Enhancing tuberculosis patient detection and care through community volunteers in the urban poor, The Philippines

A. Querri,¹ A. Ohkado,^{1,2} S. Yoshimatsu,^{1,3} L. Coprada,⁴ E. Lopez,⁵ A. Medina,⁶ A. Garfin,⁴ J. Bermejo,⁷ F. Tang,⁸ A. Shimouchi^{2,9}

<http://dx.doi.org/10.5588/pha.17.0036>

Setting: The Research Institute of Tuberculosis/Japan Anti-Tuberculosis Association Philippines is a local non-governmental organisation (NGO) established in 2008 to improve access to tuberculosis (TB) services. Community health volunteers (CHVs) from NGO referring facilities were engaged to assist in local TB control activities.

Objective: To describe the activities of the CHVs and the barriers experienced by patients with presumptive TB in seeking health care to treatment as documented on a master list, and to identify the CHVs' challenges in community TB care implementation.

Design: This was a retrospective evaluation with a non-experimental design reviewing the presumptive TB master list and TB reports and conducting a free discussion session (FDS) in 2012.

Results: Of the 78% (281/362) of referred presumptive TB patients who accessed a DOTS facility, 69% (194/281) underwent a diagnostic examination and 42% (81/194) were diagnosed with active TB. Of the 93% (75/81) initiated on treatment, 92% (69/75) were successfully treated. The CHVs contributed approximately 3% (75/2534) to the total TB cases diagnosed at the DOTS facilities. In the FDS, barriers evoked in seeking health care for treatment were transfer of residence and lack of interest in seeking a consultation. In 2012, the CHV attrition rate was 55% (80/145).

Conclusion: The CHVs assisted in enhancing access to TB care and case detection. Sustainability of the CHVs' efforts should be explored to retain them in the programme.

Tuberculosis (TB) remains a persistent challenge to global health development, with an estimated 10.4 million new incident cases in 2016.¹ Over 95% of deaths due to TB occur in low- and middle-income countries.² TB is a public health concern in the Philippines, with TB-related mortality and morbidity ranking respectively sixth and eighth among all causes of death and disease in national health statistics.³ The DOTS strategy for TB control was initiated in 1997 in the Philippines, achieved nationwide coverage in 2003 and has led to improvements in the case detection rate (CDR) and treatment success rate (TSR),⁴ which were reported to be 91% and 92%, respectively, in 2015.⁵ Despite this success, the National TB Control Programme (NTP) is still faced with challenges, as the TB epidemic tends to be concentrated in vulnerable and marginalised populations who are difficult to reach and often have limited access to health care.^{6–13}

The highest TB rates worldwide have been noted in settings with rapid urbanisation, such as the Philippines, which increases the number of cases in high-risk groups.^{14–16} A study in the Philippines showed that the urban poor have a 1.5 times higher TB prevalence than wealthier groups in the community, and that a number of factors prevent this population from seeking health care even in the presence of persistent cough.^{14,17}

Recognising that several barriers contribute to a longer health care-seeking pathway among poor and vulnerable groups, national efforts were made to improve health system coverage in the Philippines by seeking to engage all health care providers and empower the community.^{6,18,19} The international development organisation Voluntary Service Overseas has highlighted the benefits of community health volunteering, such as creating links between the formal health system and the community, increasing health care access and community empowerment.²⁰

The Research Institute of Tuberculosis/Japan Anti-Tuberculosis Association Philippines (RJPI), a local non-governmental organisation (NGO), has collaborated with the NTP since 2008 to improve access to TB services. In line with the NTP strategies and the World Health Organization's Engage TB guidelines,²¹ the RJPI engaged with several NGOs, irrespective of their areas of speciality, to complement the efforts of 13 local government unit (LGU) DOTS facilities in District I-Tondo, Manila City, and Payatas, Quezon City, in accessing respectively approximately 48% (193 650/405 125) and 90% (108 331/120 368) of individuals identified as belonging to marginalised groups. These areas were targeted because they are densely populated and had either a low case notification rate or a low cure rate, including a high rate of loss to follow-up in 2007, as highlighted in LGU reports.

