Tuberculosis elimination can only be realised by preventing reactivation of latent infection in those at risk. Engagement with strategies to increase testing and treatment of latent TB requires community-centred evidence-informed initiatives. This project used a mixed-methods approach to examined tuberculosis knowledge, perceptions of testing and treatment, and enablers and barriers to testing and treatment amongst Victoria’s high-risk communities.
SUSTAINABLE DEVELOPMENT GOAL
“ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES”

CONTENTS

CONTENTS ................................................................................................................................. 3
  List of Illustrations .................................................................................................................. 5
  Acknowledgements ................................................................................................................ 6
  Ethics Statement .................................................................................................................... 7
  Conflicts of Interest ............................................................................................................... 7

EXECUTIVE SUMMARY ................................................................................................................. 8

INTRODUCTION .............................................................................................................................. 10

BACKGROUND ............................................................................................................................ 11
  Programmatic Responses ....................................................................................................... 12

PROJECT DESIGN .......................................................................................................................... 14
  Study Methodology ................................................................................................................ 14
  Data collection ....................................................................................................................... 14
  Study Population ................................................................................................................... 16
  Sample ..................................................................................................................................... 16
  Inclusion Criteria .................................................................................................................... 16
  Exclusion Criteria .................................................................................................................. 16
  Recruitment Procedure ......................................................................................................... 17

RESULTS ....................................................................................................................................... 18
  Statistical Methods ................................................................................................................ 18
  Community Participants ........................................................................................................ 18
  Demographics ........................................................................................................................ 18
  TB Health Literacy .................................................................................................................. 21
  Community Participants Healthcare Beliefs and Preferences ............................................... 26
  Healthcare Worker Participants ............................................................................................. 29
  Demographics ........................................................................................................................ 29
  Experiences ............................................................................................................................. 31
    Theme 1. The Business of Medicine ..................................................................................... 32
    Theme 2. The Science of Medicine ...................................................................................... 33
    Theme 3. The Capacity of Medicine .................................................................................... 34
    Theme 4. The Art of Medicine ............................................................................................. 35
  Confidence ............................................................................................................................... 37

DISCUSSION .................................................................................................................................. 38
  Findings .................................................................................................................................... 38
  Limitations ................................................................................................................................ 41
  Strengths ................................................................................................................................... 41

RECOMMENDATIONS ..................................................................................................................... 41

REFERENCES ................................................................................................................................... 43

APPENDIX A: COMMUNITY PARTICIPANT PICF (ENGLISH) ......................................................... 45

APPENDIX B: COMMUNITY PARTICIPANT PICF (VIETNAMESE) ................................................. 48
List of Illustrations

Figure 1: Victorian Tuberculosis Program Staff, Peter Doherty Institute, 2016 ........................................... 6
Figure 2: Victoria, Australia ......................................................................................................................... 8
Figure 3: Estimated Global TB Incidence rates, 2015, WHO 2016 ................................................................. 10
Figure 4: The End TB Strategy Vision, Goal, and Indicators, WHO 2014 ...................................................... 12
Figure 5: The End TB Strategy Pillars and Principles, WHO 2014 ............................................................. 12
Figure 6: Framework Towards TB Elimination in Low-Incidence Countries Priority Actions, WHO 2014 ...... 13
Figure 7: Australian Data on Language and Literacy .................................................................................... 15
Figure 8: Country of Origin maps for Vietnam and the Greater Horn of Africa ........................................... 15
Figure 9: Location of Brimbank, Maribyrnong, and Greater Dandenong Local Government Areas in Relation to Melbourne Central Business District ................................................................. 16
Figure 10: Participant inclusion and exclusion criteria .................................................................................. 16
Figure 11: Recruitment Cascade ................................................................................................................ 17
Figure 12: Victorian Tuberculosis Program Staff, Doherty Institute 2017 ..................................................... 18
Figure 13: Dissemination of Health Literacy Score for True or False Statements by Community Group, Melbourne, 2016 ......................................................................................................................... 21
Figure 14: Dissemination of Total Health Literacy Score by Community Group, Melbourne, 2016 .......... 22
Figure 15: Dissemination of Average Total TB Health Literacy Score by Age Group, Melbourne, 2016 .... 23
Figure 16: Healthcare Worker Demographics .............................................................................................. 29
Figure 17: Cascade of Care Objectives to Achieve TB Elimination in Victoria, Australia (Denholm et al 2016) .................................................................................................................................................. 38
Figure 18: Percentage of Migrants in Melbourne by Suburb, 2011 ............................................................. 39
Figure 19: Search Engine Results Highlight the Challenge for Community Engagement ............................. 40

Table 1: Demographics of Community Participants by Community Group ..................................................... 19
Table 2: Preferred Language as Identified by Community Participants by Community Group ...................... 19
Table 3: Household Descriptors of Community Participants by Community Group ......................................... 20
Table 4: Income Source and Education of Community Participants by Community Group ......................... 21
Table 5: TB Health Literacy Measures of Central Tendency by Community Group ....................................... 22
Table 6: Mean TB Health Literacy Score by Sex and Community Group ..................................................... 22
Table 7: Correctly Answered TB Health Literacy by Community Group – Prevalence, Transmission and Acquisition ................................................................................................................................. 23
Table 8: Correctly Answered TB Health Literacy by Community Group – Disease and Disease Progression... 24
Table 9: Correctly Answered TB Health Literacy by Community Group – Testing and Treatment ................ 25
Table 10: Community Participants Attitudes and Beliefs by Community Group - Accessing TB testing and Treatment ........................................................................................................................................... 26
Table 11: Community Participants Attitudes and Beliefs by Community Group - Health Care Beliefs ........... 27
Table 12: Community Participants Attitudes and Beliefs by Community Group – Testing and Treatment for LTBI ........................................................................................................................................ 27
Table 13: Health Care Beliefs by Community Group – Barriers, Enablers, and Preferences (Mode) .......... 28
Table 14: Health Care Worker Demographics ............................................................................................... 30
Table 15: Health Care Worker interviews – Thematic Table ...................................................................... 36
Table 16: Health Care Worker Self-confidence Appraisal Summary by Designation ..................................... 37
Acknowledgements

I would like to thank the participants in this project who took the time to share their knowledge and experiences. Without them, this project would not have been possible.

I am indebted to the staff of the Centre for Culture, Ethnicity and Health, Cancer Council of Victoria, Chua Giac Hoang, cohealth, Department of Health and Human Services, ISIS Primary Care (now IPC Health), Latjor Dingyian and Nuer Literacy Centre Inc, Lopit Community Association of Australia, Migrant Resource Centre – Southern, Monash Health Community Health Services Springvale and Dandenong, South Eastern Community Links Dandenong, New Hope Foundation Noble Park and Springvale, Primary Health Network South East, Southern Sudan Community Association of Victoria, Springvale Indochinese Mutual Assistance Association, and Victorian Infectious Diseases Service for their support and advice throughout this project. I am thankful to all of those who provided expertise that greatly assisted in the development of the project, including but not limited to, Dr. Michael Dillon, Associate Professor Caroline Marshall, Dr. Paul Colson, and Penelope Johnson.

I would like to express my gratitude to the members of the South East Culturally and Linguistically Diverse Network and the Refugee Health Network for their time and favour.

My thanks and appreciation to Associate Professor Justin Denholm and the staff of the Victorian Tuberculosis Program (Figure 1) for their guidance and fortitude in assisting me in developing and completing this project.

This project was supported by the Royal Melbourne Hospital, Victorian Tuberculosis Program, and Qiagen Pty Ltd. I am grateful to the people who bring these institutions such benevolence.
Ethics Statement
This project received approval from the Melbourne Health Human Research and Ethics Committee (reference number HREC/16/MH/173) and operated with Melbourne Health governance authorisation (SSA reference number SSA/16/MH/186). The Melbourne Health site reference number for the project is 2016.147. The project operated within RMH MH18 Research Policy and MH 03 Consumer, Carer and Community Participation policies and their subsidiary procedures on confidentiality and privacy. Project activities including community visits, vehicle use and the like were subject to applicable aspects of the Royal Melbourne Hospital (RMH) policy to maximise participant and researcher safety. Participants requesting TB testing as a result of participation were offered this in accordance with the Victorian Department of Health and Human Services’, Management, control and prevention of tuberculosis: guidelines for health care providers and in accordance with standard care. Results management was considered in accordance with these same guidelines. Consistent with best practice principles efforts were made to engage with community and knowledge users across all stages of the project.

Conflicts of Interest
Qiagen Pty Ltd provided financial support for this project, including investigator salary support. Qiagen did not play a role in project design or analysis.
EXECUTIVE SUMMARY

Existing clinical and public health strategies are effective for controlling active TB disease but do not detect most individuals with latent TB infection (LTBI), who are at risk for future disease. As the considerable majority of TB cases in Victoria occur as a result of reactivation of LTBI, identification and treatment of those affected is of central importance. Tuberculosis elimination can only be realised by preventing reactivation of latent infection in those at risk.

Recent epidemiological data demonstrate a wide range of people at risk of TB in the Victorian community. Those most at risk of reactivation of TB are migrants. Victorian residents of Vietnamese and Greater Horn of Africa (GHoA) heritage have a disproportionate burden of TB. Rates of TB also vary by local government area, with geographic variation in TB risk closely related to settlement patterns, particularly of the Vietnamese and GHoA cohorts.

Experiences in health promotion and disease reduction demonstrate that evidence-informed community-centred approaches provide for the most effective and sustainable outcomes. This project concentrated on exploring barriers and enablers to testing and treatment in a low tuberculosis prevalence, high-income country. The knowledge and views of community members who have not had direct experience with tuberculosis testing or treatment were of particular importance. Members of the Vietnamese and GHoA community groups and those who provide health care for them were invited to participate.

Community participants largely recognised tuberculosis as infectious, commonly associating it with a cough and as affecting the lungs. Vietnamese participants generally had better overall tuberculosis health literacy than those from the GHoA. Gaps in knowledge were apparent with regard to LTBI, testing and treatment, and disease progression with 38% of participants believing that they would know if they were infected with TB from the time of infection.

Participants identified potential reasons for differences in knowledge of and access to testing for tuberculosis. Vietnamese communities are well established in Victoria, are geosocially stable and often access same language general practitioners, and are linked with long-standing social groups and same language resources. Older Vietnamese participants spoke to the value of community radio and established print media in disseminating health information.

In contrast, the GHoA communities are newer to Victoria than the Vietnamese, although are often not contemporary refugees (defined as those individuals arriving in Australia in the past 12 months). This has contributed to mobile and geographically dispersed subgroups. Same language health care providers are less prevalent and, as experienced in the recruitment of GHoA community members, subgroups are forming and reforming as the community establishes in Victoria making engagement more challenging.

Both community groups described a need for own language communications and reported difficulty accessing these materials from trusted sources. Oral communication was often preferred over written communication.

Beyond knowledge of TB/LTBI, participants identified a range of barriers to diagnosis and treatment of LTBI. The cost of testing for latent tuberculosis was consistently identified as a significant barrier to testing. A specific concern across all participants was the cost of Interferon Gamma Release Assay (IGRA) and to the
indirect costs of testing including loss of income for casual workers. Indirect costs were often compounded by poverty, socio-legal issues associated with visa status and eligibility for service, and social capital.

The challenges of reducing LTBI reservoirs within Victorian populations were linked to migration in two distinct ways. Contemporary refuges are often faced with issues of settlement that trump LTBI treatment. The gearing of health and welfare systems to contemporary refuges results in a drop in health access and system guidance for migrants 12 months post arrival.

Doctors were identified by community participants as the number one source of trusted healthcare information. Yet education sessions and healthcare worker participants revealed a concern about the capacity of general practice to provide testing and treatment. Significant concerns were raised with regard to general practitioners feeling confident in their science knowledge with regard to testing for tuberculosis and treating LTBI. The business needs of small general practices to respond to test outcomes and provide LTBI treatment were raised as a barrier to treatment. It also became apparent that the most confident of health care providers had been able to engage with the art of medicine using narratives to communicate the intricacies of the difference between LTBI and active tuberculosis and subsequent treatment options.

This report highlights the limitations to community knowledge about LTBI and identifies key barriers to increasing diagnosis and treatment of LTBI. These barriers include awareness, cost of accessing testing services and ensuring access to knowledgeable healthcare practitioners in the local context. Optimal strategies to improve testing and treatment in Victoria should support health promotion and education materials for community members, professional development and decision making tools for healthcare workers. To prevent reactivation of TB it is necessary to ensure timely and free access to services, particularly diagnostic tests, and primary healthcare providers need to be supported with regard to capacity development and the business, science, and art of tuberculosis medicine.
INTRODUCTION

Tuberculosis (TB) is a preventable and treatable infection that approximately 25-30% of the global population has. Included in the United Nations’ sustainable development goal of good health and wellbeing is the ending of TB (United Nations, 2015). This is defined as ≤0.1 cases of TB per 100,000 population. Current estimates are of a global, annual rate of decline of 1.5%. This is far from the 5% global annual decline that is needed to meet the goal of ending TB. Furthermore, recent modelling indicates that assuming no new acquisition of TB, current latent TB infection (LTBI) alone will generate an incidence rate of 16.5 per 100,000 per year in 2035 (Houben & Dodd, 2016).

In 2015, there were an estimated 10.4 million new cases of TB. Approximately 1.4 million people died of TB. An estimated 4.3 million people were missed by health systems. Among those missed are the most vulnerable, including women, children, and the very poor (World Health Organization, 2016).

With increasing global migration, TB will not be completely and sustainably eliminated in any country until it is eliminated globally. As such, low-prevalence settings (defined by a prevalence rate of ≤ 10 per 100,000 population) where TB prevalence rates have been stable for many decades face specific challenges in moving towards TB elimination. Typically in these settings overseas born individuals are disproportionately represented within TB notification rates, with reactivation of LTBI understood to be a significant contributory factor in TB prevalence. See Figure 3 for global estimates of TB incidence rates. Critical to achieving TB elimination in these settings is the reduction of LTBI.

Public health epidemiology has long been a cornerstone of TB programs; as such it is possible to use demographic and geographic markers to identify groups at very high risk of having TB.

In Australia, jurisdictions are tasked with the implementation of national policy and practice. Understanding the local TB profile is necessary to engage community-centred care to develop and deliver tailored evidence-based interventions for the testing of TB and the provision of appropriate treatment for LTBI.
In Victoria, Australia, epidemiological data demonstrates that although 1.4% and 0.4% (Australian Bureau of Statistics, 2017a) of the general population identify as being Vietnamese and from the Greater Horn of Africa (Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan or Uganda) people born in these regions constitute 11% and 9% of all TB notifications respectively (E. L. Tay, 2016). Ergo, it is important to understand and address the specific needs of these community groups to work towards TB elimination within the jurisdiction.

Collective knowledge and understanding of the social determinants of health suggest that there are a variety of cultural barriers to TB testing and LTBI treatment compounded by a lack of appreciation as to its value, both among communities and healthcare providers in the Victorian setting.

