TB has increased each year since 2000, and currently represents 5% of patients tested (see Table 3). In addition, all patients diagnosed as HIV-positive by the PHMC Sexually Transmitted Infections Clinic are offered TB screening and treatment for latent TB infection or for active disease if this is diagnosed.

Timika TB control performance

A comparison between the key TB control indicators in Timika and the statistics provided for the Indonesian NTP is shown in Table 4. The notification rate in Timika for all cases of TB and for sputum smear-positive disease exceed the WHO estimates for TB incidence, and are statistically significantly higher than the Indonesian national figures. Notifications of extra-pulmonary TB are over 15 times the national average. Treatment outcomes for smear-positive patients are similar. The TB-HIV co-infection rate is also statistically significantly higher than that reported nationally, but while MDR-TB is over double the WHO national estimate, this difference is not statistically significant.

DISCUSSION

In the present study, we have described a model of public-private partnership for TB control in Mimika District, Papua Province. We have described the particular challenges to TB control and how local solutions have been used to successfully meet these challenges. We have shown how a district health office and a private mining company can form a successful partnership with government, private and non-government health clinics and hospitals to maximise TB patient case detection, notification and treatment success. We believe that the experience outlined here has important lessons for TB control in other districts in Indonesia and more widely.

The global TB strategy known as DOTS is an excellent starting point for TB control in countries with a high burden of TB. However, local circumstances need to be taken into account when adapting this generic strategy to TB control.[8,9] In Mimika, local issues

Table 4 Key performance indicators for TB control in Mimika and all Indonesia, 2004

Performance Indicator	Indonesia	Mimika	P value
Population (2004 estimate)	219 883 460	131 715	NA
Cases			
All	178 260	410	NA
Sputum smear-positive	92 566	194	NA
Case notification rate/100 000 population			
All	81	311	<0.0001
Sputum smear-positive	42	147	<0.0001
DOTS treatment success, %*	86	91	0.3
Mortality/100 000 population	65	69	0.7
HIV, %	0.5	12	<0.001
MDR-TB, %	0.7†	2‡	0.13

* In new sputum smear-positive patients, 2002 (most recent year reported for NTP).
† This is a WHO estimate and not based on drug susceptibility survey data.
‡ Sample size of survey = 101 (Kelly et al.[5]).
TB = tuberculosis; NA = not applicable; HIV = human immunodeficiency virus; MDR-TB = multidrug-resistant tuberculosis.

include poor nutrition and housing, high patient mobility and a rapidly expanding HIV epidemic. The high rate of extra-pulmonary TB in Papuan patients is an interesting observation that requires further research. Whereas default rates are low, methods for dealing with intermittent compliance require attention to prevent the development of drug resistance.

Public-private and public-public partnerships for TB control are one of the main WHO-sponsored programmes for improving TB control in high-burden countries.[3,4,6,10–14] Most pilot projects have concentrated on private medical practitioners in Asian countries, including Vietnam,[13] India,[11,14] Nepal[12] and Bangladesh.[6] These programmes have had mixed success, but have generally led to improved case finding and cure rates. In Indonesia, private practitioners are again the main target in a pilot project in two provinces (Yogyakarta and Bali).[15]

In Mimika, an unusual model of the PPP DOTS strategy has been created where a mining company is the pivotal player in the model. There are no reports of this sort of model in the literature. Freeport Indonesia, motivated by a dual sense of corporate responsibility to the local population and the protection of the health of its workforce, contributes substantial funds, staff, buildings and consumables to the programme. Most of the technical elements of the Ullah model are functioning in Mimika, and this may explain the success of TB control in the district.[6] The high case-finding and treatment completion rates in Timika are the result of the availability of appropriate resources, referral mechanisms and the commitment of the staff responsible for the TB control programme.

Research collaboration can also have a beneficial effect on TB control.[8,16,17] The collaborative approach of DinKes Mimika, the National Institute of Health Research, Jakarta and the Menzies School of Health Research, Darwin, Australia, has made it possible to provide a very high standard TB control programme in the Mimika region. This would not have been possible without the PHMC providing staff and resources to operate the TB control programme in Timika. Quality assurance exercises in conjunction with the Menzies School of Health Research as part of the collaboration has improved sputum microscopy, improving the detection of TB in the community.

