

How tuberculosis programs can navigate the world of social health insurance

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SUMMARY

Many countries with a high tuberculosis (TB) burden are adopting social health insurance (SHI) schemes. However, the national TB programs (NTPs) of these countries are only just starting to grapple with the effects of SHI on their operations. Here, we review the rationale for analyzing TB programs in light of the changes brought by SHI. We consider the influence of certain purchasing decisions on TB care and prevention, and the opportunities that SHI may present for NTPs to broaden private sector engagement, extract TB data across the health sector, and facilitate quality improve-

ment efforts. We also explore which functions are likely to be performed by SHI systems, which require special attention with the advent of SHI, and the metrics that indicate how much of TB care seeking and treatment can be reached and influenced by SHI. SHI presents certain risks for TB programs, but also opportunities to adapt to a more modern health system and to bring quality TB care and treatment to more people.

KEY WORDS: purchasing; incentives; universal health coverage

NATIONAL TUBERCULOSIS PROGRAMS (NTPs) in most high tuberculosis (TB) burden countries have been accustomed to a relatively simple financing environment. There is usually financing for a vertical public health unit to coordinate the response at the central level, but the vast majority of curative service provision has been integrated into the overall public health system, which has typically used a very simple financing system of line-item budgets and salary-based compensation. In this context, health financing discussions in TB have often received little attention, or focused primarily on the issue of increasing the allocation of funds to TB.¹ TB programs have paid very little attention to the many options available for purchasing health services, and pooling risk has not seemed relevant.

However, an increasing number of high TB burden countries are moving rapidly to develop and adopt national social health insurance (SHI) schemes, i.e., health insurance schemes with public stewardship and at least some insurance premium contributions from the insured (Figure 1). Thanks to TB epidemiology and thus the slow decline of TB prevalence, a significant proportion of the worldwide TB burden remains in the type of middle-income countries that are more likely to tackle the introduction of SHI.^{7,8} These countries adopt SHI for various reasons, including the desire to reduce out-of-pocket expenses

by increasing pre-payment, to more actively guide quality provision via more sophisticated purchasing approaches, and to include public and private providers in a more unified and comprehensive service provision network.

Initial investigations of this topic in high TB burden countries have focused on descriptive country case studies on TB and insurance⁹ or TB and strategic purchasing,^{10–12} a report from a multicountry meeting that analyzed some of the relevant challenges and issues,¹³ and reports on experiences in China¹⁴ and the former Soviet Union.¹⁵ Outside the high TB burden countries, Taiwan¹⁶ and Korea¹⁷ have used reimbursement policies to drive or monitor TB notification. Here, we review these discussions of TB and SHI and put them into a broader health systems and analytical context that emphasizes the specific needs of TB, with implications for the many high TB burden countries that are still early on in this pathway.

TB-specific insurance was proposed as early as 1914 (because the ‘average physician dislikes to assume charge of a case of tuberculosis’¹⁸). In reality, TB programs will rarely be the main drivers of a health financing or SHI agenda, as health financing discussions more typically span across the entire range of health issues. However, informed and proactive TB program leaders can shape and influence decision making in a way that benefits not only

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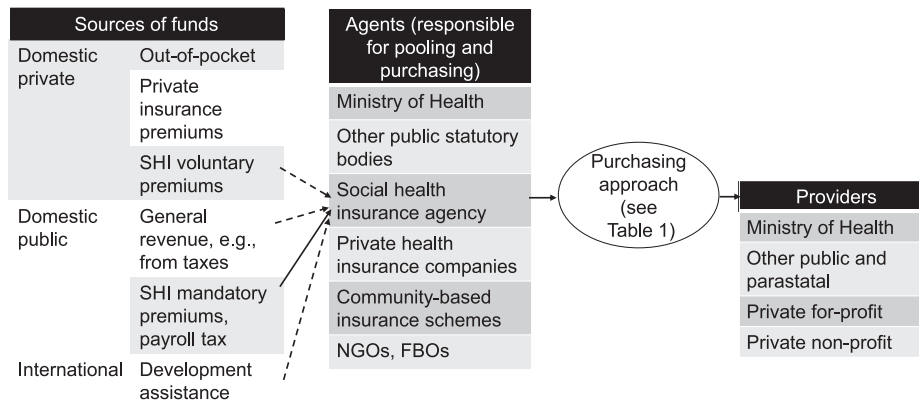