This project interrogated barriers to TB testing and LTBI treatment. It investigated understandings of the impact of LTBI and explored means of addressing these barriers. Specific attention has been given to the high-risk populations within the Victorian context, namely the Vietnamese and Greater Horn of Africa (GHoA) communities, and those healthcare providers working with them.

BACKGROUND

Australian has a population of 24 million, with one-quarter living in Victoria. The 2016 Census shows that Victoria has had the highest increase in population growth of all States and Territories over the past five years (Australian Bureau of Statistics, 2017b). More than one in four Victorians (28%) reported being born overseas with England and India tied for the most common country of birth (2.9%), followed by China, New Zealand and Vietnam (Australian Bureau of Statistics, 2017). The 2016 Census notes that unlike the ‘typical’ Australian, the ‘typical’ Victorian is more likely to have at least one parent who was born overseas (Australian Bureau of Statistics, 2017b).

Australia has established policy and practice with regard to TB control and its effectiveness is recognized in a stable national TB incidence rate of 6.4 notifications per 100 000 population per annum over recent decades (Department of Health, 2016). Contrasting with census data for the same period, 85 - 90% of the national TB notifications reported that they were foreign-born (E. Tay, Stephens, & Denholm, 2015; Toms, Stapledon, Coulter, & Douglas, 2017).

Victorian TB notification rates for 2005 to 2014 show that individuals born in India, Vietnam, or the GHoA (E. L. Tay, 2016) in particular were over-represented.

During the 2005 to 2014 period, most notifications were from the local government areas of Greater Dandenong and Brimbank, closely followed by Casey, Melbourne, and Maribyrnong (E. Tay et al., 2015). Heat mapping shows that notifications for Vietnamese and Horn of Africa identifying individuals live primarily in the Greater Dandenong, Brimbank and Maribyrnong local government areas. The Indian population is geographically dispersed across metropolitan Melbourne.

Notable amongst the Victorian notification rates were those born in Vietnam (11%) and the GHoA (9%) (Department of Health, 2016; E. Tay et al., 2015) as these groups represent only 1.4% and 0.4% of the Victorian population (Australian Bureau of Statistics, 2017a) and are more likely to be permanent residents than those of Indian background. TB epidemiological data shows that Indian born migrants were more likely to be in Australia on short-term temporary visas. Internationally Vietnam and the countries of the GHoA are recognised as high TB burden countries (Partnership, 2018; E. Tay et al., 2015).
Programmatic Responses

The Australian government is committed to action on TB and has endorsed WHO indicators towards TB elimination (Figure 4). Achieving these targets requires an investment in new approaches to TB care and management as evidenced by a long-term stable annual rate of change. In Australia, this means a shift from the low stable rate of annual change of ≤ 1% to an annual rate of decline of 18% to reach 2035 targets (World Health Organization, 2014). With LTBI reservoirs calculated to have 2035 WHO TB targets out of reach in the absence of any new infection acquisition (Houben & Dodd, 2016), innovative approaches are needed to improve diagnosis and to engage individuals and health care providers in TB testing and LTBI treatment.

Operationally in Australia TB management occurs through state and territory based programs. This is possible due to clear jurisdictional borders, active cooperation and national policy and guidelines from the National Tuberculosis Advisory Committee (Commonwealth of Australia, 2015). In Australia, jurisdictions have been tasked with the implementation of activities towards these targets.

A geographically large country, demographics vary across these jurisdictions as evidenced by TB prevalence rates that are six to nine times higher among Australia’s Indigenous populations living in the northern regions and under-representation of Indigenous populations in the south-eastern regions (E. Tay et al., 2015). It is critical to understand jurisdictional differences and similarities to deliver programs that embody the WHO strategy pillars (World Health Organization, 2015b). As with other low prevalence settings, it is likely that as much as 80% of the countries TB incidence is due to reactivation of LTBI. Modelling for Victoria indicates a need for an annual reduction of 8%; this means testing an additional 5000 to 8000 people and treating 1250 of them to prevent incident cases of TB (Denholm, 2016). Arguably a straightforward process – test, treat and don’t get ill from TB.

With a lifelong probability of progression to TB of 5 – 15% and evidence of a positive net benefit of LTBI treatment across a broad range of patients in low-burden settings (Ai, Ruan, Liu, & Zhang, 2016; Fox, Dobler, Marais, & Denholm, 2017; World Health Organization, 2015a), this straightforward process is hampered. Theoretical knowledge, practice wisdom and a small pool of data suggests a range of sociocultural and biopsychosocial barriers (de Vries et al., 2017). The nature of these barriers means they are liable to be sensitive to ethnicity, geography, and governance, thus jurisdictions must look to the identification of barriers and enablers to TB testing and LTBI treatment locally.

Accessing healthcare can be a challenge for migrants for a number of reasons; linguistic, cultural, economic, and legal (Morano, Zelenev, Walton, Bruce, & Altice, 2014; Zelnick, O’Donnell, Ahuja, Chua, & Sullivan
Meissner, 2016). Studies from America, Canada, India, and Nigeria all strongly suggest the need for research aimed at developing and testing interventions to improve community knowledge and awareness regarding LTBI. Tobin, Okojie, and Isah particularly note that “correct knowledge and positive perception of the community towards TB and its management is a prerequisite to early treatment seeking” (Tobin, Okojie, & Isah, 2013). Early testing and treatment seeking can prevent TB, ensuring optimal health outcomes for individuals and reducing the public health burden of TB. Research on TB health literacy out of India similarly reports “an urgent need to implement targeted interventions to educate [vulnerable] groups for better TB control” (Muniyandi et al., 2015).

Principles of social justice insist on action to close the TB health gap globally. In low TB prevalence settings, action must be tailored and weighted to optimise net benefit. Consistent with the priority action areas of The End TB Strategy (World Health Organization, 2014)(Figure 6) this project looked to consider the:

- most vulnerable and hard to reach groups as evidenced by epidemiological data and practice wisdom,
- special needs of migrants and cross-border issues

To act respectfully in this space it is important to engage the individuals referenced in these statements and those healthcare providers who work with them. Healthcare workers are the point of access and guidance in TB testing and LTBI treatment. Their perceptions, mores, and attitudes with regard to value and risk, and to understanding the barriers and enablers to TB testing and LTBI treatment is critical in mobilising towards elimination.

In other low TB burden settings healthcare workers have reported themselves to be of insufficient experience, to lack in timely specialist support, to have inadequate human and material resources to provide LTBI treatment, and to be unlikely to complete LTBI treatment themselves (Atchison, Zenner, Barnett, & Pareek, 2015; Colson, Franks, Sondengam, Hirsch-Moverman, & El-Sadr, 2010; Horsburgh et al., 2010). Consideration of community and healthcare worker biopsychosocial and cultural factors enables this study to consider how best to encourage engagement with TB testing and LTBI treatment and to optimise the resources available.

Unique to this project is engagement with high-risk populations in a low prevalence, high-income setting who are not yet connected with TB care. Previous work from North America, the United Kingdom and Australia (Colson et al., 2010; Johnson, 2006; Royce et al., 2015; Tobin et al., 2013) all engage participants who were patients of TB specialists.

TB is a substantial global public health issue. It is a persistent public health threat in high-income countries and in a globalized world a shared concern.

“"In times of increasing population mobility, TB will never be completely, sustainably eliminated in any country until it is eliminated globally” (World Health Organization, 2014)"
A genuine commitment to an Australian contribution towards TB elimination must include reducing seemingly low rates of TB testing and LTBI treatment. A variety of cultural barriers to TB testing and LTBI treatment and a lack of perceived merit in LTBI treatment, both among affected communities and the healthcare providers that support them, was hypothesised to be a significant issue. Addressing barriers effectively requires understanding them and working with community and healthcare workers to develop and deliver tailored public health and education.

**PROJECT DESIGN**

The purpose of this project has been to inform practice and practitioners thus an inductive project design was adopted. In order to generate recommendations and educational approaches that address health gaps, it is informed by principles of phenomenological and social construction approaches to knowledge development. Methodologies were selected to examine contextual understanding and cultural influence in addition to assessment of the magnitude and frequency of constructs and exploration of meaning.

Communities at high risk of TB acquisition are identifiable via international and state-based prevalence data and as such, this project recognizes them as key informants. Due to the disparity in notification rates, especially in proportion to population, individuals from the Vietnamese and the GHoA communities and healthcare workers providing services to them, or with extensive experience in working with culturally and linguistically diverse communities, were selected as the foci. Community members and healthcare workers based in high TB prevalence local government areas were targeted.

A cross-sectional study design was selected to provide triangulation, transparency and to incorporate experiential learning. Recognising that qualitative methods provide rich data for assessment and planning, study limitations have required the engagement of strategic compromise to optimise human and material resources. Community TB knowledge, perception and health preferences were examined via survey and questionnaire. The collection of demographic data enabled exploration of similarities and differences between groups by categorical data (e.g. sex, age, country of birth).

Healthcare workers providing care for these populations are identifiable via Victorian geosocial mapping, through professional networks and through speciality e.g. migrant and refugee health. Descriptive study design using in-depth semi-structured interview and questionnaire was used to gather and analyse data. The collection of demographic data facilitated examination of the similarities and differences between healthcare workers by categorical data (e.g. years of experience, practice setting).

**Study Methodology**

**Data collection**

Two instruments were designed for data collection. The first was a survey and questionnaire for community participants consisting of a:

- demographic tick box questionnaire
- TB knowledge questionnaire using true/false and multiple choice questions
- perception survey using a Likert scale exploring health care preferences and experiences.

Health literacy assessment best practice guidelines from the WHO were consulted along with studies on health literacy and pulmonary TB from India and Nigeria (Muniyandi et al., 2015; Tobin et al., 2013). Seeking applicability in a high-income low TB prevalence setting the works of (Butcher et al., 2013; Howley et al., 2015; Johnson, 2006) were consulted. Each of these studies worked with participants receiving treatment for...
Towards Elimination

LTBI or TB. This project required an instrument designed and structured for participants not engaged in LTBI or TB treatment. The study questionnaire and survey was reviewed by members of the Victorian Tuberculosis Program, cultural and linguistic services and tested for face validity with volunteers. Volunteers with no previous exposure to TB completed the instrument in approximately 15 minutes, engaged in an educative discussion on TB, and demonstrated literacy and comprehension with regard to the Participant Information and Consent Form (PICF) and Department of Health TB fact sheet.

The demographic data was categorically defined with participants marking the box that best described their situation e.g. sex as male or female, country of birth. Knowledge was collected using true/false statements and multiple choice questions whereby participants mark the boxes they believe to be applicable. Perception data was collected using a four-point Likert scale from 'strongly disagree' to 'strongly agree'. Questionnaires and surveys were provided in English and Vietnamese. A strategic compromise this decision reflects data on language (see figure 7) and feasibility considerations with recognition of the fact that individuals from the GHoA who are not fluent in English have a diverse language base, with no dominant lingua franca for the region.

Survey data was anonymous and participation voluntary. A copy of the community PICF can be found in Appendix A (English) and B (Vietnamese). Following completion of the survey, all participants received a language-specific TB fact sheet which enabled opportunistic education with regard to TB knowledge and the purpose of testing and treating LTBI (Appendices C and D).

The instrument for healthcare workers included a demographic survey, a semi-structured in-depth interview guide, and a self-efficacy appraisal. The demographic survey is based upon the works of (Atchison et al., 2015; Royce et al., 2015) and developed for the Victorian setting and the identified study objective. Participants marked the box that best described them or provided a single word descriptor (e.g. mark nurse and specify craft as refugee health). Development of the self-efficacy scale was informed by the Stanford Chronic Disease efficacy scales (Standford Patient Education Research Center, 2016) and the self-efficacy assessment recommendation of the APA (American Psychological Association, 2016). The self-efficacy survey used a 10 point confidence scale from 1 (not confident at all) to 10 (totally confident).

Learning from (Atchinson, Zener, Barnett, & Pareek, 2015) who note that focus groups or individual interviews “may have provided more detailed information” this study augmented community data and healthcare worker survey through in-depth interview which included questions about community TB health literacy, health beliefs, healthcare worker culture and beliefs, TB related fear, barriers and resources for providing health care and TB related services, and experiences in working with culturally and linguistically diverse communities. The PICF for healthcare workers, inclusive of the demographics

**FIGURE 7: AUSTRALIAN DATA ON LANGUAGE AND LITERACY**

**FIGURE 8: COUNTRY OF ORIGIN MAPS FOR VIETNAM AND THE GREATER HORN OF AFRICA**
questionnaire, and the interview guide for this group can be found at Appendices E and F. Interviews were conducted in English, in person or by telephone, by the project lead. Interviews were audio recorded and transcribed.

**Study Population**

**Sample**

Documented in existing Victorian epidemiological data high-risk communities were defined by geographical and ethnic characteristics as identifying as Vietnamese or GHoA (Figure 8) and living in Greater Dandenong, Maribyrnong, or Brimbank local government areas in Victoria (Figure 9). As a descriptive social sciences study focused on understanding and addressing barriers to TB testing and LTBI treatment for applied outcome this study utilised a combination of non-probability sampling approaches in order to strategically and pragmatically achieve its objectives.

Concerned with rich definition and focused upon research for practice, this strategic conciliation in sampling technique allowed for optimal data collection within resource limitations and engaged those most likely to benefit from the study and/or to use outcome materials.

Alert to the principles of representation and quota sampling the target number of completed surveys was 150 with a ratio of 11 Vietnamese to 9 GHoA as representative of Victorian notification data. This would return statistical analysis at a significance level of 0.1 and a confidence level of 95% upon calculation.

Community participants were recruited from within culturally and geographically relevant community organisations and healthcare providers (e.g. health and welfare services in high prevalence local government areas, ethnicity-based community and social groups). Organisations were identified via consultation with Victorian Tuberculosis Program staff, migrant networks, and social media (e.g. electronic community notice boards, local government websites). Consistent with purposive snowball sampling one agency was then invited to recommend another. Convenience and snowball techniques were used within organisations to engage

---

**Inclusion Criteria**

Project participants were adults as defined by Australian legislation and identified as being of either Vietnamese or GHoA background. Participation required an ability to understand and consent to participate and capacity to complete and submit the survey.

For the purposes of this project, healthcare providers are defined as a doctor of medicine, nurse, manager or allied health professional who is authorized to practice by the State and performing within the scope of their practice.

**Exclusion Criteria**

Excluded from participation in the project are those unable to demonstrate informed consent or if despite all reasonable attempts at assistance are unable to complete the survey. Due to experiential knowledge individuals will be excluded if they are currently undertaking or have undertaken treatment for TB.
participants.

Victorian epidemiological data and professional networks (e.g. refugee and migrant health, Royal College of General Practitioners, Primary Healthcare Network, LinkedIn) were used to identify key informants amongst healthcare workers. As key users of public health and educative materials in TB testing and LTBI treatment participants were recruited from across the pillars of health care. Professionals most likely to be directly involved in TB testing and LTBI treatment were targeted. Geographical markers and practice frameworks were used as indicators for experience in working with culturally and linguistically diverse populations, and more specifically individuals of GHoA and/or Vietnamese background. Purposive snowball recruitment was used to identify and contact further information-rich participants. See figure 10 for inclusion and exclusion criteria.

