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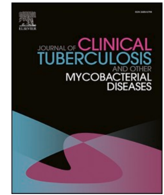

Patient navigator's role in latent tuberculosis infection at a New York City Health Department Chest Clinic

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ABSTRACT

Background: Philippines is one of the top ten countries of birth among individuals with tuberculosis in New York City (NYC). The NYC Health Department (HD) screened Filipino-born New Yorkers for latent TB infection (LTBI), but few of those tested positive completed evaluation and treatment.
Objective: To increase the proportion of Filipinos with a positive QuantiFeron-TB Gold Plus (QFT-Plus) complete LTBI evaluation and treatment.
Methods: Nine community-based LTBI screening events were conducted during September-December 2021. Patients with positive QFT-Plus results were offered no-cost LTBI evaluation and treatment at HD Chest Clinic. The HD engaged culturally- and linguistically-competent Filipino patient navigators (PN) to facilitate LTBI evaluation and treatment.
Results: Of 77 Filipinos screened, 17 (22%) tested positive. Fourteen (82%) were evaluated for LTBI; eight of the 14 (57%) completed LTBI treatment.
Conclusions: Pairing patients with culturally- and linguistically- competent Filipino PNs contributed to an increase in the proportion of Filipinos with a positive QFT-Plus who completed LTBI evaluation and treatment. TB prevention programs may wish to consider PNs in LTBI patient care.

1. Introduction

Although tuberculosis (TB) cases in New York City (NYC) have declined markedly since the early 1990′s, NYC's TB rate has plateaued in recent years, and remains one of the highest in the United States (US) at 7.8/100,000 people in 2023 [1]. Certain communities within NYC are disproportionately affected; the number of TB cases has been highest in three NYC neighborhoods (West Queens, Flushing, and Sunset Park) for several years. Since the late 1990′s, the majority of reported TB cases have occurred among non-US-born individuals, with 89 % of 2023 NYC cases [1]. There is an urgent need to enhance TB elimination efforts in non-US-born communities and high-burden neighborhoods in NYC.

Non-US-born individuals in NYC and the US face well-documented barriers to healthcare, including legal, economic, cultural and language barriers; fear or distrust of the American healthcare system; and misinformation about healthcare options and eligibility [2]. In addition, non-US-born individuals in NYC are less likely to have a regular primary care provider, have health insurance, or access to LTBI screenings or other preventive services compared to US-born individuals in NYC [3]. It is essential to address these barriers when planning and implementing TB prevention initiatives among non-US-born individuals to improve outcomes related to treatment completion.

The NYC HD prioritizes LTBI screening and treatment of Filipino-born individuals in NYC because the Philippines has been one of the top ten countries of birth among individuals diagnosed with TB in NYC for the past ten years [4]. According to Zimmerman et al. Glob Public Health study, TB remains a leading cause of death worldwide among Filipinos because of delay in seeking care due to stigma and visibility of care in public sector facilities [5].

The HD collaborated with the Philippine Nurses Association of New York (PNA-NY) to conduct TB education in West Queens in 2016, and LTBI screening with the QuantiFeron-TB Gold Plus (QFT-Plus) blood test in 2017. Sixty-four Filipino-born individuals in NYC were tested. Seventeen tested positive; of these, only 5 (29 %) sought evaluation at

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the HD's Chest Clinic, although clinic services were offered to all 17 at no cost. Of the 5 who completed LTBI evaluation, 3 (60 %) accepted and completed LTBI treatment (Barroso E, lecture, July 6, 2021). Patients' results notification and scheduling of clinic appointments for patients who tested positive on QFT-Plus was conducted by two HD TB outreach staff who were not culturally- or linguistically- competent. Preliminary data collected in this outreach based on reports made by outreach staff, showed that language and cultural differences between clients and staff were potential barriers to LTBI screening, evaluation, and treatment among Filipinos. Other barriers encountered by outreach staff on LTBI screening, evaluation, or treatment of Filipino patients included being embarrassed about going to the Chest Clinic, concern about taking time away from work, concern about immigration status, health insurance status, stigma associated with TB, and a low perceived risk of LTBI (E. Barroso, lecture, July 6, 2021).

