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Private GPs contribute to TB control in Myanmar: evaluation of a PPM initiative in Mandalay Division

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SUMMARY

SETTING: Mandalay Division, Myanmar.

AIM: To assess the effect of an initiative to involve private general practitioners (GPs) in the National Tuberculosis Programme (NTP) and to identify lessons learnt for public-private mix scale-up.

METHODS: Source of referral/diagnosis and place of treatment were included in the routine recording and reporting systems to enable disaggregated analysis of the contribution of GPs to case notification and treatment outcomes. Case notification trends were compared between the intervention and control areas over a 4-year period.

RESULTS: Private GPs contributed 44% of new smear-positive cases registered during the study period (July 2002–December 2004). The notification of new sputum smear-positive TB in the study area increased by 85% between the year prior to the GP involvement and 2 years after (from 46 to 85/100 000). Case notification increased by 57% in the control townships and by 42% in all of Mandalay Division. The treatment success rate for new smear-positive cases treated by GPs was 90%.

CONCLUSIONS: The involvement of private GPs substantially increased TB case notification, while a high treatment success rate was maintained. Success factors include a well-developed local medical association branch, strong managerial support, training and supervision by the public sector and provision of drugs and consumables free of charge by the NTP.

KEY WORDS: tuberculosis; public-private mix; case detection; Myanmar

MYANMAR is one of the world's 22 high tuberculosis (TB) burden countries, with 97 909 TB cases registered in 2004. The DOTS strategy has been implemented in all townships (n = 324) in the country. In 2004, 83% of estimated new smear-positive patients were detected. The treatment success rate was 81%.[1] The World Health Organization (WHO) and the International Union Against Tuberculosis and Lung Disease (The Union) provide technical assistance to the National TB Programme (NTP), and several national and international non-governmental organisations (NGOs) are supporting the NTP in the implementation of DOTS. The Global Drug Facility,[2] which has supported the NTP since 2001, renewed its commitment in 2005 by extending its TB drug grant up to 2008, subject to annual review. The Global Fund to Fight AIDS, TB and Malaria (GFATM) signed a programme grant agreement for TB (Round 2) in August 2004. Implementation of the TB grant commenced in January 2005. Unfortunately, in August 2005, the GFATM secretariat decided unilaterally to terminate the grant, creating a huge gap in funding.

Myanmar has a large private medical sector. Private health expenditure accounts for over 80% of total health expenditure, and 100% of private expenditure is out of pocket.[3] As most of the public services in Myanmar are free of charge, the expenditure pattern suggests considerable use of the private sector. It has been demonstrated that private providers in Myanmar treat many TB patients but seldom follow NTP guidelines. They use mainly X-ray for diagnosis, often treat TB with diverse non-evidence based treatment regimens, and do not notify cases to the NTP.[4] Patients have limited knowledge of their disease, which creates additional barriers to successful management.[5,6]

Over the last few years, the NTP has expanded the involvement of private providers in TB control through various public-private mix (PPM) approaches. This work was partly funded by the GFATM. The NTP started piloting linkages with private providers in the

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late 1990s. A pilot intervention in a township in the suburbs of Yangon in 1998 showed that training private general practitioners (GPs) to diagnose and treat TB according to NTP guidelines could help achieve cure rates of more than 85% among their patients.[7] This modest scale project was short-lived due to limited project support; however, the positive results encouraged the NTP to start formalising private sector involvement in DOTS implementation.[8] Several new PPM initiatives have been initiated concurrently. One of these, a project initiated jointly by the Department of Medical Research (DMR, Upper Myanmar) and the NTP, with support from the WHO, Myanmar, was launched in Kyaukse Township, Mandalay Division, in 2002. It is evaluated in the present study. Another significant initiative was launched in 2004 by Population Services International (PSI), Myanmar, to include DOTS in their existing health franchising scheme, which targets private GPs all over the country (article in submission).

The objectives of this study were 1) to assess the contribution of private GPs to TB case detection; 2) to ascertain treatment outcomes among TB cases treated by GPs; and 3) to identify lessons for the scale-up of PPM in Myanmar.

