

## Knowledge, attitudes and practices of private sector providers of tuberculosis care: a scoping review

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### SUMMARY

**SETTING:** The past decade has seen a significant increase in private sector provision of tuberculosis (TB) care. While patients often seek and select treatment from private providers at significant out-of-pocket expense, treatment outcomes remain largely unknown.

**OBJECTIVE:** To investigate the knowledge, attitudes and practices of private sector TB care providers in high-burden countries.

**METHODS:** Medline, PubMed, Embase, International Pharmaceutical Abstracts and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases were searched using Medical Subject Headings terms, Emtree terms and key words. Searches were limited to the English language and published between 1998 and week 2 of November 2009. Studies were included if they reported the knowledge, attitudes or practice behaviours of private health care providers working in one of 22 high-TB-burden countries. Each included study was critically assessed using a structured data extraction tool. Data extracted included the study setting, ob-

jective, design, sample, response rate, outcomes and limitations.

**RESULTS:** The 34 studies that met review inclusion criteria encompassed diverse study methods and designs. All categories of TB care providers lacked comprehensive knowledge of national treatment guidelines. Procedures for referral, treatment monitoring, record keeping and case holding were not systematically implemented. However, there was a high degree of willingness to collaborate with national TB programmes.

**CONCLUSION:** Research using standardised data collection methods may assist in identifying gaps in knowledge and practice among all providers of TB care. Further studies in developing and evaluating needs-based interventions should be undertaken; systematic reviews of such studies may then assist in strategic decision making in public-private mix DOTS expansion.

**KEY WORDS:** tuberculosis; private sector; knowledge, attitudes and practices; health services; developing countries

TWENTY-TWO COUNTRIES carry 80% of the global incident cases of tuberculosis (TB).<sup>1</sup> These countries were designated high-burden countries (HBCs) by the World Health Organization (WHO) in 1998, and they have received accelerated assistance to increase case detection rates and improve treatment outcomes. All of the HBCs had adopted WHO's DOTS strategy by 2000. By 2007, national tuberculosis programmes (NTPs) in all HBCs had achieved 100% DOTS coverage nationwide, providing access to standardised TB care through public sector health facilities.<sup>1</sup> However, less attention has been devoted to private sector TB care in HBCs.

The growth of private sector health care in many HBCs has seen the proliferation of TB services outside the control of NTPs. Between 60% and 80% of TB patients choose to seek and obtain treatment from private providers at significant out-of-pocket expense and with unknown treatment outcomes.<sup>2,3</sup> The Stop

TB Partnership Strategy 2006–2015 aims to engage directly with private sector providers to ensure patients have access to high-quality DOTS services from all TB care providers.<sup>4</sup> Collaborative public-private sector interventions to implement the DOTS strategy, known as PPM (public-private mix) DOTS, and dissemination of the evidence-based International Standards of Tuberculosis Care are being used to link private providers to NTPs.<sup>5</sup> These strategies are being scaled up in most HBCs; however, progress is slow, with limited and varying success.<sup>1,6</sup>

The objective of this review was to investigate the knowledge, attitudes and practices of private sector care providers in relation to the diagnosis, treatment and management of TB in HBCs from 1998 to 2009. This information is important in assessing the capacity of private sector providers to make significant contributions towards improved outcomes from PPM DOTS on a comprehensive scale.

## METHODS

The review was undertaken using a methodological approach outlined by Arksey and O'Malley in developing a framework for scoping studies.<sup>7</sup> A scoping review of the literature was chosen to accommodate the diversity of included studies, both geographical and methodological, the complex nature of the review topic, the lack of standardised knowledge, attitudes and practices (KAP) surveys in the literature and to expand on the major themes associated with the topic.

### Data sources and search strategy

A systematic search strategy was designed in which Medline, PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and International Pharmaceutical Abstracts databases were searched for the period 1998 to week 2 November 2009. This period was chosen to retrieve research published after the formation of the Stop TB Partnership in 1998 and the commencement of coordinated global efforts to involve the private sector in TB control. The search was performed across titles and abstracts using index terms of each database. This included Medical Subject Heading (MeSH) terms in Medline, Emtree terms in Embase and key words commonly used in TB programmes implementing public/private collaborations. In Medline, the search strategy was 'knowledge, attitudes, practice' OR 'attitude of health personnel' OR 'private sector' OR 'private practice' OR 'medicines, traditional' OR 'public private mix' AND 'tuberculosis'. All searches were limited to the English language. To allow identification of studies relating to all forms of TB and its diagnosis, treatment or control, the term 'tuberculosis' was not limited in any further way. Reference lists of retrieved articles were screened for any additional articles that were not identified in the database searches.

### Inclusion and exclusion criteria

Inclusion criteria were that research was conducted 1) in one of the 22 HBCs;<sup>8</sup> 2) among private health care providers working individually, within a non-government organisation (NGO), or a model of care involving a public-private partnership; and 3) with outcomes assessing knowledge, attitudes or self-reported practice behaviours of the above participants, either as the major study objective or as a component of a larger study. Studies were excluded if they did not meet the above criteria or if research methods did not include a direct survey or interview of providers. For the purposes of this review, the word 'provider' included all categories of TB care provider, both qualified and non-qualified, but not including qualified allopathic practitioners. The word 'practitioner' included those providers who practised allopathic medicine with either graduate or post-graduate qualifications.

After duplicate studies had been removed from identified papers, further studies were removed if the titles indicated that research had not been undertaken in an HBC. Abstracts from the remaining studies were screened by the primary author (CAB). Studies were further excluded where the role of study participants did not include decision making responsibility for diagnosis or treatment or public health aspects of TB control, such as case detection, referral and case holding. Full texts were read by authors CAB and BS. The selection process used to identify included studies is summarised in the flow diagram of the study selection process (see Figure).

### Data extraction

A data extraction form was completed for every paper. The following variables were recorded: study setting, including time and place; study participants; sampling procedure; response rate; participant age, sex and qualification or occupation; study aim; data collection methods; outcomes measured; and study findings. Limitations acknowledged by study authors, the journal and date of publication, research funding and possible sources of bias were also recorded on the extraction form.

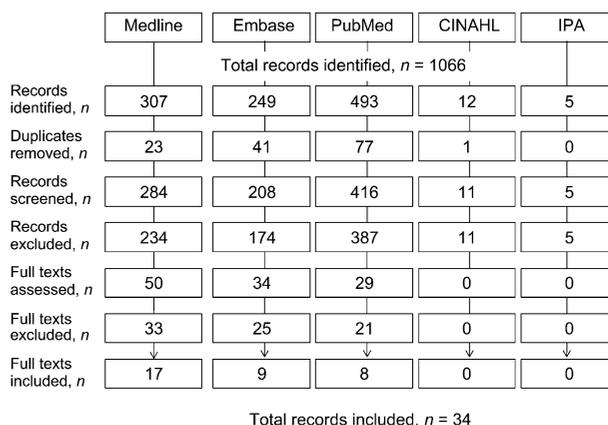
### Data synthesis

Findings across all studies were synthesised using the themes knowledge, attitudes and practices. Thematic analysis of the findings provided a consistent framework given the methodological diversity of the included studies.