In the LGU DOTS facilities, non-medical *barangay* (local level administration) health workers (BHWs) are trained by the LGUs to assist in all health programmes, such as nutrition, TB and others. As the BHWs perform multiple tasks, they are unable to fully assist the LGUs in following up TB patients or supervising their drug intake. Furthermore, there was no systematic recording method in place to document the TB activities conducted by the BHWs. In response to this, the RJPI engaged five NGO DOTS facilities and 13 NGO DOTS referring facilities. The NGO DOTS facilities provide full TB care, while the NGO DOTS referring facilities, composed of community health volunteers (CHVs), serve as a referring unit for presumptive TB cases (defined as per-

AFFILIATIONS

- 1 Research Institute of Tuberculosis (RIT), Japan Anti-Tuberculosis Association (JATA) Philippines, Manila, The Philippines
- 2 RIT/JATA, Tokyo, Japan
- 3 Department of Paediatrics, National Hospital Organization Minami Kyoto Hospital, Kyoto, Japan
- 4 Disease Prevention and Control Bureau, Department of Health, Manila, The Philippines
- 5 Region Office 4A Calabarzon, Department of Health, Quezon City, The Philippines
- 6 National Capital Region Office, Mandaluyong, The Philippines
- 7 Manila Health Department, Manila, The Philippines
- 8 Quezon City Health Department, Quezon City, The Philippines
- 9 Osaka City Health Department, Osaka, Japan

CORRESPONDENCE

Aurora G Querri
Research Institute of Tuberculosis (RIT)
Japan Anti-Tuberculosis Association (JATA) Philippines (RJPI)
2F PTSI Bldg
1853 Tayuman St
Sta Cruz, Manila
The Philippines
e-mail: auwiequerri11@gmail.com

KEY WORDS

health barriers; health access; non-governmental organisation; community volunteers

Received 19 May 2017
Accepted 5 August 2017

PHA2017;7(4):268–274
© 2017 The Union

sons with cough of 2 weeks, with or without fever, weight loss, bloody sputum and/or chest or back pain).

The NGO referring facilities covered a total population of 225 509. The number of target households per CHV ranged from 213 to 4200. The NGO heads of the referring facilities identified programme beneficiaries as being suitable CHVs. The majority of the CHVs were middle-aged females with secondary school education. The average monthly household income was US\$196.

Training was provided for 145 CHVs in 2008, and a refresher training course was conducted in 2011 (Table). The 2008 course focused on identifying presumptive TB cases in the community, referring them to a DOTS facility and supervising the patients' treatment. The 2011 refresher training focused on TB infection control practices in the community. The cost of training was US\$45 per CHV.

The trained CHVs utilised the presumptive TB referral master list and an NTP referral form to trace the clients' referral outcome, the actions taken by the health staff and to document their own activities. The presumptive TB referral master list contains information from the time the presumptive TB patient is identified, referred to a DOTS facility, diagnosed with TB and initi-

ated on treatment until treatment has been completed. Health care workers (HCWs) were facility-based treatment partners and the CHVs were community-based treatment partners. The HCWs assessed the preparedness of the CHVs as treatment partners. Most of the HCWs were middle-aged females, with nurse training and an average monthly household income of US\$931.

A joint monitoring and evaluation visit was conducted with representatives from either the Manila Health Department or the Quezon City Health Department for immediate feedback of findings.

This study aimed to describe the activities of the CHVs from the NGO referring facilities, identify the barriers experienced by presumptive TB patients in the referral pathway based on the CHVs' documentation on the master list (Figures 1 and 2) and identify challenges faced by CHVs in implementation of community TB care (Figure 3).

DESIGN AND METHODS

This was a retrospective evaluation using a non-experimental design through the assessment of the presumptive TB pathway from referrals made by CHVs at 13

ACKNOWLEDGEMENTS

The authors thank all of the health staff and community health volunteers for their support.

This study was funded in part by the 'Tuberculosis Control Project in Socio-Economically Underprivileged Urban Area in Metro Manila, the Philippines-Stop TB para sa Lahat' funded by the Ministry of Foreign Affairs (Tokyo, Japan); the 'TB Control and Prevention Project in Socio-Economically Unprivileged Areas in Metro Manila, The Philippines' under the technical cooperation for grassroots projects of the Japan International Cooperation Agency (JICA, Tokyo, Japan); and the research project of the International Medical Centre of Japan, 'A socio-medical study for facilitating effective infectious diseases control in Asia' funded by the International Medical Cooperation Grant, the Ministry of Health, Labour and Welfare (Tokyo, Japan). Conflicts of interest: none declared.

TABLE NGO referring facility* profiles

NGO referring facility	Programme thrust†	TB programme integration year‡	*Trained CHVs§ n	CHVs active in TB programmes¶ n	Community visits per week# n	Incentive received** Type (frequency)	Presumptive TB cases identified†† n
NGO 1	Livelihood and basic health education	2008	13	5	5	In kind (2 times/year)	52
NGO 2	Health education and Christian ministry	2008	13	1	5	In kind (2 times/year)	17
NGO 3	Livelihood and education	2008	22	18	3	In kind (3 times/year)	10
NGO 4	Health and feeding	2009	14	8	5	Cash (monthly)	25
NGO 5	Family needs and health	2009	4	1	1	Cash (monthly)	3
NGO 6	Health, feeding and education	2010	10	8	5	Cash (monthly)	28
NGO 7	Education and feeding programme	2010	13	3	1	Cash (monthly)	4
NGO 8	Health and microfinance	2010	11	2	5	In kind (3 times/year)	80
NGO 9	Health	2011	12	5	5	In kind (3 times/year)	28
NGO 10	Health and microfinance	2011	4	4	5	In kind (3 times/year)	35
NGO 11	Health	2011	11	1	5	In kind (3 times/year)	49
NGO 12	Health and microfinance	2011	7	7	5	In kind (3 times/year)	9
NGO 13	Health	2011	11	2	2	In kind (3 times/year)	24
Total			145	65			364

*A facility composed of CHVs who identify and refer presumptive TB patients and act as TB treatment partners according to patients' preference or health care workers' assessment.