To increase LTBI evaluation and treatment completion among Filipino-born individuals in NYC, the HD collaborated with two Filipino community-based organizations, PNA-NY and the Kalusugan Coalition, on an intervention geared towards increasing the number of Filipino-born individuals in NYC who were screened, evaluated, and treated for LTBI. For this intervention, Filipino patient navigators (PNs) were added as TB outreach staff to reduce barriers to seeking LTBI evaluation and treatment.

PNs are health or lay workers who help individual patients identify and address barriers to obtaining health care and improve coordination of existing health care resources [6,7]. The PN can play a role in improving health outcomes for racial, ethnic minorities, underserved population in the US; facilitate improved health care access; and address deep-rooted issues to distrust in providers and health system [8]. Although there is overlap in roles, PNs can be separated into two distinct categories: peer or lay navigators without clinical training or experience, who assist with logistic tasks, such as arranging transportation or facilitating care coordination; and navigators with clinical training or experience who focus on interpersonal connections and support [9,10]. PNs have been used in cancer care, HIV treatment, and other chronic health conditions [6]. Previous research in India by Garg et al indicates that PNs may contribute to increased TB treatment completion [11]. In another study, ancillary services provided by a health worker in the community led to improved linkage to care and improved treatment support for TB disease [12]. In the current outreach, PNs were added as TB outreach staff to address barriers to seeking LTBI evaluation and treatment that were identified during the previous outreach in 2017.

2. Methods

Two Filipinos were hired to serve as PNs; both lived in NYC, one who worked as a community organizer in the Filipino community, and one with clinical experience as a nurse's aide. Both PNs were fluent in English and Tagalog, and familiar with Filipino cultural norms based on their lived experience. PNs received basic training about TB transmission, diagnosis, and treatment; patient confidentiality; and respiratory mask fit testing.

Data from the Asian American Federation Census Information Center (2020) indicate that 54.8 % of Filipino NYC residents live in Queens [13]. Therefore, a community-wide media campaign to educate the community on TB and raise awareness of LTBI screening was conducted two months prior to outreach events. The media campaign was geotargeted to Woodside, Queens to an enclave where many Filipinos reside. Approximately 300 flyers in English and Tagalog were distributed and posted in Filipino stores and restaurants, and an educational video was developed with trusted health care professionals to encourage Filipinos to come for LTBI screening. This video was part of a two-week social media campaign launched on Facebook and aimed at the NYC Filipino community. In addition, the PNs recruited Filipino friends, neighbors, and acquaintances by word of mouth to come for LTBI screening.

Nine Outreach (community-based) LTBI screening events were conducted during September through December 2021. A Filipino community center, a cultural banquet hall, and four churches in Queens served as sites for screenings. LTBI Screenings were conducted by HD TB outreach staff and two PNs. Education on TB transmission, LTBI evaluation and treatment was provided by an outreach project manager to prospective clients, and LTBI screening was administered by the outreach public health nurse.

The TB outreach staff worked collaboratively with the PNs to offer patients with a positive QFT-Plus test result to receive a LTBI evaluation at the Chest Clinic. LTBI evaluation included medical assessment and chest x-ray (CXR) to rule out active TB disease, and laboratory exams that include blood and liver function tests. PNs offered to meet patients at designated places, then accompany them to the Chest Clinic for each patient visit. Eligible patients were offered short-course LTBI treatment (isoniazid and rifapentine once a week for 12 weeks under directly observed therapy (DOT) or rifampin daily for 4 months), and those who accepted treatment received education from Chest Clinic health care providers. Patients were given an option of video DOT (live or recorded) if they chose the weekly regimen. Chest Clinic nurses assessed patients' clinical response and adverse reactions to LTBI treatment monthly in-person or video visits. PNs made weekly follow-up calls to inquire about general patient well-being, patient needs, and adverse reactions to LTBI treatment. PNs followed up with Chest Clinic staff when concerning side effects among patients that were reported, and made reminder calls about scheduled appointments. PNs kept detailed notes about all patient interactions and participated in weekly follow-up meetings with TB outreach staff to assess patients' treatment progress and discuss challenges to patient follow-up. All care was provided at no cost to patients.