## RESULTS

### Characteristics of included studies

The literature search retrieved 924 unique abstracts, 811 of which were excluded after reading the title and abstract (Figure). The full-text versions of 113 articles were read and assessed for eligibility. A total of



**Figure** Flow diagram of study selection process. CINAHL = Cumulative Index to Nursing and Allied Health Literature; IPA = International Pharmaceutical Abstracts.

**Table 1** Design, number, proportion and location of included studies

Study design	<i>n</i>	%	Study location
Cross-sectional	22	64.7	Ethiopia, India, Indonesia, Kenya, Pakistan, Philippines, South Africa, Uganda, Viet Nam
Participant surveys	8	23.5	India, Pakistan, Viet Nam
In-depth interviews	4	11.8	India, Indonesia, South Africa, Tanzania
All studies	34	100	Ethiopia, India, Indonesia, Kenya, Pakistan, Philippines, South Africa, Tanzania, Uganda, Viet Nam

34 articles were deemed to meet the review inclusion criteria. Research reported in the studies was undertaken from 1995 to 2009 inclusive, and studies were published from January 1998 to October 2009 inclusive. Research funding sources were reported by 23 studies and included an academic institution and organisations engaged in the areas of international health, communicable diseases, TB, health systems and human rights.

An analysis of the number, proportion and research location of included studies showed that studies were undertaken in 10 of the 22 HBCs: India, Pakistan, Viet Nam, Indonesia, Kenya, The Philippines, South Africa, Ethiopia, Tanzania and Uganda (Table 1). Categories of care providers (study participants) are shown in Table 2. Provider workplaces (study settings) are summarised in Table 3.

Key variables from data extraction forms and main study findings are summarised in three separate tables: Table 4, included studies: methods and findings of cross-sectional surveys; Table 5, included studies: methods and findings of intervention studies; Table 6, included studies: methods and findings of qualitative studies.

Pulmonary tuberculosis (PTB) was the focus of all studies. Two studies included additional data on provider knowledge relating to multidrug-resistant TB (MDR-TB), and four studies included data on TB-HIV

**Table 2** Study participants

	Provider categories
Single provider studies ( <i>n</i> = 27)	Allopathic physicians (general and specialist) with/without qualifications Allopathic physicians practising in both private and public sectors Non-allopathic providers (ayurvedic/homeopathic), with/without qualifications Traditional healers (varying specialties) with/without qualifications Community pharmacists with qualifications, pharmacy owners, pharmacy assistants
Multiple provider studies ( <i>n</i> = 7)	Allopathic and non-allopathic physicians, practitioners, medical assistants, nurses, midwives, programme managers, with/without qualifications

**Table 3** Study settings

Provider category	Provider workplace
Allopathic practitioner	Single practitioner clinics with/without diagnostic facilities Small group practice clinics with/without diagnostic facilities Large clinics (physicians and specialists) with/without diagnostic facilities University/medical college clinics Employer clinics Non-government and faith-based organisation clinics Small to large public and private hospitals with out-patient facilities Nursing homes Independent multipurpose laboratories/microscopy centres Community (retail) pharmacies
Non-allopathic practitioner	Not stated
Traditional healer	Single practitioner clinic/residence
Traditional birth attendant and midwife	Home-based care

(human immunodeficiency virus) co-infection. No study surveyed provider KAP relating to extensively drug-resistant TB (XDR-TB) or extra-pulmonary TB.

Studies provided a chronological account of public-private sector engagement in TB care during the period 1998–2009. Twenty-two papers were based on cross-sectional studies to assess private provider KAP relating to TB diagnosis, treatment and/or care (Table 4). Eight intervention studies surveyed providers before and/or following involvement in PPM projects (Table 5). Four qualitative papers researched practitioner experiences while providing TB care (Table 6). The 15 studies from India illustrated an evolving process of private sector collaboration over the period, commencing with early assessments of private provider capacity and proceeding to evaluations of private provider perceptions during PPM interventions. Recent studies from India investigated innovative approaches in intersectoral collaborations.

#### *Methodologies of included studies*

Twenty-two cross-sectional studies (Table 4) recruited participants using varying methods of random selection from telephone directories, professional association membership listings, registries of private medical and hospital facilities, district registries of physicians and community pharmacies and mapping studies or physical searching. Sample sizes ranged from 45 to 1355 participants. Based on included data, 14 of the 22 surveys had response rates of  $\geq 70\%$ . Seven studies reported pre-testing or piloting survey instruments. Seven studies used self-administered survey instruments and 12 studies used interviewer-administered questionnaires. Two studies employed telephone interviewers to administer mostly multiple choice and yes/no questionnaires to private practitioners over