Figure 1 The role of SHI in health system financing, purchasing and provision. The Figure shows the characteristic (solid arrow) and additional (dotted lines) sources of funding for SHI, which flow through an SHI agency that then uses various purchasing approaches (Table 1) to purchase services from a range of public and private providers. SHI is just one part of the broader push for UHC, a situation in which ‘all people have access to services and do not suffer financial hardship paying for them’.^{2,3} UHC is thus a statement of ends, rather than means, and addresses both how health services are provided and how they are financed. Health financing reforms for UHC are usually designed to increase resources available for health, increase the role of pre-payment or pooling mechanisms in total health expenditure, reduce out-of-pocket and other private expenditures, increase the role of public or mandatory sources of financing, and increase use of strategic purchasing to make maximum use of pooled resources.² SHI is an increasingly common approach to achieving these policy objectives. Such schemes differ from the standard publicly funded and publicly provided health care that remains most common in low- and middle-income countries in that entitlement to services is based on membership or enrolment that is distinct from citizenship or residence, the package of services is often explicitly defined, funding is at least partly from payroll taxes or contributions, and payments to providers are in some way related to performance.^{4,5} Although SHI is characterized by contributions that are deducted from formal-sector salaries at source (solid line, left-hand side), expansion of such schemes in low- and middle-income settings requires the enrolment of large numbers of people in the informal economy, whose premiums are either highly subsidized or covered entirely from general taxation (dotted line on left-hand side).⁶ SHI voluntary premiums and development assistance may also be added to this pool. Such schemes differ from private insurance in that the primary steward is the public sector rather than the private sector, participation is either compulsory or strongly encouraged, the legal bases are statutory rather than contractual, they are shaped by broad social objectives, and they do not need to be fully funded from contributions or premiums. SHI will typically co-exist with other combinations of fund flows, agents, and purchasing, which for simplicity are not shown in the Figure. SHI = social health insurance; UHC = Universal Health Coverage.

TB programs but also the inclusivity and reach of national health insurance programs in general.

THE IMPORTANCE OF SOCIAL HEALTH INSURANCE FOR TUBERCULOSIS PROGRAMS

The adoption of SHI represents a wide-ranging change in how health systems deliver, monitor, measure and compensate health services.⁴ As countries make this shift, the incentives and governance mechanisms for health organizations and workers change, and TB programs risk being left behind in a system that may be ill-suited to the particular needs of TB care and prevention.¹⁹

If a health system is moving towards SHI, there are several reasons why NTPs should embrace SHI and work to influence its development. First, SHI will channel an increasing share of government funds for health. Second, SHI requires systems for costing, claims processing, case-mix tracking and quality

monitoring, which TB programs can leverage to improve TB outcomes. Finally, SHI can help with engagement of private providers. We consider these issues in the sections below.

In this discussion, we emphasize the role of SHI as a channel for health purchasing, rather than focusing extensively on the source of funds. Some countries are increasingly funding their SHI programs from general taxation, with a more limited role for premiums paid by employees and employers (Figure 1).⁶ The important consideration is that this money is pooled as much as possible, and that this pooled resource is then used intelligently and strategically to purchase health care services in support of public policy.

TUBERCULOSIS CARE IS PART OF THE GENERAL HEALTH SYSTEM LANDSCAPE AFFECTED BY SOCIAL HEALTH INSURANCE

Quality TB care requires so many diagnostic, curative

and public health elements that it can be considered a test case for health system functioning. But to what extent is it truly integrated with, and subject to the changes in, the overall health system? If TB can be managed with a separate, stand-alone system, the discussion of SHI adoption in the broader health system could be considered of peripheral interest to NTPs.

It is the public health TB tasks—such as surveillance and monitoring, tracking of long-term care and outcomes, contact investigation, treatment for latent tuberculous infection (LTBI), adherence monitoring, and tracing patients who are lost to follow-up support—that often bring to mind the concept of a stand-alone TB program. It is possible to construct an entire TB system as a separate, TB-only infrastructure—and such a system could operate under alternative financing arrangements (e.g., using program-based, line-item financing compared with SHI-based financing in the rest of the health system). There are elements of such a separate TB program in the state health department activities in the United States, but these are complemented by activities in the general health system.²⁰ Even greater separation of TB activities from the general health system is present in the TB clinics and hospitals in the Russian Federation, but this has been identified as one of the primary barriers to improved TB performance,^{21,22} and inappropriate for a high-burden context in which TB is not confined to specific risk groups.²²

In general, experience suggests that the concept of a completely stand-alone TB program is not the norm and would be a problematic approach for most countries with a high burden of TB.²³ This is because for TB the public health functions described above (collectively sometimes called ‘population-based’ or ‘public good’ services¹⁹) need to be tied together with two other broad sets of functions: curative functions (such as availability and linkage to diagnostics, plus clinical diagnostic and curative skills strengthened via referrals, community linkages, and home-based patient support, collectively sometimes called ‘personal’ or ‘private good’ services¹⁹) and health system functions (such as information and drug supply systems, and engagement and regulation of non-state health providers).

Some of these functions in high-burden countries may rely on a cadre of staff, at various levels of the health system, who are either partially or fully assigned to TB duties. However, the source of care for most TB patients—where they spend all of their pre-diagnostic time—is the general health system, as TB starts out as a set of rather general symptoms. A critical contribution of the general health system will thus always be to identify TB patients rapidly and efficiently. Furthermore, many TB patients choose to start and remain with private health care providers, who may be difficult to reach and influence without

the mechanisms associated with SHI.²⁴ Finally, NTPs in high-burden countries have improved their rates of TB treatment success at least partly through intensive decentralization of care. By bringing directly observed treatment (DOT) close to the patient, travel and opportunity costs are minimized during the long course of treatment,^{25,26} and patient adherence is far more likely. Achieving this would be far more difficult with a small number of TB-specific facilities.

