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Tuberculosis control and the private health sector in Bolivia: a survey of pharmacies

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SUMMARY

BACKGROUND: Bolivia is a high tuberculosis (TB) incidence country with a large private for-profit health sector. TB drug sales in private pharmacies are not illegal.

OBJECTIVES: To measure the availability of TB drugs in private pharmacies, study vendors' attitudes, and explore the potential for collaboration between the public health sector and pharmacies.

METHODS: Simulated clients visited a random sample of 100 pharmacies in the city of Cochabamba, presenting with a prescription for four TB drugs. After the survey, contacts were made with the local Pharmacist's Association.

RESULTS: Twenty-five pharmacies sold at least one drug, 23 sold rifampicin and 16 sold isoniazid. Of 99 pharmacies unable to fill the whole prescription, 59 referred the client to another pharmacy, and 22 to the public services. Pharmacists said that rifampicin was often prescribed for non-TB indications, and that TB drug sales were of minimal contribution to their income. They agreed to stop selling the drugs and to refer clients seeking them to the public sector.

CONCLUSION: This study has documented a small market for TB drugs sales in private pharmacies and provided the opportunity to start collaboration with the pharmacists. Our results suggest that the private sector contributes little to managing TB in Bolivia.

KEY WORDS: tuberculosis; tuberculosis control; private health sector; pharmacies; Bolivia

IN THE LAST DECADE, the role of private health care providers in tuberculosis (TB) control has received increasing attention. A World Health Organization (WHO) 'global situational assessment' recently confirmed earlier findings of both a substantial TB caseload and unsatisfactory management practices in the private sector in various countries.[1] In India, which accounts for one third of all TB cases in the world, about 50% of TB patients are treated partly or completely in the private sector.[2] In these circumstances, private health care providers can no longer be ignored in the fight against TB, and WHO has proposed a global strategy to address the problem.[3]

Methods commonly used to document qualitatively and quantitatively the role of the private health sector in TB control are semi-structured interviews of private practitioners, of TB patients, and—more recently—of drugs retailers. The vast majority of these studies have been performed in high TB prevalence countries in Asia with a large private health sector, such as India,[4,5] Pakistan[6] and Vietnam.[7] Most Latin American countries also have a large and growing private health sector, but data on its role in TB control are scarce. We found only one survey of private practitioners that documents their inadequate knowledge of current recommendations for TB treatment in Bolivia.[8]

We decided to investigate the role of the private health sector in TB control in an urban setting in Bolivia. The specific objectives of the study were to measure the availability of TB drugs in private pharmacies (as a proxy for TB drug prescribing in the private sector), to study staff attitudes, and to explore the potential for collaboration between the National TB Programme (NTP) and private pharmacies. We report here the results of this study, evaluate some methodological issues raised by the study of drug retailers in relation to TB control, and discuss the different involvement of the private health sector in TB control in high-prevalence countries of Asia and South America.

BACKGROUND

Bolivia has the highest TB notification rate in Latin America, after Peru (in 2001, 78 smear-positive TB

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cases per 100 000 population); the NTP reports complete country coverage with the DOTS strategy package recommended by the WHO for TB control, and 79% of detected smear-positive TB patients were successfully treated in 2000.[9] In 2000, a nation-wide tuberculin survey measured an annual risk of TB infection (ARTI) of 0.79%,[10] much lower than earlier estimations of 2–3%. The ARTI is the best measure of TB transmission, so the NTP concluded that appropriate case detection and treatment of the sources of TB infection under the DOTS programme was resulting in decreasing transmission of TB in Bolivia and could explain the continuous decline in TB case notification observed over the last 10 years parallel to the strengthening of the NTP.[10] At the time our study was planned (2000), targets had not yet been revised following the results of the 2000 tuberculin survey, and smear-positive pulmonary tuberculosis (PTB) case detection was still erroneously believed to be very low.[11] It seemed important to investigate the role of the private sector as a possible explanation for the apparently low case detection rate. Although the Bolivian Chest Specialists Society was involved in the revision of the NTP manual[11] there is no formal participation of private practitioners in TB control in Bolivia. The 'ley del medicamento', which provides the legal framework for all issues related to pharmaceuticals in Bolivia,[12] does not explicitly prohibit sales of TB drugs in the private sector, and these sales are therefore not illegal. Only licensed pharmacists are allowed to sell drugs; dispensing of drugs by physicians is prohibited.

