

## Quality of tuberculosis care in the private health sector<sup>☆</sup>

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### ABSTRACT

As countries move towards achieving universal health coverage, efforts to engage all care providers have gained more significance. Over a third of people estimated to have developed TB in 2018 were not detected and notified by national TB programs (NTPs). This gap is more pronounced in countries with large private sectors, especially those with a high burden of TB. Health care providers outside the scope of NTPs, including the private and informal sector, are often the first point of care for TB patients. However, these providers are not fully engaged despite evidence from country experiences and projects that demonstrate increased detection and good treatment outcomes through publicprivate mix (PPM) approaches. While there are often concerns about quality of care in public facilities, there is also increasing evidence that quality of TB care in the private sector falls short of international standards in many places and urgently needs improvement. Failure to engage the full range of health care providers for TB has serious consequences in terms of access to quality care, resulting in increased transmission as a result of delayed diagnosis and treatment; excess mortality and morbidity as a result of inappropriate treatment; and increased drug resistance as a result of incomplete treatment. Recent attention to this issue has led to significant increases in private TB notifications, especially in India, Indonesia and the Philippines, but the gap between notification and the extension of quality program services for provision of treatment and care appears to be growing.

### 1. Private healthcare utilization and TB in low- and middle-income countries

There is extensive literature on private healthcare in low- and middle-income countries [1,2]. In most low- and middle-income countries, private providers are an important source of healthcare for all socio-economic strata: typically, the less-poor tend to make more use of formal and qualified providers, while the poor often turn first to informal and unqualified providers. Private providers often account for 50–70% of care, especially outpatient primary care and especially in urban areas (Table 1).

The provider types listed last (informal providers, drug shops, independent qualified providers) in Table 2 are both far more numerous and more important for early care-seeking, especially for lower-income populations, and therefore for interruption of transmission. They are also more difficult to engage because of their large numbers, the relatively low case yield per provider, low administrative capacities, and the fact that in many cases they operate on the borders of legality. In contrast, specialists and hospitals are fewer in number, are easier to engage, can take on more complex tasks and may often have relatively

high case-loads, but they also tend to serve high socio-economic groups and are unlikely to be the first providers consulted.

Globally, WHO estimates that 3 million of the 10 million people who fell ill with TB in 2018 were “missed”, i.e. were not detected and notified by government programmes [3]. Three countries – India, Indonesia and Nigeria – account for 46% of all missing people with TB, while a further 7 countries accounted for a further 34%. The absolute number of missing people with TB is determined by population size, TB incidence and the treatment coverage rate. The treatment coverage rate (which also influences TB incidence) is itself determined by the strength of the public programme, the size of the private healthcare market, and the quality of the TB program’s engagement with private providers.

While some people with TB are asymptomatic and delay seeking care, most of the missing people with TB are thought to seek some kind of treatment from public or private healthcare providers, including those that do not fall under the purview of national TB programmes. There is some considerable degree of under-reporting of publicly-managed cases (particularly in public hospitals, which often fall under another section of the Ministry of Health that is administratively distant from the NTP), and there are many missed diagnostic opportunities in

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**Table 1**  
Percent of population that used private sources of care for childhood diarrhea, cough and/or fever, 2000–2011.<sup>1</sup>

Region	Total	Poorest 20%	Least poor 20%
South-east Asia	66%	63%	81%
South Asia	79%	80%	85%
Sub-Saharan Africa	51%	52%	52%
Latin America, Caribbean	34%	23%	61%

<sup>1</sup> UCSF analysis of data from Demographic and Health Surveys 2000–2011. Population-weighted averages of respondents with children under 5 who sought care within prior two weeks for diarrhea and fever/cough. Survey data from 40 countries: <http://www.ps4h.org/globalhealthdata.html>.

routine consultations in both public and private facilities. But in many high-burden countries the majority of the missing people with TB are likely to seek treatment from private providers at one or more points in their care seeking – and this private provider role is particularly critical in the countries at the very top of the high burden list.

As Table 3 indicates, dominant and largely unregulated private health sectors are characteristic of seven of the top 10 countries ranked by TB incidence (the exceptions being China, South Africa and Democratic Republic of the Congo). In these seven countries, home to 57% of global TB incidence and over 62% of missing cases:

- Private providers are the destination for an average of 75% (range: 67–84%) of initial care-seeking;
- Private expenditure represents 61–74% of total expenditure on health;
- Private markets deliver 15–54% of total anti-TB drugs;
- Yet private for-profit notifications represent just an average of 23% (range: 12–28%) of total notifications and 16% (range: 3–21%) of estimated incidence.