**Table 4** Included studies: methods and findings of cross-sectional surveys

Source paper (n = 22)	Study participants, response rate, sampling	Data collection	Main findings
Ethiopia Shimeles, 2006 <sup>9</sup>	Random sampling private practitioners and specialists invited to attend PPM workshop. 50% (n = 120)	Participants completed self-administered questionnaires at PPM workshop or in clinics	Knowledge: 90% aware of NTGs but not details, 9.7% of physicians knew all regimens, remainder knew 68 non-NTP regimens, 70% got TB information from textbooks Practices: all physicians referred patients for treatment
India Singla, 1998 <sup>10</sup>	Practitioners invited through newspaper and journal advertisements to attend Medical Association seminars on TB, 98% (n = 200)	Participants completed pre-tested questionnaire prior to workshop	Knowledge: TB information from journals and medical representatives Practices: diagnosis 89.5% CXR, 12% SM with/without other tests. 76.5% treated patients, 17% referred to NTP, 93.5% used 102 combinations of first-line drugs. 29.5% used NTP-recommended SCC but 53.1% prescribed longer durations. No physician provided DOT, kept records or retrieved defaulters; 18% recommended CXR for contacts
Rajeswari, 2002 <sup>11</sup>	Randomly selected pharmacy owners in DOTS and non-DOTS areas, 100% (n = 300)	Participants interviewed using semi-structured questionnaire	Knowledge: 15% aware of NTP, 5% aware of DOTS, 87% knew correct treatment duration Attitudes: 95% willing to collaborate with NTP in referral and raising consumer TB and DOTS awareness Practices: 90% of prescriptions included 3 anti-tuberculosis drugs >1 month supply, 40% of patients purchased monthly, up to 60% daily
Anandhi, 2002 <sup>12</sup>	Indigenous ayurvedic providers with/without qualifications identified from survey, 91% (n = 74)	Participants interviewed using semi-structured questionnaire	Knowledge: 40.5% and 36.5% believed alcohol and smoking caused TB. None knew treatment regimens Practices: 61% diagnosed on history alone, 32% CXR alone, 38% various tests, 23% SM alone, 33.8% treated patients (64% with ayurvedic medicines), remainder referred, 16.7% attempted patient follow-up
Vyas, 2003 <sup>13</sup>	Practitioners randomly selected from telephone listing of all physicians Public practitioners, 70% (n = 85) Private practitioners, 79% (n = 81)	All participants completed structured yes/no questionnaire following visit from researchers at their places of work	Attitudes: significant differences between sectors around belief in evidence-based standards and stigmatising impact of public sector DOTS services, efficacy of second-line drugs, perceived practices of each sector, philosophical conflict (individual vs. society), disparate views on reform implementation
Banerjee, 2004 <sup>14</sup>	Various categories of traditional healers identified by snowball technique, 15% (n = 120)	Participants undertook in-depth interviews in their homes	Knowledge: 90% knew symptom of prolonged cough but also cited magico-religious causes, 31% knew transmission mode, 90% believed TB curable Practices: 53% referred patient to public sector or private allopathic provider if unable to treat. Herbal decoctions administered on auspicious days 1 to 16 weeks Attitudes: willing to collaborate with RNITCP in referral and DOT given their accessibility and patient rapport, but concern over loss of reputation due to wrong diagnosis or treatment failure
Roy, 2005 <sup>15</sup>	Practitioners from selected study area invited to complete survey on diseases controlled by NTPs, 68% (n = 55)	Participants completed self-administered open-ended questionnaire. Researchers reviewed prescribed treatment through pharmacy records	Knowledge: 17.6% knew criteria for diagnosing TB, 41.1% knew symptoms, 43% believed SM crucial Practices: 88% used CXR for diagnosis and follow-up, 29.6% compliant with RNITCP treatment guidelines. No physicians provided DOT
Greaves, 2007 <sup>16</sup>	Randomly selected urban practitioners, convenience-selected rural practitioners trained through RNITCP outreach programme (n = 45)	Participants undertook verbally administered survey using structured interview schedule at their places of employment	Knowledge: 84.4% aware of DOTS Practices: 80% used SM plus other tests, 14% used SM alone; 43% treated patients according to DOTS, 44.4% kept patient records, 35.5% referred all patients to RNITCP, 33.3% referred some, 31% referred none. No significant differences between urban/rural physicians in diagnosis and treatment
De Costa, 2008 <sup>6</sup>	Randomly selected allopathic/non-allopathic urban/rural providers (n = 145)	Participants completed questionnaire in Hindi administered by trained survey assistant	Knowledge: 91.3–100% of providers aware of RNITCP Practices: hypothetically, 97–98.5% of urban providers would use SM and CXR to diagnose compared to 12.1–10% of rural providers. Almost 100% of rural providers would refer, 35.3% of urban providers would treat presumptively and refer if no response. All providers would refer to RNITCP Attitudes: for altruistic reasons all providers willing to collaborate by referring patients for diagnosis but not for treatment. Urban practitioners unwilling to trace defaulters or keep records

Vandan, 2009 <sup>17</sup>	Public sector practitioners from TB office listing and private sector practitioners selected from Chest Physicians Association using census-type sampling, 83% ( <i>n</i> = 141)	Participants completed self-administered pre-tested questionnaire designed with RNTCP and expert input	Knowledge: 49% of public physicians and 53% of private physicians knew TB symptoms. 30% of public and 22% of private knew RNTCP diagnosis guidelines. 92% of public and 74% of private physicians knew 6 months RNTCP treatment duration and 78.5% of public and 53.2% of private knew RNTCP anti-tuberculosis drugs. Public sector physicians had 2.1 times better overall knowledge than private-physicians and DOTS physicians were more likely to have better knowledge than non-DOTS physicians
Indonesia Mahendradhata, 2007 <sup>18</sup>	Stratified random sample of practitioners, nurses and midwives identified from provincial register, 94% ( <i>n</i> = 164)	Participants administered pre-tested yes/no and open-ended questionnaire, in Indonesian language, by trained telephone surveyors	Knowledge: 23.3% had satisfactory knowledge of DOTS, physicians significantly more than non-physicians Practices: 45.2% of providers always referred to NTP for diagnosis, remainder used non-NTP-recommended diagnostic tests, 63.6% referred diagnosed patients to NTP for treatment. Most physicians who treated did not comply with NTGs
Kenya Ayaya, 2003 <sup>19</sup>	Practitioners identified by purposive sampling of town's physicians, 75% ( <i>n</i> = 53)	Participants undertook face-to-face interviews at place of work using statements with Likert scale response administered by researchers and completed standard questionnaire	Knowledge: no practitioner had comprehensive knowledge of diagnosis, treatment, recording or follow-up guidelines Practices: 38% used CXR for diagnosis, 19% SM, 23.9% used NTP-recommended treatment regimens, remainder non-recommended regimens, similar regimens used for HIV and non-HIV patients Attitudes: practitioners believed DOTS implementation should not be left solely to the NTP Knowledge: 38.7% knew anti-tuberculosis drugs of whom 58.5% would use NTP-recommended regimens Practices: 77.1% would not use SM to confirm CXR finding or TB symptoms. All providers referred TB suspects to NTP for diagnosis
Chakaya, 2005 <sup>20</sup>	Paramedics identified by mapping study of slum area ( <i>n</i> = 75)	Participants undertook interviewer-administered structured questionnaire	Knowledge: 55% knew respiratory symptoms, 7.3% knew correct medication dosage Attitudes: 23% considered TB not serious, 19% adequate knowledge of NTP, 98.6% want more TB knowledge Practices: majority prescribed non-NTP-recommended treatment regimens, 33% used CXR to monitor periodically, 24% used CXR+SM Knowledge: almost 100% unaware of NTGs, knowledge of symptoms very low Attitudes: almost 100% want more TB knowledge Practices: 80% diagnosed clinically, 83% treated using non-NTP-recommended regimens, none provided DOT, 76% clinically assessed ongoing treatment
Pakistan Rizvi, 2001 <sup>21</sup>	Practitioners randomly selected from five urban study areas ( <i>n</i> = 150)	Participants completed a multiple-choice questionnaire	Practices: 3.7% of prescriptions met NTP guidelines. 83% used FDCs although dose timing and duration incorrect, 17% used individual preparations but none prescribed correctly, 70% of prescriptions contained non-required medicines
Shah, 2003 <sup>22</sup>	Randomly selected practitioners from two urban study areas, 28% ( <i>n</i> = 245)	Participants completed a standardised questionnaire of dichotomous and rating scale questions	Knowledge: 24.2% comprehensive knowledge of NTGs Attitudes: 83.3% willing to collaborate with NTP, 38.4% with financial incentive, 51.5% disagreed with NTGs, 43.7% perceived patients preferred kind flexible treatment offered Practices: 87.9% CXR for diagnosis, 89.3% non-NTP-recommended regimens of anti-tuberculosis medicines. General practitioners more likely to prescribe monotherapies than specialists, 97.7% did not monitor or trace defaulters
Hussain, 2005 <sup>23</sup>	Randomly selected practitioners from seven study areas ( <i>n</i> = 53)	Participants were visited by a simulated TB patient and prescriptions collected	Knowledge: 62% low awareness of transmission, 60% knew correct anti-tuberculosis drugs but would prescribe inappropriately, none knew MDR-TB regimen Attitudes: perceived patients non-adherent due to cost of drugs, adverse reactions, feeling better, laziness Practices: almost 100% diagnosed on clinical assessment plus CXR, almost 100% CXR to confirm treatment success, none reported follow-up or defaulter tracing, 60% did not disclose diagnosis to patient
The Philippines Portero, 2003 <sup>24</sup>	Purposive stratified sampling and random selection of practitioners nationwide, 58% ( <i>n</i> = 1355)	Participants responded to diagnosis quiz and multiple choice and open-ended pre-tested expert designed questionnaire administered by independent telephone surveyors in English or Tagalog	
Auer, 2006 <sup>25</sup>	Practitioners identified by physical search and clinic referral, 100% ( <i>n</i> = 45)	Participants interviewed in clinics using pre-tested expert-designed questionnaire	