†Area of speciality or regular programme conducted by NGOs other than mainstream TB activities.

‡Year when the organisation signed a memorandum of understanding to participate in community-based TB control interventions. This also refers to the period of CHV training.

§CHVs trained by the project as identifiers and referrers of presumptive TB patients, and as observers of TB patients' daily drug intake.

¶CHVs who continue to conduct community-based TB control activities (case finding and case holding) from the time they were trained.

#Days allotted by CHVs per week as a result of agreement with partner organisations in both sites during the programme implementation review in January 2012.

**Any form of incentive (cash or in kind) and number of times incentives were received by CHVs from their NGO referring organisation in support of their own programme or activities, including NTP activities.

††Persons with TB symptoms identified by the CHVs through community visits.

NGO = non-governmental organisation; TB = tuberculosis; CHVs = community health volunteers; NTP = national TB programme.

FIGURE 1 Presumptive TB referral pathway. *CHV identifies a patient with presumptive TB, defined as any person with signs and/or symptoms suggestive of TB. †CHV refers a presumptive TB patient to a DOTS facilities by using a referral form. ‡ Presumptive TB patient reaches or accesses the DOTS facility. §Presumptive TB patient undergoes diagnostic examination. ¶Presumptive TB patient diagnosed with TB disease. #TB patient begins taking anti-tuberculosis drugs. **TB patient completes treatment and complies with necessary follow-up examinations. TB = tuberculosis; CHV = community health volunteer.

NGO referring facilities in District I-Tondo, Manila City, and Payatas, Quezon City, Philippines. Record reviews of the presumptive TB referral master list, the NTP referral forms, the TB register and monitoring reports were performed. The following project-specific indicators were used to measure the CHVs' participation in community-based TB control interventions: 1) $\geq 55\%$ of presumptive TB cases referred accessing the DOTS facility, and 2) a $\geq 3\%$ contribution to the number of TB cases treated at a DOTS facility. The 3% TB community contribution was determined based on valuable experience of CHVs or their results in 2008 in terms of number of TB cases detected.

A free discussion session (FDS) was conducted in 2012. All 65 active and 68 of the 80 inactive CHVs were invited, but only 35 active CHVs agreed to participate in the study. Written informed consent was obtained from the participants prior to the FDS. Three questions were posed during the FDS: 1) the reasons for presumptive TB and TB patients not accessing the health services, or initiating and adhering to treatment (reasons were extracted from the 2012 master list, Figure 2); 2) challenges encountered by the CHVs in implementing community TB care (Figure 3); and 3) interventions undertaken to address the gaps identified in community TB care implementation. Selected HCWs were similarly invited to validate the reasons for lapses in the diagnosis and treatment of presumptive TB patients using the laboratory and TB registers. The CHVs were divided into seven groups to give more time for them to express themselves. Common responses and recommendations noted in the FDS were anonymised and discussed with the NTP coordinators and district supervisors.

Fisher's exact test was used to compare specific parameters between patients successfully treated under the supervision of the HCWs from DOTS facilities and those supervised by the CHVs from NGO referring facilities, to determine whether the CHVs were suitable as treatment partners. $P < 0.05$ was considered statistically significant.

The Department of Health Research and Ethics Committee of San Lazaro Hospital (Manila, Philippines) approved the study (IRB no.13-0011). Permission was obtained from the city health officers of Manila and Quezon City and the heads of the NGO referring facilities prior to a conduct of the study.

RESULTS

Ninety-nine per cent (362/364) of the presumptive TB cases identified by the CHVs were referred to the DOTS facilities (Figure 2). Findings in the monitoring and evaluation visits revealed that two of the identified presumptive TB cases were not referred due

to a lack of referral forms. Of the 362 individuals referred, 78% (281/362) accessed a DOTS facility, exceeding the project target of 55%. The FDS conducted among the CHVs revealed the following common reasons for patients with presumptive TB not accessing a DOTS facility: low perception of the health benefits of seeking early consultation ('it's just a cough'), transfer of residence, competing work or school priorities, prefer to consult at a private clinic due to long queues, client feeling well prior to seeking consultation and poor communication skills of the CHVs (Figure 2).