The alternative—transferring large numbers of patients from the general health system to one type of more centralized and specialized TB facility—becomes impractical, as evidenced by the withering of specialized lung clinics in countries such as Bangladesh.²⁷ At least the diagnostic and curative parts of TB care will therefore tend to come under the general health system and thus under the general health financing mechanisms, such as SHI. As the general health system changes, it will benefit the TB program to change with it.

THE INFLUENCE OF PURCHASING CHOICES ON TUBERCULOSIS OUTCOMES

With more TB patients encountering SHI, will the presence of SHI have any significant impact on TB processes and outcomes? Here, we focus on the influence of the purchasing approach, as this has some of the clearest impacts, and financial incentives have demonstrated effects on TB outcomes.²⁸

Purchasing arrangements establish the metric by which providers get paid. All of the approaches to purchasing of health services have both advantages and disadvantages (Table 1);^{29,30} there is no ‘right’ solution, and countries vary in their mix of approaches.³¹ SHI brings an opportunity to use purchasing approaches that are driven by information and aimed deliberately at performance, quality, and health system goals.³² A country will typically choose its purchasing approaches based on history and broad objectives, with little or no consideration of how such choices will affect an individual condition such as TB. But, whichever choices are made, TB stakeholders should discuss the likely consequences for TB and any possible steps to mitigate negative outcomes and take advantage of opportunities.

Most TB programs currently use simple line-item budgeting, although a type of fee-for-service payment is often used for the lowest cadres for activities such as active case finding.³³ For countries that have adopted other payment systems, it is clear that payment methods can drive behaviors that are important to TB, not all of which are desirable (Table 2). Table 2 also lists a number of issues arising from changes in institutional financing flows; this delves into the topic of vertical vs. horizontal health systems,¹⁹ and is not considered further here.

Payment systems often differ between primary and

Table 1 Advantages and disadvantages of different approaches to purchasing health care services

Purchasing approach	Description, examples	Advantages	Disadvantages
Line item budget with salary-based compensation	Most TB programs and government health services in low- and middle-income countries	<ul style="list-style-type: none"> • Simple • Predictable • Easy accounting • Job security • Cost containment for payer • Motivation to reach targets efficiently 	<ul style="list-style-type: none"> • Difficult to motivate and manage performance • Possible absenteeism • Motivation to spend budget to sustain income
Payment for specific objectives	Performance-based payment to facilities according to composite results score (Rwanda) Payment of DOT provider per patient managed	<ul style="list-style-type: none"> • Can help build QA/QI systems if appropriate metrics/indicators are being tracked • Targets provide clear advocacy message • Easy to adjust priorities • Incentive to improve reporting systems • High reporting 	<ul style="list-style-type: none"> • Possible compromising of quality • Need to verify results • No incentive to exceed target • Targets and associated payments need to be set with care; providers may opt out if targets are too high or reduce effort if targets are easily met • Need to understand disease burdens • Neglect of non-rewarded activities • May undermine intrinsic motivation • Challenging to determine rates
Fee for service	Payment per consultation, procedure, test, etc. Sales of drugs	<ul style="list-style-type: none"> • Simple • Strong encouragement of service volume • High reporting 	<ul style="list-style-type: none"> • Encourages over-use of services • May reduce inputs per service • High transaction costs • All risk on payer • Need to verify service
Global budget	Total hospital budget set based on predetermined objectives and measurable factors related to the health needs of the population served by the hospital	<ul style="list-style-type: none"> • Drives efficiency • Claim verification burden significantly reduced • Flexibility for provider to innovate • Reporting and verification burden reduced • Less stress for staff • Cost containment for payer • Can use case-mix index to ensure under-provision is not occurring • Can introduce quality indicators to track service provision standards 	<ul style="list-style-type: none"> • Discourages expensive or complicated services • No motivation to increase performance • Difficult to track disease-specific quality of care • Heavy reliance on good management • Incentive to spend (if provider returns savings) • Incentive to under-provide (if provider keeps savings; can combat by adding volume targets)
Capitation	Payment of a fixed amount per time period for each family registered with a primary care provider, who then provides all specified services to those families as needed	<ul style="list-style-type: none"> • Easy to administer, budget and plan • Low risk for payer • Encourages prevention • Encourages quality to contain cost per patient • Utilization factors can help with quality control • Financial risk to providers • Positive competition, which promotes patient-friendly services if consumers can choose provider 	<ul style="list-style-type: none"> • Low motivation to provide difficult or expensive services • Tendency to refer cases • Tendency to avoid sick and costly patients • Challenging to determine rates
Per patient day	Payment to hospital per in-patient day, covering all costs	<ul style="list-style-type: none"> • Encourages efficiency • Simple, easy to administer • Low transaction cost 	<ul style="list-style-type: none"> • Encourages excessive hospitalization and long stays • Encourages selection of simpler cases • No risk to provider • Challenging to determine rates
Diagnostic-related groups (per case)	Payment to facility per case managed, covering all costs of diagnosis and treatment, overheads, etc.	<ul style="list-style-type: none"> • Easier to compare, predict, manage and control costs • Easy claim mechanism • Encourages efficiency, prompt discharge • Encourages coordination of care across departments and teams 	<ul style="list-style-type: none"> • Incentive to upcode • Needs strong monitoring, heavy verification burden • May reduce inputs per case • Not applicable to prevention • Challenging to determine rates without good costing data from providers

QA/QI = quality assessment and quality improvement; DOT = directly observed therapy.

