Cost of TB prevention and treatment in the Philippines in 2017

T. P. J. Capeding, J. D. Rosa, H. Lam, D. G. Gaviola, A. M. C. Garfin, C. Hontiveros, L. Cunnama, Y. V. Laurence, N. Kitson, A. Vassall, S. Sweeney, I. Garcia-Baena

1Institute of Health Policy and Development Studies, National Institutes of Health, University of the Philippines Manila, Manila, 2Department of Health, National TB Control Programme, Manila, Philippines; 3Health Economics Unit & Health Economics Division, University of Cape Town, Cape Town, South Africa; 4Department of Global Health and Development, Centre for Health Economics in London, London School of Hygiene & Tropical Medicine, London, UK; 5Global TB Programme, World Health Organization, Geneva, Switzerland

SUMMARY

BACKGROUND: The Philippines aims to accelerate TB reduction through the provision of universally accessible and affordable services. The objectives of this paper are to estimate the costs of TB services and interventions using a health systems’ perspective, and to explore cost differences in service delivery via primary care facilities or hospitals.

METHODS: Data were collected from a multi-stage stratified random sampling of 28 facilities in accordance with Global Health Cost Consortium costing standards and analysis tools. Unit costs (in US$) estimated using top-down (TD) and bottom-up (BU) approaches, are summarised following Value TB reporting standards and by broad facility type.

RESULTS: Cost of delivering 32 TB services and eight interventions varied by costing method and delivery platform. Average BU costs ranged from US$0.38 for treatment support visits, US$2.5 for BCG vaccination, US$19.48 for the Xpert® MTB/RIF test to US$3,677 for MDR-TB treatment using the long regimen. Delivering TB care in hospitals was generally more costly than in primary care facilities, except for TB prevention in children and MDR-TB treatment using the long regimen.

CONCLUSION: Comprehensive costing data for TB care in the Philippines are now available to aid in the design, planning, and prioritisation of delivery models to End TB.

KEY WORDS: tuberculosis (TB); cost; provider cost; Philippines; treatment support visits

The Philippines is heading towards universal health coverage (UHC), but has a high TB incidence with 599 cases per 100,000 people (range: 336–936) in 2019.1 TB was the fifth leading cause of mortality in that year.2 There are 1.8% (range: 1.3–2.6) and 28% (range: 27–29) drug-resistant TB cases estimated among new and retreatment cases respectively. Patients with drug-resistant TB accounted for 1.8% (range: 1.3–2.6) of new cases and 28% (range: 27–29) of retreatment cases. The government aims to accelerate the reduction of TB through provision of people-centred, universally accessible and affordable quality services in the Philippines.3

Since ensuring that all essential health services are covered under a national health coverage scheme is a key undertaking under the UHC, an up-to-date assessment of the costs of TB services and their cost drivers will contribute to better estimations of resource requirements for TB, as well as TB package reimbursement design.4 Progress towards UHC in the Philippines also requires the development of well-designed province and city-wide healthcare provider networks.5 TB service provider networks include primary care facilities (PCFs), such as rural health units and health centres, and hospitals.5 Differences in costs of TB services across PCFs and hospitals have not been previously estimated, and their assessment can contribute to improving the organisation of service delivery models for TB management and prevention and inform TB budget formation for the scale up of TB services in city- and province-wide provider networks.

This study aimed to estimate the costs of delivering

Previous articles in the series: No 1: Chatterjee S, et al. Costs of TB services in India. Int J Tuberc Lung Dis 2021; 25: 1013–1018. No. 2: Chikovani I, et al. Cost of TB services in the public and private sectors in Georgia. Int J Tuberc Lung Dis 2021; 25: 1019–1027. No. 3: Kairu A, et al. Cost of TB services in healthcare facilities in Kenya. Int J Tuberc Lung Dis 2021; 25: 1028–1034.

Correspondence to: Theo Prudencio Juhani Capeding, Institute of Health Policy and Development Studies, National Institutes of Health, University of the Philippines Manila, Manila, Philippines. email: tzcapeding@up.edu.ph

Article submitted 11 October 2021. Final version accepted 6 January 2022.
TB services and interventions in the Philippines from a health systems’ perspective, and to contribute comprehensive data using the latest global costing standards\(^6\) to help inform resource allocation and planning for the effective implementation of universal healthcare.