Among the 281 presumptive TB cases who accessed a DOTS facility, 69% (194/281) underwent a diagnostic examination. Of these, 42% (81/194) were diagnosed with pulmonary TB disease, of whom 32% (26/81) were bacteriologically confirmed and 68% (55/81) were clinically diagnosed (by chest X-ray, symptoms and the tuberculin skin test [TST] for children). The 31% (87/281) of cases who did not pursue a diagnostic examination did so due to the following reasons, identified during the FDS: not interested in knowing health status, diagnostic examination was not ordered but patient was prescribed an antibiotic in consideration of other respiratory diseases, felt well, preferred a private clinic due to the long queue at the DOTS facility, transfer of residence and poor HCW communication skills.

Regular follow-up visits were not undertaken by CHVs for the following reasons: no transportation, low CHV motivation and greater priority had to be given to the activities of the NGO for which they worked. Furthermore, poor communication skills or unclear instructions and inappropriate verbal and nonverbal messages among both HCWs and CHVs also discouraged presumptive TB patients from seeking consultation. During the FDS it was agreed that the CHVs should allot at least 2 house visit days per week for follow-up visits, and that the NGO referring facility coordinators should coordinate TB activities with barangay officials to provide free transport. A separate training course on interpersonal communication and counselling was conducted in 2013 for CHVs and HCWs in response to the FDS findings.

The 93% (75/81) of patients initiated on treatment contributed 3% (75/2534) to overall TB diagnoses at the 18 DOTS facilities. Of these, 92% (69/75) were successfully treated (cured or treatment completed). In terms of unfavourable treatment outcomes, 3% (2/75) died, 3% (2/75) were not evaluated, 1% (1/75) were lost to follow-up and 1% (1/75) failed treatment. In the FDS, reasons for not complying with treatment initiation were as follows: mother refusing to have child treated, patient went to province, patient could not be located, patient died, and referral to the DOTS facility where the patient resided. Of the 75 TB patients initiated on treatment, respectively 95% (42/44) and 87% (27/31)

FIGURE 2 Summary of presumptive TB referral outcomes in District I Tondo, Manila and Payatas, Quezon City, The Philippines, 2012. *Reasons/circumstances faced by patients for not pursuing diagnostic examination other than the first five reasons mentioned above in Figure 2. †Reasons/circumstances that led to the omission of quality TB services (i.e., poor communication skills of HCWs). ‡Reasons/circumstances that prevented patients from pursuing diagnostic examination, including busy with work or school ($n = 4$), died ($n = 3$), could not expectorate ($n = 1$). §A TB patient whose biological specimen is positive on smear microscopy or rapid diagnostic tests, and who has never had treatment for TB or who has taken anti-tuberculosis drugs for <1 month. ¶A TB patient who does not fulfil the criteria for bacteriological confirmation but has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient the full course of anti-tuberculosis treatment, and who has never had treatment for TB or who has taken anti-tuberculosis drugs for <1 month. #Reasons or circumstances faced by patients for not accessing a DOTS facility other than the first five reasons mentioned above. **Patients who do not fit into any of the categories specified under the registration group. ††Reasons or circumstances that prevented patients from reaching or accessing the DOTS facility, including the following: self-medicated ($n = 4$), feeling lazy ($n = 3$), no-one to accompany them ($n = 3$), distance to DOTS facility ($n = 1$), poor comprehension of presumptive TB due to drugs/alcohol ($n = 1$), died ($n = 1$) or shy ($n = 1$). ‡‡Reasons or circumstances that led to the omission of quality TB services, including poor communication skills of CHV ($n = 2$), cannot be located ($n = 2$) and DOTS facility closed at the time of visit ($n = 2$). §§Reason/circumstances beyond the control of NTP (i.e., patient relocation by the government). ¶¶A patient with bacteriologically confirmed TB at the beginning of treatment who is smear- or culture-negative in the last month of treatment and on at least 1 previous occasion in the continuation phase. ##A patient who dies for any reason during the course of treatment. ***A patient whose sputum smear or culture is positive at 5 months or later during treatment or a clinically diagnosed patient (child or EPTB) for whom sputum examination cannot be undertaken and who does not show clinical improvement during treatment. †††A patient who completes treatment without evidence of failure but with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not performed or because results are unavailable. ‡‡‡A patient whose treatment was interrupted for ≥ 2 consecutive months. §§§A patient for whom no treatment outcome is assigned, including cases transferred to another DOTS facility for whom treatment outcome is unknown. TB = tuberculosis; CHV = community health volunteer; EPTB = extra-pulmonary TB; HCW = health care worker.

were successfully treated under the supervision of the CHVs and the HCWs at the DOTS facilities; the difference was not statistically significant ($P = 0.22$, Fisher's exact test).