Table 2 Payment methods and institutional arrangements for financing can drive behaviors important to TB

Country		Poor outcome
China	Payment-related issue Higher payment amounts for in-patient vs. out-patient care	Over-hospitalization ³⁴ and catastrophic costs for patients ¹⁴
	First-line drugs are program drugs (free to the hospital and client), whereas second-line drugs are expensive and generate hospital income	Irrational drug use, including very high use of second-line drugs ³⁵
Indonesia ³⁶	At primary care: a) for providers: capitation with no additional payment for long-term management of a TB patient; b) for patients: cost of diagnostics and drugs not always compensated	Excessive up-referral
	In hospitals: case rates encourage retaining patients; down-referral policies not enforced	Insufficient down-referral
Kyrgyzstan ¹⁵ and Uzbekistan ³⁷	Payment is based on historical hospital bed occupancy	Over-admission
Russian Federation ²¹	Payment per case in hospitals Some types of cases trigger higher payments	Over-admission Up-coding (resulting in higher costs to the health system)
	Certain interventions (e.g., surgery) result in higher daily payments	Over-provision of surgical interventions
	Reimbursement rates weighted towards larger facilities	Discourages down-sizing and efficiencies
	Per capita payment of primary care providers for TB has no performance-based component	Incentive to retain patients under supervision beyond cure
Many countries ³⁸	Institutional financing flows Financing reforms focus on curative care, and the financing of public health functions is neglected	Neglect of public health functions
	Health financing (along with other functions) is decentralized	More difficult to bring uniformity to public health efforts; inefficiencies in fragmented procurement
Estonia ¹⁹	Separate financial flows are directed, for the same disease and same client, to multiple institutions	Fragmented and uncoordinated responses to client needs
Mexico ³⁹	Financing for curative care flows through social security organizations, which seldom refer to Ministry of Health mandates	TB activities by public providers not prioritized or standardized
Russian Federation ²¹	Four separate vertical sub-systems are financed for TB (screening, prisons, hospitals, and primary care), with no way to share or move finances between them	Incentive is to maintain maximum financing per sub-system, rather than to generate overall system efficiencies

TB = tuberculosis.

secondary care. For primary care providers in low- and middle-income countries, the main payment mechanism is usually salaries in the public sector and fee-for-service in the private sector. In contrast, the main mechanism for primary care payments in a survey of 29 OECD (Organisation for Economic Co-operation and Development) countries was fee for service in 10 countries, salary in 5 countries, capitation in 4 countries, and a mixture of these methods in 10 countries.³¹ Capitation is attractive to policy makers because the financial commitment is simple and predictable and it encourages cost containment. As health systems become more sophisticated, capitation is usually complemented with various performance-based elements.^{31,40} These fee-for-service ‘carve outs’ can be prioritized for important services that would otherwise be under-provided because they are under-demanded (prevention), unusually expensive (such as TB) or relatively rare and unpredictable (like TB as incidence declines).

Some countries simply list TB as a covered condition in the general SHI package. However, the development of a more detailed insurance package specifically for TB may be more appropriate, as TB is both rare and complicated. TB is the leading

infectious disease killer in the world,⁷ yet it remains a relatively rare diagnosis even in high TB burden countries (in a typical high TB burden country, ~0.25% of a provider’s catchment population will have TB—about 30-fold less than the prevalence of diabetes mellitus⁴¹). At the same time, there is complexity: diagnosis requires access to sputum smear microscopy, chest X-ray, and preferably Xpert® MTB/RIF testing (Cepheid, Sunnyvale, CA, USA) and, once diagnosed, the multidrug TB regimen of 6 months or more represents a significant burden for both patient and provider.

As a rare and burdensome disease best treated at primary care level, TB is thus poorly suited to capitation, and may require one or more specific insurance payments to reimburse and motivate providers (such as in Thailand⁴²), including an explicit and compensated referral pathway for diagnosis. This approach requires a deliberate decision process about which tasks are specifically compensated, and who is allowed (and financially preferred) to deliver each part of the diagnostic and treatment cascade.