Political commitment and coordination are the key elements for successful TB control.[1,6,8] In Mimika, there remains room for improvement both in these two elements and in the referral systems, particularly between the hospital and the TB clinic. The soon-to-be operational Government hospital will add complexity to the model and is a potential threat to the coordinated approach. It also offers an opportunity to incorporate the hospital into the partnership from the beginning, which would again offer important lessons for other districts in Indonesia. Whilst TB notification rates in Mimika are higher than the national figures (WHO) and those reported from other districts,[16–18] recently completed studies demonstrate that the majority of patients enrolled in the programme live within a 5 km radius of the TB clinic (unpublished data). This suggests that issues of access to diagnosis and treatment still need to be addressed, and expansion of case-finding activities and decentralisation of treatment are already underway. While this audit was being completed, some changes to TB treatment in the district have led to a less coordinated approach, including a greater role in TB treatment from the community hospital and an expansion in the number of private practitioners operating in the district. The positive effects of greater access to diagnosis and treatment need to be weighed against sub-optimal treatment supervision and reporting of outcome data. This will require ongoing vigilance to ensure that the International Standards of TB Care are being followed by all service providers in the district and that the recent impressive gains in TB control can be sustained.[19]

CONCLUSION

To achieve the Millennium Goals for TB control in Indonesia, improved access to TB diagnosis and treatment is required. One method to realise case detection targets is to encourage all health care providers to follow the guidelines of the NTP. In Mimika, this inclusive approach has been led by a mining company with some success in the past 5 years. The Mimika model demonstrates how corporate responsibility providing financial and technical input, coupled with political commitment and coordination between the private and public sectors, can achieve sustainable gains in TB control at the district level in a high-burden setting.

References

1 World Health Organization. WHO report 2006. Global tuberculosis control: surveillance, planning, financing. WHO/HTM/TB/2006.362. Geneva, Switzerland: WHO, 2006.
2 United Nations Development Programme. UN Millennium Project. Investing in strategies to reverse the global incidence of TB. Task Force on HIV/AIDS, Malaria, TB and Access to Essential Medicines. London, UK: UNDP, 2005.
3 Irawati S R, Basri C, Arias M S, et al. Hospital DOTS linkage in Indonesia: a model for DOTS expansion into government and private hospitals. Int J Tuberc Lung Dis 2007; 11: 33–39.

4 Raviglione M C, Uplekar M W. WHO's new Stop TB strategy. Lancet 2006; 367: 952–955.

5 Kelly P M, Ardian M, Waramori G, et al. A community-based TB drug susceptibility study in Mimika District, Papua Province, Indonesia. Int J Tuberc Lung Dis 2006; 10: 167–171.

6 Ullah A N, Lubben M, Newell J N. A model for effective involvement of private medical practitioners in TB care. Int J Health Plann Manage 2004; 19: 227–245.

7 Department of Health, Republic of Indonesia. Pedoman nasional penanggulangan tuberkulosis [National TB treatment guideline]. Jakarta, Indonesia: Department of Health, 2002.

8 Kelly P M. Local problems, local solutions: improving tuberculosis control at the district level in Malawi. Bull World Health Organ 2001; 79: 111–117.

9 World Health Organization. Global plan to stop TB. WHO/CDS/STB/2001.160. Geneva, Switzerland: WHO, 2001.

10 Lonnroth K, Uplekar M, Arora V K, et al. Public-private mix for DOTS implementation: what makes it work? Bull World Health Organ 2004; 82: 580–586.

11 Murthy K J, Frieden T R, Yazdani A, Hreshikesh P. Public-private partnership in tuberculosis control: experience in Hyderabad, India. Int J Tuberc Lung Dis 2001; 5: 354–359.

12 Newell J N, Pande S B, Baral S C, Bam D S, Malla P. Control of tuberculosis in an urban setting in Nepal: public-private partnership. Bull World Health Organ 2004; 82: 92–98.

13 Quy H T, Lan N T, Lonnroth K, Buu T N, Dieu T T, Hai L T. Public-private mix for improved TB control in Ho Chi Minh City, Vietnam: an assessment of its impact on case detection. Int J Tuberc Lung Dis 2003; 7: 464–471.

14 Rangan S G, Juvekar S K, Rasalpurkar S B, Morankar S N, Joshi A N, Porter J D. Tuberculosis control in rural India: lessons from public-private collaboration. Int J Tuberc Lung Dis 2004; 8: 552–559.

15 Mahendradhata Y, Utarini A. Public-private partnership for tuberculosis control: the bill please? Bull World Health Organ 2005; 83: 78.

16 Becx-Bleumink M, Djamaluddin S, Loprang F, de Soldenhoff R, Wibowo H, Aryono M. High cure rates in smear-positive tuberculosis patients using ambulatory treatment with once-weekly supervision during the intensive phase in Sulawesi, Republic of Indonesia. Int J Tuberc Lung Dis 1999; 3: 1066–1072.