In 2012, 45% (65/145) of the CHVs remained active in community-based TB activities; the attrition rate was 55% (80/145). The CHVs' lack of participation in community-based TB activities, revealed in the monitoring and evaluation visit findings, were low motivation, finding job opportunities, prioritisation of the activities of the employing NGO, need to take care of a family member and old age. The CHVs were not motivated to conduct follow-up visits as they had to shoulder the expenses of transport

and meals. The principal activities of the NGOs, such as scholarship screening, feeding programmes and microfinance seminars, prevented the CHVs from undertaking community visits, and this therefore affected their overall performance.

DISCUSSION

An analysis of the participation of CHVs in community-based TB activities provided baseline information on the barriers faced by clients and CHVs in the presumptive TB referral pathway in the urban settings of Tondo and Payatas in the Philippines. The rea-

	Positive	Negative	Areas/activities to improve contribution of CHVs to TB care
INTERNAL	<ul style="list-style-type: none"> Awareness of local situation, health or non-health related Collaborative relationship with local officials such as barangay Known in the community CHVs are beneficiaries of NGO referring facilities whom they assist As beneficiaries, family members receive scholarships and incentives in cash or in kind (monthly, semi-annual or quarterly) Potential to improve access of the community to TB services, contribute to TB case detection and improve treatment outcomes 	<ul style="list-style-type: none"> No pre-screening criteria for CHVs as they were already part of the existing NGO referring facilities Some CHVs are not committed or motivated to do community work Some CHVs are illiterate and cannot complete recording forms (elementary school education only) No transportation budget allocated for follow-up visits as NTP activities (follow-up) are a mainstream activity of their routine programme activities NGO heads do not routinely monitor the implementation of TB activities No steady financial support from NGOs, so CHVs leave volunteer work if requested by family or work opportunity Some CHVs are in late adulthood and have limitations in conducting community work 	<ol style="list-style-type: none"> 1 NGO referring facilities and RIT/JATA should develop screening criteria in engaging CHVs in TB activities to fit into the identified roles/tasks and to ensure commitment 2 NTP and LGUs to ensure uninterrupted supply of TB drugs, PPD and other diagnostic tests to motivate CHVs to refer and persons with presumptive TB to consult and reduce initial LTFU 3 LGUs to develop a local ordinance to support and sustain CHV TB activities 4 NTP and LGUs need to ensure adequate financing for community contribution to TB care 5 LGUs should extend their monitoring capacity to NGOs engaged to boost their commitment and motivation to the NTP as well as to identify training needs
EXTERNAL	<ul style="list-style-type: none"> Trained by RIT/JATA as identifiers of persons with presumptive TB, as TB educators and as treatment partners for persons with TB. Also oriented on interpersonal communication and counselling Opportunity to collaborate with DOTS facilities and other NGO TB partners Improved partnership and coordination of activities Empowerment of CHVs to be actors in leading the community to take action for their health, improved TB case detection and treatment outcomes Monitoring activities of CHVs by LGUs could provide opportunities to identify new needs for training or re-training 	<ul style="list-style-type: none"> Stock-outs of PPD solutions for screening children and of TB drugs for children and SM injections for adults. Lack of TB drugs and diagnostic supplies demotivate CHVs referring persons with presumptive TB or with TB to consult and receive treatment at DOTS facilities, respectively Some patients were transient or temporary dwellers No LGU mechanism or local policy to sustain partnership with NGOs, e.g., provision of transportation to conduct follow-up visits Limited LGU supportive supervision and monitoring visits to oversee CHVs; implementation of TB activities 	

FIGURE 3 Analysis of community TB care through CHVs. CHV = community health volunteer; NGO = non-governmental organisation; TB = tuberculosis; RIT/JATA = Research Institute of Tuberculosis/Japan Anti-Tuberculosis Association; LGU = local governmental unit; PPD = purified protein derivative; SM = streptomycin; NTP = national TB programme; LTFU = loss to follow-up.

sons for the CHVs' infrequent or lack of follow-up visits, revealed during the FDS, were low motivation, lack of transportation allowance and prioritisation of the activities of the NGOs that employed them. To motivate the CHVs to assist the NTP, the NTP coordinators recommended monthly sharing of experience among CHVs, enhancing coordination with barangay officials to solicit support, and integration of presumptive TB case identification into routine or non-health-related activities. The CHVs exceeded the project target of 55% for patients accessing a DOTS facility, and 42% of the patients they referred were diagnosed with TB. The relatively high percentage of TB cases might indicate that there were TB cases missed among presumptive TB patients who did not access the DOTS facilities or among those who accessed the facilities but were not diagnosed (Figure 4). Intensified health education, eliciting further information on patients' possible transfer of residence, and well-coordinated activities at the barangay level are encouraged to increase the utilisation of TB services.