For example, Taiwan initially instituted a no-notification, no-reimbursement policy,¹⁶ which was

later refined into the pay-for-performance on TB (P4P on TB) program. P4P distributed payments to different provider types and thus made TB management the work of a team, resulting in lower default rates,⁴³ higher treatment success,^{44,45} and reduced patient costs.⁴⁵

Indonesia and the Philippines illustrate contrasting approaches to the issue of TB purchasing. The Philippines provides an example of a TB-specific insurance package, with two case-based fees. Under PhilHealth, notification of TB is required to trigger the first TB-specific payment (as successfully applied previously in Japan²³ and in Taiwan¹⁶), and notification of the TB treatment outcome triggers the second payment. This link between TB notification and payment also serves as a quality monitoring and improvement step, as information on the diagnostic and treatment details is included in the notification and can be monitored by the NTP. However, there are signs that this process in the Philippines has become so burdensome—almost resembling a public-sector program in a private sector setting—that it discourages many private providers and private patients from participating in the optional SHI TB package. As a result, even insured patients may resort to out-of-pocket payments for private sector TB services.⁴⁶ Other countries may also think twice before adopting a TB package that, as in the Philippines, is accredited and compensated separately from the broader SHI benefits, as this allows providers in the Philippines to selectively opt out of the TB package if it is more trouble than is financially justified.⁴⁶

Under SHI in Indonesia, a different payment-related dynamic is in play. Capitation is used for primary care (with no specific fees dedicated to TB), and a type of case-based payment is used for hospitals. This has resulted in a preference for up-referral of TB clients from primary care and retention of TB clients in hospital care, as primary providers want to avoid supervising a long regimen for no additional pay, and hospitals welcome the repeat visits of TB clients that generate further income.⁴⁷ This strategy is reinforced by client preferences: clients prefer hospitals, where clinical, diagnostic and pharmacy services are all available in one place and all covered by the insurance case-based payment. By contrast, at the primary care level, these services remain distinct and the insurance agency does not yet contract with stand-alone laboratories and pharmacies. In the absence of local provider networks to share capitation, this leaves clients to pay out of pocket.⁴⁷

The result of this secondary care bias for SHI-related TB care in Indonesia is both to increase the average cost per patient treated and likely to decrease treatment success: hospital-based TB care in such settings is correlated with inferior outcomes, possibly due to the greater distances that clients need to travel

to hospitals, and the inferior systems in hospitals for tracing loss to follow-up.⁴⁸

Purchasing decisions also influence data availability.¹³ Fee-for-service systems can generate a wealth of data.⁴⁹ However, when capitation is used for primary care, providers are not motivated to record individual TB treatment events that do not trigger any change in payment. Indonesia represents a mixed case: as notification of TB patients is not directly compensated, it is an additional burden on providers; however, since primary health care recording in general does trigger payments, based on patient contact rates, there is potential for TB to leverage this system.

In summary, the health sector's decisions about purchasing approaches can influence TB-related behaviors around health seeking, treatment, adherence and referral, and the extent to which TB data are available to officials for monitoring and to providers for quality improvement efforts. In all of these discussions, the influence of purchasing decisions on provider behavior will obviously be more direct if money from payment reforms reaches providers directly, rather than stopping at the institutional (hospital management) level, or even above, at the district level.¹²

OPPORTUNITIES TO REACH THE PRIVATE SECTOR

Private health care providers are critical actors in high TB burden countries.^{24,50} This is also the future for the health systems of most developing countries: primary care services are predominantly provided by private providers in 21 of 29 surveyed OECD countries, including most OECD countries with SHI and 7 of the OECD countries with tax-financed national health systems.³¹

SHI represents an important potential tool to assist in the governance of mixed health systems,⁵¹ and is a particular opportunity to reach private providers for TB care at a scale not previously achieved by direct engagement efforts.²⁴ Such integration of private providers may, at least temporarily, negatively impact quality indicators while increasing coverage indicators (as in India⁷) but, in the long term, such system-wide engagement is necessary to address quality.⁵²

Figure 2 indicates what it would take for an SHI program to drive private provider engagement for TB at scale, and provides an overview of how the Philippines and Indonesia are doing in the three domains prioritized within the Universal Health Coverage (UHC) framework. These two countries highlight the trade-off between maximizing reach to private providers (by including many private providers, with few if any quality demands related to TB, as in Indonesia) vs. maximizing quality (by demanding a very public-like system of TB care that will exclude many private providers, as in the Philippines).