METHODS

Methods and tools for protocol development, cost data collection, analysis and reporting were adapted from “Costing Guidelines for Tuberculosis Interventions”,\(^7\) and are detailed elsewhere.\(^8\) Costs of delivering 32 TB services and eight interventions in the Philippines were estimated from a health provider’s perspective. Full financial and economic costs were collected retrospectively and reflected ‘real world’ implementation of interventions. Where elements of TB services were not fully implemented in health facilities at the time of data collection, they were renamed to reflect partial implementation or removed from the analysis. No start-up costs for new interventions or costs of supporting service changes were included. Estimation of above service-level costs and any research costs were excluded.

Sampling frame and study population

The sampling frame was created from a national list of all public health facilities—private healthcare facilities regularly reporting cases to the NTP (private engaged) and private non-engaged, as of 2017. Given logistical and study budget constraints, three out of 17 regions were purposively selected based on general availability of TB interventions and services, urbanicity and presence of private sector facilities. This included Regions XI (Davao), 4B (Southwestern Tagalog Region) and III (Central Luzon), accounting for 19 of 101 million (18.7%) of the Philippines’ population, 0.7% of drug-susceptible TB notifications and 2.8% of multidrug-/rifampicin-resistant TB notifications and including 22 out of 144 cities.

The anonymised facilities were selected from these regions using multi-stage stratified random sampling. Inclusion criterion was health facilities that provided TB treatment and diagnosis. Exclusion criterion was facilities that do not report TB service provision. Facilities were categorised by urbanicity, ownership and facility type. Twenty-eight facilities from the three regions were selected for the study (Table 1, Supplementary Table S1).

Data collection: implementing global standards with "Value TB" costing tools

Data were collected by six trained researchers (working in pairs over a 7-day period) in 28 facilities between March 2018 to November 2019 using the latest global costing standards, methods and tools, including Value TB “Data Collection”, “Data Entry” tools and checklists\(^7\) and Global Health Cost Consortium’s reference case.\(^9\) All costs were for the calendar year 2017, except for four private, non-engaged facilities, for which 2018 data were collected in 2019, when mandatory notification entered into force. In-field collection took a week, followed by another week of review prior to reporting forward to study analysts at the University of the Philippines Manila, the Philippines.

Staff time was measured using at least one, if not all the following methods: direct observation, semi-structured interviews and staff timesheets. Interviews were conducted with each key staff member to determine resource use and time spent in the previous month, while direct observation was used to collect information resource use and time spent for sampled observations (Supplementary Tables S2 and S3). Data were collected in Philippine pesos and converted to 2017 US Dollars (US$1 = PHP50.4) using the midmarket average exchange rate from 2 January to 29 December 2017. Costs in PHP were deflated using Philippines’s GDP deflator\(^10\) from 2018 to 2017 in case of data on private non-engaged facilities collected for the year 2018, which were then converted to US$.

Key assumptions

Unavailable price data (e.g., furniture, equipment) was replaced with official government list prices and inflated to 2017 prices using GDP deflators (Supplementary Table S2).\(^10\) When actual building cost was not available, the study used estimated costs per square meter multiplied by the current market price. Wastage rates for medical supplies and consumables were assumed to be 0–5%, while for drugs this was 1–5%.

Cost data cleaning and descriptive analysis

Data were cleaned following Value TB project standard processes described elsewhere.\(^6\) For each facility, unit cost per services and intervention were generated, reviewed, and pooled to generate national estimates, and then analysed using Stata v15 (Stata Corp, College Station, TX, USA). To ensure comparability and standardisation, naming conventions were applied to describe TB services. Descriptive analysis performed in Stata v15 was exported to MS Excel (Microsoft, Redmond, WA, USA) following Value TB minimum reporting standards.

Analysis by two broad types of facility

To understand the impact of providing care, unit costs were analysed by two broad categories of service providers: PCFs and hospitals. Original facility categories were regrouped into “PCFs”, including “health centres”, “basic laboratory (standalone), health post/dispensary” and “community health unit” and “hospitals” encompassing primary-, sec-
Secondary- and tertiary-level (district, national, general and referral) facilities. Mean costs for TB interventions for the PCF and hospital groups were estimated.