2.1. *Data collection*

Data on the number of Filipinos who were screened, evaluated, and completed treatment for LTBI was collected. A standardized intake form was used to obtain patient information. The data was recorded in Maven, the Bureau of TB Control's epidemiologic surveillance database. CXR results, laboratory results, and clinical disposition were extracted from Chest Clinic's electronic medical records. Patients' feedback on their experiences with LTBI screening, evaluation, and treatment were collected by TB outreach staff and PNs. Barriers to LTBI evaluation and treatment, as well as progress to treatment were extracted from the PN notes, which were recorded by the PN in Excel 2020 for each patient on a weekly basis. The TB outreach project manager also conducted patient interviews using closed-ended (yes or no responses) questions and one open-ended question. The questionnaire was developed by TB outreach staff to elicit patients' feedback on their experiences with LTBI screening, evaluation, and treatment. The open-ended question was, "How PNs improve your patient experience?".

Two patients were selected for patient interviews based on PN recommendation from each of the following categories: patients with a positive QFT-Plus who declined LTBI evaluation at the Chest Clinic; those who completed LTBI evaluation but declined LTBI treatment; and those who completed LTBI evaluation and treatment. A total of six patients were interviewed about their experiences during LTBI screening; delivery of TB education; LTBI evaluation and treatment; and experiences with the navigation provided by the PNs.

2.2. *Analysis*

Microsoft Excel 2020 was used for data analysis. Univariate analyses were conducted, numbers and proportions were summarized and calculated. PN notes were collated and summarized by TB outreach staff in the following broad categories: barriers and facilitators to LTBI evaluation; barriers and facilitators to LTBI treatment; and experiences with PNs. Additional qualitative feedback from the interviews were

included in the summary. Patients' responses to interview questions were tabulated. This study received an exemption determination from the New York City Department of Health and Mental Hygiene's Institutional Review Board.

3. Results

3.1. Quantitative results

A total of 77 Filipinos came and were screened with QFT-Plus, no one was excluded from screening. Seventeen (22 %) tested positive. Of those who tested positive, 14 (82 %) were evaluated at the Chest Clinic, all of whom TB disease was ruled out; the other three (18 %) declined evaluation. Of the 14 evaluated, eight (57 %) accepted and completed LTBI treatment; three (21 %) were not offered treatment due to medical issues such as fatty liver, elevated liver enzymes, or gastro-intestinal issues; and three (21 %) declined treatment (one due to concern about side effects, one moved to the Philippines, no reason was provided for the third). Table 1 shows these results in comparison to outcomes of the 2017 TB outreach screening events, in which five (29 %) of the 17 patients with a positive QFT-Plus followed up at the Chest Clinic for LTBI evaluation, and three (60 %) accepted and completed LTBI treatment.

Responses to close-ended patient interview questionnaire, shown in Table 2, indicated that all patients preferred having PN support with LTBI evaluation and treatment.

3.2. Qualitative feedback

Feedback abstracted from weekly PN field notes regarding barriers going to the Chest Clinic for LTBI evaluation included challenges on scheduling appointments due to work schedules; embarrassment about getting screened due to TB stigma; and concern about COVID-19 exposure during travel. Feedback regarding barriers to LTBI treatment included that patients did not feel sick and were therefore not motivated to seek treatment or were concerned about making trips to the clinic due to COVID-19, being absent from work, or potential medication side effects. In their notes, PNs observed that some patients were "not comfortable going to Chest Clinic," or were "concerned about other medical conditions," such that other medical issues were prioritized over TB care. Other feedback included patients "requested second opinion" or were "hesitant to accept treatment" due to concerns about side effects or adverse medication reactions.

Table 3 showed responses to the open-ended question on how PNs improve patient experience. Common themes abstracted included, "PN accompanied me on every visit to the Chest Clinic," "PNs helped make appointments work with my schedules," "PN called to remind of my appointments," "PNs encouraged me to come for follow-up visit," "it was helpful to have PN at the Clinic," "PNs educated me on TB and the importance of treatment for TB infection," and "PN encouraged me to continue and complete treatment." A patient that completed LTBI treatment had said, "I had peace of mind of being 100 % cleared of TB germs from my body." Of six patients interviewed about their experiences on LTBI screening, evaluation and treatment with the navigation provided by PNs, all patients responded that "it was helpful to have a PN at the screening site," "PN made their visit to Clinic comfortable," and they "prefer to have a PN coming to the Clinic.".

Table 1
Comparison of Outreach LTBI Screening Events.