Our assumption was that the availability of TB drugs in private pharmacies should reflect the caseload of TB patients treated in the private sector.

MATERIAL AND METHODS

Study setting

The department of Cochabamba has a population of 1 500 000. For a rough estimation of the size of the private for-profit health sector in the department, one could compare the number of practising physicians registered with the Medical Association (Colegio Medico) in 2002 (2531, Colegio Medico, Cochabamba, personal communication) with the number of physicians employed by the departmental public health services (Servicios Departamentales de Salud [SEDES]) that same year (611, or 24% of the former, Human Resources Unit, Departmental Health Services, Cochabamba, personal communication). Doctors working in the not-for-profit health sector (which also include doctors employed by non-governmental organisations and Social Security Agencies) often combine this job with a private practice. The private for-profit health sector is disproportionately represented in the capital of the department, the city of Cochabamba (517 000 inhabitants), where the study was conducted.

Study design

We took a systematic random sample of 100 of 386 officially registered pharmacies in Cochabamba city. Two of the authors (RD and AV), posing as patients, presented with a 1-week prescription of rifampicin (RMP) 300 mg, isoniazid (INH) 150 mg, ethambutol (EMB) 400 mg and pyrazinamide (PZA) 500 mg. Information was collected on the availability and price of drugs, and on advice given by vendors when the prescription could not be filled. The data were collected over 2 weeks in February 2001.

After the survey, contacts were made with the local branch of the Association of Pharmacy Owners (Associacion de los Proprietarios de Farmacia [ASPROFAR]), a well organised body with a large membership base among private pharmacies in Cochabamba, to discuss the survey results and propose collaboration with public health services. Specific questions were asked about the availability of combined TB drugs (fixed-drug combinations [FDC]), sales of RMP for uses other than TB, contribution of anti-tuberculosis drug sales to their income, and trends of anti-tuberculosis drugs sales. We extracted this qualitative information from the minutes of the various meetings that took place with the ASPROFAR's members.

RESULTS

Out of 100 pharmacies included in the initial sample, four could not be located; they were replaced by the next pharmacy in the list. Six pharmacies provided prices for some drugs they did not have in stock. No combined drugs (FDC) were proposed to the simulated client. Results are presented in the Table.

Of 23 pharmacies selling RMP, eight had no other anti-tuberculosis drugs in stock. By contrast, all pharmacies selling INH except one were selling at least one other TB drug. Of 99 pharmacies that could not fill the complete prescription, 59 referred the 'patients' to a few well-known pharmacies, all in the centre of town; 22 referred them to public health services; 18 provided some information (at the minimum, that

Table Availability and cost of anti-tuberculosis drugs in private pharmacies in Cochabamba, Bolivia

	Pharmacies Total: 100		Unit cost (Euro cents)		
	Selling *n* (%)	Giving price *n* (%)	Min	Med	Max
RMP (300 mg)	23 (23)	26 (26)	4.4	12.1	19.8
INH (150 mg)	16 (16)	17 (17)	2.2	8.8	13.2
EMB (400 mg)	5 (5)	10 (10)	3.9	7.7	22.0
PZA (500 mg)	1 (1)	3 (3)	3.6	13.8	16.5
At least one drug	25 (25)				
Four drugs	1 (1)				

RMP = rifampicin; INH = isoniazid; EMB = ethambutol; PZA = pyrazinamide; Min = minimum; Med = median; Max = maximum.

drugs requested were for TB). The calculated cost of a full course of treatment using the 8-month regimen used by the Bolivian NTP ranged from 70 to 341 Euros (median 188).