Whereas DHS and TB prevalence surveys provide data on the role of un-engaged private providers in initial consultations, data on their role in TB treatment is scarce. In recent years, attempts have been made to analyze data on private sector sales of anti-TB drugs in 10 high-burden countries for which such data are available (Table 5) [12,13]. There are considerable methodological challenges in converting sales units to

**Table 2**  
Types of private providers.

Private provider type	Examples	Comments
Specialists (pulmonologists, chest physicians)	450 in Bangladesh; PDPI (Indonesia Pulmonologists' Society) in Indonesia	Very high case load but usually late in patient pathway and higher income; often challenge national protocols; key opinion leaders
High-end corporate hospitals	500 in India (eg. Fortis, Care, etc.) Private medical colleges: 67 in Bangladesh 1–2 in major cities of smaller lower-income countries	Often reluctant to address TB because of stigma and image Serve higher socio-economic groups Pathology, imaging, administrative capacity
Mid-size hospitals	~ 30 k nursing homes in India	Access in secondary cities and major towns
Laboratories	9 k in Bangladesh; 30 k in India (including 5 large networks)	Increasingly organized in networks
Pharmacies	25 k Indonesia; 8,200 in Kenya	Mainly in urban areas Chains emerging in some countries
Independent qualified GPs	60 k Bangladesh; 97 k Pakistan; 8 k Myanmar; ~70 k Indonesia	Still mainly fragmented Represented by medical associations
Drug shops	200 k in Bangladesh; 10 k ADDO <sup>1</sup> in Tanzania; 40 k-200 k PPMV <sup>2</sup> in Nigeria	Often regulatory controversy about what they can and can't sell. May provide consultations.
Independent less-than-fully-qualified practitioners	300 k in Pakistan; 3–4 unqualified providers per village (77% of all providers) in India	Often first point of care, especially in rural areas Often controversial Considerable overlap with the category of drug shops

<sup>1</sup> Accredited Drug Dispensing Outlets.

<sup>2</sup> Patent and Proprietary Medicine Vendors.

number of patients who were, or could be, treated. Data suggest that private TB drug sales represent more than half of all TB drugs distributed in India and Indonesia, and between one third and one half in

the Philippines and Pakistan. The private TB drug sales in India alone represent more than 60% of total private TB drug sales in these 10 countries. Private retail channels are relevant but less important in China, Bangladesh, Thailand, and Vietnam (with a large decrease in private sector volume in Bangladesh from 2003 to 8) [12]. Private retail sales seem to be of little significance in South Africa and in Brazil, which was not included in the analysis and is an exception in that private TB drug sales are effectively prohibited by the regulatory authorities. TB drug sales data are not yet available for Nigeria, where a TB prevalence survey found 20% of cases were being treated in the private sector [14], or Myanmar, where a prevalence survey found 22% private treatment<sup>1</sup>, down from 38% in 2009 [15].

The data on missing people with TB and private TB drug sales suggest that a failure to effectively engage private providers may not be the main constraint to TB care in some countries, notably South Africa, China, Ethiopia and Zambia. Ethiopia and Zambia have dominant public sector health systems, although Ethiopia's private sector is growing along with urbanization. South Africa has a polarized health system in which a strong private sector serves a minority and the majority of the population is served by a strong public health infrastructure; the principal challenge for the TB program is to reduce delays and losses within the public system. China is a special case: it has made considerable progress in reducing the burdens of TB, with publicly-owned hospitals that act like private providers.

## 2. What do we know about quality of care in the private sector?

While there are often concerns about quality of care in public facilities, there is also increasing evidence that quality of TB care in the private sector falls short of international standards in many places and urgently needs improvement [4]. The evidence comes from systematic reviews on the quality of TB care or surrogates of quality (e.g. TB diagnostic delays) [5], analyses of TB patient pathways and care cascades [6], and newer simulated patient studies that directly measure quality of TB care [7]. Specific issues identified include:

- Low rates of TB testing by private providers, even when patients present with typical TB symptoms;
- Low rates of referral to the national TB programme, even when patients present with typical TB symptoms;