(continued)

Table 4 (Continued)

Source paper (n = 22)	Study participants, response rate, sampling	Data collection	Main findings
South Africa Peltzer, 2006 <sup>26</sup>	Purposive sampling identified traditional healers in three communities, 99% (n = 233)	Participants interviewed in Zulu using semi-structured questionnaire administered by researchers/trained surveyor	Knowledge: 95% of healers knew TB curable, 93% knew treatment duration, 81% knew mode of transmission but also held traditional beliefs
Uganda Nshuti, 2001 <sup>27</sup>	Practitioners and medical assistants at all public sector clinics and randomly selected private clinics in urban study area (n = 114)	Participants interviewed in clinics using standardised structured questionnaire administered by trained surveyors	Knowledge: almost all private providers knew NTP, 50% knew of NTGs, 10% of public and 55% of private providers knew TB-HIV treatment Practices: 80% of public used SM for diagnosis, 69% of private used SM+CXR, 24% of all clinics complied with WHO-recommended treatment guidelines, 70% of public and 63.5% of private provided DOT. All clinics referred to NTP during drug shortages, suspected drug reaction and patient request
Viet Nam Lönnroth, 2000 <sup>28</sup>	Pharmacists/assistants randomly selected from all registered pharmacies in urban area, 98% (n = 147)	Participants interviewed by trained surveyor using structured piloted questionnaire and TB case study	Knowledge: 18% identified TB symptoms, 37% knew SM preferred diagnostic test, pharmacists who never dispensed without prescription had better knowledge of treatment regimens than 24% of pharmacists who often dispensed without a prescription. 98% knew of NTP Practices: No pharmacist recommended starting treatment without medical consultation, 60% of pharmacies stocked anti-tuberculosis drugs, 30% referred to TB hospital, 12.2% to private practitioner
Lönnroth, 2003 <sup>29</sup>	All pharmacy owners in PPM intervention invited to complete survey, 77% (n = 116)	Participants completed pilot-tested multiple-choice questionnaire based on earlier explorative qualitative study	Attitudes: pharmacists perceived professional/financial/patient risks when referring patients to NTP; however, 74% of pharmacists willing to do so to contribute to public health, 2% believed financial incentive necessary, 18% believed managing DOT would be difficult, 92% willing to provide TB information to patients

PPM = public-private mix; NTGs = national treatment guidelines; NTP = national TB programme; TB = tuberculosis; CXR = chest X-ray; SM = sputum microscopy; SCC = short-course chemotherapy; DOT = directly observed treatment; RNTCP = Revised National Tuberculosis Control Programme (India); HIV = human immunodeficiency virus; FDC = fixed-dose combination; MDR-TB = multidrug-resistant TB; WHO = World Health Organization.

large study areas. One study used a simulated TB patient to collect prescription data. Practices reported in included studies were based on provider self-report, and may not be reflective of actual practices. Several studies acknowledged possible bias associated with provider self-report and attempted validation of study findings.

Eight intervention studies (Table 5) showed that survey participants were purposively selected, referred by key informants or involved in PPM projects. Together with convenience samples of workshop attendees and members of professional associations, participants completed pre- and/or post-intervention questionnaires. Sample sizes ranged from 18 to 511 participants. Two studies reported piloting or pre-testing questionnaires. Participants in four studies completed self-administered questionnaires, and four studies undertook interviewer-administered questionnaires. One study included a focus group discussion in addition to participant interviews. Few studies provided details on questionnaire content or design. Possible recall bias was addressed in one study.

Four qualitative studies (Table 6) encompassed diverse categories of purposively selected TB care providers. Sample sizes ranged from 16 to 28 participants. Three studies used interviewer administered, semi-structured questionnaires; in two studies, participants were identified by mapping the study areas and in the third study they were identified through their workplace setting. The fourth study comprised in-depth interviews with key informants from an NTP/NGO collaboration. Despite a possible lack of external validity in these studies, findings raised issues relevant to TB care that may contribute valuable insight into the inter-relationships between the themes of providers' KAP.

#### Main findings from included studies

The synthesis of study findings over time and across countries, contexts and cultures was impacted by the diversity of study methodologies. However, a thematic analysis of the data identified key issues reported below.

#### Provider knowledge: awareness, access, application and associated variables

Studies assessed providers' knowledge and awareness of the diagnosis and treatment of TB as recommended by NTPs in national treatment guidelines (NTGs). Six cross-sectional, one intervention and three qualitative studies assessed knowledge and awareness of NTPs and NTGs. Not all providers were aware of the NTP in their country.<sup>11,21</sup> Providers in South Africa and Viet Nam had good knowledge of the provisions of NTGs, whereas providers in Tanzania did not.<sup>37,40,41</sup> Providers in Ethiopia, Uganda, Pakistan, Indonesia and the Philippines had low awareness of both the existence and provisions of NTGs.<sup>9,22,24,27</sup>