METHODS

Selection of study and control townships

In 2000, 16 of the 31 townships in Mandalay Division had case detection rates of less than 40%. Among these, Kyaukse Township was selected due to its large number of GPs and the presence of an active branch of the Myanmar Medical Association (MMA). In 2002, Kyaukse had an estimated population of 190 000. The three neighbouring townships of Kyaukse, Singaing (approx. 150 000 population), Myittha (approx. 200 000 population), and Thadaoo (approx. 190 000 population) were selected as control townships. The control townships had started DOTS implementation simultaneously, also had a case detection rate lower than 40% and had no plans to involve private GPs in the NTP. However, case detection in the three control townships was even lower than in Kyaukse Township prior to inception of the study. Case detection was therefore also compared with all of Mandalay Division.

Recruiting and training GPs and private laboratories

In the study township, GPs were mobilised through the local MMA. The study coordinator and MMA prepared invitation letters for one-day training sessions as part of the continuing medical education (CME) programme. All GPs in Kyaukse Township, 34 in total, were invited to the first meeting in July 2002, of whom 30 attended. At the first meeting, problems and barriers to successful TB treatment as well as involvement of GPs in the NTP strategy were discussed. Training sessions on TB control, NTP guidelines and DOTS were provided from July 2002, based on WHO training materials. Further training was provided as part of subsequent CME.

There were two private laboratories in Kyaukse in 2002, both run by laboratory technicians who also worked at the public township hospital. Both laboratories were trained by the NTP according to national standards. Positive slides were routinely sent to the Upper Myanmar reference laboratory for quality control.

Responsibilities of GPs

Prior to the intervention, GPs did not follow national guidelines for diagnosis and treatment and they charged fees for all diagnostic investigations and drugs. GPs were instructed to diagnose and treat TB as per NTP guidelines.[8] Laboratory investigations were performed free of charge either in the township hospital or in one of the recognised private laboratories. The recommended operational procedure for collecting sputum for smear microscopy (spot—morning—spot) was modified in such a way that the first spot sputum was done in front of the GPs, while the morning and second spot sputum samples were given to the laboratory technician. The patient therefore needed to go to the laboratory once only.

It was initially intended that patients should be referred to the township hospital to register and pick up their drugs. However, after it had been observed that several cases referred by the GPs to the township hospital for registration dropped out and did not return to the referring GP, the procedure was changed: GPs could keep a stock of drugs and commence treatment immediately after diagnosis following confirmation of the patient's home address. Treatment cards were kept by the GPs. Anti-tuberculosis drugs were distributed free of charge to patients. However, the patients were charged for any additional supportive pharmaceutical treatment they received. Directly observed treatment (DOT) was performed either by the GP (free of charge), or by an assigned DOT provider, a trained community volunteer, cured patient, family member or basic health staff, depending on the choice of the patient.

Defaulters were reported to the NTP township TB coordinator. GPs were informed that patients suspected of multidrug-resistant tuberculosis (MDR-TB) should be referred to the tertiary hospital.

Responsibilities of the NTP and the DMR

The township TB coordinator was responsible for recording cases in the TB register, on-the-job monitoring and training of GPs and laboratory technicians, continuous procurement of drugs to GPs and defaulter tracing. All these responsibilities were part of the routine work of the TB coordinator, and no extra payment was involved. Commodity support from the NTP to GPs consisted of requisition forms for sputum examination and chest X-ray (CXR), sputum cups,

patient record books and sign boards for GPs stating that they had been trained and that treatment was available free of charge for patients. Radiological investigations were not subsidised. Quarterly field visits were made by the township TB coordinator to monitor GPs. No financial incentives were given to the GPs; however, a new weighing scale was given to each GP who had notified at least 10 cases.

Apart from designing the intervention and evaluation, the principal investigator (PI) from the DMR was involved in implementation of the project itself and took an active role in the training sessions. This component of the project was financed by a research grant from WHO Myanmar to the DMR. To facilitate project implementation, the PI visited all GPs on a monthly basis from July 2002 until the end of 2003. In 2004, as the research component of the project was winding down, individual contacts with GPs faded out.