**Recruitment Procedure**

The project lead began the identification of potential recruitment points in March of 2016. Community participant recruitment commenced in August of 2016 following ethics and governance approval and closed in February of 2017.

Up to five attempts were made to contact and engage with each service, association, practitioner or group. Initial contact was made via telephone where possible and followed up as negotiated.

In the case of community participants, once an agency was contacted, either by telephone or email, a summary of the project was emailed to an identified organisational representative and a meeting arranged. At the meeting, the details of recruitment were negotiated and when applicable organisational staff familiarised with the project data collection instruments and procedure. Community participants were accordingly recruited within the organisation by the project lead or by a trained member of the organisation.

Healthcare workers were approached by the project investigator by telephone or email in the first instance with a description of the project and an explanation for approaching them in particular. An interview time was then scheduled and confirmed via Outlook with the PICF and demographic data collection form attached to the electronic invitation. Interviews occurred in a location of the provider’s preference or by telephone. At the conclusion of the interview, clinical healthcare workers were invited to complete an anonymous self-efficacy scale which was sent by Survey Monkey or provided in hard copy to the 12 eligible participants.
Thematic saturation, i.e. no new content raised, was used as the endpoint for the recruitment of healthcare workers. Figure 11 offers a graphic summary of recruitment contacts and participation. Each point of contact included the provision of health education across a variety of modalities from opportunistic education to scheduled sessions. Whilst data was not electronically recorded at these sessions they informed further project delivery.

RESULTS

Statistical Methods

This project used data and methodology triangulation to illuminate barriers to TB testing and LTBI treatment. The selected methodological approach includes descriptive demographic reporting, comparative data examination, and thematic analysis.

Measurements of frequency, central tendency, and spread are considered with regard to community participants. Knowledge scores have been calculated by summing participant's total correct responses giving a subtotal on true-false questions and an overall picture of TB health knowledge with the inclusion of multiple choice results. Likert scale data provides a summation of perception with regard to enablers, barriers, and preferences in healthcare seeking. Cross-tabulations provided for comparison of knowledge, attitudes, and beliefs across demographics. Statistical analysis was conducted using Excel.

Transcribed manuscripts for interviews were analysed thematically by a priori themes informed by the research question and an extensive literature review, and by unique coded theme and word/phrase frequency. Thematic analysis was conducted using consensus principles by the project lead and project mentor. Self-efficacy scales are scored and analysed according to the Stanford Patient Education Resource Centre (2016).

Community Participants

Demographics

Community participants were recruited through community health services, community welfare services, and culturally specific associations and groups. A total of 49 surveys were returned; two were excluded from data analysis as they were completed by individuals considered minors in the Australian context (see figure 10). It is of note that the voluntary nature of participation and responses to questions results in some percentages not tallying to 100.

Participants were adults born in the GHoA (34%) and Vietnam (66%). Participants self-identified their country of birth and accordingly cultural identity. Participants overwhelmingly recorded that they shared the same country of birth as their parents 96% (N=45). This finding is consistent with 2016 Census data on overseas-born parents of Victorian residents (Australian Bureau of Statistics, 2017b).

Both sexes were represented within the data set at 64% female, 30% male. This ratio is not consistent with 2016 Census data which reports that 51% of the Victorian population are female and 49% are male (Australian Bureau of Statistics, 2017a).

Most participants were aged 46 to 65 (51%). Those aged 36 - 45 were underrepresented among participants at only 9%. The median age of Victorian residence is 37, although somewhat older for migrants.
at 43 years of age (Australian Bureau of Statistics, 2017a). The Vietnamese participants were likely to be older than the GHoA participants.

The majority (68%) of participants reported having lived in Australia for more than ten years, with the remaining being equally divided between those living in Australia between one and five years (17%), and six to ten years (15%). Table 1 provides a summary of the demographic characteristics of the community participants.

**TABLE 1: DEMOGRAPHICS OF COMMUNITY PARTICIPANTS BY COMMUNITY GROUP**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Vietnamese N=31 (66%)</th>
<th>GHoA N=16 (34%)</th>
<th>Total N=47 (100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>20 (64)</td>
<td>10 (62)</td>
<td>30 (63)</td>
</tr>
<tr>
<td>Male</td>
<td>11 (36)</td>
<td>6 (38)</td>
<td>17 (35)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 25</td>
<td>1 (3)</td>
<td>2 (13)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>26 – 35</td>
<td>4 (13)</td>
<td>3 (19)</td>
<td>7 (15)</td>
</tr>
<tr>
<td>36 – 45</td>
<td>1 (3)</td>
<td>3 (19)</td>
<td>4 (8)</td>
</tr>
<tr>
<td>46 – 55</td>
<td>9 (29)</td>
<td>4 (25)</td>
<td>13 (27)</td>
</tr>
<tr>
<td>55 – 65</td>
<td>8 (26)</td>
<td>3 (19)</td>
<td>11 (23)</td>
</tr>
<tr>
<td>65+</td>
<td>7 (23)</td>
<td>1 (6)</td>
<td>8 (17)</td>
</tr>
<tr>
<td><strong>Parents country of birth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>30 (97)</td>
<td>15 (94)</td>
<td>45 (96)</td>
</tr>
<tr>
<td>GHoA</td>
<td>1 (3)</td>
<td>0 (0)</td>
<td>1 (2)</td>
</tr>
<tr>
<td><strong>Years lived in Australia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 year</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1 – 5 years</td>
<td>3 (10)</td>
<td>5 (31)</td>
<td>8 (17)</td>
</tr>
<tr>
<td>6 – 10 years</td>
<td>3 (10)</td>
<td>4 (25)</td>
<td>7 (15)</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>25 (81)</td>
<td>7 (44)</td>
<td>32 (68)</td>
</tr>
<tr>
<td><strong>Lived in a refugee camp</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>11 (35)</td>
<td>8 (50)</td>
<td>19 (40)</td>
</tr>
<tr>
<td>No</td>
<td>20 (65)</td>
<td>5 (30)</td>
<td>25 (53)</td>
</tr>
<tr>
<td>Unsure</td>
<td>0 (0)</td>
<td>1 (6)</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

*Note: Responses were optional thus percentages may not add up to 100%*

Almost half the group (49%) reported that they had not lived in a refugee camp; 40% reported that they had with the remainder of participants being unsure of their background or declining to record their refugee experience.

Consistent with participant demographics and census data 80% of the Vietnamese participants selected Vietnamese as their language of preference (51% of the total number of participants). The remaining 49% of participants identified that their preferred language was Arabic, Nuer, Oromo, Sudanese, Tigrigna, or English. This is demonstrated in Table 2 and highlights the lack of a dominant lingua franca for the GHoA region. Approximately 10% of participants, all being from the GHoA, reported multiple languages of preference or did not record a language of preference.

**TABLE 2: PREFERRED LANGUAGE AS IDENTIFIED BY COMMUNITY PARTICIPANTS BY COMMUNITY GROUP**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Vietnamese N=31 (66%)</th>
<th>GHoA N=16 (34%)</th>
<th>Total N=47 (100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred language</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>4 (9)</td>
<td>0 (0)</td>
<td>4 (9)</td>
</tr>
<tr>
<td>Arabic</td>
<td>3 (6)</td>
<td>3 (6)</td>
<td>6 (13)</td>
</tr>
</tbody>
</table>
The ‘typical’ Victorian is reported to live in a 3 bedroom home (Australian Bureau of Statistics, 2017b). This home houses an average number of 2.6 people and these people are most commonly family (Australian Bureau of Statistics, 2017a). As seen in Table 3 overwhelmingly, participants lived with family (79%) in 3 or 4 bedroom homes, sharing in households of two to four people (62% of the total). Participants lived predominantly (51%) in three bedroom homes. This 51% includes 12% who report living with five to seven people. Just over one-quarter (26%) of participants reported living in a four-bedroom home, of these 10% shared it with five to seven people. Only 6% of participants reported living alone, two-thirds of who identified as Vietnamese. The GHoA community members were more likely to share with housemates with 6% of the total number of participants sharing in two and three bedroom homes. They were also more likely to have more people living in homes with fewer bedrooms. See table 3 for a breakdown of community participants living arrangements by community group.

**Table 3: Household descriptors of community participants by community group**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=31 (66)</td>
<td>N=16 (34)</td>
<td>N=47 (100)</td>
</tr>
<tr>
<td><strong>Household make up</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not reported</td>
<td>0(0)</td>
<td>2(4)</td>
<td>2(4)</td>
</tr>
<tr>
<td><strong>Living Alone</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a 3 bedroom home</td>
<td>2(4)</td>
<td>1(2)</td>
<td>3(6)</td>
</tr>
<tr>
<td><strong>Living with Family</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a 2 bedroom home</td>
<td>29(62)</td>
<td>8(17)</td>
<td>37(79)</td>
</tr>
<tr>
<td>With 2-4 people</td>
<td>4(9)</td>
<td>1(2)</td>
<td>5(11)</td>
</tr>
<tr>
<td>With 5-7 people</td>
<td>0(0)</td>
<td>1(2)</td>
<td>1(2)</td>
</tr>
<tr>
<td>In a 3 bedroom home</td>
<td>15(32)</td>
<td>2(4)</td>
<td>17(36)</td>
</tr>
<tr>
<td>With 2-4 people</td>
<td>15(32)</td>
<td>0(0)</td>
<td>15(32)</td>
</tr>
<tr>
<td>With 5-7 people</td>
<td>0(0)</td>
<td>2(4)</td>
<td>2(4)</td>
</tr>
<tr>
<td>In a 4 bedroom home</td>
<td>8(17)</td>
<td>4(9)</td>
<td>12(26)</td>
</tr>
<tr>
<td>With 2-4 people</td>
<td>7(15)</td>
<td>0(0)</td>
<td>7(15)</td>
</tr>
<tr>
<td>With 5-7 people</td>
<td>1(2)</td>
<td>4(9)</td>
<td>5(11)</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a 2 bedroom home</td>
<td>0(0)</td>
<td>1(2)</td>
<td>1(2)</td>
</tr>
<tr>
<td>With 2-4 people</td>
<td>0(0)</td>
<td>1(2)</td>
<td>1(2)</td>
</tr>
<tr>
<td>With 5-7 people</td>
<td>0(0)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>In a 3 bedroom home</td>
<td>0(0)</td>
<td>3(6)</td>
<td>3(6)</td>
</tr>
<tr>
<td>With 2-4 people</td>
<td>0(0)</td>
<td>2(4)</td>
<td>2(4)</td>
</tr>
<tr>
<td>With 5-7 people</td>
<td>0(0)</td>
<td>1(2)</td>
<td>1(2)^**</td>
</tr>
</tbody>
</table>

^Other household make up consisted of flatmates, housemates, and like
^A further group of 5-7 individuals identifying as being from the GHoA lived in a 3 bedroom home

Note: Responses were optional thus percentages may not add up to 100%
A range of educational backgrounds was reported from postgraduate qualifications (13%) through to no or limited formal education (13%), with 30% of participants reporting tertiary education. Centrelink payments (benefits and pensions) were reported as the primary income source by 40% of the participants. There appears to be no relationship between the reported level of education and receipt of Centrelink income support payment. Of the 19% of participants employed, two-thirds had tertiary or postgraduate qualifications. The Vietnamese community was more likely to be employed (17%) than the GHoA community (2%) and more likely to have tertiary or advanced qualifications at 36% to 6%. Table 4 provides further information on income source and education.

**TABLE 4: INCOME SOURCE AND EDUCATION OF COMMUNITY PARTICIPANTS BY COMMUNITY GROUP**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=31 (66)</td>
<td>N=16 (34)</td>
<td>N=47 (100)</td>
</tr>
<tr>
<td>Income source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>7 (15)</td>
<td>0 (0)</td>
<td>7 (15)</td>
</tr>
<tr>
<td>Centrelink Recipient</td>
<td>9 (19)</td>
<td>10 (21)</td>
<td>20 (40)</td>
</tr>
<tr>
<td>Self-funded retiree</td>
<td>6 (13)</td>
<td>0 (0)</td>
<td>6 (13)</td>
</tr>
<tr>
<td>Student</td>
<td>0 (0)</td>
<td>3 (6)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>Employed</td>
<td>8 (17)</td>
<td>1 (2)</td>
<td>9 (19)</td>
</tr>
<tr>
<td>Highest education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never attended school</td>
<td>0 (0)</td>
<td>6 (13)</td>
<td>6 (13)</td>
</tr>
<tr>
<td>Primary school (grade 6)</td>
<td>2 (4)</td>
<td>0 (0)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Secondary school (grade 10)</td>
<td>6 (13)</td>
<td>1 (2)</td>
<td>7 (15)</td>
</tr>
<tr>
<td>Completed secondary school (grade 12)</td>
<td>5 (11)</td>
<td>2 (4)</td>
<td>7 (15)</td>
</tr>
<tr>
<td>Tertiary school/Undergraduate qualification</td>
<td>14 (30)</td>
<td>0 (0)</td>
<td>14 (30)</td>
</tr>
<tr>
<td>Advanced education/Masters/PhD</td>
<td>3 (6)</td>
<td>3 (6)</td>
<td>6 (13)</td>
</tr>
</tbody>
</table>

**TB Health Literacy**

A 100% correct score on the TB true false health literacy assessment was a score of 16 with points added if correct. Participant scores ranged from 0 to 14, with an average score of 8, a standard deviation of 4.06, and a median and mode score of 9 (see table 5). A central cluster of results ranging from a score of 6 to 11, tailing off through the upper scores is noted in figure 12. The GHoA mode of 0 reflects a dearth in completed responses in addition to incorrect answers and its impact upon analysis must be acknowledged.

In addition to the true/false portion of the knowledge-based questions, participants were invited to complete a series of multiple choice questions. Correct answers were added to the true/false portion allowing for a total score of 56 across all components of the knowledge questionnaire. Total TB health literacy scores ranged from 0 to 45 (see table 5). The average was 27 (SD=14) with the Vietnamese identifying participants...
average being 10 points more than that of the GHoA participants (see table 5). Cognisant of the impact of voluntary participation and the subsequent impact of this choice on data the median score of 32 and the modal score of 0 must also be considered. Within the GHoA identifying participants the median score was 34, which contrasts sharply with the mode of 0. For the Vietnamese identifying participants the median (32) and mode (31) are consistent with the average (31). The mean number of non-responses was 11. Respondents were able to select “don’t know”, and in contrast to the non-responses the average “don’t know” answer was 2.