**Table 5** Included studies: methods and findings of pre- and/or post-intervention surveys

Source paper ( <i>n</i> = 8)	Study participants, response rate, sampling	Data collection	Main findings
India Uplekar, 1998 <sup>30</sup>	All listed allopathic and non-allopathic practitioners and providers in study areas invited to participate in prospective study of TB management practices, 41% ( <i>n</i> = 122)	Practitioners interviewed at end of 12-month period during which TB patients were interviewed every 2 months	Practices: 15% considered SM unnecessary, 77% advised both CXR+SM, 60% sought specialist advice to confirm diagnosis, 86% prescribed 79 non-NTP regimen first-line drugs. No physician provided DOT, 42% attempted defaulter tracing. No significant differences between allopathic and non-allopathic providers
Arora, 2003 <sup>31</sup>	Purposively selected practitioners in PPM project to assess TB control practices ( <i>n</i> = 18)	Practitioners completed interviewer-administered, pilot-tested questionnaire in their clinics	Practices: physicians complied with PPM guidelines relating to diagnosis, treatment and monitoring validated by patient survey. Contributed to case detection; case-holding procedures implemented where possible Attitudes: physicians reported neither financial loss nor benefit to their practices, willing to contribute to TB control through PPM collaboration
Rangan, 2004 <sup>32</sup>	Practitioners in NGO-facilitated PPM project to assess TB control practices, 69% ( <i>n</i> = 69)	Practitioners completed self-administered semi-structured questionnaires 6 months after NGO withdrew from project	Practices: 10% reduction in patient referrals to RNTCP, 22% reduction in physician-provided DOT, 9% reduction in physician contribution to case detection Attitudes: physicians believed RNTCP ignored early referrals and inappropriately treated their patients, resulting in providers' diminishing participation rates
Krishnan, 2006 <sup>33</sup>	Urban/rural allopathic/non-allopathic providers trained by RNTCP for PPM intervention, 87% ( <i>n</i> = 91)	Practitioners and providers interviewed after 12-month collaboration	Practices: 82% of providers referred TB suspects to RNTCP, 16% provided DOT. Physicians delivered 11.5% increased case finding and 73% cure rate, 11.5% default rate of patients treated Attitudes: physicians perceived stakeholder difficulties due to traditional healer and non-allopathic provider involvement. Physicians willing to continue referral to RNTCP, not willing to provide DOT for low financial incentive
Krishnan, 2009 <sup>34</sup>	Practitioners selected probability-to-proportionate sampling, 59% ( <i>n</i> = 511), baseline ( <i>n</i> = 200), 12 month ( <i>n</i> = 311)	Practitioners interviewed by researchers using pre-tested semi-structured questionnaire prior to intervention. After 12 months, independent researchers used the baseline questionnaire plus open-ended questions	Practices: pre-intervention 34% of practitioners adopted DOTs, post-intervention 72.4%, 47.9% did so exclusively. For diagnosis: 39.2% increase in SM + other tests, 40.2% increase in SM+CXR, 29.4% decrease in CXR alone, 32.6% increase in SM for treatment cure Attitudes: post-intervention practitioners perceived barriers to implementing DOTs were: difficulty of follow-up and treatment of side effects and EPTB, extra workload on single practice, storage problems and inconvenience of DOT for patients
Pakistan Khan, 2005 <sup>35</sup>	All practitioners in study area invited to attend pre-intervention workshop on referral completed questionnaire ( <i>n</i> = 120). Participants sent open-ended post-intervention questionnaire ( <i>n</i> = 103)	Participants at pre-intervention workshop completed self-administered questionnaires. Participants sent post-intervention questionnaires with open-ended question	Knowledge pre-intervention: 76% knew cough > 3 weeks major symptom, 66% knew SM preferred diagnostic test Practices pre-intervention: 50% treated referring remainder to NTP and private specialists, 83% used four first-line drugs, but 17% of intensive phase and 21% of continuation phase used non-NTP-recommended regimens, 42% used SM for monitoring treatment, 22.5% kept patient records Practices post-intervention: 34% referred when offered free SM Attitudes post-intervention: 50% believed free SM alone not enough, wanted free CXR and free blood tests. Few practitioners wanted financial incentive to refer. Few suggested frequent health education for practitioners
Viet Nam Quy, 2003 <sup>36</sup>	Stratified random sample of practitioners participating in PPM intervention, 98% ( <i>n</i> = 59)	Practitioners completed self-administered questionnaire (component of larger study)	Practices: 42% of practitioners always used SM for diagnosis, 46% sometimes, 42% referred to NTP laboratories, remainder to private laboratories
Quy, 2003 <sup>37</sup>	Practitioners in PPM intervention, 81% ( <i>n</i> = 187). Specialists in PPM intervention, 46% ( <i>n</i> = 41)	Practitioners interviewed using structured questionnaire. Specialists attended focus group discussions (Components of larger study)	Knowledge: 100% aware of NTGs, 2% knew standard treatment guidelines Attitudes: perceived patients non-adherent due to cost, perceived NTP regimens as not effective and would not comply with DOT. Specialists willing to collaborate without threat to private practice Practices: 1% complied with NTGs, remainder prescribed 36 non-NTP-recommended regimens. No DOT provided. Most used SM to monitor and CXR at end of treatment

TB = tuberculosis; SM = sputum microscopy; CXR = chest X-ray; NTP = national TB programme; DOT = directly observed treatment; PPM = public-private mix; NGO = non-governmental organisation; RNTCP = Revised National Tuberculosis Control Programme (India); EPTB = extra-pulmonary TB; NTG = national treatment guidelines.

**Table 6** Included studies: methods and findings from qualitative studies

Source paper (n = 4)	Study participants, sampling	Data collection	Main findings
India Fochsen, 2006 <sup>38</sup>	Purposively selected providers and practitioners with/without qualifications from urban/rural areas (n = 22)	Participants interviewed by researchers in Hindi, using pre-tested semi-structured questionnaire	Attitudes: both providers and practitioners perceived patients had pre-formed misconceptions and difficulties discussing medical information. Physicians believed patients should trust them and adhere to their medications unquestioningly. Provider and practitioner approaches changeable—influenced by patient expectations and gender-based perceptions
Indonesia Watkins, 2006 <sup>39</sup>	Purposively selected private practitioners (n = 22)	Participants interviewed in English or Bahasa Indonesian, using semi-structured questionnaire plus open-ended questions	Attitudes: practitioners perceived patients avoided NTP due to poor continuity of care, poorly trained DOTS staff, lack of patient information. Practitioners perceived patients to be non-adherent due to patient and therapy-related factors. Practitioners reported limitations of private sector services to be: difficulty in accessing NTGs; lack of confidence in diagnosing, financial incentives for prescribing non-standard medications
South Africa Sinanovic, 2006 <sup>40</sup>	Purposive sampling identified sites and qualified nurses, practitioners and treatment observers (n = 16)	Participants interviewed using semi-structured interview schedule (component of larger study)	Knowledge: very good knowledge of diagnosis and treatment guidelines at all sites, workplace best Practices: all sites maintained accessible and informative patient environment but workplace best. Treatment outcomes at all sites below target rate but workplace and community sites best
Tanzania Wardwalo, 2004 <sup>41</sup>	Key informant clinicians, nurses, HCWs and programme officers at NGO/NTP collaborative clinics (n = 28)	Participants took part in in-depth interviews conducted by independent interviewers	Knowledge: HCWs at TB-HIV collaborative partnership not familiar with NTGs on TB-HIV co-infection Attitudes: concern for patient convenience resulted in relocation of TB clinic within HIV facility, perception of stigma among HCWs as treatment barrier, stakeholder communication difficulties and unclear role allocations during collaboration. All believed collaboration offered comprehensive services within a network of facilities providing a continuum of care

NTP = national TB programme; NTG = national treatment guidelines; HCW = health care worker; NGO = non-governmental organisation; TB = tuberculosis; HIV = human immunodeficiency virus.