	2017 (without patient navigators)		2021 (with patient navigators)	
	N	%*	N	%*
Filipinos tested	64		77	
Positive QFT-PLUS	17	27	17	22
Completed evaluation	5	29	14	82
Accepted & Completed LTBI treatment	3	60	8	57

* Percentage of the number immediately above in the table is shown.

Table 2
Summary of Patients' Responses to Interview Questions on their Experiences with Latent Tuberculosis Screening, Evaluation, and Treatment (n = 6).

	Yes	No
Experience at Latent Tuberculosis Infection (LTBI) Screening		
1. Was the location of the TB testing accessible to transportation?	67 %	33 %
2. Was it helpful to have a patient navigator at TB testing site?	100 %	0 %
3. Did you have any barriers to TB testing (travel concern due to pandemic)	17 %	83 %
Delivery of Education		
4. Did your patient navigator educate you on basics of TB (transmission, diagnosis and treatment)?	83 %	17 %
5. Did your patient navigator educate you on expectations as a patient at the Chest Clinic?	80 %	20 %
6. Did your patient navigator educate you on other services provided by the Health Department?	80 %	20 %
LTBI Evaluation		
7. Did your PN schedule appointments that were convenient to you?	80 %	20 %
8. Did you meet your patient navigator at a location that was accessible to you?	100 %	0 %
9. Was the presence of the PN comforting to you in visiting the Chest Clinic?	100 %	0 %
LTBI Treatment		
10. Were treatment options explained by the doctor?	100 %	0 %
11. Were side effects and adherence to treatment explained by the nurse?	100 %	0 %
12. Did your PN encourage you to enroll for directly observed therapy (live or recorded DOT)?	100 %	0 %
13. Was the PN helpful in resolving issues with getting medication?	100 %	0 %
Experience with Patient Navigator		
14. Did your PN encourage or support you to initiate, continue and complete LTBI treatment?	100 %	0 %
15. Did your PN help you with any other needs that you had?	100 %	0 %
Overall encounter/experience with PN		
16. Overall, would you prefer having a patient navigator in your LTBI evaluation and treatment?	100 %	0 %
17. Open-ended question: How did PNs improve your patient experience?		

Overall feedback, patients reported appreciating PN services and feeling reassured going to the Chest Clinic when a PN accompanied them. A patient expressed that PNs helped address personal barriers to LTBI treatment. For example, a PN informed the TB outreach project manager that one patient initially refused LTBI treatment due to concern about side effects; the project manager then provided further education, after which the patient initiated and completed LTBI treatment.

The intervention that included PNs led to an increase in proportion of patients completing LTBI evaluation and treatment. An additional and unexpected outcome was that patients felt empowered and motivated to take advantage of other HD services, such as COVID-19 testing and vaccination, flu vaccination, and HIV counseling and testing, as reported in responses to the open-ended patient survey.

4. Discussion

In the 2021 LTBI screening events, out of the 77 Filipino-born New Yorkers that came for LTBI screening, 82 % of those with a positive QFT-Plus, completed LTBI evaluation at the Chest Clinic. This represented a marked improvement in the proportion of patients evaluated in comparison to the previous LTBI screening among Filipinos in 2017. In 2017, out of the 64 Filipinos that came for LTBI screening, only 29 % of those with positive QFT-Plus completed LTBI evaluation at the Chest Clinic. The main difference was the addition of culturally- and linguistically-

Table 3
"Common themes" identified from open-ended question.

"PN accompanied me on every visit to the Chest Clinic"
"PN helped make appointments worked with my schedules"
"PN called to remind of my appointments"
"PNs encouraged me to come for follow-up visit"
"It was helpful to have PNs at the Clinic"
"PNs "educated me on TB and the importance of treatment for TB infection"
"PN encouraged me to continue and complete treatment"

competent PNs in the 2021 LTBI screening events.