**TABLE 5: TB HEALTH LITERACY MEASURES OF CENTRAL TENDENCY BY COMMUNITY GROUP**

<table>
<thead>
<tr>
<th></th>
<th>Vietnam</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>True/False</td>
<td>True/False</td>
<td>True/False</td>
</tr>
<tr>
<td>Average</td>
<td>9 (SD=3.04)</td>
<td>31 (SD=10)</td>
<td>5 (SD=4.44)</td>
</tr>
<tr>
<td>Median</td>
<td>9.5</td>
<td>32</td>
<td>8</td>
</tr>
<tr>
<td>Mode</td>
<td>11</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Range</td>
<td>2-14</td>
<td>7-45</td>
<td>0-11</td>
</tr>
</tbody>
</table>

A comparison of the true/false data dissemination with the total TB health literacy score demonstrates a consistent curve. This is highlighted in figures 13 and 14, which also demonstrates the tighter distribution of scores for the Vietnamese community group. Although not statistically significant it appears that overall the Vietnamese community participants are more likely to complete the questionnaire, score higher and have less diversity in their scores.

Demographic data enabled comparison across additional variables, and whilst not statistically significantly age and gender differences are highlighted. Vietnamese participants who were aged 36 – 45 scored higher than any other age group, with those in older age groups scoring slightly less. Distribution of scores among the GHoA participants followed maturation with participants in the 56-65 and 66+ age groups scoring sequentially better than younger age groups (see figure 15).

**TABLE 6: MEAN TB HEALTH LITERACY SCORE BY SEX AND COMMUNITY GROUP**

<table>
<thead>
<tr>
<th>Sex</th>
<th>GHoA</th>
<th>Vietnam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X(SD)</td>
<td>X(SD)</td>
<td>X(SD)</td>
</tr>
<tr>
<td>Female</td>
<td>25(17)</td>
<td>30(10)</td>
<td>28(13)</td>
</tr>
<tr>
<td>Male</td>
<td>12(18)</td>
<td>30(9)</td>
<td>22(16)</td>
</tr>
<tr>
<td>Overall</td>
<td>20(18)</td>
<td>31(10)</td>
<td>27(14)</td>
</tr>
</tbody>
</table>

The knowledge of women was varied and dispersed across the full range of scores. Men scored predominantly in the lowermost (25%) and uppermost (44%) quartiles for their sex and there was a significant difference in the average score of Vietnamese and GHoA identifying males (see table 6).
TB health literacy evaluation can be divided into three fields:

- prevalence, transmission and acquisition
- disease and disease progression
- testing and treatment

Project data demonstrates that most participants are aware that TB is a bacterial infection (72%, N=34), that is commonly spread through coughing out the TB bacteria (70%, N=33), that it affects the lungs (81%, N=38), and that it can result in death (74%, N=35). There is little difference apparent between the Vietnamese and GHoA participants.

Gaps in TB health literacy are identified in terms of the prevalence of TB globally. Only 38% (N=18) recognised that an estimated one-third of the world’s population has TB.

Of concern in relation to participants’ understandings of TB transmission and acquisition, everyday items (e.g. toothbrushes, cutlery, crockery) were seen as a source or point of infection with just 4% (N=2) understanding that these items are not implicated in transmission. Transmission of infection during periods of latency (19%, N=9) demonstrated a concerning gap in health literacy with inferences for relationships and stigma. The role of vaccine for children (47%, N=22) and good nutrition (49%, N=23) in preventing disease acquisition was also poorly recognised (see table 7).

**TABLE 7: CORRECTLY ANSWERED TB HEALTH LITERACY BY COMMUNITY GROUP – PREVALENCE, TRANSMISSION AND ACQUISITION**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>An estimated one-third of the world’s population has TB</td>
<td>10(21)</td>
<td>8(17)</td>
<td>18(38)</td>
</tr>
<tr>
<td>You can get TB by sharing a toothbrush, bottle or dishes</td>
<td>2(4)</td>
<td>0(0)</td>
<td>2(4)</td>
</tr>
<tr>
<td>You are more likely to get TB from a stranger</td>
<td>23(49)</td>
<td>6(13)</td>
<td>29(62)</td>
</tr>
<tr>
<td>You are more likely to get TB from a member of the household</td>
<td>21(45)</td>
<td>5(11)</td>
<td>26(55)</td>
</tr>
<tr>
<td>TB is most commonly spread when someone coughs</td>
<td>26(55)</td>
<td>7(15)</td>
<td>33(70)</td>
</tr>
<tr>
<td>You are more likely to get TB if you:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Have a weak immune system</td>
<td>20(43)</td>
<td>8(17)</td>
<td>28(60)</td>
</tr>
<tr>
<td>● Smoke</td>
<td>19(40)</td>
<td>9(19)</td>
<td>28(60)</td>
</tr>
<tr>
<td>● Are malnourished</td>
<td>17(36)</td>
<td>8(17)</td>
<td>25(53)</td>
</tr>
<tr>
<td>● Drink alcohol excessively</td>
<td>8(17)</td>
<td>9(19)</td>
<td>17(36)</td>
</tr>
<tr>
<td>● Have close contact with someone with TB</td>
<td>26(55)</td>
<td>9(19)</td>
<td>35(74)</td>
</tr>
</tbody>
</table>
Of the participants, 70% (N=33) noted that TB infection can ‘wake up’ months or years after infection to result in illness. The Vietnamese identifying participants were more likely to be aware of this with 77% (N=24) demonstrating an understanding of disease progression in this context than the GHoA participants (50%, N=8). Participants were familiar with symptoms of TB including a persistent cough (68%, N=32), chest pain (64%, N=64), difficulty breathing (62%, N=29), and productive cough (57%, N=27) with those participants from Vietnamese backgrounds demonstrating a slightly higher level of TB health literacy in this area.

The exception to this distinction is in the area of TB disease progression and the physiological systems that TB can affect. In this area, the GHoA community groups were alert to the possibility of TB affecting a broad range of organs with 50% (N=8) of the GHoA cohort scoring well across this area. In contrast, the Vietnamese community group data demonstrates a diverse range of understanding from 0-30% (N=0-9) dependent upon the physiological system. It is of note that participants from the GHoA communities often had a separate term or phrase for TB dependent upon the organ that it is found in (e.g. the Nuer language has an expression for pulmonary TB and another one for TB in the bone that are distinct) thus providing a language base for knowledge.

### TABLE 8: CORRECTLY ANSWERED TB HEALTH LITERACY BY COMMUNITY GROUP – DISEASE AND DISEASE PROGRESSION

<table>
<thead>
<tr>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=31 (66)</td>
<td>N=16 (34)</td>
<td>N=47 (100)</td>
</tr>
<tr>
<td>N(%)</td>
<td>N(%)</td>
<td>N(%)</td>
</tr>
<tr>
<td>TB is a bacterial infection</td>
<td>24(51)</td>
<td>10(21)</td>
</tr>
<tr>
<td>Everyone who gets TB gets sick</td>
<td>11(23)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Not everyone with TB gets sick</td>
<td>18(38)</td>
<td>2(4)</td>
</tr>
<tr>
<td>It is possible to find and cure active TB only</td>
<td>11(23)</td>
<td>1(2)</td>
</tr>
<tr>
<td>Latent TB infection can ‘wake up’ months or years later making people sick</td>
<td>25(53)</td>
<td>8(17)</td>
</tr>
<tr>
<td>Latent TB infection is more likely to ‘wake up’ if you have a weak immune system</td>
<td>24(51)</td>
<td>8(17)</td>
</tr>
<tr>
<td>Common symptoms of TB disease are</td>
<td></td>
<td></td>
</tr>
<tr>
<td>persistent cough</td>
<td>24(51)</td>
<td>8(17)</td>
</tr>
<tr>
<td>productive cough</td>
<td>19(40)</td>
<td>8(17)</td>
</tr>
<tr>
<td>chest pain</td>
<td>21(45)</td>
<td>9 (19)</td>
</tr>
<tr>
<td>difficulty breathing</td>
<td>20(43)</td>
<td>9 (19)</td>
</tr>
<tr>
<td>loss of appetite</td>
<td>15(32)</td>
<td>8(17)</td>
</tr>
<tr>
<td>fever</td>
<td>17(36)</td>
<td>8(17)</td>
</tr>
<tr>
<td>coughing up blood</td>
<td>24(51)</td>
<td>9(19)</td>
</tr>
<tr>
<td>headaches</td>
<td>21(45)</td>
<td>1(2)</td>
</tr>
</tbody>
</table>
Towards Elimination

Disease and disease progression exploration demonstrated gaps in TB health literacy with regard to likely development to illness with 23% (N=11) correctly recording that it is untrue that everyone who acquires TB becomes ill and 43% (N=20) understanding that not everyone with TB becomes ill. Additionally, knowledge about latent TB treatment was shallow with only a quarter of the participants (26%, N=12) demonstrating an understanding that TB can be tested for and treated in both its latent and active states. Of the Vietnamese community group, 35% (N=11) demonstrated an understanding of testing and curing latent and active TB in contrast to 6% (N=1) of the GHoA group (see table 8).

Just short of half of the participants (47%, N=22) recognised chest X-ray as a TB diagnostic tool, followed by a blood test (36%, N=17) and a skin test (26%, N=12). In considering latent TB treatment 28% (N=13) correctly identified that it is typically 9 months in duration. A further distinction in the community groups is noted here with 50% (N=8) of the GHoA community identifying a 9 month treatment period for latent TB. The Vietnamese community participants recorded a range of responses from 6 to 24 months, with 24 months being the most frequent response.

**TABLE 9: CORRECTLY ANSWERED TB HEALTH LITERACY BY COMMUNITY GROUP – TESTING AND TREATMENT**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active TB disease affects which body systems?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lungs</td>
<td>29(62)</td>
<td>9(19)</td>
<td>38(81)</td>
</tr>
<tr>
<td>Lymph nodes</td>
<td>9(19)</td>
<td>8(17)</td>
<td>17(36)</td>
</tr>
<tr>
<td>Bones and joints</td>
<td>5(11)</td>
<td>8(17)</td>
<td>13(28)</td>
</tr>
<tr>
<td>Digestive system</td>
<td>3(6)</td>
<td>8(17)</td>
<td>11(23)</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>4(9)</td>
<td>8(17)</td>
<td>12(26)</td>
</tr>
<tr>
<td>Liver</td>
<td>0(0)</td>
<td>8(17)</td>
<td>8(17)</td>
</tr>
<tr>
<td><strong>TB can become drug resistant</strong></td>
<td>12(26)</td>
<td>0(0)</td>
<td>12(26)</td>
</tr>
<tr>
<td><strong>TB can kill</strong></td>
<td>26(55)</td>
<td>9(19)</td>
<td>35(74)</td>
</tr>
<tr>
<td><strong>Insomnia (difficulty sleeping)</strong></td>
<td>13(28)</td>
<td>1(2)</td>
<td>14(30)</td>
</tr>
<tr>
<td><strong>Night sweats</strong></td>
<td>11(23)</td>
<td>8(17)</td>
<td>19(40)</td>
</tr>
<tr>
<td><strong>Constipation</strong></td>
<td>26(55)</td>
<td>1(2)</td>
<td>27(57)</td>
</tr>
<tr>
<td><strong>Jaundice (turning yellow)</strong></td>
<td>26(55)</td>
<td>1(2)</td>
<td>27(57)</td>
</tr>
<tr>
<td><strong>Rash</strong></td>
<td>26(55)</td>
<td>1(2)</td>
<td>27(57)</td>
</tr>
<tr>
<td><strong>Unexplained weight loss</strong></td>
<td>19(40)</td>
<td>8(17)</td>
<td>27(57)</td>
</tr>
<tr>
<td><strong>Back pain</strong></td>
<td>25(53)</td>
<td>1(2)</td>
<td>26(55)</td>
</tr>
<tr>
<td><strong>Paralysis</strong></td>
<td>28(60)</td>
<td>1(2)</td>
<td>29(62)</td>
</tr>
<tr>
<td><strong>Swollen feet</strong></td>
<td>25(53)</td>
<td>1(2)</td>
<td>26(55)</td>
</tr>
</tbody>
</table>

It is possible to find and cure active TB only

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=31 (66)</td>
<td>N=16 (34)</td>
<td>N=47 (100)</td>
<td></td>
</tr>
<tr>
<td>N(%)</td>
<td>N(%)</td>
<td>N(%)</td>
<td></td>
</tr>
<tr>
<td><strong>To find out if you have latent TB infection you have a:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TB skin test</strong></td>
<td>11(23)</td>
<td>1(2)</td>
<td>12(26)</td>
</tr>
<tr>
<td><strong>Chest x-ray</strong></td>
<td>20(43)</td>
<td>2(4)</td>
<td>22(47)</td>
</tr>
<tr>
<td><strong>Blood test</strong></td>
<td>16(34)</td>
<td>1(2)</td>
<td>17(36)</td>
</tr>
<tr>
<td><strong>Physical exam with the doctor</strong></td>
<td>5(11)</td>
<td>1(2)</td>
<td>6(13)</td>
</tr>
<tr>
<td><strong>Clinical and medical history taken</strong></td>
<td>9(19)</td>
<td>1(2)</td>
<td>10(21)</td>
</tr>
<tr>
<td><strong>Latent TB infection treatment takes</strong></td>
<td>5(11)</td>
<td>8(17)</td>
<td>13(28)</td>
</tr>
</tbody>
</table>
Community Participants Healthcare Beliefs and Preferences

In order to optimise knowledge translation opportunities, community participants were asked about their healthcare beliefs and experiences. A four-point Likert Scale was used with participants invited to rank their opinion or experiences from strongly agree to strongly disagree. An ‘I don’t know’ option was provided. As a practice-based research project, the data is designed to understand the most popular and/or typical experiences of community participants, as such data are explored descriptively with a focus on frequency.

Attitudinally both the GHoA and Vietnamese identifying community groups reported that TB is a condition that is to be taken seriously, should be tested for and treated, and prevention of illness from the condition is preferred to illness.

Whilst one-third (34%, N=16) of participants believe that if you take care of your health you can’t get TB there is a discrepancy between the community groups with the Vietnamese disagreeing with the statement and those identifying as being from the GHoA agreeing. Similarly, 38% (N=18) of participants believe that they would not know if they had latent TB infection 32% (N=10) of the Vietnamese community participants report that they would know. See table 10.

TABLE 10: COMMUNITY PARTICIPANTS ATTITUDES AND BELIEFS BY COMMUNITY GROUP - ACCESSING TB TESTING AND TREATMENT

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese</th>
<th>GHoA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=31 (66)</td>
<td>N=16(34)</td>
<td>N=47(100)</td>
</tr>
<tr>
<td>I find the Australian healthcare system confusing</td>
<td>Disagree</td>
<td>Disagree</td>
<td>Disagree</td>
</tr>
<tr>
<td>TB is something that I take seriously</td>
<td>Agree</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>I believe it is better to prevent TB than to get sick with it</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Testing and treating latent TB infection is better than waiting to see if you get sick from TB</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>When you take care of your health you can’t get TB</td>
<td>Disagree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>Testing and treating for latent TB infection is more trouble than it’s worth</td>
<td>Disagree</td>
<td>Disagree</td>
<td>Disagree</td>
</tr>
<tr>
<td>I’d know if I had latent TB infection</td>
<td>Agree</td>
<td>Disagree</td>
<td>Disagree</td>
</tr>
<tr>
<td>Testing for and treating latent TB will protect my health and the health of my family</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>I prefer to get health information via verbal communication</td>
<td>Agree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>The health department is the primary body responsible for the dissemination of accurate health information</td>
<td>Agree</td>
<td>No Response</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Furthermore, both groups report that the requirement for an interpreter does not prevent them from accessing healthcare, that the Australian healthcare system is not confusing and that they generally feel respected by healthcare providers.
Unique within the dataset (see table 11), when asked if it is better to use language specific health websites and brochures than to see a healthcare worker who does not speak the same language a dual-mode response was apparent for the Vietnamese identifying participants. One-third (32%, N=10) agreed and one-third disagreed with this position. The GHOA community believes differently with 50% (N=8) reporting that they disagree with this position preferring to see a healthcare worker regardless of language.