Providers' awareness of the DOTS strategy and/or knowledge of its five component elements varied. Pharmacists in India were not familiar with the DOTS strategy, while physicians in India had greater awareness.<sup>11,16</sup> Practitioners in Indonesia had heard of the DOTS programme but, together with practitioners in The Philippines, had limited knowledge of all component elements.<sup>18,24</sup>

Eight cross-sectional, one intervention and one qualitative study surveyed knowledge of the cause of TB, its symptoms and transmission. Providers in South Africa had adequate to very good knowledge.<sup>40</sup> Practitioners in Pakistan, India and Kenya and pharmacists in Viet Nam had low awareness of TB symptoms, and where providers knew cough was the major symptom, not all knew the duration that might arouse suspicion of TB.<sup>15,17,21,22,28,35</sup> Non-allopathic providers in India and traditional healers in India and South Africa had low to adequate knowledge of the cause and/or transmission of TB; however, traditional beliefs were also cited.<sup>12,14,26</sup>

Assessment of provider knowledge of diagnosis guidelines showed that providers in South Africa had adequate to very good knowledge of diagnosis guidelines,<sup>40</sup> while Indian and Kenyan studies showed that providers in both public and private sectors had limited knowledge of guidelines relating to diagnostic tests.<sup>15,17,20</sup> Providers in India and Kenya had low knowledge of the correct sputum collection technique.<sup>17,19</sup> Compared with early studies, there was evidence to suggest growing recognition of sputum microscopy as the standard test for PTB.<sup>15,17,22</sup>

Eleven cross-sectional, one intervention and one qualitative study assessed knowledge of NTP-recommended treatment guidelines. Providers in South Africa had adequate to very good comprehensive knowledge of the guidelines.<sup>40</sup> However, up to 60% of providers in Viet Nam, The Philippines and Ethiopia lacked comprehensive knowledge of the guidelines.<sup>9,24,25,37</sup> Providers in Kenya, Pakistan and the Philippines and pharmacists in Viet Nam knew the four to five WHO-recommended anti-tuberculosis drugs; however, few knew the NTP-recommended treatment regimens.<sup>19,20,22,23,25,28,35</sup> No indigenous or traditional healers in India or South Africa had knowledge of recommended treatment standards.<sup>12,26</sup>

Providers accessed TB information from one or more sources: medical textbooks, TB control manuals, journals, magazines, medical representatives, attendance at medical conferences and undergraduate lecture notes.<sup>9,10,21,27</sup>

Application of knowledge was assessed in intervention studies following provider involvement in PPM projects. Improved case detection rates and treatment outcomes were achieved in an Indian study following Revised National TB Control Programme provider training.<sup>31</sup> Two further studies in India had limited success in provider adherence to DOTS guidelines

following outreach training.<sup>16,34</sup> An intervention in Viet Nam resulted in no increased adherence to guidelines after NTP training.<sup>37</sup>

Knowledge-associated variables included age, sex, location, qualification, employment sector(s) and provision of DOTS services. Detailed knowledge of diagnosis/treatment guidelines was significantly associated with practitioners' level of qualification, public sector employment and provision of DOTS services.<sup>18,17,20,22</sup> Public sector practitioners in India had significantly better knowledge of the management of MDR-TB, TB-HIV and anti-tuberculosis medicines during pregnancy.<sup>17</sup> However, few public sector providers in Uganda knew the recommended treatment regimens for TB-HIV co-infection.<sup>27</sup> Age, sex, years of practice experience or level of qualification were not significantly associated with recognition of TB symptoms.<sup>22,28</sup>

*Provider attitudes towards patients, guidelines, the public sector and associated variables*

Practitioners' attitudes towards patients focused on patient health-seeking behaviour, disclosure of TB status, patient education, patient adherence and stigma, and were assessed in 10 cross-sectional, seven intervention and four qualitative studies. Practitioners perceived that patients avoided public sector facilities due to inconvenience, lack of confidentiality, long waiting times, inflexible treatment options, lack of continuity of care and mandatory compliance with administrative requirements.<sup>24,34,38,41</sup> Meeting patient expectations was seen as important in maintaining a professional reputation. Practitioners perceived that inflexible treatment options could result in patients seeking care from health care competitors.<sup>38</sup> Community pharmacists in Viet Nam feared that inaccurate diagnosis and inappropriate care of patients whom they referred to the NTP could lead to loss of reputation and loss of income.<sup>29</sup>

Provision of accurate patient information was associated with provision of DOTS services during PPM collaboration or within NGO or corporate clinics.<sup>31,40</sup> Community pharmacists in Viet Nam and solo practitioners in The Philippines believed that provision of printed patient information could facilitate patient counselling and adherence, and were willing to provide such services.<sup>25,29</sup>

Adherence was seen as a major problem in treating TB patients, and was assessed in four studies. Practitioners perceived that the responsibility for adherence lay with patients. Some practitioners had limited understanding of why patients became non-adherent; they assumed cost of treatment.<sup>37,38</sup> However, other practitioners believed relief from symptoms, duration of treatment, side effects, laziness and limited understanding of the importance of adherence may also be factors.

Providers cited stigma as a major barrier for pa-

tients accessing TB services. Low awareness of symptoms and/or fear of stigma-related discrimination were perceived as explanations for late presentation by patients and, as a consequence, for treatment complications.<sup>39,41</sup> Some practitioners believed accessing DOTS services could lead to patient discrimination in the community and at public health care facilities.<sup>13,34</sup> Not disclosing TB status to patients and using euphemistic phrases to describe their illness were perceived as means of protecting patients from stigma and discrimination.<sup>25</sup>

Studies also surveyed provider attitudes towards NTP guidelines and adoption of DOTS protocols within clinics, pharmacies and practices. Philosophical differences between public and private sector practitioners, centring primarily on issues of population health vs. individual patient care, were seen as the ideological basis of non-belief in the efficacy of NTGs.<sup>13,24,37</sup> Disagreement on specific issues relating to treatment of sputum smear-negative patients, intermittent and MDR-TB therapies, the efficacy of second-line drugs and non-availability of treatment options within the WHO-recommended regimens were all cited as points of difference leading to non-adherence to treatment guidelines.<sup>13,24,37</sup> Limited success following early PPM interventions were believed to be attributable to lack of communication and cooperation between the sectors.<sup>32,41</sup> Practitioners also cited the logistical issues of time and personnel required for record-keeping, case holding, directly observed treatment (DOT) and storage of medications as perceived constraints to the adoption of DOTS services.<sup>34</sup> While acknowledging the extra administrative work-load involved, community pharmacies in India and, to a lesser extent, in Viet Nam were willing to provide DOT.<sup>11,29</sup>

Paradoxically, private providers were willing to collaborate with NTPs despite a lack of faith in the quality of care provided at public sector clinics and a lack of belief in the efficacy of NTGs.<sup>6,14,19,24,39</sup> Some providers were specific in the collaborative roles they would undertake with the NTP. Referral, diagnostic and treatment roles were preferred over the tasks of record keeping, case holding and contact tracing.<sup>6,11,29,33</sup> Provider perceptions of the role of motivational and financial incentives to support collaboration were varied. While financial gain was considered essential by some practitioners and providers, it was not considered necessary by others.<sup>24</sup> Community pharmacists were willing to collaborate without financial incentive, believing it was their public health duty to contribute to TB control.<sup>29</sup> Similarly, urban and rural practitioners in India were willing to participate for altruistic reasons.<sup>6</sup> Access to training and education were considered valuable incentives, and collaboration with a public health programme was perceived to add significantly to professional status and reputation.<sup>14,20,26</sup> Lung specialists

and traditional healers were willing to collaborate with the NTP to the extent that their private practices were not threatened by doing so.<sup>14,37</sup>