In the 2017 LTBI screening events to the NYC Filipino community, barriers reported by Outreach staff included concern about time away from work, stigma associated with TB, concern about immigration status, health insurance status, and low perceived risks associated with LTBI. In the 2021 LTBI screening events, all Filipinos that came for TB testing had health insurance and none had problems with immigration status. PNs were able to reduce common barriers. During LTBI screening, the PN with community experience recruited more Filipino community members for TB testing, helped with patient registration, supported the well-being of patients by speaking with them in the Filipino (Tagalog) language, and connected patients to the HD services. During the LTBI evaluation, PNs observed that some patients were not comfortable going to the Chest Clinic. To address this barrier, PN accompanied patient on every visit to the Chest Clinic. This intervention was a big factor in addressing the stigma attached to TB and led more Filipinos to come to the Chest Clinic and complete their LTBI evaluation. This was also supported by the patients' responses on the open-ended question on how PNs improve patient experience that it was helpful to have the PN at the Chest Clinic. Patients felt reassured going to the Chest Clinic when a PN accompanied them. Distrust in health care services and providers as described by Natalie-Periera et al study on the role of PN in eliminating health disparities can be a factor that contributed significantly to the care seeking behavior of TB health services among Filipinos. Not coming for TB evaluation and delays in TB treatment services may have contributed to the high number of cases of TB among Filipinos in NYC. To address difficulty in scheduling appointments due to work and stigma with going to the clinic, PNs ensured that appointments were convenient for the patient's schedule and accompanied patients to every Chest Clinic visit. Other barriers due to the COVID-19 pandemic such as difficulty in scheduling appointments was resolved when PNs transported patients in their own personal car to address the fear of COVID-19 transmission of taking public transportation. The presence of culturally- and linguistically- competent Filipino PNs facilitated improved health care access by Filipinos to TB services offered by the HD. These efforts led to an increase in the number of Filipinos that came and completed LTBI evaluation at the Chest Clinic and helped narrow the health disparities in access to health services provided by the HD. During LTBI treatment, PNs encouraged patient to come for follow-up visit and educated patients about the importance of LTBI treatment. PN also emphasized the need to adhere and complete LTBI treatment. This was supported by patient's responses on the interview questions that said they had peace of mind of being 100 % cleared of TB germs from their body. PN coordinated follow-up appointments and helped with Tele-Health visits for patients who had travel concerns due to the COVID-19 pandemic. PN enrolled patients under video Directly Observed Therapy (live or recorded) and made special arrangements to mail medications to patient's home. In addition, PNs documented patient health care needs extensively and focused on patient care management by sending consistent reminders about appointments and adherence to treatment. PNs also paid attention to patients' responses to treatment. On one occasion, a patient manifested side effects to treatment which was promptly communicated to the Chest Clinic health care providers. PN helped addressed the perceived difficulty by Filipino patients in accessing the care provided by health care providers from the HD. All patients that accepted treatment of LTBI, completed treatment. However, despite these efforts, this research showed that there was no significant increase in the number of Filipino patients that accepted LTBI treatment which was a similar finding in the 2017 LTBI screening events; this can be due to the low perceived risks associated with LTBI. Further research should be done to investigate barriers to accepting LTBI treatment and the role of culturally- and linguistically- competent PNs in facilitating patient access to LTBI treatment to prevent delays in seeking TB care services.

5. Conclusion

This research has shown that pairing patients with culturally- and linguistically- competent Filipino PNs contributed to an increase in the proportion of Filipinos with a positive QFT who completed LTBI evaluation but did not significantly increase the percentage of patient that accepted LTBI treatment. Research should be focused on investigating barriers to accepting LTBI treatment and PNs role in this capacity. To make similar interventions both possible and sustainable, TB prevention programs may wish to consider including funding for PNs in their program. Meanwhile, additional research should evaluate less resource-intensive, more scalable LTBI patient care to increase the number of patients who accept LTBI treatment most especially in communities that experience a high burden of TB.

Ethical Statement

This study received an exemption determination from the New York City Department of Health and Mental Hygiene's Institutional Review Board.

CRediT authorship contribution statement

E. Barroso: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **T. Mark:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Investigation, Formal analysis, Conceptualization. **R. Acevedo:** Writing – review & editing, Visualization, Validation, Supervision, Resources, Project administration, Investigation, Formal analysis, Conceptualization. **S. Rao:** Conceptualization, Project administration, Validation, Writing – review & editing. **H.T. Jordan:** Writing – review & editing, Visualization, Validation. **J. Burzynski:** Writing – review & editing, Visualization, Validation. **W. Remegio:** Writing – review & editing, Visualization, Resources, Funding acquisition. **E. Ea:** Writing – review & editing, Validation, Resources, Conceptualization. **L. Compas:** Visualization, Resources, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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