<sup>1</sup> N. Yamada, personal communication, 31/5/19

**Table 3**  
Basic data on TB, private providers and health finance, 10 countries with highest TB incidence, 2018.

Country	TB Burden				Notifications from for-profit providers						Private provider share			Health finance	
	Population (millions)	Incidence rate per 100,000	Incidence (thousands)	Treatment coverage	Missing patients (thousands)	MDR cases (thousands)	Number per year	No. per 100 k population	% of estimate incidence	% of TB notifications	Initial care-seeking	Prevalence Survey	Private TB drug sales	Private % of total health expenditure (2017)	
India	1,350	199	2,690	74%	696	130	542,233	40	20%	25%	74%	46%	54%	72%	
China	1,430	61	866	92%	71	66								43%	
Indonesia	268	316	845	67%	281	24	101,839	38	12%	18%	74%	46%	51%	51%	
Philippines	107	554	591	63%	219	18	94,163	88	16%	25%	70%	21%	43%	65%	
Pakistan	212	265	562	64%	202	28	86,402	41	15%	23%	85%		45%	67%	
Nigeria	196	219	429	24%	325	21	12,625	6	3%	12%	67%	22%		78%	
Bangladesh	161	221	357	75%	90	6	74,524	46	21%	28%	84%	30%	15%	77%	
S. Africa	58	520	301	76%	73	11								44%	
DRC	84	321	270	63%	100	6								48%	
Myanmar	54	338	181	76%	43	11	19,242	36	11%	14%	43%	21%		76%	

Sources: WHO Global TB Report (2019) except: private for-profit notifications from each NTP; % of initial care-seeking from DHS surveys and TB prevalence surveys; 2017 private health expenditure from WHO Global Health Expenditure Database; private drug sales data from Malhotra (2018).

- Private providers prefer to empirically manage with antibiotics and order tests later, resulting in multiple rounds of broad-spectrum antibiotics and other non-specific therapies, multiple patient visits and providers seen, and diagnostic delays;
- Chest x-rays are the preferred tests for TB; sputum tests such as smear microscopy or GeneXpert or cultures are rarely used; Xpert is also not widely available in the private sector at subsidized rates as in the public sector;
- Use of drug susceptibility testing (DST) in the private sector is very low, even among patients with history of anti-TB therapy;
- What providers know and what they do in practice are often very different ('know-do gap');
- Limited capacity to support patients with adherence and treatment completion;
- High costs of care, with 50% of the total costs incurred before TB is diagnosed [8].

There is very wide variation in the quality of TB-related care amongst private providers, and some of it of course is very good. It should also be acknowledged that practices common amongst private providers have sometimes become more accepted by public programmes, such as chest radiography as a screening tool or, daily regimens with fixed dose combinations.

Table 4, below, shows the proportion of 'correct management'<sup>2</sup> of simulated patients with classic TB symptoms by private (non-NTP) providers in three countries, using the same standardized patient cases.

### 3. Published evidence of effectiveness of private provider engagement

Published literature on public-private mix for TB has increased considerably over the last few years, but it remains dominated by evidence from India.

Evidence on the effectiveness of PPM was strengthened by three studies in 2006:

- A review of small pilot projects in India found that 27% of new smear-positive patients were attributable to private practitioners in 7 projects, while outcomes for privately-treated patients in 12 projects exceeded the program target of 85% treatment success; the projects were all small [16].
- A review of data from 15 public-private mix projects in 8 countries found a treatment success rate of 89.6% for new smear positive cases and an increase in case detection of between 10% and 36% over periods ranging from 9 months to 3 years [17].
- An economic analysis compared costs and cost-effectiveness of two pilot PPM projects in India with public sector DOTS and non-DOTS treatment in the private sector. The average cost-effectiveness of PPM DOTS and public sector DOTS was similar and roughly half that of non-DOTS private treatment [18].

In 2011, a systematic assessment of public-private mix for TB control identified 45 studies documenting 22 projects in 12 countries. The authors concluded: "PPM has improved case detection and treatment outcomes among patients seeking care with private providers. Evidence on reducing patient costs is inconclusive, and there is scope for increasing equity in access to care by systematically engaging those providers who are the primary agents for poor people seeking health care." [19] A systematic

<sup>2</sup> For patients with symptoms indicating presumptive TB, correct management included recommendation of sputum testing or chest radiograph or referral to a public TB service center; for patients with evidence of microbiologically confirmed TB, referral or initiation of treatment with a standard, four-drug, first-line therapy; for suspicion of drug resistance, referral or recommendation of drug susceptibility test.

**Table 4**  
Proportion of patients with TB symptoms who are correctly managed or referred by private providers, according to Standardized Patient studies.

Location	% Correctly managed	% Referred	Reference
Mumbai, India	37%	15%	Kwan et al. [9]
Patna, India	33%	10%	
Nairobi, Kenya	33%, private for-profit 40%, private FBO	4%, for profit 10%, FBO	Daniels et al. [7]
3 provinces in China – village and township clinics	28%, village clinics 38%, township clinics	28%, village clinics 18%, township clinics	Sylvia et al. [10]
1 province in South Africa	35%	26%	Boffa et al. [11]

**Table 5**  
Estimates of annual first line treatment course-equivalents sold through non-NTP channels and the percent of total market (private sales plus NTP notifications) that they represent.