The poor communication skills of the non-medical staff and the HCWs, evoked during the FDS, which discouraged some presumptive TB patients from accessing DOTS facilities and undergoing a diagnostic examination, should be given importance. Poor HCW interpersonal communication skills and inappropriate attitudes account for diagnostic delays in several countries.¹ Interpersonal communication and counselling training was conducted to develop skills in understanding clients' behaviour and in providing targeted health education to facilitate behavioural changes among clients.²²

The CHVs' contribution to the total number of TB patients treated at the DOTS facilities is a good indicator that non-medical personnel who reside in the same community can act as stewards in bringing TB services closer to the community, and at the same time assist in TB case detection.^{23,24} In 2015 the Philippines NTP set a community contribution target of 10% for enrolled TB

cases.²⁵ This might require extending current NTP and DOTS facility management responsibilities to oversee how community-based interventions are implemented to guide the CHVs in achieving this 10% target.

The efforts made by the CHVs to supervise the treatment of those patients who could not attend a DOTS facility each day may have helped in simplifying their pathway to TB care. While no significant difference was noted between the TB patients whose treatment was supervised by HCWs and those by CHVs, the satisfactory treatment outcome of patients under CHVs' supervision proves that CHVs can be effective treatment partners. The reasons for patients discontinuing treatment should nonetheless be determined, as LTFU could be either treatment-related (feeling well after a while) or patient-related (e.g., low risk perception).²⁶

The 55% attrition rate among CHVs may have affected their performance in the NTP. The reasons for attrition revealed in the FDS were related to finding other job opportunities and to low motivation. Similarly, in Bangladesh, attrition hampered the success of volunteer-based programmes and was related to financial incentives, competing priorities and motivation.^{6,27–29} As the CHVs were members of the poor urban community that they served, linking CHVs with other social agencies to address their livelihood concerns and other opportunities related to human resource development or non-monetary packages, such as training, could be formulated to reduce attrition and increase motivation.³⁰ In this study, four CHVs from different NGO referring facilities performed well in identifying presumptive TB cases, as community visits were made frequently and their motivation was 'helping others'. The development of selection criteria for recruiting CHVs, redesigning training with a values formation component, systematic integration of TB activities into routine activities, creation of an ordinance to support community-based interventions (i.e., transporta-

FIGURE 4 Fraction of TB cases reported by CHVs and how this could be increased. TB = tuberculosis; NTP = national TB control programme; CHV = community health volunteer.

tion reimbursement for follow-up patients) and recognition packages for CHVs, are options that must be studied further to retain CHVs in the programme. Being aware of circumstances that lead CHVs to abandon volunteer work is crucial in determining mechanisms to sustain them in the TB control effort.

This study has some limitations. It failed to show the length of delays in each pathway, interviews with patients who failed to complete the pathway were not undertaken, and the RJPI could have obtained in-depth information to guide programme managers to provide more responsive TB patient care. Despite these limitations, the RJPI was able to highlight the significant contribution of the CHVs in complementing the efforts of the DOTS facilities, and identify barriers that prevent persons with presumptive TB from seeking early care and patients with TB from adhering to treatment, along with strategic interventions to address these gaps.

In conclusion, CHVs are important actors in enhancing access to TB care and in improving TB case finding and treatment outcomes. Despite a number of TB cases remaining undiagnosed, CHVs are still an important asset in NTPs, as they can serve as a complementary human resource for HCWS to reach unreached populations, increase TB treatment coverage and eventually find missing TB cases. Lessons learnt from lapses in community TB care implementation can inform policy changes in designing a CHV strategy tailored to urban and rural communities that will sustain the motivation of CHVs in NTPs, considering that local migration and immigration are of concern in urban settings. The DOTS facility staff will need to consider expanding their management responsibilities to include supportive supervision and an assessment of the contribution of the CHVs to the NTP.