Ethics statement and details of informed consent
Ethics approval was granted by the National Ethics Committee (NEC) of the Philippine Council for Health Research and Development (PCHRD; Metro Manila, Philippines), London School of Hygiene & Tropical Medicine Observational/Interventions Research Ethics Committee (London, UK; ref. 14680) and Department of Health Region XI Cluster Ethics Review Committee Submission for Davao Region (Davao City, the Philippines). The WHO Western Pacific Region granted ethic review exemption (ID N. 2018.1.STB).

RESULTS
Characteristics of 28 sampled facilities, including selected indicators of activity volume, show sampled facilities had from 4 to 432 TB-affected patients, and

| Facility code (region) | Facility level | Ownership | Locality | Total number of TB patients (2017) | Total beds | Total outpatient visits n | Outpatient visits for TB n | Total laboratory tests |
|------------------------|----------------|-----------|----------|-----------------------------------|-----------|--------------------------|--------------------------|------------------------|
| PH22 (IV-B)            | Primary hospital | Public    | Rural    | 76                                 | 75        | 204,129                  | 16,759                   | 31,075                 |
| PH6 (IV-B)             | Health centre   | Public    | Rural    | 12                                 | 0         | 1,947                    | 1,740                    | 68                     |
| PH16 (IV-B)            | Secondary hospital | Public   | Urban    | 79                                 | 150       | 242,088                  | 23,351                   | 170,658                |
| PH17 (IV-B)            | Community health unit | Public | Urban    | 242                                 | 0         | 16,958                   | 12,518                   | 6,317                  |
| PH10 (IV-B)            | Community health unit | Public | Rural    | 184                                 | 3         | 20,666                   | 10,496                   | 24,569                 |
| PH26 (IX)              | Tertiary hospital | Private for-profit | Urban | 46                                 | 100       | 20,929                   | 8,103                    | 1,625                  |
| PH11 (IX)              | Health centre    | Public    | Urban    | 94                                 | 0         | 1,472                    | 1,229                    | 316                    |
| PH21 (IX)              | Health centre    | Public    | Urban    | 200                                 | 0         | 19,636                   | 7,056                    | 4,723                  |
| PH8 (IX)               | Tertiary hospital | Public    | Urban    | 109,600                             | 274,293   | 171,190                  | 107,675                  | 509                    |
| PH12 (IX)              | Primary hospital | Private for-profit | Urban | 34                                 | 4,814     | 602                      | 28,347                   | 17                     |
| PH4 (IX)               | Primary hospital | Public    | Urban    | 87                                 | 35        | 2,244                    | 760                      | 15,953                 |
| PH7 (IX)               |                     | Public    | Urban    | 162                                 | 0         | 9,000                    | 5,597                    | 2,090                  |
| PH9 (III)              | Primary hospital | Private for-profit | Urban | 15                                 | 4,288     | 22                      | 0                       | 11                     |
| PH3 (III)              | Health centre    | Private for-profit | Rural | 4                                  | 1,236     | 29                      | 0                       | 17                     |
| PH5 (III)              | Health centre    | Private for-profit | Urban | NA                                 | 1,200     | 40                      | 17                      | 0                      |
| PH15 (III)             | Community health unit | Public | Urban    | 130                                 | 0         | 11,776                   | 3,173                    | 2416                   |
| PH19 (III)             | Community health unit | Public | Urban    | 202                                 | 0         | 9,255                    | 4,061                    | 432                    |
| PH25 (III)             | Primary hospital | Private for-profit | Urban | 14                                 | 35        | 5,362                    | 478                      | 100                    |
| PH24 (III)             | Community health unit | Public | Rural    | 130                                 | 0         | 42,524                   | 2,496                    | 3,763                  |
| PH20 (III)             | Community health unit | Public | Rural    | 146                                 | 0         | 29,434                   | 21,081                   | 1,795                  |
| PH18 (III)             | Tertiary hospital | Private for-profit | Urban | 42                                 | 150       | 30,076                   | 1,265                    | 126,052                |
| PH23 (III)             | Secondary hospital | Public    | Urban    | 16                                 | 50        | 83,535                   | 4,612                    | 3,638                  |
| PH13 (III)             | Primary hospital | Private for-profit | Urban | 31                                 | 60        | 12,136                   | 261                      | 34,377                 |
| PH27 (III)             | Tertiary hospital | Public    | Urban    | 108                                 | 408       | 233,017                  | 24,094                   | 249,461                |
| PH1 (III)              | Tertiary hospital | Private for-profit | Urban | 18                                 | 1,65      | 298,886                  | 1,590                    | 78,080                 |
| PH28 (III)             | Health centre    | Private for-profit | Urban | NA                                 | 7,300     | 92                      | 3,649                    | 0                      |
| PH14 (III)             | Community health unit | Public | Rural    | 180                                 | 0         | 33,381                   | 29,494                   | 6,229                  |
| PH2                 | Basic laboratory (stand alone) | Private for-profit | Urban | NA                                 | 0         | 0                       | 91                      | 0                      |

