

Facilitators and Barriers to the Implementation of Selected Local Tuberculosis Control Programs in the Province of Laguna, Philippines

**Carl Abelardo T. Antonio^{1,2*}, Jonathan P. Guevarra³,
Paolo Victor N. Medina⁴, Evalyn A. Roxas⁵, Lolita L. Cavinta⁶,
Jorel A. Manalo⁷, Dorothy Jean N. Ortega^{8,9}, Ma. Rhenea Anne M. Cengca^{8,9},
Rosario Clarissa Marie M. Lota^{8,10}, Donna Mae Geocaniga-Gaviola¹¹,
and Anna Marie Celina G. Garfin¹¹**

¹Department of Health Policy and Administration, College of Public Health
University of the Philippines Manila, Manila 1000 Philippines

²Department of Applied Social Sciences, The Hong Kong Polytechnic University Kowloon, Hong Kong SAR

³Department of Health Promotion and Education, College of Public Health
University of the Philippines Manila, Manila 1000 Philippines

⁴Department of Family and Community Medicine, College of Medicine
University of the Philippines Manila, Manila 1000 Philippines

⁵Department of Medical Microbiology, College of Public Health
University of the Philippines Manila, Manila 1000 Philippines

⁶Institute of Herbal Medicine, National Institutes of Health
University of the Philippines Manila, Manila 1000 Philippines

⁷Human Resource Development Office
University of the Philippines Manila, Manila 1000 Philippines

⁸College of Public Health, University of the Philippines Manila, Manila 1000 Philippines

⁹College of Medicine, University of the East–Ramon Magsaysay
Memorial Medical Center Inc., Quezon City 1113 Philippines

¹⁰College of Medicine, University of the Philippines Manila, Manila 1000 Philippines

¹¹National Tuberculosis Control Program
Infectious Diseases for Prevention and Control Division
Disease Prevention and Control Bureau, Department of Health, Manila 1003 Philippines

This paper aimed to determine the facilitating and hindering factors in the implementation of local tuberculosis (TB) control programs in two purposively selected localities in the Province of Laguna, Philippines. Transcripts of semi-structured interviews with six policymakers and program implementers at the regional, provincial, and city/municipal levels were qualitatively analyzed in accordance with the method of Miles and co-authors and validated through triangulation and informant/stakeholder feedback. Identified facilitating factors include 1) allocation and mobilization of human, material, and financial resources to support the implementation of program activities; 2) supervision and monitoring of program implementation; 3) formation and mobilization of partnerships with the other government agencies and the private sector; and 4) streamlining and improvement of existing processes and technologies. Hindering factors were: 1) mismatch in demand and supply for program-related

*Corresponding Author: ctantonio@up.edu.ph

resources; 2) variation in the diagnostic and treatment strategies employed by providers; 3) focus on service provision and reduced attention to activities focused on more upstream factors; and 4) external program drivers. In a decentralized healthcare setting such as the Philippines, local governments play an important role in implementing health programs designed to achieve national and even global health goals. Program managers and implementers will need to design strategies to leverage the identified facilitating factors and mitigate the effects, if not totally prevent the emergence, of hindering factors to implementation of the local TB prevention and control program.

Keywords: tuberculosis, health services, implementation research, Philippines

TB remains a major public health concern in the Philippines as there has been no to minimal change in terms of disease burden among the population over the past decade (GBD Tuberculosis Collaborators 2018; WHO 2018). Both patient and health system factors were suggested to have contributed to this scenario, which has possibly undermined prior efforts and substantive investments made by government agencies and private sector stakeholders, as well as from official development assistance (DOH 2014). In addition, decentralization of health services in the country following devolution in 1991 was noted to have had an equivocal impact on health outcomes and more specifically to TB prevention and control efforts (Grundy 2001; Grundy *et al.* 2003; Romualdez 2007; Vianzon *et al.* 2013; Vista *et al.* 2016).