17 Becx-Bleumink M, Wibowo H, Apriani W, Vrakking H. High tuberculosis notification and treatment success rates through community participation in central Sulawesi, Republic of Indonesia. Int J Tuberc Lung Dis 2001; 5: 920–925.

18 Roosihermiatie B, Nishiyama M, Nakae K. The comparison of tuberculosis treatments: a short course therapy and the directly observed short course treatment (DOTS), East Java Province, Indonesia. Southeast Asian J Trop Med Public Health 2000; 31: 85–88.

19 Hopewell P C, Pai M, Maher D, Uplekar M, Raviglione M C. International standards for tuberculosis care. Lancet Infect Dis 2006; 6: 710–725.

_____ RÉSUMÉ

CONTEXTE : Un programme de lutte contre la tuberculose (TB) au niveau du district dans la Province de Papoua en Indonésie.

OBJECTIF : Décrire un partenariat couronné de succès entre le Département de Santé du district, une société privée et des pourvoyeurs de soins de santé non-gouvernementaux.

MÉTHODES : On a analysé les données de surveillance colligées en routine. Un modèle conceptuel a été construit pour décrire la lutte antituberculeuse dans le district. Les données ont été comparées avec les indicateurs de performance du Programme National de lutte contre la Tuberculose (PNT).

RÉSULTATS : Le financement de la polyclinique du programme a été assuré par une compagnie privée (PT Freeport Indonesia). Le PNT fournit le cadre stratégique, les directives de traitement et quelques produits. Le personnel de la polyclinique TB participe aux programmes de formation et le laboratoire TB participe au système provincial de contrôle de qualité. Le personnel de la polyclinique TB est responsable du diagnostic, du traitement, de la recherche des perdus de vue, de l'enregistrement et de la déclaration, de l'éducation sanitaire et de la mobilisation de la collectivité. La plus grande proportion des patients TB référés provenait de l'hôpital de la collectivité (41%). Le taux de déclaration de la TB (311/100 000), celui de la co-infection TB-virus de l'immunodéficience humaine (VIH) (12%) et de la MDR-TB (tuberculose multi-résistante) (2%) sont significativement plus élevés à Mimika mais les taux de succès du traitement pour les patients à bacilloscopie positive des crachats (91%) sont similaires à ceux des données nationales indonésiennes.

CONCLUSIONS : Pour arriver à progresser véritablement vers les objectifs du Millénaire des Nations Unies en matière de TB en Indonésie, les solutions locales innovatrices utilisant des partenariats publics-privés sont essentielles. Le modèle de Mimika est une de ces solutions qui devrait être évaluée ailleurs.

_____ RESUMEN

MARCO DE REFERENCIA : Un programa de lucha contra la tuberculosis (TB) de escala distrital en la provincia de Papúa, en Indonesia.

OBJETIVOS : Describir una colaboración exitosa entre el departamento distrital de salud, una empresa privada y proveedores de atención de salud no gubernamentales.

MÉTODOS : Se analizaron los datos de vigilancia recogidos en forma sistemática. Se construyó un modelo conceptual con el fin de describir el control de la TB en el distrito. Se compararon los datos con los indicadores de funcionamiento del Programa Nacional de Control de la Tuberculosis (PNT).

RESULTADOS : El presupuesto del consultorio provino de una empresa privada (PT Freeport Indonesia). El PNT aportó el marco estructural de las políticas, las recomendaciones de tratamiento y algunos suministros. El personal del consultorio de TB participó en programas de adiestramiento y el laboratorio de TB, en el sistema de control de la calidad en la provincia. Los médicos del consultorio se encargaron del diagnóstico, el tratamiento,

el seguimiento de los abandonos, el registro, los informes, la educación de salud y de la mobilización de la comunidad. La mayor parte de las remisiones de pacientes con TB provino del hospital comunitario (41%). La tasa de notificación de TB (311/100 000), la coinfección por el virus de la inmunodeficiencia humana (12%) y la TB multidrogorresistente (2%) fueron significativamente más altas en Mimika, pero la tasa de éxito terapéutico trata-miento de pacientes con baciloscopia positiva (91%) fue equivalente a las cifras nacionales de Indonesia.

CONCLUSIÓN : Un progreso real hacia las metas del milenio de las Naciones Unidas sobre la TB en Indonesia exige soluciones locales innovadoras de colaboración entre socios del sector público y del sector privado. El modelo de Mimika representa una de estas soluciones y se debe ensayar en otros contextos.