In exploring the data on experience it is of note that 68% (N=21) of the Vietnamese community group believed that healthcare providers are aware of and sensitive to their cultural and ethnic needs. In contrast, the 44% (N=7) of the GHOA community group reports that healthcare workers are not aware of or sensitive to their culture and ethnicity.

**TABLE 11: COMMUNITY PARTICIPANTS ATTITUDES AND BELIEFS BY COMMUNITY GROUP - HEALTH CARE BELIEFS**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese N=31 (66)</th>
<th>GHOA N=16(34)</th>
<th>Total N=47(100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care providers are aware of and sensitive to my culture and ethnicity?</td>
<td>Agree 21(45) Disagree 7(15)</td>
<td>Agree 22(47)</td>
<td></td>
</tr>
<tr>
<td>Language is a barrier to accessing healthcare workers</td>
<td>Agree 15(32) Disagree 7(15)</td>
<td>Agree 16(34)</td>
<td></td>
</tr>
<tr>
<td>It’s better to use language specific health care websites and information brochures than see a health care worker who doesn’t speak my language</td>
<td>Agree 10(21) Disagree 8(17) Disagree 18(38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The need to have an interpreter at appointments stops me seeing a doctor or healthcare worker</td>
<td>Disagree 12(26) Disagree 9(19)</td>
<td>Disagree 21(45)</td>
<td></td>
</tr>
<tr>
<td>Doctors and healthcare workers are disrespectful of my culture and ethnicity</td>
<td>Disagree 19(40) Strongly Disagree 8(17)</td>
<td>Disagree 20(43)</td>
<td></td>
</tr>
</tbody>
</table>

A cascade of TB testing and latent TB treatment question set was completed by 79% (N=37) of participants. Of these, one-third (N=9) of participants would not agree to a test for TB at a cost of approximately $50. A free test saw 100% of those who completed the cascade agreeing to test. Furthermore, 100% agreed to consider treatment to prevent illness and protect them and their family from active TB regardless of a three or nine-month period of treatment. See table 12 for the cascade.

**TABLE 12: COMMUNITY PARTICIPANTS ATTITUDES AND BELIEFS BY COMMUNITY GROUP – TESTING AND TREATMENT FOR LTBI**

<table>
<thead>
<tr>
<th></th>
<th>Vietnamese N=31 (66)</th>
<th>GHOA N=16(34)</th>
<th>Total N=47(100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If your doctor suggested a test for TB which you had to pay approximately $50 for would you do it?</td>
<td>No 9(19) Yes 20(43)</td>
<td>0(0) 7(15)</td>
<td>9(19) 27(57)</td>
</tr>
<tr>
<td>If your doctor suggested a free test for TB would you do it?</td>
<td>Yes 29(62)</td>
<td>8(17)</td>
<td>37(79)</td>
</tr>
<tr>
<td>If the test showed that you have latent TB would you take treatment if it might prevent you getting active TB in the future?</td>
<td>Yes 29(62)</td>
<td>8(17)</td>
<td>37(79)</td>
</tr>
<tr>
<td>If the test showed that you have latent TB would you take treatment if it might prevent you getting active TB in the future and you had to take the tablets for 9 months?</td>
<td>Yes 29(62)</td>
<td>8(17)</td>
<td>37(79)</td>
</tr>
<tr>
<td>If the test showed that you have latent TB would you take treatment if it might prevent you getting active TB in the future and you had to take the tablets for 9 months and it would protect your family and friends from</td>
<td>Yes 29(62)</td>
<td>8(17)</td>
<td>37(79)</td>
</tr>
</tbody>
</table>
Towards Elimination

**Table 13: Health Care Beliefs by Community Group – Barriers, Enablers, and Preferences (MODE)**

<table>
<thead>
<tr>
<th>Vietnamese</th>
<th>Barriers</th>
<th>9</th>
<th>Transport</th>
<th>6</th>
<th>Finances/costs</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long wait times</td>
<td>Shame related to TB</td>
<td>6</td>
<td>Other worries</td>
<td>6</td>
<td>Transport</td>
<td>3</td>
</tr>
<tr>
<td>Medicare</td>
<td></td>
<td>4</td>
<td>Shame related to TB</td>
<td>2</td>
<td>Long wait times</td>
<td>2</td>
</tr>
<tr>
<td>Preferred source of healthcare information</td>
<td>Doctors</td>
<td>14</td>
<td>Health care workers</td>
<td>7</td>
<td>Government websites</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Government website</td>
<td>8</td>
<td>Family</td>
<td>6</td>
<td>Community Papers</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Healthcare worker</td>
<td>2</td>
<td>Doctors</td>
<td>5</td>
<td>Doctors</td>
<td>4</td>
</tr>
<tr>
<td>Enablers</td>
<td>Protecting family and friends from illness</td>
<td>7</td>
<td>Staying healthy</td>
<td>6</td>
<td>Free medications</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Staying healthy</td>
<td>4</td>
<td>Confidence in my doctor</td>
<td>5</td>
<td>Knowing that taking medication will stop me from getting sick</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Knowing that taking medication will stop me from getting sick</td>
<td>3</td>
<td>Protecting family and friends from illness</td>
<td>4</td>
<td>Confidence in my doctor</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Half of the participants from the GHoA declined to answer these questions; the other half did not understand the question instructions resulting in responses that could not be analysed. A further 10% of the Vietnamese identifying participants did not understand the questions resulting in responses that could not be analysed. Responses were optional thus may not add up to 100%.
**Healthcare Worker Participants**

**Demographics**

A total of 14 interviews with healthcare providers were completed and all were included in the analysis. Of these 12 were eligible to complete self-efficacy appraisals. Of these 12, ten participants submitted completed surveys – one via survey monkey, nine in paper format.

Healthcare worker participants interviewed included doctors (five general practitioners (GP) and three specialists (N=8)), nurses (N=4), and administrators (N=2). Of the 14 healthcare workers, four were male and ten were female, 64% (N=9) were born in Australia and 21% (N=3) report that their primary healthcare qualification was achieved outside of Australia. Healthcare workers reported that they gained their TB experience in primary, tertiary and public health settings either within Australia or internationally.

Healthcare worker participants worked out of agencies in Melbourne’s inner west, outer west and southeastern suburbs related to the higher TB prevalence local government areas of Victoria. Three healthcare workers provided a statewide service and were selected from their agency staff as they had cared for the highest number of patients from the GHoA or Vietnam in the past 2 years according to agency records. Half of the healthcare workers provided care across two or more tiers of health care and at two or more locations. This dynamic is not unusual for Australian healthcare with skilled practitioners providing specialist care at a non-for-profit consulting suite and in a tertiary setting. A summary of healthcare worker demographics can be seen in figure 15 with table 14 providing additional details.

---

**FIGURE 16: HEALTHCARE WORKER DEMOGRAPHICS**

Healthcare worker participants reported experience in TB testing, LTBI treatment and TB treatment or referral for treatment pathways. All participants currently worked in services providing TB testing and were familiar with and had use tuberculin skin tests (TST) and/or Interferon Gamma Release Assay (IGRA).

Healthcare workers were invited to describe their patient population in relation to the project objectives and TB more broadly. Healthcare workers reported that their patient populations as a whole were culturally and linguistically diverse. The estimated percentage of patients from the GHoA and/or Vietnamese communities ranged from 5 to 60%. Practitioners explained that this range represented their funding agreements and triaging policies with many focusing on contemporary refugee healthcare. In response to an inquiry on the meaning of “contemporary” health care workers explained that contemporary refugees and migrants were those who had arrived within the preceding 12 months. Sudanese, South Sudanese, and Somali communities...
were described as attending their practices in larger numbers two to five years ago and the Vietnamese prior to this. Contemporary refugees to Australia reflected current global conflicts including the sectarian violence in Myanmar, factional conflict in Afghanistan and the war in Syria.

The impact of working with contemporary refugees was multi-fold with contemporary refugees facing the challenges of settlement issues including language, housing, grief and loss, social-legal issues etc. resulting in the triaging of health issues; LTBI is often not an acute issue. The Vietnamese community has been migrating to Australia for many years. There is an established Vietnamese community, stabilised and living in pockets of Melbourne often with Vietnamese specific social groups and communities. Vietnamese media, largely in the form of press, radio and community television has been running effectively for many years and same language healthcare providers are employed or running businesses in many locations including the local government areas of Greater Dandenong, Maribyrnong, and Brimbank.

The GHoA communities are described as having arrived in Australia after the Vietnamese and often earlier than contemporary refugees. They are geographically dispersed and described by service providers as on the moved. Fewer same language healthcare providers are operational at the time of the study. As a group, the community is richly diverse. On commencing recruitment social groups and networks often defined themselves by geographical origin; at the closing of recruitment these groups were more commonly defined by language group evidencing fluidity in identity as the communities establish themselves in Victoria.

Healthcare workers spoke of the impact of this identity and cultural norms on engagement with healthcare noting that some groups had great reverence for the authority of health care workers and community elders making them more compliant and less likely to question. This contrasted significantly with other cultures that were viewed as more independent and likely to challenge.

**TABLE 14: HEALTH CARE WORKER DEMOGRAPHICS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Role</th>
<th>Speciality</th>
<th>Service type</th>
<th>Years of Experience (N)</th>
<th>Number of HCW in Primary Practice</th>
<th>Patient population per Victorian high-risk groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration(2)</td>
<td>Manager(2)</td>
<td>N/A</td>
<td>Not for profit(1)</td>
<td>21+(1)</td>
<td>11-15(1)</td>
<td>Sudanese</td>
</tr>
<tr>
<td>Nurse(4)</td>
<td>Clinical Nurse Consultant(4)</td>
<td>Refugee Health(1)</td>
<td>State government(1)</td>
<td>2-5(1)</td>
<td>11-15(2)</td>
<td>Ethiopian, Somalia, Sudanese, Vietnamese</td>
</tr>
<tr>
<td>Doctor(8)</td>
<td>General Practitioner(5)</td>
<td>General Practice(5)</td>
<td>Not for profit(4)</td>
<td>21+(3)</td>
<td>16-20(1)</td>
<td>Ethiopian, Eritrean, Somali, Sudanese, South Sudanese</td>
</tr>
<tr>
<td></td>
<td>Specialist consultant(3)</td>
<td>Infectious Diseases(3)</td>
<td>State government(1)</td>
<td>2-5(1)</td>
<td>6-10(2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not for profit(2)</td>
<td>6-10(1)</td>
<td>16-20(1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State government(3)</td>
<td>11-15(1)</td>
<td>21+(5)</td>
<td></td>
</tr>
</tbody>
</table>

Note: specialists often work at more than one site or type of service. Responses were optional thus percentages may not add up to 100%

Overwhelming, healthcare workers (86%, N=12) described their patient populations from the GHoA and Vietnam as preferring to converse and receive health materials in their own language. Furthermore, 64% of healthcare workers believed that the literacy of these groups in their preferred language was poor to fair. A further 21% (N=3) reported that literacy varied too greatly to categorise. Literacy in English was similarly reported with 14% (N=2) describing patients as illiterate in English, 64% (N=9) as poor or fair, and a further 14% (N=2) believed English literacy was too varied to categorise. All but one healthcare worker concurred
that TB was an issue for the identified community groups. The exception healthcare worker spoke of LTBI as an independent concern from active TB disease.

Healthcare workers reported that they understood patients from the GHoA and Vietnam to be living with immediate family or extended family, although 21% of the healthcare workers believed living arrangements to be varied. Almost two-thirds of healthcare workers (64%, N=9) reported that patients lived with five to seven people in their homes, with 79% (N=11) reporting that they would describe the home as crowded. On exploration, healthcare workers evidenced this understanding based upon patient accounts (“often describe bedroom sharing”, HCW7) and financial issues raised in appointments i.e. housing or Centrelink support requests. One practitioner noted that this assessment has a cultural overlay in that crowded by Australian mores may not be consistent with the concept of crowded for other ethnic groups. Healthcare workers reported that most of their patients from the GHoA and Vietnam received Centrelink payments in lieu of income. Perceptions of patients likely education level were varied with five participants (36%) reporting that their patients described a range of educational experiences.

Healthcare workers were invited to speak further as to their impression of their practice populations’ understandings of TB in interviews. Healthcare workers reported that most seemed aware of TB as an illness although understandings of prevalence were highly varied and that there is a general understanding that TB is communicable; although the mechanisms for transmission and acquisition are unclear. Consistent with the community participant data, healthcare workers report that most patients associate TB with becoming sick, weak, and or thin, and that some associate it with a cough. Across healthcare worker participants it was commonly reported that patients were unlikely to understand the aetiology of TB and that culture, faith, and health beliefs all impacted upon understandings of disease and treatment. One participant described a consultation with a patient in which the role of language and experience in understanding disease was highlighted. He explained:

“… AND THIS WAS SOMEONE WITH VERY LOW HEALTH LITERACY. ...THEY HADN’T BEEN TO SCHOOL AND THEY KNEW THAT TB MADE YOU SICK. THEY DIDN’T KNOW IT WAS COMMUNICABLE. THEY DIDN’T KNOW ANYTHING ABOUT IT AND WE WERE WORKING WITH A VERY EXPERIENCED BICULTURAL WORKER WHO WAS FEEDING BACK WHEN WE USED TERMS OR CONCEPTS THAT THE PATIENT DIDN’T UNDERSTAND AND ONE OF THE CONCEPTS THAT WAS FED BACK WAS THEY ARE NOT SURE WHAT A BUG IS…” (HCW2)

Healthcare workers describe significant confusion about LTBI and active TB with patients being very concerned about attending work or school with an infection.

“MOST PEOPLE HAVE VERY LITTLE UNDERSTANDING OF THE DIFFERENCE BETWEEN ACTIVE AND LATENT [TB] AND MOST PEOPLE ARE TERRIBLY FEARFUL OF THE WORD TB.” (HCW7)

Consistent with other studies, healthcare workers spoke to the impact of personal experience, exposure via experience, and stigma. All report that disease progression could be confidently explained by practitioners who were confident in their medical knowledge and reported that patients were more likely to have an understanding of TB if a family or household member had had TB. In exploring engagement with TB testing and treatment healthcare workers believed that patients generally take and adhere to treatment if it is timely and offered in the context of the patients living conditions.

“NINE MONTHS OF TABLETS IS PISS EASY GIVEN WHAT A REFUGEE HAS BEEN THROUGH TO GET INTO THE [CONSULTATION] ROOM” (HCW5)

Experiences
Healthcare workers spoke with the project lead for between 40 and 90 minutes during which a range of enablers and barriers were explored. Once identified, enablers and barriers were stratified and organised into themes to assist in programmatic application.