Recognizing the role of local government units (LGUs) in driving forward the agenda to end TB in the next decade, the National TB Control Program (NTP) identified the need to “drum up national, regional and local government units/agencies on the multi-sectoral implementation of TB elimination plan” in the 2017–2022 Philippine Strategic Elimination Plan: Phase 1 (DOH 2017). As existing evidence in the literature was derived from analysis of issues from the perspective of TB patients, or from a very broad health systems perspective, our research was designed to examine the issue from the LGU perspective.

The overall objective of this study was to determine the facilitating and hindering factors in the implementation of local TB programs in selected areas in the Province of Laguna, the Philippines. The purpose of the research was to develop recommendations for the NTP that can aid in the development of national policies or strategies to better engage LGUs in the broader national and global agenda of TB elimination.

The theoretical and analytic framework for this project (Figure 1) was informed by a combination of the general program logic model as proposed by Wholey and colleagues (2010), Lewin’s force field analysis (Brager and Holloway 1993), the health system framework of the World Health

Organization (WHO 2007), the pillars of the Philippine Health Agenda (DOH Administrative Order No. 2018-0014), and the framework of the “2017–2022 Philippine Strategic Elimination Plan: Phase 1” (DOH 2017).

We interviewed six individuals directly involved with management and implementation of the TB program at the regional (1), provincial (1), and city (3) / municipal (1) levels from two purposively selected localities in the Province of Laguna that had extreme performance in terms of case detection (*i.e.* case detection rate) and treatment outcomes (*i.e.* treatment success rate) relative to national targets. While we were able to seek audience with local executives and legislators, they declined to grant interviews as they deemed the local health office staff to be better informed on the topic. We were also unable to interview one local health officer due to conflicts in the schedule but were able to obtain feedback on our initial propositions.

Using an expert interview technique (Littig 2008), we conducted interviews after permission from the head of the office was received and interviewees identified. In all instances, interviews took place on the same day that informed consent was obtained, was conducted in the private office of the informant, and lasted for about 1 h each. Topics covered during the interviews were in the following broad areas: a) management of local TB program, b) policy and governance, and c) perceptions on facilitating and hindering factors.

Translated transcripts of interviews, were uploaded into NVivo (version 12.1), where data analysis was undertaken. Qualitative data analysis was carried out in accordance with the method of Miles and co-authors (2014) and guided by the theoretical framework previously described. Specifically, we performed data reduction (*i.e.* the division of data sources into data segments or coding units), pattern-seeking (*i.e.* grouping of first cycle codes into categories, themes, or constructs), and claims verification (*i.e.* feedback on initial theoretical propositions from informants and stakeholders).