Contacts were made first with the president of ASPROFAR. The proposal of collaboration with the public health services was unexpectedly well received. In August 2001, the Association called for a general meeting of its members; around 170 pharmacists attended the meeting, together with two local representatives of the Ministry of Health, the head of the NTP, and the person in charge of pharmacy control. Pharmacists confirmed that FDCs were not available on the market at that time. They said that as anti-tuberculosis drug sales in private pharmacies had been declining dramatically in the last few years (a fact they attributed to the increasing visibility of the NTP over time), many pharmacies had stopped buying these drugs, as their stocks often expired. Anti-tuberculosis drugs, they said, had never contributed much to their profits, contrary to antibiotics or cough syrups, for example. RMP was often prescribed for uses other than TB. Survey results were discussed. The near-impossibility for most TB patients to pay for a full course of treatment was emphasised, as were the damaging consequences of inadequate treatment. Several meetings took place over the next 6 months. As a first step in their collaboration with the public health services, pharmacists agreed on a voluntary moratorium on the sale of TB drugs (including RMP) and to refer patients seeking anti-tuberculosis drugs to the NTP.

DISCUSSION

Results of the study

The proportion of pharmacies selling TB drugs in Cochabamba was 25% (of 100), lower than in Vietnam (60% of 147).[7] In Nepal, 65% (of 50) pharmacies had sold these drugs in the past month,[13] while in India 85% of 300 pharmacies had dispensed anti-tuberculosis drugs in the last 5 years.[5] Because RMP is prescribed for uses other than anti-tuberculosis treatment, the availability of INH might reflect better the quantity of TB treatments taken outside the NTP. Only 16% of pharmacies in our sample were selling INH. Qualitative information obtained through the Pharmacists' Association complemented and validated the survey data. Availability in even a few big pharmacies could make the main TB drugs (RMP, and INH) easily available in the private sector in Bolivia, but a full course of treatment (including PZA and EMB) is clearly more difficult to obtain. Sales appear to be decreasing (as reported by the pharmacists), and at any rate seem lower than in Asia. Although they are not subjected to any legal prohibition, FDCs and PZA are imported only by the NTP in Bolivia, and are not available for sale in the private sector. The presence of PZA in one pharmacy in our survey is an indication of theft from the NTP. The fact that PZA—a necessary component of short-course TB treatment—is not sold in the private sector means that the possibility of proper TB treatment in the private sector does not even exist, without recurring to dishonest methods.

Apart from lack of awareness, there are only two reasons why patients would purchase from a private pharmacy drugs that they could in theory obtain for free in a neighbouring public health centre. First, some better-off patients might prefer to be treated in the private sector, despite its cost, for reasons related for instance to a better perceived quality of care, more flexible hours, confidentiality, or to escape the constraints of strictly applied directly observed treatment. Another reason for buying TB drugs might be the impossibility of actually getting treatment for TB in the NTP, such as, for non-bacteriologically confirmed (or smear-negative) cases.

The NTP claims a high detection of sources of TB infection: this implies that private practitioners treat few of these sources and therefore play a limited role in TB control, apart from the role they could still play in provider-related diagnostic delay. Some unpublished data from our team support this hypothesis. In a survey of 130 smear-positive patients treated in the NTP, only 3 (2.1%) patients reported having taken TB drugs before enrolment in the NTP.[14] Another example of a limited role of the private sector in TB control could be found in neighbouring Peru, where a highly performing NTP has apparently pushed the (very large) private sector out of TB care services, and where about only 1% of TB patients prefer to be treated in the private sector.[1] On the other hand, non bacteriologically-confirmed TB cases might have difficulty being enrolled in the NTP because they are not seen as a priority. In 2001, the NTP in Bolivia detected 81% of estimated smear-positive TB cases, but only 57% of all TB cases (estimations made using the revised ARTI); these figures were, respectively, 94% and 73% for Peru.[9] In Cochabamba Department, only 5% of PTB cases enrolled in the NTP in 2002 were smear-negative (official NTP data)—a clear underdiagnosis. The NTP manual recommends standard WHO guidelines for the diagnosis of smear-negative patients,[10] but after many years of focusing on the priority smear-positive TB cases, clinicians in the public health services seem to have become reluctant to make a diagnosis of smear-negative TB. Where, then, are the 'missing' patients? An unknown proportion most probably goes undetected and untreated, but the remaining 'non-priority' cases could well represent the main TB market for the private health sector, a hypothesis that we are currently investigating.