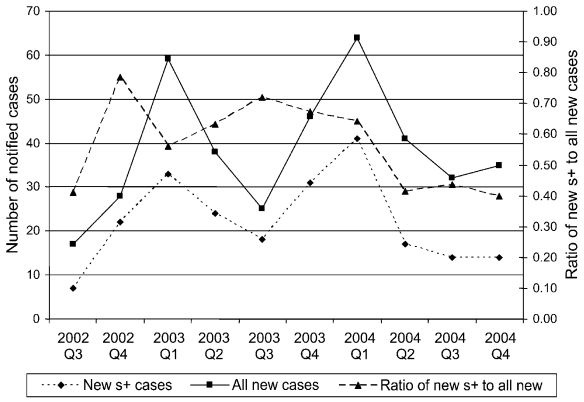

Figure 1 Number of TB cases diagnosed and notified by GPs, and ratio of new smear-positive cases to all new cases, third quarter 2002 to fourth quarter 2004, in Kyaukse Township. TB = tuberculosis; GP = general practitioner; s+ = smear-positive.

Data collection and analysis

Quantitative data were collected through the routine reporting system of the NTP from 2000 to 2004 inclusive, with slight modifications to include disaggregated information on cases referred, diagnosed or treated by GPs from the third quarter of 2002 onwards. In addition, qualitative data were collected during field supervision of GP clinics and during CME. Discussions were also held with the township and Upper Myanmar TB coordinators.

For each township, annual case notification rates were calculated as the number of cases registered in the township TB register during the year, divided by the estimated population the same year. For Kyaukse Township, the notification rate was disaggregated by cases diagnosed by GPs and the NTP. Treatment outcomes were defined as per WHO recommendations.[9]

The study was approved by the DMR (Upper Myanmar) and by WHO Myanmar. Special ethical approval was not required for the study, as it relied on secondary data from a routine recording and reporting system.

RESULTS

Thirty GPs volunteered to participate at the inception of the intervention in July 2002. Registration of cases diagnosed by GPs increased from 17 cases in the third quarter of 2002 to 28 in the fourth quarter of 2002. Thereafter, the quarterly number of cases fluctuated within a range of 25–64 (Figure 1). The ratio of new smear-positive cases to all new cases among cases notified by GPs was >0.4 throughout the whole study period (Figure 1).

In 2003, 115 cases were diagnosed by 20 GPs, while in 2004, 148 cases were diagnosed by 15 GPs. The distribution of cases across GPs was skewed and ranged between one and more than 50 cases treated during the period September 2002–December 2004. Over the whole study period, GPs contributed 221 (44%) of the 502 new smear-positive cases registered, and 385 (34%) of the total 1143 new cases in the study township.

The combined case notification (GPs plus NTP) in the study township increased more than in control townships and in Mandalay Division for both new smear-positive cases (Figure 2) and for all new cases (Figure 3). Case notification of new smear-positive cases increased from 46 per 100 000 population in 2001 to 85/100 000 (85% increase) in 2004, while the increase was from 23 to 36/100 000 (57% increase) in the control townships and from 38 to 54/100 000 (42% increase) in Mandalay Division.

Treatment outcomes for new smear-positive cases treated by GPs and by the NTP respectively in Kyaukse Township and in the control townships are shown in the Table. The treatment success rate among patients in the cohorts between the third quarter of 2002 to the fourth quarter of 2003 was 90%.

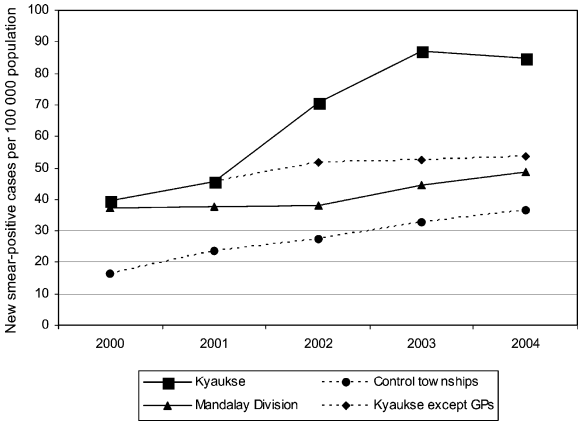

Figure 2 Case detection of new smear-positive cases in the study township, control townships and in Mandalay Division overall, 2000–2004. GP = general practitioner.