References

- 1 World Health Organization. Global tuberculosis report, 2016. WHO/HTM/TB/2016.13. Geneva, Switzerland: WHO, 2016.
- 2 World Health Organization. Tuberculosis fact sheet. March 2017. Geneva, Switzerland: WHO, 2017. <http://www.who.int/mediacentre/factsheets/fs104/en/> Accessed September 2017.
- 3 Philippines Department of Health. The 2010 Philippine Health Statistics. Manila, Philippines: DoH, 2010.
- 4 Vianzon R, Garfin C, Lagos A, Belen R. The tuberculosis profile of the Philippines, 2003–2011: advancing DOTS and beyond. *Western Pac Surveill Response J* 2013; 4: 11–16.
- 5 Philippines Department of Health. Change is coming to Philippines NTP. Manila, Philippines: 23rd PhilCAT's Annual Convention, 2016.
- 6 Waisbord S. Behavioral barriers in TB control: a literature review. Washington, DC, USA: CHANGE Project: Academy for Educational Development, 2005.
- 7 World Health Organization. Regional strategy to stop tuberculosis in the Western Pacific, 2011–2015. Geneva, Switzerland: WHO, 2011. http://www.wpro.who.int/tb/RegionalStrategy_201115_web.pdf Accessed September 2017.
- 8 Beyers N, Gie R, Schaaf H, et al. Delay in the diagnosis, notification and initiation of treatment and compliance in children with tuberculosis. *Int J Tuberc Lung Dis* 1994; 75: 260–265.
- 9 Singh V, Jaiswal A, Porter J, et al. TB control, poverty, and vulnerability in Delhi, India. *Trop Med Int Health* 2002; 7: 693–700.
- 10 Balasubramanian V, Oommen K, Samuel R. DOT or not? Direct observation of anti-tuberculosis treatment and patient outcome, Kerala state, India. *Int J Tuberc Lung Dis* 2000; 4: 409–413.
- 11 World Health Organization. Addressing poverty in TB control: options for the national TB control programmes. WHO/HTM/TB/2005.352. Geneva, Switzerland: WHO, 2005. http://apps.who.int/iris/bitstream/10665/43256/1/WHO_HTM_TB_2005.352.pdf Accessed September 2017.
- 12 Reyes K, Amores J C. Barriers of early TB diagnosis among the poor in highly urbanized areas in the Philippines. Quezon City, Philippines: Philippine Institute for Development Studies, 2014.
- 13 Nhelma B, Kemp J, Steenbergen G, Theobald S, Tang S, Bertel S. A systematic analysis of TB and poverty: executive summary. Geneva, Switzerland: Stop TB Partnership, World Health Organization, 2003. <https://assets.publishing>

- service.gov.uk/media/57a08d0be5274a27b20015bf/HTBLivexecutive_summary.pdf Accessed November 2017.
- 14 Kemp J R, Mann G, Simwaka B N, Salaniponi F M, Squire S B. Can Malawi's poor afford free tuberculosis services? Patient and household costs associated with a tuberculosis diagnosis in Lilongwe. *Bull World Health Organ* 2007; 85: 580–585.
 - 15 World Health Organization. Stop TB Partnership. Prevention starts with cure and does not end there. Draft discussion paper. Geneva, Switzerland: WHO, 2015. [http://www.stoptb.org/assets/documents/about/cb/meetings/12/1.07-04.2%20TB%20Determinants%20Discussion%20Paper.pdf](http://www.stoptb.org/assets/documents/about/cb/meetings/12/1.07-04%20TB%20Determinants/1.07-04.2%20TB%20Determinants%20Discussion%20Paper.pdf) Accessed September 2017.
 - 16 Ulep V G. Inequities in non-communicable diseases. Makati, Philippines: Philippine Institute for Development Studies, 2011.
 - 17 Tupasi T, Radhakrishna S, Quelapio M, et al. Tuberculosis in the urban poor settlements in the Philippines. *Int J Tuberc Lung Dis* 2000; 4: 4–11.
 - 18 Kamolratanakul P, Sawert H, Kongsin S, et al. Economic impact of tuberculosis at the household level. *Int J Tuberc Lung Dis* 1999; 3: 596–602.
 - 19 Rajeswari R, Balasubramanian V, Muniyandi M, et al. Socio-economic impact of tuberculosis on patients and family in India. *Int J Tuberc Lung Dis* 1999; 3: 869–877.
 - 20 Voluntary Service Overseas. Community health volunteering: position paper. Kingston-Upon-Thames, UK: VSO, 2012. http://www.ivoindia.org/Images/vso-and-community-health-volunteering-position-paper-full_tcm78-37535.pdf Accessed September 2017.
 - 21 World Health Organization. Engage TB. Integrating community-based tuberculosis activities into the work of nongovernmental and other civil society organizations. Implementation manual. WHO/HTM/TB/2013.10. Geneva, Switzerland: WHO, 2013.
 - 22 National Institute for Health and Clinical Excellence. How to change practice. London, UK: NICE, 2007. <https://www.nice.org.uk/media/default/about/what-we-do/into-practice/support-for-service-improvement-and-audit/how-to-change-practice-barriers-to-change.pdf>. Accessed September 2017.
 - 23 Maher D, van Gorkom J L C, Gondrie P C F M, Raviglione M. Community contribution to tuberculosis care in countries with tuberculosis prevalence: past, present and future. *Int J Tuberc Lung Dis* 1999; 3: 762–768.
 - 24 World Health Organization. WHO Expert Committee on Tuberculosis. Ninth report. Geneva, Switzerland: WHO, 1974.
 - 25 Philippines Department of Health. Manual of Procedures of the National Tuberculosis Control Program. 5th ed. Manila, Philippines: DOH, 2014.
 - 26 Muture B, Keraka M, Kimuu P, Kabiru E, Ombeka V, Oguya F. Factors associated with default from treatment among tuberculosis patients in Nairobi province, Kenya: a case control study. *BMC Public Health* 2011; 11: 696.
 - 27 Rahman S M, Ali N A, Jennings S L, et al. Factors affecting recruitment and retention of community health workers in a newborn care intervention in Bangladesh. *Hum Resour Health* 2010; 8: 12.
 - 28 Haines A, Sanders D, Lehmann U, et al. Achieving child survival goals: potential contribution of community health workers. *Lancet* 2007; 369: 2121–2131.
 - 29 Haws R A, Thomas A L, Bhutta Z A, Darmstadt G L. Impact of packaged interventions on neonatal health: a review of evidence. *Health Policy Plan* 2007; 22: 193–215.
 - 30 World Health Organization. The Stop TB Strategy. Building on and enhancing DOTS to meet the TB-related Millennium Development Goals. WHO/HTM/STB/2006.37. Geneva, Switzerland: WHO, 2006. http://www.who.int/tb/publications/2006/stop_tb_strategy.pdf Accessed September 2017.