The fact that already 22% of pharmacies referred clients who asked for TB drugs to the public services led us to believe that collaboration with private pharmacies could be possible. In India, 97% of pharma-

cists interviewed were willing to learn about and contribute towards TB control.[5] In Bolivia, pharmacists were keen to be recognised as partners of the public health services and viewed this collaboration as an opportunity to improve their image, at the modest price of giving up not very profitable anti-tuberculosis drug sales. Beyond improving the case detection rate to reach or optimise TB control targets, we also considered issues such as the rational use of drugs and quality of care. A specific objective of this intervention was to save patients/clients the costs, and potentially damaging consequences, of buying incomplete TB treatment in the private sector. However, no clear provision was made for those buying TB drugs in private pharmacies as an informed choice to do so, nor for the RMP sold for indications other than TB.

Methodological issues

A review of the 'simulated client method', including ethical concerns, concluded that the information gathered in this way is unique and valuable for a wide range of health professionals.[15]

The list of private pharmacies in Cochabamba from which the sample was drawn for the survey was not entirely up-to-date, but we don't expect that a significant number of pharmacies escaped the sampling. However, it is questionable whether systematic random sampling was adequate to measure the availability of anti-tuberculosis drugs. TB, in absolute terms, is a relatively rare disease. In the city of Cochabamba, 532 cases were notified in the public sector in 2001. Even if a similar number of cases were treated in the private sector each year (an unrealistic assumption), the market would be small for each of the 400 pharmacies of the city. Pharmacies acknowledged they had never made much profit from TB drugs. Under such circumstances one might expect the sales to be concentrated in pharmacies with a higher volume of clients. In our survey, pharmacies that could not fill the prescription referred their clients to the biggest pharmacies of the city (although this does not imply that drugs were available there). Stratified sampling according to the volume of clients would have been a better option, but was not possible. Furthermore, the proportion of pharmacies selling TB drugs is a less-than-perfect proxy for the quantity of drugs sold (which is needed to estimate caseload in the private sector), because a small number of pharmacies could still account for relatively large quantities of drug sold. However, comparisons with studies in Asia,[7,12] using a similar sampling method to measure the proportion of pharmacies selling TB drugs, still suggest a much smaller TB drug market in Bolivia. Other methods to estimate drug sales also have limitations. Quantifying the number of clients buying TB drugs in the last month, through interviews with pharmacists, is prone to recall bias if no records are kept, as is usually the case. In Vietnam,[7] interviewees estimated that 1.3 (95% confidence interval 0.6–1.9) persons on average had bought anti-tuberculosis drugs in the last 4 weeks—a small figure to remember precisely out of all clients of the month. We found no published study where the quantity of drugs sold was measured directly, and we approached drug companies in Cochabamba to obtain sales data, without success.

CONCLUSIONS

A survey of the availability of TB drugs and advice of staff in private pharmacies in Bolivia has raised methodological issues. Our survey data, admittedly imperfect, but complemented by qualitative information, seem to indicate a relatively small and not very profitable market for anti-tuberculosis drugs sales in private pharmacies, and therefore suggest a limited contribution of the private sector in managing TB in Bolivia. Some background information supports this hypothesis, such as the absence of a private market for FDCs and PZA, the relatively high official case notification rate, and the low prevalence of previous TB drug intake among smear-positive TB patients enrolled in the NTP. Our survey has also provided the opportunity to start collaboration between the NTP and the pharmacists, and the basis for an intervention that is being evaluated.