* Indicates facilities provided TB services exclusively.
NA = not applicable (no patients on treatment, identification and referral of TB cases only).

Table 2

| TB services                     | Facilities n | Bottom-up | Top-down |
|---------------------------------|--------------|-----------|----------|
| Outpatient diagnostic visit     | 27           | 2.9       | 2.3–3.6  |
| Outpatient screening visit      | 27           | 3.2       | 2.6–3.9  |
| Outpatient treatment visit      | 22           | 2.3       | 1.6–3.0  |
| Smear microscopy ZN             | 21           | 3.5       | 2.3–4.8  |
| Outpatient monitoring visit     | 21           | 2.6       | 1.9–3.3  |
| Outpatient vaccinations         | 20           | 2.3       | 1.6–2.9  |
| HIV rapid test                  | 15           | 3.4       | 2.9–3.9  |
| Sputum collection               | 15           | 5.5       | 3.9–7.1  |
| TST                             | 13           | 4.0       | 2.1–5.9  |
| Treatment support visit         | 10           | 0.38      | 0.25–0.51|
| CXR film                       | 10           | 3.3       | 2.8–3.8  |
| Xpert MTB/RIF testing          | 9            | 19.5      | 18.4–20.5|

* USD1 = PHP50.4.
USD = US dollar; CI = confidence interval; ZN = Ziehl-Neelsen; TST = tuberculin skin test; CXR = chest X-ray; PHP = Filipino peso.

Characteristics of 28 sampled facilities, including selected indicators of activity volume, show sampled facilities had from 4 to 432 TB-affected patients, and
that visits were highest at tertiary-level facilities (up to 1.2 million visits in 2017) (Table 1), where the array of TB diagnostic and monitoring services available is largest (Supplementary Table S1).

Cost of delivering 32 TB services and eight interventions varied by costing method and delivery platform (Table 2). Xpert® MTB/RIF (Cepheid, Sunnyvale, CA, USA) had the highest BU cost, at US$19.5 (95% confidence interval [CI] 18–21), while a treatment support visit was costed at US$0.38 (BU) (95% CI 0.25–0.51). Cost drivers for most commonly provided TB services, including outpatient screening, visits and common diagnostic procedures are shown in the Figure. Overhead costs were a significant contributor to commonly provided TB services, ranging from 6% to 67% of the cost of all services using BU costing, with the exception of HIV rapid testing, sputum collection and Xpert testing, for which consumables contributed to most of the costs (range: 38–84% BU). Staff cost was the main cost driver for outpatient screening visits (43%). Further detailed statistics of the full list of unit costs for the 32 TB services costed are available in the Supplementary Data (Supplementary Tables S4, S5A, S5B).

Mean costs (and standard deviation [SD]) of TB intervention packages for vaccination, prevention, first and second-line treatment across all facilities are given in Table 3. Average cost of bacille Calmette-Guérin (BCG) vaccination was US$3.8 (TD) and US$2.5 (BU); cost of TB prevention in children was US$35.4 (TD) and US$24.5 (BU), and included six outpatient treatment visits and drug costs. Cost of

| Intervention                  | Population                                      | n  | Bottom-up Mean | Bottom-up SD | Top-down Mean | Top-down SD |
|-------------------------------|-------------------------------------------------|----|----------------|--------------|---------------|-------------|
| BCG vaccination               | Infants                                         | 20 | 2.5            | 1.8          | 3.8           | 2.4         |
| TB prevention                 | Child, isoniazid preventive therapy for 6 months| 7  | 24.5           | 11.1         | 35.4          | 29.2        |
| First-line TB treatment       | Adult EPTB, new + relapse                       | 7  | 137            | 118          | 151           | 108         |
|                               | Adult PTB, new + relapse                        | 19 | 117            | 84.6         | 146           | 96.7        |
|                               | Adult PTB, previously treated                   | 12 | 250            | 100          | 284           | 97.6        |
|                               | Child PTB, new + relapse                        | 12 | 138            | 28.5         | 150           | 33.2        |
|                               | Child PTB, previously treated                   | 12 | 3,677          | 746          | 4,000         | 760         |
| Second-line TB treatment      | Adult PTB, standard regimen                     | 8  | 1,244          | 327          | 1,382         | 315         |
|                               | Adult PTB, short regimen                        | 9  | 2,497          | 2,719        |               |             |