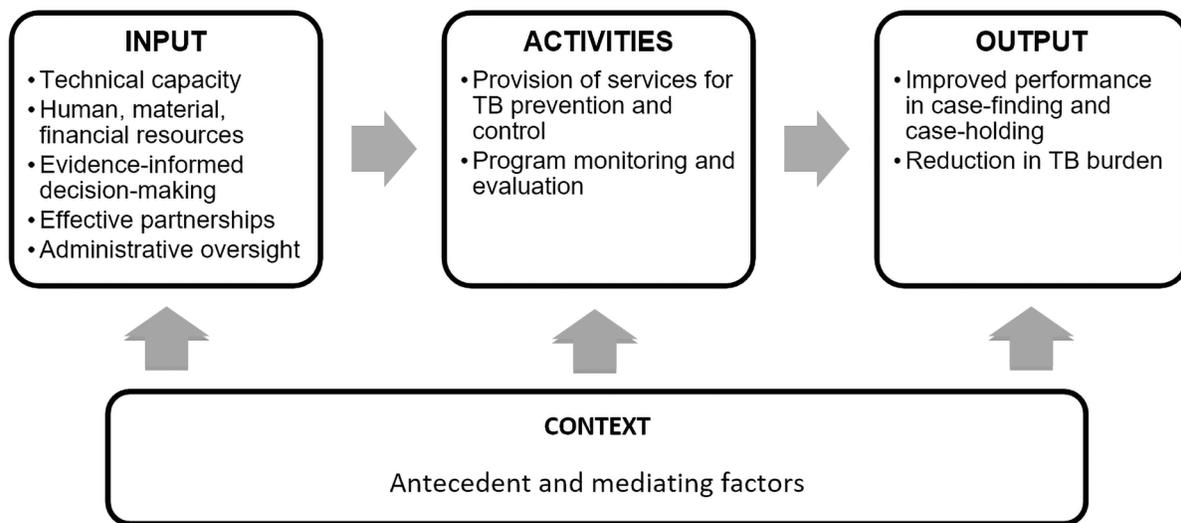


Figure 1. Theoretical and analytic framework of the study.

The reduction of TB burden at the national level (long-term output or impact) is preceded by improved case-finding and case-holding practices (short-term output). These, in turn, require the following inputs and activities: i) delivery of health services that are consistent with accepted standards, but are also attuned to the needs of the local population; ii) availability of human, material, and financial resources to support program implementation; iii) evidence-informed decision making; iv) exercise of administrative oversight and presence of support from policy-makers and local leaders; and v) effective partnerships that harness contribution from the other government agencies, private sector, and civil society. The transition from input to impact is influenced by the presence of antecedent factors (*i.e.* elements that the program starts out with, usually forming part of the local milieu) and the emergence of mediating factors (*i.e.* influences that arise as the program unfolds). Borrowing from force field analysis, we classified inputs, antecedent factors, and mediating factors into two: driving forces (*i.e.* facilitators or factors which, when increased, support attainment of the desired output), and restraining forces (*i.e.* barriers, or factors which, when increased, support the status quo or detract from the attainment of the desired results). It is noteworthy to mention that a restraining force can be the absence of a particular input or contextual factor.

Clearance to undertake the research was provided by the University of the Philippines Manila Research Ethics Board (2019-057-01) and the Western Pacific Regional Office Ethics Review Committee (2019.9.PHL.2.STB).

Four clusters each of facilitating (designated “F.X”) and hindering (designated “H.X”) factors with respect to the implementation of local TB programs that were common in the study sites were identified (Table 1).

Our findings highlighted important aspects necessary for the implementation of TB program initiatives. Availability of the right quantity and quality of human, material, and financial resources when and where these are needed is essential to a well-functioning TB program (Bulage *et al.* 2014; Marme 2018). This means that resource allocation and mobilization must be actively managed to successfully attain the program outcomes and that the competing demands from other existing or emerging health priorities are appropriately addressed (Vista *et al.* 2016; Desta *et al.* 2019). Further, the efficiency of service provision, specifically reducing turnaround and waiting

times, were identified as key determinants for improving patient adherence to diagnostic procedures and therapeutic regimens, and consequently reducing lost-to-follow-up cases (Bulage *et al.* 2014; Vista *et al.* 2016; Desta *et al.* 2019). These program elements will need to be supported by a functioning information system that will allow program implementers and decision-makers to obtain a snapshot of program performance at specific time points, a deliberate integration of resource and facility maintenance efforts on the part of the government, and active formation of partnerships to augment state allocation to support the implementation of program activities (Tlale *et al.* 2016; Gidado *et al.* 2019).

Readers of this paper will need to consider the methodological limitations of the research when interpreting findings. Foremost, information bias may be present in the findings reported in this paper. Local executives and legislators who were invited to participate as informants declined our invitation and instead assigned the local health officer as their alternate and official

Table 1. Facilitating (F.X) and hindering (H.X) factors to local TB program implementation.