Feature of SHI	The Philippines	Indonesia
Domain 1: Population: who is covered?		
Summary measure for domain 1: Benefits many TB patients (especially lower income patients)	~15% of total TB case notification ⁴⁶	?
Covers most of the population	~90%	~74% ('missing middle')
Includes a focus on covering the poor	Yes, but issues with targeting	Yes, but issues with targeting
Domain 2: Services: which services are covered?		
Includes out-patient as well as in-patient benefits	Specific out-patient packages General primary care coverage is only for indigents	Yes
Covers TB	Yes: specific out-patient package since 2003	Yes
Domain 3: Direct costs: proportion of the costs covered		
Summary measure for domain 3: contributes significant proportion of total TB costs	US\$2.7m in 2016: ~3% ⁴⁶	?
3a) Many client encounters are covered, as many providers are empaneled		
Contracts private providers, easy accreditation	Only institutions, not individual providers, are contracted. 96 private hospitals (10%) and no GPs have TB-specific certification required for TB package reimbursement Burdensome annual certification	~10 000 private primary care (especially group practices) 1049 private hospitals Health insurance agency empaneled public and private in 1:1 ratio
Contracts private laboratories	No	No
Contracts pharmacies	No	No
3b) Many client encounters are covered, as rates and processes have not driven providers away from providing TB services under insurance		
Easy, reliable and prompt claims processing	Burdensome paperwork	Reportedly improving
Includes performance-based payment for TB	Yes: US\$79 per case (US\$49 + US\$29 for intensive and continuation phases)	Primary care level: included in capitation, so no performance-based payment for TB, although fee-for-service payments exist for antenatal care, delivery, and post-partum care at primary level. A payment for chest X-ray at primary care was recently introduced. Hospital level: paid by diagnostic-related group
Attractive rates	Out-patient package: US\$79 since 2003 No risk adjustment	Primary care level: included in capitation (including diagnostic costs). Hospital level: separate diagnosis-related groups for diagnosis and treatment. Treatment tariff does not include drug cost, assuming all doctors are using program drugs
3c) Many client encounters are covered, as all parts of the TB cascade are covered		
Facilitates access to diagnosis	Patient pays out of pocket before diagnosis	GP supposed to pay for tests from capitation
Facilitates access to drugs	Yes, for those who accept use of the strict TB treatment units established as a condition of providing insured TB services	GP supposed to pay for drugs from capitation
Additional functions of the health system		
Encourages upward referral as appropriate	NA, as primary care not covered	Encourages referral even of uncomplicated cases
Encourages downward referral as appropriate	NA, as primary care not covered	Hospital incentive is to keep the case
Connects with patient/social support	No	No
Separate provision for public health activities	Yes, within program financing; not explicitly in insurance financing	Yes, within program financing; potentially within insurance financing to public sector using capitation but not earmarked
Links with NTP information system	Claim contingent on notification	No data integration
Color coding:	General insurance reform; not specific to the TB domain	Current policy/practice helps to increase TB coverage
	TB-specific insurance reform	Current policy/practice does not help to increase TB coverage

Figure 2 Assessing SHI coverage in the Philippines⁴⁶ and Indonesia.³⁶ SHI = social health insurance; TB = tuberculosis; GP = general practitioner; NA = not applicable; NTP = national TB program. This image can be viewed online in color at <http://www.ingentaconnect.com/content/ijatld/ijtld/2018/00000022/00000012/art000...>

As noted in the final section of this article, financial flows often shift from line-item budgets to SHI only slowly. The gradual nature of this transition—particularly for primary care—may also slow private provider empanelment,⁵³ and thus slow the reach of SHI to TB patients treated by private providers. With a new SHI scheme, the same SHI payment that is a welcome top-up to public providers, as health sector budgets continue to fund their base salaries and basic infrastructure costs, will be insufficient to cover the cost of care by private providers, who receive no such subsidy. If this gap is not explicitly addressed, the risk is the exclusion of private providers from SHI, and continued reliance on out-of-pocket payments by patients seeking private sector care. This is one of the challenges currently facing both Cambodia¹⁰ and Ethiopia⁵⁴ in their nascent health insurance efforts.

Sufficient SHI-based payments are not the only public input required by private providers for TB. An SHI-funded TB diagnosis by any provider, including private providers, should trigger engagement of public sector or outsourced staff responsible for the critical public health activities outlined above, such as recording and reporting, contact investigation, LTBI treatment, adherence monitoring, tracing patients who are lost to follow-up, and providing patient support. Japan and Korea provide examples of specific cadres mobilized for this set of tasks, operating out of clinics that were assigned specifically to public health rather than curative tasks.^{17,23,55} The deliberate creation and financing of such a public health cadre, distinct from the curative workforce and cutting across health areas, remains a neglected topic in many high TB burden countries.

CHANGES REQUIRED AS TUBERCULOSIS CARE MOVES INTO THE WORLD OF SOCIAL HEALTH INSURANCE COVERAGE

As SHI gets established in high TB burden countries, some aspects of TB care and prevention will change more than others. Financing of personal diagnostic and curative services is usually assumed by SHI⁵⁶—because it makes sense to ensure provision through the general network of providers (where people go and where people live) and to benefit from the more modern and effective systems inherent in SHI. However, community or collective services are generally retained by programmatic public financing, as community outreach can be done more efficiently when packaged with other collective services. Strong linkages between SHI-funded and program-funded services are needed to maximize continuity of care across time and different providers.¹³

This linkage should be driven in part by a new monitoring and evaluation strategy for TB that, for the first time, includes SHI information systems and claims analysis data, which can be an important

source of data for TB programs. Taiwan provides an example where starting to require TB notification as a condition of insurance reimbursement led to a 47% increase in TB notifications in a single year,¹⁶ contributing to over 96% of TB being notified.⁵⁷ In Korea, where over 90% of TB cases are managed by private providers and covered by SHI, 94% of cases in the health insurance claims system matched notifications in the National Tuberculosis Surveillance System in 2014.¹⁷

SHI also introduces the need for new functions.⁵⁶ Beyond the obvious work to define coverage packages, reimbursement amounts, and pro-poor enrollment strategies, new work is also needed to establish or strengthen empanelment, certification and accreditation criteria, including clarity on who runs training courses, who tests and accredits, who enforces and verifies, and which human resources and financial flows support all of this activity.