THEME 1. THE BUSINESS OF MEDICINE
The business of medicine in Australia is governed by legislation and funding frameworks, most relevant to this theme are Medicare and the Pharmaceutical Benefits Scheme (PBS). This often neglected aspect of healthcare proved to be a significant area of consideration for healthcare workers with regard to TB and refers to the costs of TB care, financial, legal and social. One HCW, when invited to describe the business and administrative aspects of medicine as too hard to investigate; “all of that stuff, too much just brings you a world of pain” (HCW7). HCW demonstrated a great deal of gratitude to their managers and administrative support which highlights the issue of business for smaller general practices in particular.

Consistent across all healthcare worker participants was a question of expense. Healthcare workers were alert to the direct and indirect cost of testing for TB to patients. Consistent with the community participants, healthcare workers identified the out of pocket cost for an IGRA as a barrier in testing for TB. Further, practitioners spoke to the cost of dual appointments for patients when utilising TST for testing. This highlighted the direct and indirect costs of testing to patients such as transport, income loss, especially for high-risk patients living in cash economies, and medication costs for LTBI treatment. Healthcare workers highlighted the cost of dual appointments to agencies, especially small practices in relation to interpreters and follow-up care especially in the absence of a practice nurse.

“If you think about it, if you used an interpreter, a double appointment is, in fact, a standard appointment [in duration].” (HCW7)

Access to resources including human resources, such as practice nurses, interpreters and/or bilingual workers, and material resources like culturally appropriate health education materials for patients was acknowledged as a barrier to testing and treatment for TB. Many healthcare workers provided considered options to resolve these issues.

“I think, maybe, rather than just having [Medicare] item numbers for doctors, to have item numbers for other healthcare professionals as well. Which one could argue, could be a lesser amount rebateable, and that way we are keeping national costs down. So if a TB nurse is trained to do a lot of the same work as a GP or a respiratory physician the government is paying less for a good quality service.” (HCW2)

“You know what they could do this at probably a fraction of the price that the government is currently paying for my very fine specialist services” (HCW5)

Medicare eligibility for patients as a whole, and with regard to LTBI, and the challenge of navigating this pathway was spoken to at length as a barrier to test for TB and to the treatment of LTBI in the primary healthcare setting. Healthcare workers with administrative responsibilities spoke extensively of the complexity of costing against Medicare items for consultations. Healthcare workers also spoke to the legal and ethical dilemmas involved in interpreting Federal and State government legislation guiding the costing of public and individual health with regard to TB. Many healthcare workers explained that GPs were often unaware of latent TB “fitting nicely into a GP management plan” (HCW7), under current Medicare rebates and advocated for the broadcasting of this knowledge. Specialist correspondence inclusive of invitations for GPs and the Victorian Tuberculosis Program to consider partnering in GP management plans was recommended as a consistent educative and linkage process, especially with regard to LTBI treatment.
Participants with larger teams acknowledged that this must be particularly difficult for general practitioners in small or sole practitioner settings.

Many of the healthcare worker participants described experiences of working with migrants and the psychosocial-legal costs associated with TB infection. On exploration, they spoke to the delay in visa processing and the impact of this especially in the absence of welfare and social support eligibility. When a patient’s visa application is deferred until they meet a medical criterion, like clearing a TB infection, they are transferred to Bridging Visas in accordance with Australia’s immigration practices. Often Bridging visas have no eligibility for welfare from the Federal government, nor from the non-government sector. A small portion of Bridging visas have work rights and with them Medicare accessibility. Many of the patients most at risk of reactivation of TB face the stigma of diagnosis and the loss of social capital that results. Furthermore, this reduction in social capital can be followed by a denial of visa resulting in patients returning to their country of origin. These patients can be obliged to return months or years after arrival in Australia.

As with the work of international studies (Atchison et al., 2015), specific funding was viewed as an important enabler to testing, diagnosis, and treatment of TB and LTBI in particular. In the Australian context this was seen as being, in rank order:

- full Medicare rebate for IGRA; free of the current restrictions as to immunosuppressed or immunocompromised patients only (in place at the time of data collection)
- full Medicare rebate for LTBI related medical appointments
- PBS coverage of LTBI treatment
- Additional funding for specialist medical or nurse lead LTBI clinics
- Medicare rebate for interpreter engagement

**THEME 2. THE SCIENCE OF MEDICINE**

This theme explores reports from healthcare worker participants on practitioner knowledge and understanding of the current Australian and international best practice guidelines on TB investigation and management. Consistent with research from the USA and UK, healthcare workers report confusion over protocols for LTBI testing, diagnosis, and treatment and explain that this confusion contributed to a reluctance to test for TB.

"**YOU HAVE TO DEMYSTIFY THE DRUGS**" (HCW12)

"**I DON’T TEST BECAUSE I DON’T KNOW WHAT TO DO WITH THE RESULT.**" (GP EDUCATION SESSION)

"**THERE’S FEAR OF WHAT IF IT GOES WRONG. THERE’S FEAR OF LITIGATION. THERE’S FEAR OF WHAT ARE THE EXACT RULES FOR HOW I DECIDE IF IT’S THE RIGHT THING TO TREAT. ... IF THEY HAVE A TOO MANY DECISION POINTS AROUND MAKING A TREATMENT DECISION ... PEOPLE USUALLY BACK AWAY FROM IT, OR AVOID, BACK AWAY OR AVOID, BECAUSE YOU THINK WELL WHAT IF I DO IT AND SOMETHING GOES WRONG? ... YOU HAVE TO FEEL A CERTAIN MEASURE OF COMFORT TO [PRESCRIBE]. AND ALSO FEEL LIKE YOU HAVE SOMEONE TO CALL. [NAME] SAYS THE SAME THING ABOUT THE HepC. A LOT OF PEOPLE OUT THERE WHO HAVE THE WILL AND ENERGY, BUT THEY DON’T HAVE THE ... CLINICAL SOCIAL CAPITAL**” (HCW5)

Healthcare worker participants spoke of how they had achieved sagacity with regard to the science of TB medicine. Each spoke to aspects of the complexities in conveying risk in the absence of a “risk communication tool”, particularly with the misconceptions of TB risk once a patient has migrated to Australia, the distinction between active TB and LTBI, and the demystification of TB medications. Doctors, in particular, spoke to the need for clearer protocols that are easily accessible on risk and medications, specifically highlighting immune suppression from causative agents like HIV, cancer treatments and the increasing use of biologics in medicine,
Towards Elimination

and the less clear role of diabetes and age in TB treatment. In discussing TB one healthcare worker described patient knowledge as patchy and spoke to the difficulty of describing the intricacies of risk assessment, saying:

“THAT I FIND CHALLENGING IN TERMS OF TEASING OUT WHAT DO YOU KNOW, WHAT DOES IT MEAN TO YOU, WHAT’S GOING TO WORRY YOU THE MOST WHEN YOU LEAVE, AND WILL IT GET TO A POINT WHERE YOU ARE HAPPY WITH WHICHEVER WAY WE DECIDE TO GO WITH THIS.”

(HCW5)

Healthcare worker participants spoke of the usefulness of clear and simplified resources for use with patients in explaining TB, risk factors for TB activation and symptoms of active TB. This was consistent with the project leads observation that those providers most confident in discussing LTBI and TB utilised one of two primary story scripts and held a toolbox of strategies to describe symptoms to optimise recall.

Healthcare workers reported a need for professional development and for tools to assist in competency development on the science of TB medicine. Suggestions included:

- A TB risk assessment and communication tool covering acquisition and reactivation
- An investigation and treatment flowchart or cascade of care
- Referral protocol, especially for patients with complex medical histories
- Specific protocols and guidelines for LTBI
- Patient resources, that are culturally appropriate, on TB/LTBI

THEME 3. THE CAPACITY OF MEDICINE
Closely related to the science of medicine and the business of medicine is its capacity. The question of capacity explores the general practitioner context and the question of jurisdiction and pathways for care.

Participants based in the not-for-profit sectors, especially, explain that the confusion that is often raised in relation to the science of TB medicine is compounded by the challenge of accessing secondary consultation in a timely manner from a trusted source. This discussion reflected participants’ frustration with large systems and lack of familiarity with available resources. On examination, healthcare worker participants spoke to the challenge of telephoning a tertiary hospital switchboard and having a specialist paged only to have to wait an indefinite period for the doctor to call back due to switchboard protocol. Some participants spoke to the hierarchy of medicine and the impact of seeking assistance on personal moral when the most readily available expert is a clinical nurse consultant. Others spoke to the delineation of queries suitable for nurse specialists and physicians. One suggestion to address this was that correspondence templates include, with a respectful invitation to consider a GP management plan, the specialist and or the Victorian Tuberculosis Program's contact details as standard to facilitate support and professional development.

In addition to the question of secondary consultation and protocols for TB testing, and active versus latent TB diagnosis and treatment, participants highlighted the importance of clear referral pathways for complex cases. Some healthcare workers reported on the work of their own agencies in trying to address these gaps with many speaking to a lack of resourcing and capacity to undertake the work within the context of their practices. Those healthcare workers who spoke of current agency policy spoke of the importance of assistance from specialists in development and access to nursing support for implementation.

As with work undertaken in New York (Zelnick et al., 2016), healthcare workers spoke of the difficulty in accessing interpreters and the value of bilingual workers on staff.

Healthcare worker participants also spoke to the demands of a busy general practice in which a patient's socioeconomic circumstances can be a greater priority than their health. Participants working in general
practice spoke particularly to the demand on time for documentation and advocacy needed to access welfare or housing services over that of assessment or consideration of TB.

“MULTIPLE MEDICAL PROBLEMS AND COMPLEXITY COULD MAKE IT HARD TO CONVEY INFORMATION ABOUT A PARTICULAR ISSUE WHICH CAN GET LOST AMID THE OTHER COMPETING ISSUES. AND MORE CRUCIAL ONES LIKE, YOU KNOW LET ME TELL ALL ABOUT TB, BUT NO DO THE HOUSING FORM, DO THE CENTRELINK FORM, AND I’VE GOT THIS COUGH AND MY KID IS NOT EATING PROPERLY. IT’S ALL THAT STUFF.” (HCW7)

With regard to LTBI, these same healthcare workers spoke to the time needed to negotiate with local pharmacies to address cost or understanding of medications and their capacity to provide this level of support.

“A LOT OF GPs THEY’RE JUST SO BUSY, THEY REFER TO ME BECAUSE THEY’VE FOUND THEY THEN DON’T HAVE TO SEE THE PROCESS THROUGH.” (HCW5)

Healthcare workers looked to technology to advance their clinical decision-making around TB. Some spoke of the value of telehealth as a modality to building confidence without costing financially or in time spent. Others spoke to the importance of sharing platforms in health education and promotion, with many of the healthcare worker participants speaking to Australia, and particularly Victoria’s work in Hepatitis B. This contrasts sharply with high prevalence TB settings who are looking to the HIV platform (World Health Organization, 2016).

The business of medicine is noted to have significant impacted on its capacity by the healthcare worker participants. This was particularly apparent with regard to the funding of services for “contemporary” refugees. On exploration healthcare workers explained that contemporary refugees are those who had been a) recognised as refugees and asylum seekers and b) had arrived in Australia with the past 12 months. This resulted in a prioritising of responses to tuberculosis health undertakings, within the context of broader settlement issues including income, housing, and the possibility of deportation with the denial of permanent visas. Healthcare workers reported feeling that often the best they could do with regard to LTBI was to provide a good description of the symptoms of active TB and invite evidence of understanding. This was emphasised in the context of a lack of useful and appropriate educational materials for patients.

Healthcare workers spoke to closing the gaps in medicines capacity by:

- Developing TB/LTBI health education materials accessible to patients and usable by healthcare workers
- Creating a shared health promotion and prevention platform with Hepatitis B providers
- Improving TB and LTBI experience through access to telehealth and web-based models of professional development
- Improving access to support and guidance in clinical decision making by providing a network of specialists available for consultation.

THEME 4. THE ART OF MEDICINE

Healthcare worker participants demonstrated an overwhelming commitment to patient centred-care speaking of the need for tailoror resources that meet the patient’s current need. Highlighted was the requirement to contextualise TB health education, testing, and treatment for the patient’s current circumstances and future risk. Participants spoke of the importance of recognising the influence of culture on a patients understanding of TB and LTBI treatment and giving consideration to what this might mean for a patients relationships and social status.
“...IF GRANDMA NEVER PICKS UP THEIR GRANDCHILD SHOULD THEY NOT HAVE BEEN TESTED...”

(HCW12)

“...I'VE HAD SEVERAL PEOPLE DESCRIBE TB TO ME AS THEY COULDN'T POSSIBLY HAVE TB BECAUSE THEY'RE MIDDLE CLASS AND ONLY LOWER CLASS PEOPLE GET TB. PARTICULARLY, AFRICAN PATIENTS WOULD SAY THAT”

(HCW7)

Healthcare workers spoke to the high demand, in the primary healthcare setting, for doctors to complete mandatory documentation for government providers for housing and income supplement support claims with settlement issues and eligibility competing with healthcare needs; consistent with Maslow’s Hierarchy of needs physiological demands come before TB testing and LTBI treatment. Healthcare workers spoke of the necessity of interpreters and the value of working with bilingual workers in this space. Bilingual workers were described as being able to enrich engagement with the patient and invite testing and treatment.

The 14 healthcare workers interviewed demonstrated considerably more confidence and skill in assessing for TB risk within the context of a patient’s living conditions and psychosocial health than those providers in education sessions. In examining the contributory factors for this it became apparent that not only did those workers interviewed have high levels of competency with regard to the science of TB testing and LTBI treatment, they had developed an aptitude in translating this knowledge into an accessible format for patients. This enabled education through storytelling. Stories of TB held to common scripts which were dominated by the folktale of Sleeping Beauty and the Briar Rose and the ‘Attenborough’ nature script telling of flora and fauna. Such scripts were complemented by illustrative approaches to describe the symptoms of active TB. Participants demonstrated how, using their hands or crafted illustrations, they were able to reinforce health education messages with the objective of enhancing learning and recall.

SOMETIMES, LITERALLY, I DRAW A PICTURE, ... I’LL DRAW A PICTURE OF SOMEBODY’S CHEST, AND SAY OKAY SO THIS IS YOU. LET’S IMAGINE THAT YOUR CHEST IS LIKE A PADDY FIELD OR A GARDEN. INSIDE THIS GARDEN, THERE’S SOME BEAUTIFUL FLOWERS AND THEN THERE’S A SEED, THE SEED HERE IS TB. SO YOU CAN SEE THE SEED CAN BE IN THE SOIL FOR MANY YEARS, AND NOTHING CAN HAPPEN AND EVERYTHING IS BEAUTIFUL, BUT EVERY NOW AND THEN IT'S GOING TO GROW, AND WHEN IT DOES IT GROWS AND IT’S LIKE A WEED. (HCW5)

A small cohort, geosocially close, it became apparent to the investigator, particularly given the script similarities, that mentorship was a likely contributor to this development of a story and supplementary tools. When asked healthcare worker participants were often unable to attribute a specific tutor who taught to a script but rather spoke of peers and influencers in their development who encouraged the use of analogy which became the story. Healthcare workers reflected upon this as an organic process with shared care being a common thread. Modalities of shared care were varied from telehealth models to acute hospital ward experiences with direct observation and team care approaches in the community.