USD = US dollar; PHP = Filipino peso; SD = standard deviation; BCG = bacille Calmette-Guérin; EPTB = extrapulmonary TB; PTB = pulmonary TB.
DISCUSSION

The Philippines Value TB Study was conducted to estimate mean unit costs of TB services and interventions from 28 randomly selected facilities in three purposively sampled regions using global costing standards and bottom-up and top-down methods. This is the first study in the Philippines to estimate the comprehensive cost of delivering a large range of TB services \((n = 32)\) and interventions \((n = 17)\). TD unit costs for both TB services and TB interventions were higher than BU cost, possibly due to efficiency gaps in service delivery; this is also supported by the finding that overhead expenses were a major driver of total costs for most TB services, which could be a potential area of focus for resource managers in terms of cost reduction.

The cost of delivering drug-resistant care in the Philippines has decreased compared to when first and last measured in 2002.\(^\text{11}\) The 2002 study estimated that MDR-TB treatment cost USD$4,915 \((\text{adjusted to 2017 prices}), \text{higher than the TD (USD$4,000)}\) and BU \((\text{USD$3,677})\) 2017 costs we estimated. The main cost driver for both studies were drugs, accounting for 64% in 2017 and 57% in 2002.\(^\text{11}\) In addition to the decreasing cost of MDR-TB drug regimens and evolution in diagnosis and care protocols, methodological differences in the two costing studies may account for the difference across time in MDR-TB treatment costs. Costs per patient for data management, contact tracing and hospitalisation were included from the 2002 estimates, which were based on a single facility, but excluded in 2017 (based on 28 facilities). We found that many of the laboratory procedures for MDR-TB patients, such as sputum culture and blood chemistry, were performed outside the facilities sampled (unlike the 2002 study, which recorded in-house laboratory testing that was reflected in the study’s unit cost per MDR-TB treatment). Drug regimens used in 2002 included p-aminosalicylic acid \((\text{PASER};\ \text{Jacobus Pharmaceutical Company, Princeton, NJ, USA})\) is no longer used in 2017.

### Table 4

| Intervention | Population | \(n\) | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
|--------------|------------|------|------|----|------|----|------|----|------|----|
| BCG vaccination | Infants | 9 | 2.0 | 0.96 | 3.3 | 2.0 | 11 | 3.0 | 2.2 | 4.3 | 2.7 |
| TB prevention | Child, isoniazid preventive therapy for 6 months | 5 | 25.2 | 13.5 | 39.7 | 34.6 | 2 | 22.8 | 0.01 | 24.7 | 0.24 |
| First-line TB treatment | Adult EPTB, new + relapse | 4 | 88.3 | 22.8 | 108 | 32.8 | 3 | 203 | 172 | 209 | 157 |
| | Adult PTB, new + relapse | 11 | 74.6 | 31.9 | 100 | 54.7 | 8 | 176 | 100 | 210 | 108 |
| | Adult PTB, previously treated | 7 | 200 | 68.7 | 240 | 80.4 | 5 | 319 | 102 | 345 | 91.9 |
| | Child PTB, new + relapse | 9 | 136 | 32.5 | 146 | 37.0 | 3 | 145 | 12.6 | 161 | 18.7 |
| Second-line TB treatment | Adult PTB, standard regimen | 4 | 3,742 | 710 | 4,090 | 666 | 4 | 3,611 | 884 | 3,910 | 939 |
| | Adult PTB, short regimen | 4 | 1,150 | 463 | 1,301 | 452 | 5 | 1,319 | 194 | 1,447 | 181 |
| | Child PTB, standard regimen | 0 | 1 | 2,497 | 2,719 |