Factor	Description	Example/s
F.1. Resource support	Allocation and mobilization of human, material, and financial resources to support the implementation of program activities	<ul style="list-style-type: none"> Funding for the TB program is shared primarily between the national government and LGUs, augmented through extrabudgetary sources [<i>i.e.</i> case payments from the PHIC (Philippine Health Insurance Corporation); in-kind augmentation from civil society groups like the PBSP (Philippine Business for Social Progress)] LGUs hire health workers as part of organic staff to provide health services. Additional personnel come from the DOH (Department of Health), provincial health office, and PBSP Regional and provincial health offices distribute various material resources that are needed for the TB program to the local health units
F.2. Program monitoring	Integration of supervision and monitoring of the implementation of program activities within the TB program framework	<ul style="list-style-type: none"> A local-level coordinator (or a coordinating team) is assigned to oversee the implementation of initiatives of the TB program Quarterly field monitoring and semi-annual data quality check by the provincial level coordinator, together with staff from the regional office
F.3. Partnerships	Formation and mobilization of partnerships with the other government agencies and the private sector	<ul style="list-style-type: none"> Provision of STRiders (elaborated below) and conduct of training by the PBSP Cooperation between the local jail and the health office in the diagnosis and management of TB among persons deprived of liberty Referral system that allows private practitioners, contacted through the local medical society, to send patients to the local health unit
F.4. Technology and innovation	Use and application of technology and innovation to streamline and improve existing processes related to the TB program	<ul style="list-style-type: none"> Availability of new diagnostic tools (<i>i.e.</i> GeneXpert MTB/Rif) Integration of treatment for drug-susceptible and drug-resistant cases Employment of STRiders (<i>i.e.</i> individuals who collect and transport the sputum samples from suspected cases coming from the far-flung areas to the laboratories usually located in the town center) Use of ITIS, a cloud-based health information system that captures patient, service, and inventory data in real-time
H.1. Mismatch in the flow of resources	Resources supporting program implementation are available but there were instances where demand exceeds available resources	<ul style="list-style-type: none"> Long supply chain from regional offices, to provincial offices, to health centers Locally hired workers assigned to multiple programs The emergence of other health priorities at the national or local level (<i>e.g.</i> disease outbreaks, supplemental immunization activities, health caravans, and outreach) Interruption in utilities
H.2. Variation in case management	Diagnostic and treatment strategies employed between DOTS (directly observed therapy short course) units and non-DOTS network providers are different.	<ul style="list-style-type: none"> Referrals coming from hospitals and private practitioners do not conform to standard practices
H.3. Focus on service provision	Reduced focus on other health promotion activities that affect more upstream determinants of TB (<i>i.e.</i> building healthy public policy, creating supportive environments, strengthening community action, and developing personal skills)	<ul style="list-style-type: none"> Local policies and ordinances on TB promulgated by the local legislature not being fully implemented Efforts at health education have limited reach (<i>i.e.</i> those who are availing of clinical services) Information, education, and communication materials are available in limited stock and are usually situated in the health centers
H.4. External program drivers	The current organizational set-up has resulted in the LGU being an implementor of an externally designed and driven program	<ul style="list-style-type: none"> A large proportion of medicines and supplies used in the program are sourced outside the LGU Trained human resources for health under the deployment program of the DOH are often reassigned or replaced at the end of their contracts Partnerships not principally initiated by the LGUs Absence of local plans to guide program implementation

representative. This precluded the team from obtaining these officials' perspectives on the implementation of the local TB program. The scope of the approved research did not allow the team to measure the magnitude of the identified facilitators and barriers, and the consequent effect on program performance. For example, this paper does not provide any quantification of the extent of the partnerships between the LGU and external organizations in terms of support for the TB program. These limitations should be considered in the design of future research.

In a decentralized healthcare setting such as the Philippines, local governments play an important role in implementing health programs designed to achieve national and even global health goals. Program managers and implementers will need to design strategies to leverage the identified facilitating factors and mitigate the effects, if not totally prevent the emergence, of hindering factors to implementation of the local TB prevention and control program.

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STATEMENT ON CONFLICT OF INTEREST

At the time of writing, Ms. Geocaniga-Gaviola and Dr. Garfin are affiliated with the NTP. Dr. Antonio received professional fees from Johnson & Johnson (Philippines) Inc. outside of the submitted work. All other authors declare no conflicts of interest.