Attitude-associated variables included age, sex, qualification and employment sector. None of these variables was significantly associated with willingness to collaborate or the desire for financial and/or training incentives.<sup>24</sup>

#### *Provider practices: patient care and public health*

Seventeen cross-sectional, four intervention and one qualitative study assessed practices relating to referral for diagnosis and/or treatment. Referral practices by providers in all categories were non-routine and appeared context-specific. Providers cited lack of confidence in public sector laboratories and perceptions of the patient's financial capacity as reasons for treating patients presumptively.<sup>6,13,16</sup> Referral to either private or public sector diagnostic/treatment facilities followed if treatment failed to resolve symptoms or when MDR-TB was suspected.<sup>10,27</sup> These practices were reported among physicians, specialists, rural practitioners and traditional healers. Some physicians preferred to treat patients themselves following diagnosis elsewhere, with assistance from specialists or consultants if required or referral of complicated cases to hospitals or nursing homes.<sup>25</sup> Nurses, midwives and non-qualified medical assistants referred all symptomatic patients to NTP clinics for both diagnosis and treatment.<sup>20</sup> Practitioners in Ethiopia reported referring all diagnosed cases to the NTP for treatment, as required by law, although high case loads indicated that many TB patients were treated within the private sector.<sup>9</sup> Variables associated with referral included location and qualification. Qualified urban practitioners referred patients for treatment more often than unqualified rural practitioners.<sup>33</sup>

Thirteen cross-sectional, four intervention and one qualitative study assessed practices relating to diagnosis. Diagnosis based on patient-reported symptoms, history alone and clinical assessment was reported by both qualified and unqualified providers, and included traditional healers, general physicians and lung specialists.<sup>12,14,24,35,39</sup> Practitioners from early studies reported use of multiple tests plus chest X-ray (CXR) and/or sputum microscopy and diagnosis based on CXR alone. Later studies reported increased use of sputum microscopy alone; however, increased sputum microscopy plus CXR was also reported.<sup>10,15,24,30,36</sup> There was no significant association between diagnostic practice and qualification, location or practitioner's medical specialty. However, increased diagnosis of TB was associated with a practitioner's concurrent employment in public and private sectors.<sup>24</sup>

Twelve cross-sectional, seven intervention and one qualitative study surveyed practices relating to treatment and treatment monitoring. Adherence by

all providers to NTGs was reported in one study following involvement in a PPM intervention,<sup>31</sup> while 50% adherence was achieved in two studies following workshop training.<sup>34,35</sup> Prescriber practices in the remaining studies did not comply with NTGs or WHO-recommended standard treatment guidelines. Inappropriate prescribing of first-line NTP-recommended anti-tuberculosis drugs was commonplace. Two studies reported up to 102 different regimens.<sup>10,37</sup> Practitioners participating in one PPM intervention provided DOT to all patients, verified by patient reports.<sup>31</sup> Similarly, practitioners at NGO/employer clinics observed treatment for all patients and used sputum microscopy to monitor progress at the end of the initial phase of treatment.<sup>40</sup> Practitioners involved in other PPM interventions reported limited provision of DOT, with varying use of CXR, sputum microscopy or other tests, or combinations of tests, to monitor progress at various stages of treatment. When confirmation of treatment cure was sought, the use of CXR was more common than sputum microscopy. Solo practitioners, including specialists, rarely provided DOT.<sup>10,18,27,30,37</sup> Some practitioners believed sputum microscopy was an important tool in monitoring treatment progress but did not employ it.<sup>25,35</sup>

Practice-associated variables included age, employment sector(s) and qualification. Practitioners aged <35 years were more likely to prescribe appropriately and provide more appropriate care (defined as the use of sputum microscopy and short-course chemotherapy, with or without DOT).<sup>25,27</sup> A Philippines study found that general physicians were three times more likely to prescribe monotherapy than medical specialists.<sup>24</sup> An Indian study found no significant association between treatment practices and training or medical specialty.<sup>16</sup>

Ten cross-sectional and five intervention studies measured provider practices relating to record keeping and case holding. Record keeping by most providers, including during PPM interventions, was limited, and as a consequence, implementation of routine case holding procedures was rare.<sup>12,16,27,30,31,35</sup>

## DISCUSSION

By focusing on the KAP of private sector providers, this review has assessed the available literature to provide insight into the capacity of the private sector to engage systematically with NTPs. The diversity of settings in the studies reflected the complex and largely unregulated environments of many HBCs. The diversity of interventions implemented reflected the ongoing search for context-specific strategies for engaging with private sector providers.

Review studies showed that comprehensive knowledge and implementation of NTGs was confined to providers working in collaboration with public sector

and NGO clinics. Other studies confirm that linking trained private providers to NTPs through context-specific collaborative models can be effective in delivering standard quality care, particularly in case detection, referral and treatment monitoring.<sup>29,36,42,43</sup> Review studies showed that private providers were willing to acquire training and education; however, the diversity of practice settings highlighted the need for targeted strategies. Improved collaboration between NTPs and professional associations has been seen as an essential strategy in disseminating knowledge.<sup>44</sup> A study from Mumbai, India, showed that training community pharmacists through collaborative NTP/professional association workshops can provide convenient access to TB education for primary health care providers.<sup>45</sup>

Overcoming long-held perceptions and improving communication between public and private sectors will be crucial in expanding access to quality care. Many studies concluded that NTPs must take the initiative in opening discussion pathways with all providers and that adequate resources be applied to this task. Dissemination of treatment guidelines to all health care providers may help initiate this process. Intersectoral collaboration has been trialled in many HBCs between 1998 and 2009 through PPM-DOTS and community-based DOTS interventions. However, progress has been slow, with variable success.<sup>1,6,35</sup>

Provider attitudes that emerged strongly from the included studies were professional reputation and the perceived need to meet patient expectations. Studies showed that these attitudes influenced practice decisions, particularly those related to provider income and livelihood. Enhancing reputation and gaining professional satisfaction were cited as important incentives for NTP participation, including involvement in NTP training and education. Studies showed there was growing recognition that NTPs needed to implement innovative and supportive strategies to assist providers in translating knowledge into practice.<sup>34</sup> Other studies have reported the effectiveness of such multifaceted strategies in promoting and motivating change in practice behaviour.<sup>46</sup>

Providing enabling environments to support private sector health care was acknowledged by study authors. Strengthening medicine control and regulatory environments were cited as urgent pre-requisites in delivering quality TB care.<sup>11,22,24,28,37</sup> Aligning professional cultures with public attitudes and purpose, however, may require extensive negotiation and improved intersectoral communication.<sup>47</sup> The under-utilised potential of primary health care providers, including community pharmacists, is gaining recognition in many developing countries.<sup>28,48,49</sup> Involvement of appropriately trained private providers in national health programmes could effectively contribute to public health goals.<sup>43</sup>