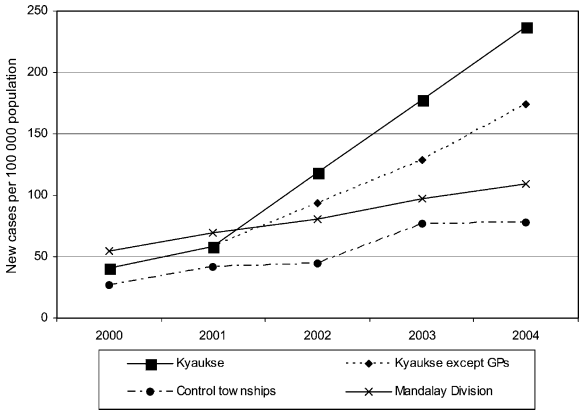

Figure 3 Case detection of all new cases in the study township, control townships and in Mandalay Division overall, 2000–2004. GP = general practitioner.

DISCUSSION

Case notification of new sputum smear-positive TB increased from 46/100 000 in 2001 to 85/100 000 in 2004 in the study township; the estimated incidence in Myanmar is 76/100 000.[1] Case notification increased at a slower pace in the control townships and in Mandalay Division. It is plausible that the involvement of GPs greatly contributed to this difference. The treatment success rate among patients treated by GPs was good, and was similar to that of patients treated in the NTP. However, there is scope to improve the rate of final sputum smear examination to confirm cure among sputum smear-positive patients treated by GPs.

These findings are consistent with studies in other countries that demonstrated that the involvement of private practitioners can help increase case detection under the DOTS strategy while maintaining or improving treatment outcomes.[10–15] A recent study of DOTS on the effects of the PSI social franchise through private GPs in Myanmar showed similar results. This would support the contention that successful private sector involvement in Myanmar is possible by different mechanisms. GPs in Myanmar are utilised by the poorest of the poor. A possible reason for this is that GP services are user friendly, they often practise within the community, have flexible opening hours and are therefore easy to access, at low indirect costs for patients. Engaging GPs in delivering free of charge TB services according to NTP guidelines can therefore greatly increase access to quality services and reduce the financial burden for the poor (article in submission).

Several possible factors may have contributed to the success of the project. The township medical officer, the township TB coordinator and the Upper Myanmar TB coordinator were all very committed to the project. The local MMA branch was well organised, helped advocate the project, and helped implement and solve problems through the CME. The PI contributed both administrative and technical support. The intermediary function of the MMA and the DMR probably helped bridge potential gaps between the NTP and the GPs.[16] The unified recording and reporting system facilitated and minimised the burden of data collection. Sufficient resources for training, advocacy, supervision and continued on-the-job training have been identified as important success factors in other PPM initiatives.[12,14,17]

The relatively low proportion of new sputum smear-positive patients reported by both the NTP and the GPs is a common finding in Myanmar.[18] Diagnosis of smear-negative and extra-pulmonary TB is often problematic due to the absence of skilled staff at peripheral level and lack of diagnostic facilities. The impact of the human immunodeficiency virus (HIV) on TB epidemiology in this regard is not clear due to the absence of data. The case holding and tracing of treatment interrupters has been recognised by the implementers of the project as a challenge when considering replication in other parts of the country.

Although the support from the DMR and WHO Myanmar ended in 2004, the initiative in Kyaukse continues. A recent review showed that the number of new cases diagnosed by GPs has continued to increase in Kyaukse (to 175 cases in 2005). Myanmar is now planning to expand the implementation of PPM for TB control with the support of a planned successor fund to the GFATM. Recognising the need for better coordination of PPM initiatives in Myanmar, a national Technical Working Group (TWG) on PPM was established with the WHO's technical assistance in 2004. The TWG consists of all stakeholders involved in PPM in Myanmar, and is chaired by the MMA.

The PPM process in Myanmar should be facilitated

Table Treatment outcomes for new smear-positive cases treated by GPs and the NTP in Kyaukse Township and by the NTP in control townships (third quarter 2002 to fourth quarter 2003 cohorts)

	Patients evaluated *n*	Cured *n* (%)	Completed *n* (%)	TSR* *n* (%)	Failure *n* (%)	Died *n* (%)	Defaulted *n* (%)	Transferred out *n* (%)
Kyaukse GPs	114	89 (78.1)	14 (12.3)	103 (90.4)	1 (0.9)	4 (3.5)	6 (5.3)	0 (0)
NTP	150	134 (89.3)	2 (1.3)	136 (90.6)	1 (0.7)	4 (2.7)	2 (1.3)	7 (4.7)
Control Townships	243	181 (74.5)	26 (10.7)	207 (85.2)	2 (0.8)	18 (7.4)	12 (4.9)	4 (1.6)
Mandalay Division	4351	3631 (83.5)	220 (5.1)	3851 (88.5)	53 (1.2)	87 (6.6)	95 (2.2)	65 (1.5)