ASSESSING THE REACH OF SOCIAL HEALTH INSURANCE INTO TUBERCULOSIS CARE AND PREVENTION

The extent to which SHI changes TB treatment in a particular country depends on three factors: 1) the extent to which SHI covers the universe of TB treatment in the country, 2) any associated changes in demand and care seeking, and 3) the extent to which SHI rules change provider incentives and referral pathways related to TB (see the section on purchasing decisions above).

The first question, on coverage, brings us to the traditional three dimensions of health financing coverage—who is covered, which services are covered, and the proportion of the costs covered²—but with a ‘TB lens’ (Figure 2). First, for the reach of SHI to TB patients, the percentage of the national population covered by SHI is obviously critical. Equally important is the extent and nature of coverage for indigent populations, including the reliability of the targeting of this coverage to the true poor,⁵⁸ given that TB is concentrated in impoverished populations.

For service coverage, the point becomes moot if TB is explicitly excluded (e.g., because of the perception that TB, as a vertical and ‘free’ program, does not require SHI funding). However, as outlined above, this appears to be an unwise policy decision in a high TB burden country. Turkey¹⁹ and Cambodia¹⁰ are two countries where the risks of standing outside of SHI are evident: an increasing percentage of public provider compensation is coming from SHI-related, performance-based sources, resulting in a loss of provider prioritization for program-based TB activities.

The proportion of TB costs that are covered by SHI depends on another assessment: the proportion of each patient’s TB services and patient journey covered by an SHI scheme. This has several dimensions. For

example, TB patients have both primary care and hospital-based costs. Thus, SHI will be far more relevant to TB if, unlike many of India's current schemes, it includes not only in-patient benefits but also out-patient and primary care coverage. Indeed, an evaluation of the hospitalization insurance scheme *Rashtriya Swasthya Bima Yojana* (RSBY) in India showed that out-of-pocket spending was not reduced, as there were so many costs in addition to hospitalization.⁵⁹ As TB patients also need diagnostics and drugs, an SHI scheme that contracts with laboratories and pharmacies will reach more TB patients and reimburse more of their costs. Finally, the percentage of providers empaneled in SHI will also affect true coverage rates, as an insured patient visiting a non-empaneled provider will not be covered. As a variant of this scenario, even an empaneled provider may still opt out and resort to relying on out-of-pocket charges if SHI claims and reimbursement procedures (either in general, or specifically for TB) are overly complicated or burdensome.⁶⁰

TB patient cost studies^{26,61} provide an opportunity to identify convoluted diagnostic journeys⁶² or non-patient-centered treatment models that increase patient costs; these can be combatted with SHI payment systems designed to compensate and thus encourage more direct patient journeys.

In conclusion, an SHI program will have a greater effect on TB outcomes if it has a high population coverage, identifies and enrolls indigent clients, includes TB either implicitly or explicitly, covers primary care, out-patient and in-patient costs, covers diagnostic and drug costs (both in-house in hospitals and via contracting with stand-alone laboratories and pharmacies), and empanels large numbers of both public and private providers using claim and reimbursement schemes that the providers see as acceptable and beneficial. In countries such as Ghana, Indonesia, Kenya and the Philippines, an analysis of these dimensions reveals many remaining gaps, but also that many TB patients already encounter SHI systems. Furthermore, in high TB burden countries such as Bangladesh, Cambodia, Ethiopia, Myanmar, and Nigeria, SHI discussions, pilots or roll-outs are well advanced, which suggests that these TB and SHI issues will only become more important over time.

THE JOURNEY TO A FULL SOCIAL HEALTH INSURANCE PACKAGE FOR TUBERCULOSIS

The drive to achieve UHC is a journey,⁶³ and although there is some documentation of the political path of this journey,⁶⁴ there is a shortage of literature on what SHI systems look like during the intermediate stages of this journey.^{4,65,66}

National health insurance authorities realize that, as immediate achievement of full client, service and cost coverage is not possible, hard choices must be

made. The resulting limitations of growing SHI schemes have consequences for TB. For example, both Indonesia and the Philippines do not yet contract with stand-alone or chain pharmacies and laboratories, or enforce provider networking, thus making it much harder to construct a coherent primary care coverage package for TB, at least for the many clients who seek care in the private sector. In addition, in the Philippines, as PhilHealth contracts institutions but does not yet contract private, stand-alone general practitioners, there is no insurance-based conduit to reach these providers with notification and quality improvement schemes for TB.