Contexte : Le Research Institute of Tuberculosis/Japan Anti-Tuberculosis Association Philippines, Inc, est une organisation non gouvernementale (ONG) locale créée en 2008 afin d'améliorer l'accès aux services de tuberculose (TB). Des travailleurs de santé communautaire (CHV) des structures de référence de l'ONG ont été engagés pour participer aux activités locales de lutte contre la TB.

Objectif : Décrire les activités des CHV et les obstacles rencontrés par des patients présumés tuberculeux depuis la recherche de soins de santé jusqu'au traitement comme documenté sur la liste index, et identifier les défis auxquels sont confrontés les CHV dans la mise en œuvre de la prise en charge communautaire de la TB.

Schéma : Evaluation rétrospective avec un schéma non expérimental par revue de la liste des cas présumés de TB, les rapports relatifs à la TB et l'organisation de séances de discussion libre (FDS) en 2012.

Résultats : Soixante-dix-huit pour cent (281/362) des cas de TB présumés référés ont eu accès à un service de DOTS, puis 69% (194/281) ont eu un bilan diagnostique et 42% (81/194) ont eu un diagnostic de TB active. Quatre-vingt-treize pour cent (75/81) ont été mis sous traitement, puis 92% (69/75) ont été traités avec succès. Les CHV ont contribué à environ 3% (75/2534) du nombre total de cas de TB des services de DOTS. Lors des FDS, les obstacles rencontrés, de la recherche de soins jusqu'au traitement, ont été le changement de résidence et le manque d'intérêt à venir consulter. En 2012, le taux d'attrition des CHV a été de 55% (80/145).

Conclusion : Les CHV ont contribué à améliorer l'accès à la prise en charge de la TB et à la détection des cas. La pérennisation de leurs efforts devrait être explorée afin de les garder dans le programme.

Marco de referencia: El Instituto de Investigación en Tuberculosis de la Asociación Japonesa contra la Tuberculosis, Filipinas, es una organización no gubernamental (ONG) local fundada en el 2008 con el fin de mejorar el acceso a los servicios relacionados con la tuberculosis (TB). Los voluntarios de salud de la comunidad (CHV) de los centros remitentes operados por las ONG se vincularon como asistentes a las actividades locales de control de la TB.

Objetivo: Describir las actividades de los CHV, los obstáculos que encuentran las personas con presunción de TB al buscar atención de salud y tratamiento a partir de la información recogida con una lista modelo y reconocer las dificultades que afrontan los CHV cuando prestan servicios de atención comunitaria de la TB.

Método: Se realizó en el 2012 una evaluación retrospectiva no experimental, mediante el examen de una lista modelo sobre la presunción de TB, los registros de TB y una sesión de discusión libre (FDS) con los CHV.

Resultados: Setenta y ocho por ciento de los pacientes con presunción de TB remitidos (281/362) accedieron al establecimiento de DOTS, se practicó la investigación diagnóstica en el 69% de ellos (194/281), de los cuales en el 42% (81/194) se diagnosticó TB activa. El 93% (75/81) inició tratamiento y de ellos el 92% (69/75) logró un tratamiento exitoso. Los CHV contribuyeron con cerca de 3% (75/2534) del total de casos de TB de los centros DOTS. En la sesión de debate libre, los obstáculos referidos, desde la búsqueda de atención de salud hasta el tratamiento, fueron el cambio de residencia y la falta de interés en consultar. En el 2012, el índice de deserción de los CHV fue 55% (80/145).

Conclusión: Los CHV contribuyeron a reforzar el acceso a la atención de la TB y la detección de casos. Es preciso examinar la sostenibilidad de la iniciativa de los CHV al propósito de conservar su presencia en el programa.