* Sum of 'cured' and 'completed'.
GP = general practitioner; NTP = National Tuberculosis Programme; TSR = treatment success rate.

by the WHO's new Stop TB strategy,[19] which includes 'engaging all public and private health providers' as one of its core components, as well as by newly developed tools such as the International Standards for TB Care[20] and a WHO guidance document on how to engage all care providers in TB control through different PPM approaches.[21]

All of the above could greatly contribute to TB control in the country. However, bearing in mind the success factors identified, the sustainability and replicability of the project assessed in this study will be a challenge. It will be important for the NTP to create the capacity within their own organisation to take on the facilitating functions that in this initiative were provided by the MMA and the DMR, and continue to liaise with similar partners. Based on the experience gained, the importance of advocacy and facilitation of a positive dialogue with GPs cannot be overstated. Resources and time need to be committed, and the implementation of operational guidelines requires sufficient flexibility to secure appropriate responsiveness to the needs of patients and GPs.

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References

1 World Health Organization. Global tuberculosis control—surveillance, planning, financing. WHO/HTM/TB/2006.362. Geneva, Switzerland: WHO, 2006.
2 Kumaresan J, Smith I, Arnold V, Evans P. The Global TB Drug Facility: innovative global procurement. Int J Tuberc Lung Dis 2004; 8: 130–138.
3 World Health Organization. The World Heath Report 2005. Geneva, Switzerland: WHO, 2005.
4 Saw S, Mon M, Naing S, et al. Existing practices of general practitioners on diagnosis and treatment of tuberculosis in Yangon. Myanmar Health Sci Research J 2002; 14: 12–16.
5 Saw S, Mon M. Voices from the field: opinions and suggestions of general practitioners on TB control. Myanmar J Current Medical Practice 2005; 9: 148–150.
6 Mon M, Saw S, Maung W, Oo K S. Knowledge of the disease and treatment seeking of tuberculosis patients in Yangon, Myanmar. Myanmar Health Research Congress 2004, January 2005. Yangon, Myanmar: Department of Medical Research (Lower Myanmar), Ministry of Health, 2005.
7 Zaw W, Sein W, Aung T N, et al. Case load and treatment outcome of pulmonary tuberculosis patients with DOTS strategy implemented by general practitioners in Shwepyitha township. Myanmar Med J 1999; 43: 8–12.
8 National TB Programme, Myanmar. Guidelines for involvement of private practitioners in National Tuberculosis Programme, Myanmar. Yangon, Myanmar: Ministry of Health, Department of Health, 2003.
9 World Health Organization. Tuberculosis handbook. WHO/TB/98.253. Geneva, Switzerland: WHO, 1998.
10 Arora V K, Sarin R, Lönnroth K. Feasibility and effectiveness of a public-private mix project for improved TB control in Delhi, India. Int J Tuberc Lung Dis 2003; 7: 1131–1138.
11 Dewan P K, Lal S S, Lönnroth K, et al. Public-private mix in India: improving tuberculosis control through intersectoral partnerships. BMJ 2006; 332: 574–578.
12 Lönnroth K, Uplekar M, Arora V K, et al. Public-private mix for improved TB control—what makes it work? Bull World Health Organ 2004; 82: 580–586.
13 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.
14 Newell J N, Pande S B, Baral 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.
15 Quy H T, Lan N T, Lönnroth K , Buu T N, Dieu T N, Hai L T. Public-private mix for improved TB control in Ho Chi Minh City, Vietnam: an assessment of impact on case detection. Int J Tuberc Lung Dis 2003; 7: 464–471.
16 Maung M, Noe P, Maung W, Nyunt K S. The success story of TB control in Kyaukse, Myanmar: an update. Sustainability of achievements of TB control programme in Kyaukse through public-private mix. Pyin Oo Lwin: Social Medical research Division, Department of Medical Research (Upper Myanmar), 2005.
17 Rangan S, Juvekar S, Rasalpurkar S, Morankar S, Joshi A, Porter J. Tuberculosis control in rural India: lessons from public-private collaboration. Int J Tuberc Lung Dis 2004; 8: 552–599.
18 National Tuberculosis Programme Myanmar. Annual Report 2004. Yangon: National Tuberculosis Programme, 2005.
19 Raviglione M, Uplekar M. The new Stop TB Strategy of WHO. Lancet 2006; 367: 952–955.
20 Tuberculosis Coalition for Technical Assistance. International Standards for Tuberculosis Care (ISTC). The Hague, The Netherlands: Tuberculosis Coalition for Technical Assistance, 2006.
21 World Health Organization. Engaging all health care providers in TB control—guidance on implementing public-private mix approaches. WHO/HTM/TB/2006.360. Geneva, Switzerland: WHO, 2006.