The transition to full SHI coverage also includes a slow shift of financial flows—typically from familiar but inflexible line-item government budgets under the Ministry of Health towards claims payments, administered by a health insurance agency. During this transition phase, there is often some opacity in defining the amounts and purposes of the remaining line-item budgets.⁶⁷

In a mature system, it may make sense for all funding for curative care to come from insurance payments, whereas public health activities are funded by line-item budgets assigned to teams who are dedicated to such functions.⁶⁸ However, the definition of how staff and funds are to be used during the transition into SHI is rarely so clear. Typically, the starting point is a generalist public staffing structure where all staff are responsible and compensated (via salaries) for both curative and collective, public health services; there is therefore no dedicated cadre ready to take over a funding stream specifically for public health tasks. In addition, during the SHI reform process, the need for explicit funding of public health activities may be forgotten.³⁸ This lack of clarity is particularly important for TB, where a loss of funds for these activities can result in a rebound of TB transmission, and where the public health functions such as contact investigation and active case finding become even more important (in proportion to other TB activities) as TB incidence decreases.⁶⁹ The balance of financing for public health vs. curative functions will continue to evolve as the TB burden changes.

This conflict of public health and curative functions even emerges for the task of TB screening. For example, in Indonesia, TB screening in out-patient departments was resisted by hospitals as SHI expanded, as such a basic symptom-screening exercise did not align with the secondary care mandate for hospitals under the insurance guidelines.³⁶ A similar issue arises in primary care: a stand-alone screening center for a limited list of conditions, such as TB, does not align with the capitation-based payment design in Indonesia, which assumes that a primary clinic provides all primary services. To navigate such conflicts, countries need new governance arrangements that work in an SHI-based financing context.

THE WAY FORWARD

SHI brings not only the necessity for hard decisions but also the necessity to institute a process to reach such decisions.³² NTPs should be part of the solution by participating in this decision making and creating information to inform it. A starting point for NTPs is to understand the situation and options: current purchasing arrangements for each step of the TB diagnosis and treatment pathway, in both public and private sectors; TB-specific gaps and issues that arise as a result (e.g., overly complex patient pathways, high costs to patients or the system, quality gaps, and use of primary vs. secondary care); potential analyses to conduct; and possible mitigating steps to address these issues. Such mitigating steps would include defining which policies could and should be reformed, and understanding institutional pathways to pursue for policy change. For countries only just starting on the SHI pathway, an understanding of lessons from other countries may allow them to avoid issues that others have already encountered.

Many of these issues are not specific to TB. The topics outlined above, such as distinguishing public health responsibilities and working to ensure they are sustained as arrangements for personal care are greatly altered, timing the inclusion of private providers in SHI, ensuring that care for rare but important conditions are not undermined in the transition to SHI schemes, and ensuring continuity of care, are important markers of a functional health system. However, they have particular relevance for TB and, as a critical public health threat, TB can act as both a driver and a marker for improvement of these areas throughout the health system.

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R É S U M É

De nombreux pays durement frappés par la tuberculose (TB) adoptent un système d'assurance sociale santé (SHI). Les programmes nationaux TB (PNT) de ces pays commencent cependant seulement maintenant à se confronter aux effets du SHI sur leur fonctionnement. Nous revoyons ici la justification de l'analyse des programmes TB à la lumière des changements apportés par le SHI. Nous considérons l'influence de certaines décisions d'achat sur les soins et la prévention de la TB, et les opportunités que le SHI peut présenter pour les PNT d'élargir l'engagement du secteur privé, d'extraire les données relatives à la TB dans tout le

secteur de la santé, et de faciliter les efforts d'amélioration de la qualité. Nous explorons également quelles fonctions sont susceptibles d'être remplies par les systèmes de SHI, qui requièrent une attention particulière avec l'émergence de la SHI, et les mesures qui indiquent jusqu'à quel point la recherche de soins de TB et le traitement peuvent être atteints et influencés par la SHI. La SHI présente certains risques pour les programmes TB mais également des opportunités de s'adapter à un système de santé plus moderne et d'offrir une prise en charge de qualité de la TB à plus de patients.

R E S U M E N

Muchos países con alta carga de morbilidad por tuberculosis (TB) adoptan en la actualidad esquemas de Seguro Social de Salud (SHI). Sin embargo, los Programas Nacionales contra la Tuberculosis (PNT) de estos países apenas empiezan a abordar los efectos de estos esquemas en sus operaciones. En el presente artículo se examina el fundamento del análisis de los programas contra la TB desde la perspectiva de los cambios que introduce el SHI. Se analiza la influencia de determinadas decisiones de adquisiciones sobre la prevención y la atención de la TB y las oportunidades que puede ofrecer este nuevo sistema a los PNT, para ampliar la participación del sector privado, extraer datos

sobre TB de todo el sector de la salud y facilitar las iniciativas de mejora de la calidad. Asimismo, se exploran las funciones que pueden cumplir los sistemas sociales de salud, las funciones que precisan una atención especial al introducir el nuevo esquema y los parámetros que indican la medida en que este sistema puede modificar la búsqueda de atención y el tratamiento de la TB y cómo los puede influenciar. El SHI plantea ciertos riesgos a los programas de TB, pero también ofrece oportunidades de adaptación a un sistema de salud más moderno y de suministro de atención y tratamiento de buena calidad a más personas.