Patient empowerment was cited by several au-

thors as a strategy for stimulating demand for quality care.<sup>30,34,37</sup> Disseminating consumer educational materials through primary health care providers may serve to raise patient awareness of TB standards of care. Community pharmacists and general practitioners were willing to undertake this role and to include such materials in patient counselling.<sup>25,29,31</sup> Improving the quality of patient/provider interactions, including provision of information, has been shown to increase the likelihood of patient adherence to treatment.<sup>50</sup> NTP support and competitive market forces may serve to consolidate these practices when implemented.<sup>27</sup>

No included study attempted a comprehensive assessment of providers' knowledge of standard treatment guidelines in relation to MDR-TB, XDR-TB and TB-HIV co-infection. Some studies reported that providers in both health care sectors referred patients needing more complex treatment to more qualified practitioners, an indication perhaps that knowledge of special forms of TB may be limited among primary providers.<sup>27,51</sup> Given that MDR-TB, XDR-TB and TB-HIV co-infection continue as urgent challenges facing TB control, these particular knowledge deficits may have serious implications for patients accessing primary health care facilities. A South African study has shown that system failures and inadequate provider knowledge, particularly in the context of high levels of MDR- and XDR-TB, pose difficult challenges for decentralised TB care.<sup>52</sup>

Using a systematic search strategy to identify diverse studies was the major strength of this review. However, corresponding limitations included the selection of English language studies published in peer-reviewed journals and undertaken in HBCs. Findings from studies conducted elsewhere may provide additional insights into private provider capacity to engage effectively with NTPs.

This scoping review has highlighted the complexities of delivering private sector TB care in high-burden settings. Provider practices reflected not only lack of knowledge but also the pressures of the health care marketplace. Using standardised data collection methods may assist in identifying knowledge and practice related needs among all providers. Future directions for research should include development and evaluation of needs-based interventions. Findings from qualitative studies of provider attitudes may facilitate implementation of interventions in complex environments. Systematic reviews of such studies are required to provide a strong evidence base to assist strategic decision-making for PPM-DOTS expansion.

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## R É S U M É

**CONTEXTE :** Au cours de la dernière décennie, on a noté une augmentation significative de l'intervention du secteur privé dans l'apport de soins aux tuberculeux. Alors que les patients recherchent et sélectionnent souvent les traitements par les pourvoyeurs de soins privés, au prix de dépenses significatives, les résultats de ces traitements restent largement inconnus.

**OBJECTIF :** Investiguer dans des pays à fardeau élevé de tuberculose (TB) la connaissance, les attitudes et les pratiques des pourvoyeurs de soins du secteur privé en matière de TB.

**MÉTHODES :** On a fait des recherches sur Medline, PubMed, Embase, International Pharmaceuticals Abstracts (IPA) et Cumulative Index to Nursing and Allied Health Literature (CINAHL) en utilisant les Medical Subject Headings, des termes Emtree et des mots-clé. Les recherches se sont limitées aux publications en langue anglaise et parues entre 1998 et la deuxième semaine de novembre 2009. On a inclus les études si elles signalaient la connaissance, les attitudes ou les comportements des pourvoyeurs de soins de santé privés dans leur pratique dans un des 22 pays à fardeau élevé de TB. Chacune des études a fait l'objet d'une évaluation critique au moyen d'un outil structuré d'extraction des données. L'extraction

des données a porté sur le contexte de l'étude, son objectif, son schéma, son échantillonnage, le taux de réponses, ses résultats et ses limitations.

**RÉSULTATS :** Au total, on a trouvé 34 études qui répondaient aux critères d'inclusion dans la revue et qui portaient sur diverses méthodes et schémas d'étude. Une connaissance complète des directives nationales de traitement faisait défaut dans toutes les catégories de pourvoyeurs de soins de la TB. Les procédures de référence, le suivi du traitement, la tenue de dossiers et la conservation des cas n'ont pas été mis en œuvre de manière systématique. Toutefois, on note un degré élevé de bonne volonté en vue d'une collaboration avec les programmes nationaux de TB.

**CONCLUSION :** Une recherche utilisant des méthodes standardisées de collecte des données peut aider à identifier les déficiences dans la connaissance et la pratique chez tous les pourvoyeurs de soins de TB. Des études complémentaires devraient être entreprises sur des interventions basées sur le développement et l'évaluation des besoins ; des revues systématiques de telles études peuvent alors aider à la prise de décisions stratégiques pour l'expansion du mélange public-privé et DOTS.

## R E S U M E N

**MARCO DE REFERENCIA:** En el pasado decenio aumentó en forma considerable la prestación de atención de la tuberculosis (TB) en el sector privado. Aunque con frecuencia los pacientes buscan atención sanitaria y escogen tratamientos suministrados por médicos privados, a expensas de un alto costo personal, se desconoce una gran proporción de los desenlaces terapéuticos.

**OBJETIVO:** Investigar los conocimientos, las actitudes y las prácticas de los profesionales sanitarios del sector privado que se ocupan de la TB en los países con alta carga de morbilidad.

**MÉTODOS:** Se llevó a cabo una búsqueda en las bases de datos Medline, PubMed, Embase, International Pharmaceuticals Abstracts (IPA) y Cumulative Index to Nursing and Allied Health Literature (CINAHL), partiendo de los términos contenidos en los descriptores de ciencias de la salud (Medical Subject Headings), Emtree y las palabras clave. Se restringió la búsqueda a los artículos publicados en inglés entre 1998 y la segunda semana de noviembre del 2009. Se incluyeron los estudios que contenían información sobre los conocimientos, las actitudes o los comportamientos en la práctica de los profesionales sanitarios del sector privado que ejercen en uno de los 22 países con alta carga de morbilidad por TB. Se practicó una evaluación crítica de cada estudio mediante

un instrumento de extracción estructurada de datos. Los datos extraídos se referían al entorno del estudio, los objetivos, el diseño, la muestra, la tasa de respuesta, los desenlaces y las limitaciones del mismo.

**RESULTADOS:** Los 34 informes que cumplieron con los criterios de inclusión comportaban métodos de estudio y diseños variados. Se encontró que en todas las categorías, los profesionales que se ocupaban de la TB no contaban con un conocimiento completo de las guías nacionales de tratamiento. Los procedimientos de remisión, supervisión del tratamiento, la consignación en los registros y la conservación de los pacientes no se ejecutaban en forma sistemática. Se observó no obstante muy buena disposición de colaboración con los programas nacionales contra la TB.

**CONCLUSIÓN:** La investigación que utiliza métodos estructurados de recolección de datos puede contribuir a determinar las necesidades en materia de conocimientos o de prácticas de todos los profesionales sanitarios que se ocupan de la TB. La investigación futura debe tener por objetivo el diseño y evaluación de las intervenciones basadas en las necesidades; la revisión sistemática de estos trabajos contribuirá a la toma de decisiones estratégicas de ampliación de la estrategia DOTS en el marco de la colaboración de los sectores público y privado.