USD = US dollar; PHP = Filipino peso; SD = standard deviation; BCG = bacille Calmette-Guérin; EPTB = extrapulmonary TB; PTB = pulmonary TB.
costs were mostly observed in PCFs than in hospitals; however, TB prevention in children using isoniazid therapy and MDR-TB treatment using the standard protocol were the two exceptions. The largest difference in intervention costs was observed in the treatment of newly diagnosed PTB, where (BU) treatment cost in hospitals was 57% higher than in PCFs. The difference in delivering standard MDR-TB treatment care through PCFs or hospitals was small (PCF 3.5% higher than in hospitals). Differences may be due to the number of average outpatient visits related to the intervention, as treatment of new PTB in hospitals required more frequent visits (and associated in-house laboratory testing), whereas the standard MDR-TB treatment delivery in PCFs required more frequent visits than in hospitals. This is consistent with findings from other studies where frequency of visits led to an increase in intervention costs. The smaller gap between PCFs and hospitals in providing MDR-TB treatment is partly explained by the higher number of visits and diagnostic procedures offered at hospitals: chest X-rays and other laboratory tests in line with TB national recommendations were more easily accessible in hospital settings.

PCFs usually outsource diagnostic and adverse events testing for TB patients, Tuberculin skin test (TST) and outpatient visits for isoniazid TB prevention therapy were more costly in the PCFs, as were staff costs, primarily because of the higher salaries of staff in PCFs compared to hospitals. Also, as the administration and support services were often provided by the same salaried staff, this drove up costs for administration and support services as well.

What this means for the organisation of service delivery

It appears that intuitively PCFs to deliver treatment is less costly than delivering treatment services in hospitals; this is supported by findings from previous studies. We found that all but two interventions (isoniazid TB prevention therapy in children and standard MDR-TB treatment protocol) were more costly to deliver in hospitals. Our findings could be used to inform service delivery arrangements (specimen transportation or referral systems) aimed at lowering costs and improve efficiency. Options for allocating TB services where quality and efficiency are maximised could be explored, while ensuring that lower costs of care delivery do not lead to higher costs borne by TB-affected households or affect access to TB care issues for hard-to-reach populations.

Limitations of this study and recommendations for further research

This study had some limitations. First, the sample of 28 facilities was not adequate for cost function analysis. Second, data collection was limited to TB services delivered at the facility level (and excluded above-service cost estimations). This means that outsourced nationally recommended tests, such as those used for MDR-TB treatment, were excluded for unit cost estimates as presented here. As the study deals with the health system perspective only, future research could combine our results with those from previous costing studies from a patient perspective and the results of the 2017 National TB Patient Cost Survey; this would provide a more complete picture of the variations in costs of TB services. Finally, the cost variations observed across facility type may have been due to varying quality and standards in TB service delivery. Additional research would be needed to analyse the quality and cost-effectiveness of services in PCFs and hospitals.

CONCLUSION

For the first time, comprehensive unit cost data for TB services and major cost drivers in the Philippines are now available, allowing planners and managers of TB services to make more informed decisions. This cost evidence will assist shape future TB care delivery arrangements and identify cost-cutting options for the health system. Unit costs of TB-related services estimated in this study from a substantial sample of 28 facilities showed that prevention and treatment interventions were less costly in 2017 when delivered through PCFs.

Acknowledgements

The authors thank the Department of Health, National TB Control Program of the Philippines for the overall coordination and administrative support in facilitating access to the study sites; R T Miguel and K J Cheng for study coordination and training of data collectors in 2018; J de Jesus, J M Tiu, R Lomboy, A J Paloma, J Ildefonso and A Sen Key for data collection; H Villaverde for assistance in data analysis; the personnel in the three regions and facilities that participated in the Value TB Study; G Gomez for technical support with sampling; national and international Value TB Advisory Group for feedback; and other Value TB countries study lead authors (S Chatterjee and I Chikovani) for feedback on the first draft.

We thank the Bill and Melinda Gates Foundation (Seattle, WA, USA) through London School of Hygiene & Tropical Medicine (LSHTM; London, UK) (Grant number: OPP1158747; reference: 14680) for funding the multi-country Value TB Study, from January 2017 to December 2019. This funding supported local research teams in the five countries, as well as LSHTM, University of Cape Town (Cape Town, South Africa) and the WHO in their concerted country coordination and costing guidance role.