Beyond our survey's results, it is of note that two high TB incidence countries in Latin America—Peru and Bolivia—report high case detection (and cure) of smear-positive TB through a TB control programme in which their large private for-profit health sector plays only a marginal role. An in-depth analysis of the reasons (NTP factors vs. other factors) why this seems possible in Peru and Bolivia, but not in high-incidence countries in Asia, was beyond the scope of our study. Such an analysis could usefully contribute to a better understanding of the complicated interactions between tuberculosis control and the private health sector.

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RÉSUMÉ

CONTEXTE : La Bolivie est un pays à forte incidence de tuberculose comportant un important secteur de santé privé à but lucratif. La vente de médicaments antituberculeux dans les pharmacies privées n'est pas illégale.
OBJECTIFS : Mesurer la disponibilité des médicaments TB dans les pharmacies privées, étudier l'attitude des vendeurs et explorer la potentialité d'une collaboration entre le secteur de santé publique et les pharmacies.
MÉTHODES : Des pseudo-clients se sont rendus dans un échantillon aléatoire de 100 pharmacies dans la ville de Cochabamba en présentant une prescription pour quatre médicaments TB. Après l'enquête, on a pris contact avec l'association locale des pharmaciens.
RÉSULTATS : Vingt-cinq pharmacies vendaient au moins un médicament, 23 vendaient la rifampicine, et 16 l'isoniazide. Des 99 pharmacies incapables de fournir la prescription complète, 59 ont référé vers une autre pharmacie et 22 vers le service public. Les pharmaciens ont dit que la rifampicine était fréquemment prescrite pour des indications non-TB et que les ventes de médicaments TB ne contribuaient que de façon infime à leurs revenus. Ils étaient d'accord pour cesser la vente de ces médicaments et référer vers le secteur public les clients qui les cherchaient.
CONCLUSION : Cette étude a mis en évidence un petit marché de vente de médicaments TB dans les pharmacies privées et a fourni l'opportunité de mettre en route une collaboration avec les pharmaciens. Nos résultats suggèrent que la contribution du secteur privé dans la prise en charge de la tuberculose est limitée en Bolivie.

RESUMEN

MARCO DE REFERENCIA : Bolivia es un país con alta incidencia de TB y comporta un amplio sector privado de salud, con ánimo de lucro. La venta de medicamentos antituberculosos en las farmacias privadas no es ilegal.
OBJETIVOS : Medir la disponibilidad de los medicamentos antituberculosos en las farmacias privadas, estudiar la actitud de los vendedores y explorar la posibilidad de colaboración entre el sector público de salud y las farmacias.
MÉTODOS : Clientes simulados acudieron a las farmacias que constituyeron una muestra aleatoria de 100 farmacias en la ciudad de Cochabamba y presentaron una receta para cuatro medicamentos antituberculosos. Después de la encuesta, se establecieron contactos con la asociación local de farmacéuticos.
RESULTADOS : Veinticinco farmacias vendían por lo menos un medicamento, 23 vendían rifampicina y 16 vendían isoniacida. De las 99 farmacias sin capacidad para despachar la fórmula completa, 59 remitieron el paciente a otra farmacia y 22 a los servicios públicos. Los farmacéuticos dijeron que la rifampicina se recetaba con frecuencia para indicaciones diferentes a la TB y que la venta de medicamentos antituberculosos sólo contribuía en forma mínima a sus ingresos. Estuvieron de acuerdo en interrumpir la venta de estos medicamentos y remitir los clientes que los solicitaban al sector público.
CONCLUSIÓN : Este estudio reveló un pequeño mercado de venta de medicamentos antituberculosos en las farmacias privadas y ofreció la oportunidad para comenzar una colaboración con los farmacéuticos. Nuestros resultados permiten suponer que la contribución del sector privado al manejo de la TB en Bolivia es reducida.