RÉSUMÉ

CONTEXTE : Secteur de Mandalay, Myanmar.
OBJECTIF : Evaluer l'effet d'une initiative visant à impliquer des médecins généralistes (GP) dans le Programme National de la Tuberculose (PNT) et identifier les leçons à tirer d'une augmentation de la collaboration des secteurs publics et privés.
MÉTHODES : On a inclus dans le système de routine d'enregistrement et de rapport l'origine de la référence/diagnostic et le lieu du traitement pour permettre une analyse séparée de la contribution des GP à la déclaration des cas et aux résultats du traitement. Les tendances de déclaration des cas ont été comparées entre les zones d'intervention et de contrôle au cours d'une période de 4 ans.
RÉSULTATS : Les GP privés ont contribué à 44% des nouveaux cas à bacilloscopie positive enregistrés durant la période d'étude (de juillet 2002 à décembre 2004). La déclaration des nouveaux cas de TB à bacilloscopie positive dans la zone d'étude a augmenté de 85% entre l'année qui précédait l'implication des GPs et 2 années plus tard (de 46 à 85/100 000). La déclaration des cas a aug-

menté de 57% dans les quartiers de contrôle et de 42% dans l'ensemble du Secteur de Mandalay. Le taux de succès du traitement des nouveaux cas à bacilloscopie positive traités par les GP a été de 90%.
CONCLUSIONS : L'implication de GP privés a amélioré de manière substantielle la déclaration des cas de TB tout en maintenant des taux de succès du traitement élevés. Les facteurs de succès comportent une branche locale bien développée de l'association médicale, un puissant soutien de la direction, la formation et la supervision par le secteur public et la fourniture de médicaments et de produits gratuitement par le PNT.

RESUMEN

MARCO DE REFERENCIA : División Mandalay, Myanmar.
OBJETIVOS : Evaluar la repercusión en el Programa Nacional de Tuberculosis (PNT) de una iniciativa de vinculación de los médicos generales (GP) de la práctica privada y definir las enseñanzas extraídas para una ampliación de la colaboración entre el sector público y el sector privado.
MÉTODOS : En los sistemas de declaración y registro se incluyeron la fuente de remisión y diagnóstico y el lugar del tratamiento, a fin de permitir el análisis desagregado de la contribución de los GP a la declaración de casos y al desenlace terapéutico. Se compararon las tendencias de la notificación de casos entre las zonas de intervención y las zonas de referencia durante un período de 4 años.
RESULTADOS : Los GP de cabecera contribuyeron con el 44% de los casos nuevos con baciloscopia positiva registrados durante el período del estudio (julio de 2002 a diciembre de 2004). La notificación de casos nuevos TB con baciloscopia positiva del esputo en la zona estudiada aumentó un 85% entre el año previo a la implicación de los GP y 2 años después (de 46 a 85/100 000). La notificación de casos aumentó un 57% en los municipios de referencia y un 42% en la totalidad de la división de Mandalay. La tasa de tratamiento exitoso de casos nuevos con baciloscopia positiva por los GP fue del 90%.
CONCLUSIONES : La implicación de los GP de cabecera aumentó considerablemente la notificación de casos de TB, sin modificar la alta tasa de tratamiento exitoso. Entre los factores relacionados con el éxito se encontraron una asociación médica bien implantada localmente, un fuerte respaldo de gestión, adiestramiento y supervisión por parte del sector público y provisión sin costo de medicamentos y materiales de consumo, por el PNT.