REFERENCES

- BRAGER G, HOLLOWAY S. 1993. Assessing prospects for organizational change: The use of force field analysis. *Adm Soc Work* 16(3–4): 15–28.
- BULAGE L, SEKANDI J, KIGENYI O, MUPERE E. 2014. The quality of tuberculosis services in health care centres in a rural district in Uganda: the providers' and clients' perspective. *Tuberc Res Treat* 2014: Art. 685982.
- [DOH] Department of Health. 2014. National TB Control Program. Updated 2010–2016 Philippine Plan of Action to Control Tuberculosis. Manila: Department of Health.
- [DOH] Department of Health. 2017. Philippine Strategic TB Elimination Plan: Phase I (2017–2022). Retrieved on 09 Oct 2018 from http://www.ntp.doh.gov.ph/downloads/ntp_data/ntp_vmg_and_org_and_tb_burden.pdf
- DESTA KT, KESSELY DB, DABOI JG. 2019. Evaluation of the performance of the National Tuberculosis Program of Liberia during the 2014–2015 Ebola outbreak. *BMC Public Health* 19(1): 1221.
- GBD TUBERCULOSIS COLLABORATORS. 2018. The global burden of tuberculosis: results from the Global Burden of Disease Study 2015. *Lancet Infect Dis* 18(3): 261–284.
- GIDADO M, NWOKOYE N, OGBUDEBE C, NSA B, NQADIKE P, AJIBOYE P, ENEOGU R, USENI S, ELMON E, LAWANSON A. 2019. Assessment of GeneXpert MTB/RIF performance by type and level of health-care facilities in Nigeria. *Niger Med J* 60(1): 33.
- GRUNDY J. 2001. The impact of health system reform on remote health in Cambodia and the Philippines. *Rural Remote Health* 1(1): 84.
- GRUNDY J, HEALY V, GORGOLON L, SANDIG E. 2003. Overview of devolution of health services in the Philippines. *Rural Remote Health* 3(2): 220.
- LITTIG B. 2008. Interviews with the elite and with experts: are there any differences? *Forum Qual Soc Res* 9(3): Art. 16.
- MARME GD. 2018. Barriers and facilitators to effective tuberculosis infection control practices in Madang Province, PNG – a qualitative study. *Rural Remote Health* 18(3): 4401–4401.
- MILES MB, HUBERMAN AM, SALDANA J. 2014. *Qualitative data analysis: a methods sourcebook*. Thousand Oaks: SAGE Publications Inc.

- ROMUALDEZ AG. 2007. TB-DOTS in the Philippines: impact of decentralization and health sector reform. *Bull World Health Organ* 85(5): 399–400.
- TLALEL, FRASSO R, KGOSIESELE O, SELEMONGO M, MOTHEI Q, HABTE D, STEENHOFF A. 2016. Factors influencing health care workers' implementation of tuberculosis contact tracing in Kweneng, Botswana. *Pan Afr Med J* 24: 229.
- VIANZON R, GARFIN AMC, LAGOSB A, BELENA R. 2013. The tuberculosis profile of the Philippines, 2003–2011: advancing DOTS and beyond. *Western Pac Surveill Response J* 4(2): 11–16.
- VISTA FES, IGNACIO MAG, BAUSA DMC, LANUZA DFD, MIJARES JPM, ANTONIO CAT. 2016. Factors contributing to the delay in the initiation of treatment of patients enrolled in the TB DOTS program in a highly-urbanized city in the Philippines. *Acta Med Philipp* 50(3): 136–143.
- WHOLEY JS, HATRY HP, NEWCOMER KE. 2010. *Handbook of practical program evaluation*, 3rd ed. San Francisco: Jossey-Bass.
- [WHO] World Health Organization. 2007. *Everybody business: strengthening health systems to improve health outcomes. WHO's framework*. World Health Organization, Geneva.
- [WHO] World Health Organization. 2018. *Global tuberculosis report 2018*. World Health Organization, Geneva.