Source Country	Wells et al. [12] 2008		Malhotra et al. [25] 2015	
India	2,320,110	64%	2,069,667	54%
Indonesia	498,487	63%	347,244	51%
Pakistan	265,850	52%	272,135	45%
S. Africa	14,310	4%	52,978*	15%
Bangladesh	25,200	14%	n/a	n/a
China	299,230	23%	n/a	n/a
Thailand	15,640	22%	12,507	15%
Philippines	221,220	61%	217,925	43%
Vietnam	12,250	11%	11,266	10%
Russia	19,630	13%	72,556	36%

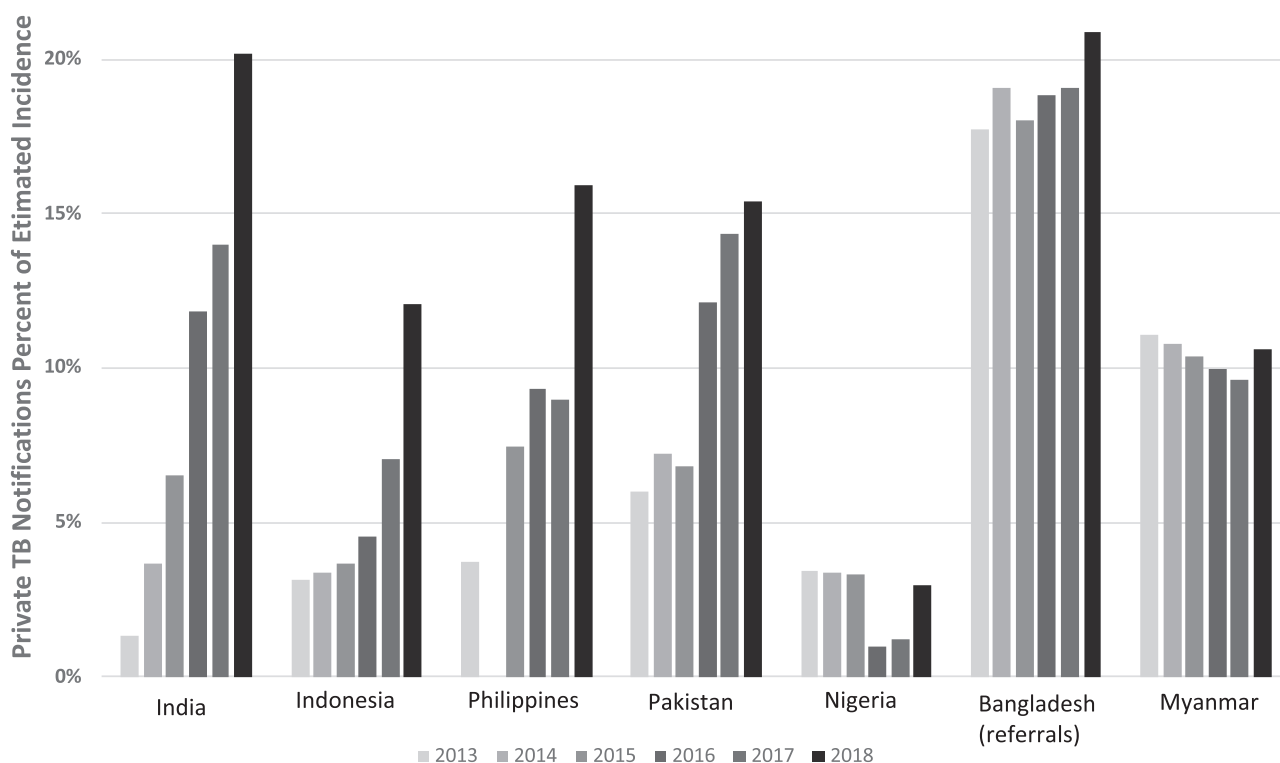
\*Estimate excludes INH because of the large volumes believed to be used in preventive therapy.

review of literature published through May 2014 included 78 studies of 48 programs in 16 countries [20].

More recent articles have focused on the need to go beyond donor-funded pilot projects scale up systematic engagement of private providers and integrate such activities into the core operating model of national TB programs [21]. A modelling analysis published in 2019 suggested that scaling up private provider engagement for TB in India, through subsidized diagnostics and adherence support, could avert 28% of deaths between 2018 and 2045 [22]. The 2019 Lancet Commission on Tuberculosis highlighted the need to engage private providers: “Given the dominance of private health care in countries with the largest share of missing patients with tuberculosis, private providers must be engaged to provide high-quality, person-centered care on a scale equal to their role in primary care to meet national and global goals” [23].