This aspect of the art of medicine invites consideration of mentorship opportunities and the use of story in context when working with patients.

TABLE 15: HEALTH CARE WORKER INTERVIEWS – THEMATIC TABLE

<table>
<thead>
<tr>
<th>Art of Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overwhelming commitment to patient centred care</strong></td>
</tr>
<tr>
<td>• Contextualise – language, story, utilise interpreters/bilingual workers</td>
</tr>
<tr>
<td><strong>Patient complexity i.e. social determinants of health, especially conditions of living and psychosocial wellbeing</strong></td>
</tr>
<tr>
<td>• Housing security</td>
</tr>
<tr>
<td>• Income security</td>
</tr>
<tr>
<td>• Settlement issues and support eligibility</td>
</tr>
<tr>
<td>• Competing needs</td>
</tr>
</tbody>
</table>
Healthcare Worker skills
- Communication skill and education – story (sleeping beauty/flora and fauna)
- Confidence

Business of Medicine

Medicare
- Eligibility of patients
- Navigation

Costs
- Indirect costs to patients e.g. income loss in a cash economy (relates to legal), casual employment
- Direct costs e.g. transport, pharmacy, testing (IGRA v dual appointments for TST)
- Costs to practice – interpreting services, follow-up

Legal
- Impact of stigma, diagnosis and treatment for either TB or LTBI on visa processing and thus welfare supports (e.g. bridging visa entitlements)

Capacity of Medicine

G.P context
- practice demands/patient load
- TB experience, exposure, knowledge
- Access to support/guidance in clinical decision making – immediacy and type of support

Jurisdiction and pathways
- Experience and expertise
- Funding frameworks e.g. contemporary refugees, active TB v LTBI
- Patient priorities (for appointment timeframe)

Science of Medicine

- TB care and confusion re protocols and cascades of care
- TB screening, testing, and referral
- LTBI treatment

Confidence

The healthcare workers who completed the self-efficacy appraisal reported high levels of confidence in discussing TB and LTBI with patients (X=9.0, SD=0.9), and in assisting patients to understand the value of TB testing LTBI treatment (X=7.9, SD=1.0), and that their patients would engage in discussion about TB testing with them (X=7.9, SD=0.8). Nurses were somewhat more confident than doctors across these questions. Both nurses and doctors were not confident that they could source accurate information about testing and LTBI treatment; especially in community languages (X=4.7, SD=2.5).

Healthcare workers were also invited to describe their confidence in their patients’ and their colleagues. Healthcare workers have moderate confidence in their patients psychological and social capacity to engage in TB testing and LTBI treatment. Doctors generally had somewhat more confidence than nurses across both these factors, but especially across the social circumstances within which people live and grow. Healthcare workers described having moderate confidence in their colleagues understanding that community comprehension of TB and LTBI is likely to be low within those communities at higher risk of TB in Victoria. Table 4 provides a summary of average confidence scores by designation.

**TABLE 16: HEALTH CARE WORKER SELF-CONFIDENCE APPRAISAL SUMMARY BY DESIGNATION**

<table>
<thead>
<tr>
<th></th>
<th>Doctor</th>
<th>Nurse</th>
<th>HCW total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>How confident are you in discussing TB and latent TB infection (LTBI) with your patients?</td>
<td>8.8(0.9)</td>
<td>10.0(0.0)</td>
<td>9.0(0.9)</td>
<td>7-10</td>
</tr>
<tr>
<td>How confident are you that you can get accurate information about LTBI in appropriate community languages?</td>
<td>5.0(2.4)</td>
<td>3.5(3.5)</td>
<td>4.7(2.5)</td>
<td>1-6</td>
</tr>
</tbody>
</table>
Towards Elimination

<table>
<thead>
<tr>
<th>Question</th>
<th>Average</th>
<th>Mode</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>How confident are you that you can convince a patient of the value of LTBI treatment for their health?</td>
<td>7.6(0.9)</td>
<td>9.0(0.0)</td>
<td>7.9(1.0)</td>
<td>6-9</td>
</tr>
<tr>
<td>How confident are you that you can convince a patient of the value of TB testing to protect their loved ones?</td>
<td>7.4(0.5)</td>
<td>8.5(0.7)</td>
<td>7.6(0.7)</td>
<td>7-9</td>
</tr>
<tr>
<td>How confident are you that your patients would discuss TB testing with you?</td>
<td>7.7(0.8)</td>
<td>8.5(0.7)</td>
<td>7.9(0.8)</td>
<td>7-9</td>
</tr>
<tr>
<td>LTBI testing and treatment requires patients to understand different types of tests, undertake a lengthy period of treatment with a moderate pill burden. How confident are you that your patients have the behavioural, cognitive and emotional capacity to undertake this process?</td>
<td>6.9(2.1)</td>
<td>6.0(1.4)</td>
<td>6.5(2.1)</td>
<td>3-10</td>
</tr>
<tr>
<td>LTBI testing and treatment requires patients to understand different types of tests, undertake a lengthy period of treatment with a moderate pill burden. How confident are you that your patients have the material conditions (e.g. security of income, housing, food) to undertake this process?</td>
<td>6.1(1.1)</td>
<td>4.0(2.8)</td>
<td>5.7(1.7)</td>
<td>2-7</td>
</tr>
<tr>
<td>How confident are you that community-based TB and LTBI knowledge gaps negatively influence health behaviour and contribute to continued TB transmission and disease?</td>
<td>6.6(2.3)</td>
<td>6.5(0.7)</td>
<td>6.6(2.1)</td>
<td>3-10</td>
</tr>
<tr>
<td>How confident are you that other health care providers are aware that comprehension of TB and LTBI is likely to be low within high-risk communities in Victoria?</td>
<td>5.3(2.1)</td>
<td>6.5(2.1)</td>
<td>5.5(2.0)</td>
<td>2-8</td>
</tr>
</tbody>
</table>

*Average, mode, and mean were consistent
Note that questions were voluntary and some participants elected not to answer a question, or to do so with qualification. Comments are made upon qualifications within the report text.

DISCUSSION

Findings

This project considered barriers and enablers for TB testing and TB and LTBI treatment. In order to facilitate an additional 5000 to 8000 tests for TB, it is clear that communities at higher risk of TB reactivation, the Vietnamese and GHoA communities in Victoria, are likely to benefit from an increased understanding of latent TB infection testing and treatment.

Community participants recognised tuberculosis as infectious, commonly associating it with a cough and as affecting the lungs. Vietnamese participants generally had better overall tuberculosis health literacy than those from the GHoA.

Participant’s aged 46 and older acknowledged their learning about and memories of TB from their country of origin and expressed surprise at the need to consider TB post migration to Australia. These conversations with the project lead reflected gaps in knowledge with regard to LTBI, testing for TB and treatment for LTBI in particular. Over one-third of the community participants believed that they would know that they had acquired a TB infection from the point of acquisition and were surprised to learn that this may not be the case and that although not infectious in its latent form TB could reactivate and result in illness.

Beyond knowledge of TB and LTBI, participants identified a range of barriers to diagnosis. The cost of testing for latent TB was consistently identified as a significant barrier to testing both by community participants and healthcare providers. A specific concern across all participants was the cost of Interferon Gamma Release
Assay (IGRA). At the time of data collection, IGRA held an out of pocket expense of approximately $50 AUD per test. This proved to be a barrier to testing that was compounded by the indirect costs of testing including loss of income for casual workers and travel expenses. Indirect costs were often compounded by poverty, social-legal issues associated with visa status and eligibility for service, and social capital.

Doctors were identified by participants as the number one source of trusted healthcare information. Yet education sessions and healthcare worker participants revealed a concern about the capacity of general practice to provide testing. Significant concerns were raised by healthcare providers about their own capacity to test and interpret results appropriately. A general practitioner’s confidence in their science knowledge with regard to testing for tuberculosis was then compounded by the question of accurate risk assessment, business demands with regard to the time and expense of explaining results, and the lack of familiarity for follow up care.

The project demonstrates a TB health literacy gap that can be closed with health education for the community. Furthermore, the project demonstrates that community members want access to health knowledge consistently expressing a desire to protect their significant others from disease or loss of social capital due to their own ill health in the future. TB testing guides and risk screening tools are likely to significantly ease the testing concerns of general practitioners.

Participants identified potential reasons for differences in knowledge of and access to testing for tuberculosis in Victorian Vietnamese communities are well established in Victoria with Vietnamese rating in the top five spoken languages and top six countries of origin over the 2001, 2006, 2011, and 2016 Census’. With a median length of residence of just over 20 years the Vietnamese are highly urbanised and geosocially stable (Australian Bureau of Statistics, 2013). This is often associated with study and employment opportunities, and in the case of Vietnamese populations historical associations with new arrivals electing, were possible, to live in close proximity to large populations of second and third generation migrants (e.g. Springvale, Dandenong, St Albans (Australian Bureau of Statistics, 2013) which enables access to same language general practitioners and connection with long-standing social groups and same language resources. Older Vietnamese participants spoke to the value of community radio and established print media in disseminating health information in addition to working with long-standing organisations like the Vietnamese Women’s Association.

In contrast, the GHoA communities are newer to Victoria, although are often not contemporary refugees (defined as those individuals arriving in Australia in the past 12 months) with influxes in migration reflecting the civil unrest in the region in the early years of this century. Relatively recent arrival, housing affordability, and access to services have contributed to mobile and geographically dispersed subgroups settling in Melbourne with welfare providers speaking to a current move to the outer suburbs of Melbourne; particularly in the east. Subsequently, same language healthcare providers are less prevalent. As observed in the recruitment of GHoA community members for this project, subgroups are forming and reforming based on cultural identity and geosocial influence as the community establishes in Victoria making engagement with healthcare providers more challenging.
Towards Elimination

In seeking participants from the identified communities it became apparent that engagement was influenced by social capital and community character. In seeking members of the Vietnamese community one can use internet search engines and get consistent results over time and that reflect a celebration culture e.g. Vietnamese restaurants, community groups and social meeting places. Taking the same action for the GHoA recruitment yielded very different results across time and this was reflected in discussions with community leaders. The use of search engines to identify GHoA groups required a shift from geographical to language-based key phrases in identifying community groups and meeting places. Search engines also produced significant levels of media reflecting profiling, perceptions of violence and reputation disputes for the GHoA community. Community leaders were focused upon the safety and spirit of their community at the time of recruitment and data collection describing the media attention as both a distraction and a source of concern. This spotlight places TB in the shadows and has significance for issues of reactivation and prevention of disease.

Treating an additional 1250 people for LTBI requires recognition of the social circumstances in which high-risk community members live with issues of engagement, trust, poverty, settlement, housing, and social-legal issues of eligibility impacting upon an individual’s capacity to engage with treatment. Largely this relates to the provision of an opportunity to consider the value of treatment for an individual and their significant others. Both community groups described a need for own language communications and reported difficulty accessing these materials from trusted sources. Oral communication was generally preferred over written communication by both communities, especially with regard to health information.

Doctors were identified by participants as the number one source of trusted healthcare information. Yet education sessions and healthcare worker participants revealed a concern about the capacity of general practice to provide LTBI treatment. Significant concerns were raised with regard to general practitioners feeling confident in their science knowledge with regard to LTBI treatment practice due to a lack of familiarity with the medications, concern about side-effects and interactions, and the cost of treatment for their patients. The business needs of small general practices to provide LTBI treatment were raised as a barrier i.e. engagement with interpreters. Enablers to the treating of LTBI in general practice were evident with TB experienced general practitioners and specialists describing the significant impact of mentoring via telehealth technologies and in the provision of quick reference treatment and referral guidelines. It became apparent that the most confident of healthcare providers had been able to engage with the art of medicine using narratives to communicate complexities like the difference between LTBI and active tuberculosis. Healthcare providers spoke anecdotally of an increase in LTBI treatment uptake in this context. This suggests that the contextualising of TB through story increases the perceived value of treatment. Healthcare providers additionally reported an increase in confidence that those patients who elected not to treat LTBI had a better understanding of the key symptoms of active TB to optimise healthcare seeking at the time of reactivation for themselves and their social networks.

“I THINK, HOW CAN I TELL THIS STORY? BECAUSE A LOT OF WHAT YOU DO I THINK AS ANY KIND OF HEALTH PRACTITIONER IS ABOUT STORYTELLING AND COMMUNICATING A CONCEPT OR

Page 40
Limitations

The obvious limitations of this study are its small community participant sample with time limitations and strategic compromises on language translations impacting upon the capacity to recruit to the identified sample size. It is likely that language translation impacted upon the reliability of the more complex questions in the community participant’s instrument as evidenced in the GHoA data in particular.

The purposive recruitment of general practitioners to the healthcare worker cohort also impacts on the richness of data and it is acknowledged that the contributions of general practitioners from smaller practices may have added significantly to understanding.

Strengths

The project is unique among research of this type; few studies have been completed in low tuberculosis prevalence high-income settings. Furthermore, it recruits from higher risk populations who have not had contact with tuberculosis treatment services or the Victorian Tuberculosis Program seeking to improve knowledge of the barriers and enablers to firstly tuberculosis testing and secondly LTBI treatment.

The project utilised community engagement and knowledge translation principles to facilitate optimal health education in the project and for implementation of learning in practice.

Moreover, the project provides a foundation for action towards elimination at policy, prevention, promotion, and care levels within the Victorian setting consistent with World Health Organization priority actions, pillars and principles.

RECOMMENDATIONS

Preventing 30 cases of TB in the context of a wealthy Australian state would appear to be a small and achievable task on the surface of it. However, stable rates of TB for more than half a century demonstrate a need to take new steps to eliminate TB. In part, this is about identifying and reaching the most vulnerable. This project highlights both the possibility and inherent challenges in this task.

In May of 2017, the Australian government amended the IGRA MBS item 69471. This widened the scope of healthcare providers to test without charge in the context of a person who has been exposed to a confirmed case of active tuberculosis (Australian Government, 2017) in addition to the existing circumstances of a person who is, or is about to become, immunosuppressed because of disease, or medical treatment. Despite these expanded indications, access to testing for LTBI in the community remains problematic, particularly for the critically significant group of Australians born overseas. Healthcare workers interviewed for this project highlighted the need for improved access to testing for LTBI, and further education and support of healthcare providers to operationalise these interventions.