References

1 World Health Organization. Global tuberculosis report, 2020. Geneva, Switzerland: WHO, 2020.
2 World Health Organization. Global health estimates: Leading causes of death. Geneva, Switzerland: WHO, 2021. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death.
3 Official Gazette. An Act Instituting Universal Health Care for All Filipinos, Prescribing Reforms in the Health Care System,
and Appropriating Funds Therefor Manila, The Philippines: Official Gazette, 2018. https://www.officialgazette.gov.ph/downloads/2019/02feb/20190220-RA-11223-RRD.pdf

4 Laurence YV, Griffiths UK, Vassall A. Costs to health services and the patient of treating tuberculosis: a systematic literature review. PharmacoEconomics 2015; 33(9), 939–955.

5 Department of Health. Implementing rules and regulations of the Universal Health Care Act, 2019. Manila, The Philippines: DoH, 2019. https://doh.gov.ph/sites/default/files/basic-page/UHC-IRR-signed.pdf

6 Alva S, Cloutier S. Quality of tuberculosis services assessment in the Philippines: report. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina, 2019.

7 Cunnama L, et al. Costing guidelines for tuberculosis interventions. Geneva, Switzerland: World Health Organization, 2019 https://www.who.int/tb/publications/costing_guidelines/en/.

8 Sweeney S, et al. Costs of TB services. Approach and selected findings of a multi-country study. Int J Tuberc Lung Dis 2022 [In press].

9 Vassal A, et al. Reference case for estimating the costs of global health services and interventions. Global Health Cost Consortium, 2017. https://ghcosting.org/pages/standards/reference_case

10 World Bank. GDP deflator: Linked series (base year varies by country) - Philippines. Washington DC, USA: World Bank, 2020. https://data.worldbank.org/indicator/NY.GDP.DEFL.ZS?end=2018&locations=PH&start=2017

11 Tupasi TE, et al. Feasibility and cost-effectiveness of treating multidrug-resistant tuberculosis: a cohort study in the Philippines. PLoS Med 2006; 3(9): e352.

12 van Rensburg C, et al. Cost outcome analysis of decentralized care for drug-resistant tuberculosis in Johannesburg, South Africa. PLoS One 2019; 14(6): e0217820.

13 Bada FO, et al. Cost of three models of care for drug-resistant tuberculosis patients in Nigeria. BMC Infect Dis 2019; 19: 41.

14 World Health Organization. Global tuberculosis report, 2020. Geneva, Switzerland: WHO, 2020.

15 World Health Organization. Tuberculosis patient cost surveys: a handbook. Geneva, Switzerland: WHO, 2017.
RE´SUMÉ

CONTEXTE : Les Philippines ont pour objectif d’accélérer la réduction de la TB en dispensant des services abordables et accessibles de manière universelle. Nos objectifs étaient d’estimer les coûts des services et interventions antituberculeux du point de vue des systèmes de santé, et d’analyser les différences de coûts lorsque les hôpitaux ou les centres de soins proposent ces services.

MÉTHODES : Les données ont été recueillies par échantillonnage aléatoire à plusieurs degrés de 28 établissements, conformément aux outils d’analyse et normes de calcul des coûts du Global Health Cost Consortium. Les coûts unitaires (en USD), estimés à l’aide des méthodes descendante (TD) et ascendante (BU), sont résumés selon les normes du Value TB Data Collection Tool, ainsi que par type général d’établissement.

RÉSULTATS : Le coût de 32 services antituberculeux et huit interventions variait en fonction de la méthode de calcul des coûts et de la plateforme dispensant ces services. Les coûts BU moyens variaient de 0,38 USD pour les consultations de soutien au traitement, 2,5 USD pour la vaccination par le BCG, 19,48 USD pour le test Xpert® MTB/RIF à 3 677 USD pour le traitement de la MDR-TB par schéma thérapeutique long. La fourniture de soins antituberculeux en hôpitaux était généralement plus chère qu’en centres de soins primaires, à l’exception de la prévention de la TB chez l’enfant et du traitement de la MDR-TB par schéma long.

CONCLUSION : Les données exhaustives sur les coûts des soins antituberculeux sont désormais disponibles aux Philippines, afin d’aider à la conception, à la planification et à la priorisation des modèles de fourniture des services pour mettre fin à la TB.