#### 4. Recent progress and challenges

Between 2015 and 2018, four of the highest burden countries with



<sup>9</sup> Author analysis of NTP data, distinguishing notifications from for-profit providers from those of the non-profit sector to the extent possible.

**Fig. 1.** TB notifications from private for-profit providers as a proportion of estimated TB incidence, 2013–2018, in selected high-burden countries with dominant private healthcare sectors Author analysis of NTP data, distinguishing notifications from for-profit providers from those of the non-profit sector to the extent possible.

dominant private healthcare sectors (India, Indonesia, Philippines and Pakistan) increased their annual private TB notifications by more than half a million, to 911,786. In Bangladesh over the same period, referrals from private for-profit providers increased by just 20%, while in Nigeria they fell slightly from a very low level and in Myanmar they have fallen steadily from a higher level. For the 7 countries as a whole, the proportion of total notifications contributed by private providers increased from 13% to 23%, while as a proportion of estimated incidence they increased from 7% to 16% (Fig. 1).

However, the recent increase in notifications may be driven by global targets and commitments made recently at the UN High Level Meeting on TB and as part of initiatives such as the WHO Director General flagship initiative Find.Treat.All.EndTB (with the Global Fund and Stop TB), the Global Fund Strategic Initiative to reduce the number of “missing” TB patients and initiatives by the US Agency for International Development in countries.

These increases in notifications, while a positive step towards closing gaps in care, are often not bacteriologically confirmed, may not always indicate an increase in quality service provision and do not provide information on treatment outcomes for the patients notified. These challenges need to be addressed. For instance, from 2017 to 2018:

- In India, only 16% of all private notifications in 2018 were bacteriologically confirmed, 4% received program drugs, 6% got DST and 15% received at least one of three nutritional support payments<sup>3</sup>
- In the Philippines, 90% of the increased private notifications were generated through a “mandatory notification” app that provides no data on bacteriological confirmation, adherence or outcomes.<sup>4</sup>
- In Indonesia, 71% of the increase on private notifications came from “mopping up”, in which they searched hospital records for additional closed cases that hadn’t been reported before, and only 41% of all private cases had any outcome reported.<sup>5</sup>

These trends reinforce the need to ensure quality of TB care amongst private healthcare providers, to improve the validity of data systems, and to hold countries and programmes accountable for indicators of effective coverage.

## 5. A Roadmap for engaging private providers to improve quality of TB care

Experience with a very wide range of formal and informal providers and facilities in widely varying health systems contexts suggests that it is possible to engage all providers in productive and effective partnerships that enhance TB prevention and care. Constraints are many, and mostly common across contexts, but they can all be overcome with sufficient commitment and investment. Public-Private Mix approaches can be a pathway to ensure quality monitoring and collaboration to ensure TB patients access quality care, wherever they seek it along the care pathway.

In 2018, WHO, the Public-Private Mix Working Group of the Stop TB Partnership, and global partners released a “Roadmap” to guide the scale-up private provider engagement in efforts to end TB [24]. The Roadmap recommends ten actions at national and global levels to scale up the engagement of all care providers towards universal access to care:

- (i) Build understanding about patient preferences, private sector dynamics and the rationale for engaging all providers;
- (ii) Establish a supportive policy and regulatory framework;
- (iii) Set appropriately ambitious targets for Public-Private Mix;
- (iv) Adapt flexible models of engagement applicable to local contexts;
- (v) Advocate for political commitment, action and investment in PPM;
- (vi) Harness the power of digital technologies;
- (vii) Allocate adequate funding for engaging all providers, including by capitalizing on financing reforms for universal health coverage;
- (viii) Deliver a range of financial and non-financial incentives and enablers;
- (ix) Partner and build the capacity of intermediaries and key stakeholders; and
- (x) Monitor progress and build accountability.

## 6. Conclusion

As countries race ahead to close gaps in care and reach targets, the engagement of private providers on a scale commensurate with their importance will be critical. However, it is imperative that quality considerations both for diagnosis and care provision are enforced. New partnerships, modern data systems, new payment mechanisms, new skills, and different attitudes will need to be harnessed even more to facilitate this, and to ensure that patients access quality care wherever they seek it. This is the true measure of universal health coverage.

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<sup>3</sup> India RNTCP analysis prepared for 2019 Joint TB Monitoring Mission, December 2019

<sup>4</sup> “2019 Philippines TB Joint Program Review: October 3–14, 2019”, Draft Report November 2019

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