The Victorian healthcare workforce and culture can be influenced towards improved TB testing and LTBI treatment through the funding of healthcare provider and general practitioner education. This education should emphasize the identification of risk factors for the acquisition of TB and TB reactivation, and LTBI treatment, including the demystification of Isoniazid and care pathways. Clear decision support and clinical information can be facilitated by the provision of TB risk assessment tools, communication aids, and a cascade of care guideline. Consistent with knowledge translation principles these tools and guidelines should be developed, implemented, and evaluated with healthcare providers to optimise usefulness and use.
The project data indicates that education should include the application of current MBS and PBS schemes, such as the above mentioned MBS IGRA item and the application of GP Management Plan (Item 721) and Team Care Arrangements (Item 723), in practice as they relate to TB infection. In this way, general practitioners can be supported to optimise their capacity to address the business concerns for general practitioners. Mentoring arranges should be encouraged and supported through current MBS and professional schemes by lead agencies.

Primary healthcare providers and community-based healthcare workers are vital supports in the Victorian healthcare system providing linkage across the healthcare tiers and auxiliary care to patients, and efforts to consider the scope of practice and the feasibility of nurse lead clinics should be assessed. Auxiliary care facilitates the addressing of social support concerns and adequate acute healthcare increasing capacity for individuals to discuss TB testing and complete LTBI treatment. Project data demonstrates a need for health education materials for higher TB risk communities to close the TB health literacy gap, especially with regard to LTBI. Materials should be developed, disseminated, and evaluated with bilingual workers and community members. Consistent with knowledge translation principles, this will optimise the relevance of the resources and their utilisation. Such a venture requires that bilingual workers and community members be recognised for their skills and knowledge and be renumerated accordingly. Supported to seek to test and make informed decisions about treatment community members can be actively supported to self-manage. Healthcare providers spoke to the value of The Hepatitis B Story, an education tool produced by St Vincent’s Hospital Melbourne, with regard to accessibility and flexibility of use and the scope to share a promotional platform.

The narrative must be considered in the context of both healthcare provider education and health education materials. The narrative needs to be familiar and relevant to both the user and the audience to facilitate practice and to enhance meaning. Healthcare providers can be supported utilise core elements of the narrative approach and to engage in the art of medicine to make the story rich and relative in time and place.

To genuinely improve outcomes towards TB elimination a co-ordinated approach is needed so that a prepared, proactive and TB health literate healthcare service can meet an informed, health literate community. Ideally, this requires community partnerships and budgetary support. The prevention of TB reactivation requires timely and free access to services, particularly diagnostic tests, and primary healthcare providers need to be supported with regard to the business, science, and art of tuberculosis medicine.
REFERENCES


APPENDIX A: COMMUNITY PARTICIPANT PICF (ENGLISH)

The Victorian Tuberculosis Program

Participant Information

Title: Towards Elimination: understanding and addressing barriers to tuberculosis testing and treatment among high risk communities in Victoria

Short title: Towards Elimination

Project number: 2016.147

Principal investigator: Krista Watts

Telephone: (03) 9342 9476

You are invited to take part in Towards Elimination: understanding and addressing barriers to tuberculosis testing and treatment among high risk communities in Victoria.

You are invited to participate in this project because you, or one of your parents, have been identified as being born in Vietnam, Somalia, Kenya, Ethiopia, Djibouti, Eritrea, South Sudan, Sudan or Uganda. In Australia 88% of people diagnosed with tuberculosis are born overseas. Of the 88%, people from these countries are more likely to have tuberculosis and are thus most likely to benefit from testing and treatment.

Participation is voluntary and you may decline if you wish. If you decide to take part and later change your mind that’s okay, you can stop at any time before you submit the survey. Because the survey is anonymous your data cannot be identified to withdraw after submission.

Please read this information and ask questions if you need more information. You may also discuss the project with a relative or friend or your local health worker. Once you understand what the project is about and if you agree to take part in it, you will be asked to complete a questionnaire, and two brief surveys. Completing the questionnaire and two brief surveys will take approximately 15 minutes. Consent to participate is implicit in the completion and submission of the questionnaire and surveys.

Why are we doing the project?

This project aims to actively contribute to reducing the Victorian tuberculosis burden by:

- identifying and defining barriers to tuberculosis testing, and
- ascertaining the current perceived value of tuberculosis testing and treatment

This questionnaire will be used to make community-based resources and doctor and health care worker education packages.

What does participation involve?

Participation in this project will involve answering:

- 12 questions about yourself, such as your age and country of birth
- 22 tick box questions about tuberculosis and health, and
• 24 tick box response questions telling us your view on tuberculosis and health

This should take approximately 15 minutes to complete and is anonymous. Once you have finished the questions you can return the papers to the researcher in person or by mail in the envelope provided.

Privacy, Confidentiality and Disclosure of Information

This questionnaire is designed to be anonymous to protect your privacy. The information you provide to this project will be stored securely for a period five years and then securely destroyed. Electronic records will be stored in a password protected computer dedicated to the Victorian Tuberculosis Program and accessible only by project workers.

Your privacy is important to us and anything that can identify you will remain confidential. It will only be disclosed with your permission, except as required by law.

In any publication of the results of the project, information will be provided in such a way that you cannot be identified.

Results of the Project

The outcomes of this project, including recommendations for resources and education will be published. If you are interested in attending the launch of the results for this project please submit your contact details on the separate Expressions of Interest form provided.

This project aims to inform the development and delivery of community-based resources on tuberculosis and to educate doctors and other health care providers. As a community participant you are invited to participate in the development of these resources and education packages. This will involve attending meetings and sharing your thoughts on how best to share tuberculosis testing and treatment information with your community. If you are interested in participating in the development of community resources and education materials please complete the separate Expressions of Interest form attached.

If you choose to express your interest in designing and delivering community resources and education materials after completing the questionnaire and surveys you are not committed to further actions. The principal investigator will contact you once all the data has been analyzed to discuss with you what the results reveal, the next steps in using the data to craft the resources and what you can expect should you choose to be involved. You may choose to withdraw at any time without repercussion.

If you have any questions about this project please contact Krista Watts on the details provided.

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a participant, then you may contact:

Name: Ms. Jessica Turner
Position: Manager Human Research Ethics Committees, Melbourne Health
Telephone: (03) 9342 8530

You will need to tell Ms. Turner the number or name of the project (refer to page 1).

Thank you for considering a contribution to this project. Your thoughts, opinion and time are valued. Once you have finished the survey please return it to the worker or post it to Krista in the reply paid envelope.
Expressions of Interest

I, ________________________________, am interested in

☐ Receiving an invitation to the launch of the project results
☐ Assisting in the development of educational materials on TB for my community

Please contact me at:
Number: ____________________________________________
Street name: ________________________________
Suburb: __________________________________________
Postcode: _______________________________________

OR by

Email: ________________________________

Signed: _______________________________________
Date: _______________________________________

The Royal Melbourne Hospital

The Victorian Tuberculosis Program is a service of The Royal Melbourne Hospital
APPENDIX B: COMMUNITY PARTICIPANT PICF (VIETNAMESE)

The Victorian Tuberculosis Program

Thông tin cho Người tham gia

Tên cuộc nghiên cứu: Tiện đến loại trừ: tìm hiểu và giải quyết những vấn đề khiến những công đồng có người có bệnh lao ở Victoria không dễ thư và điều trị

Tên người: Tiện đến loại trừ
Số dự án: 2016.147
Người nghiên cứu chính: Krista Watts
Số điện thoại: (03) 9342 9476

Chúng tôi xin mời quý vị tham gia cuộc nghiên cứu mang tên Tiện đến loại trừ: tìm hiểu và giải quyết những vấn đề khiến những công đồng có người có bệnh lao ở Victoria không dễ thư và điều trị.

Chúng tôi mời quý vị tham gia dự án này vì, theo chúng tôi được biết, quý vị, hoặc cha mẹ của quý vị, là người sinh ở Việt Nam, Somalia, Kenya, Ethiopia, Djibouti, Eritrea, South Sudan, Sudan hoặc Uganda. Ở Việt Nam 88% người có chấn đoán bệnh lao là những người sinh ra ở nước ngoài. Trong số 88% này, phần đông là từ các nước nói trên. Do đó những người từ các nước này đi thư và điều trị bệnh lao là việc thường có lợi ích cho họ.

Việc tham gia là việc tự nguyện và quý vị có thể khước từ nếu quý vị muốn. Nếu quý vị quyết định tham gia và sau này đổi ý cũng không sao, quý vị có thể ngưng bất cứ lúc nào trước khi quý vị nộp bản thẩm do. Vi bản thẩm do này là bản vô danh, sau khi quý vị nộp, chúng tôi không thể tìm lại bản của quý vị để rút ra.

Vui lòng đọc thông tin này và nếu quý vị cần thêm thông tin thì xin cho biết. Quy vị cũng có thể-binary vở dạng này với người bảo con, bạn bè, hoặc nhân viên y tế địa phương. Một khi quý vị đã hiểu về dự án này và đồng ý tham gia, xin quý vị điện một bản gồm các câu hỏi và bài bấm thẩm do ngắn. Thời gian cần bỏ ra để hoàn tất bản của câu hỏi và bài bấm thẩm do ngắn là khoảng 15 phút. Khi quý vị điện và nộp bản câu hỏi và bài bấm thẩm do, chúng tôi xem là quý vị chấp thuận tham gia.

Tại sao chúng tôi thực hiện dự án này?

Dự án này nhằm tích cực đóng góp vào việc giảm gần nghĩ về Victoria về bệnh lao, bằng cách:

- nhận ra và xác định những vấn đề khiến người ta không dễ thư bệnh lao, và
- xác định giải quyết những vấn đề gia trì của việc thư và điều trị bệnh lao

Chúng tôi sẽ dùng bản các câu hỏi để lạo ra tài liệu cho công đồng và tài liệu giáo dục cho bác sĩ và nhân viên y tế.
Việc tham gia bao gồm làm những gì?

Việc tham gia dự án này bao gồm trả lời:

- 12 câu hỏi về bản thân quý vị, chẳng hạn như tuổi tác, quốc gia mà quý vị sinh ra
- đánh dấu vào 0 của 22 câu hỏi về bệnh lao và về sức khỏe, và
dánh dấu vào 1 của 24 câu hỏi để cho chúng tôi biết quan điểm của quý vị về bệnh lao và về sức khỏe

Việc này mất khoảng 15 phút để hoàn tất và là việc vô danh. Một khi quý vị hoàn tất các câu hỏi, quý vị có thể gửi những tập giấy lại tận tay cho người nhận chi tiết hoặc dùng bao thư mà chúng tôi có kèm để gửi lại.

Bảo vệ sự riêng tư và Tiếp lò thông tin

Chúng tôi soạn bản các câu hỏi này bằng hình thức vô danh để bảo vệ sự riêng tư của quý vị. Chúng tôi sẽ giữ những thông tin mà quý vị cung cấp cho dự án này một cách an toàn trong thời gian nằm nằm, sau đó sẽ hủy thông tin một cách an toàn. Chúng tôi sẽ giữ hỗ trợ điện tử ở trong máy tính đánh riêng cho Chương trình Bệnh lao Victoria, bảo vệ nó bằng mật khẩu, mà chỉ có nhân viên của dự án này mới xem được.

Sự riêng tư của quý vị là điều quan trọng đối với chúng tôi và chúng tôi sẽ giữ kín những gì mà người ta có thể nhận ra quý vị. Chúng tôi chỉ tiết lộ những điều này khi có phép của quý vị, hoặc theo quy định của luật.

Bắt cử khi nào phát hành kết quả của dự án này, chúng tôi sẽ cung cấp thông tin bằng hình thức mà người ta không thể nhận ra quý vị.

Kết quả của dự án

Chúng tôi sẽ phát hành kết quả của dự án này, bao gồm để nghi về tài liệu và giáo dục. Nếu quý vị muốn tham dự buổi ra mắt kết quả của dự án này, xin cung cấp chi tiết của quý vị trên đơn kayıt Y muốn (Expressions of Interest) mà chúng tôi có cung cấp riêng.

Nếu quý vị chọn vài tổ Y muốn soạn và phân phối những tài liệu cho công động và tài liệu giáo dục sau khi hoàn tất bản các câu hỏi và các bản thẩm đồ, quý vị không nhất thiết phải làm gì thêm sau này. Người nhận chưa chỉnh sẽ liên lạc quý vị sau khi đã phân tích tất cả các dữ liệu để ban với quý vị về việc kết quả cho thấy những gì, những bước kế tiếp là gì trong việc sử dụng dữ liệu để soạn tài liệu, và nếu quý vị quyết định tham gia thì quý vị sẽ làm những điều gì. Quy vị có thể rút ra bất cứ lúc nào mà không bị ảnh hưởng gì bất lợi cả.

Nếu quý vị có thắc mắc gì về dự án này, xin đừng những chi tiết mà chúng tôi có cung cấp để liên lạc Krista Watts.

Nếu quý vị muốn than phiền về điều gì liên quan đến dự án này, cách thức hiện dự án này, hoặc có thắc mắc gì về quyền lợi của quý vị là một người tham gia, quý vị có thể liên lạc:

Tên: Cò Jessica Turner
Chức vụ: Viện Quản Lý, Uỷ Ban Bảo Đáp Nhân Quyền Con Người (Manager, Human Research Ethics Committees), Melbourne Health
Số điện thoại: (03) 9342 8530

Quy vị sẽ cần nói cho Cò Jessica Turner biết số, hoặc tên, của dự án (như ghi ở trang 1).
Cảm ơn quý vị xem xét đến việc đóng góp vào dự án này. Chúng tôi trân trọng suy nghĩ, ý kiến và thời gian của quý vị. Một khi quý vị hoàn tất bản thẩm đồ, xin gửi lại cho nhân viên hoặc đúng bô thư mà chúng tôi có kèm (không cần dán tem) để gửi lại cho Krista.
Bây giờ Ươn

Tôi tên là ____________________________ . Tôi muốn:

☐ Nhận thư mời tham gia buổi ra mắt kết quả của dự án
☐ Giúp soạn tài liệu giáo dục về bệnh lao cho công động của tôi

Xin gửi thư đến cho tôi tại:
Số: ________________________________

Tên đường:
Tên vùng:
Mã số vùng:

HOẶC bằng

Email: ____________________ @ ____________________

Ký tên:

Ngày:

________________________________________
APPENDIX C: TUBERCULOSIS FACTSHEET (ENGLISH)

What is tuberculosis?
Tuberculosis, also called TB, is a disease caused by a bacterium (germ). Tuberculosis usually affects the lungs, but it can also affect the kidneys, bones, spine, brain, and other parts of the body.

How is TB spread?
TB is spread through the air when a person with an untreated TB disease of the lungs coughs or sneezes. People who breathe in TB germs usually need to have very close daily contact with someone who has the disease. It is not spread by clothes, cups, eating utensils, linen or clothing.

How does TB affect the body?

**TB Infection**
Infection with tuberculosis means the person has TB germs in their body. Usually the person’s immune system is able to fight these germs, causing them to become inactive. In about 10 per cent of people the germs will always be inactive. People with TB infection are not sick and cannot spread TB to others. This is called latent TB infection.

**TB disease**
TB disease is an illness caused by active TB germs. The illness may occur shortly after the germs enter the body, or many years later when the body’s immune system is weakened due to other factors such as age, diabetes, HIV infection, liver disease or cancer. A person with TB disease has active TB germs plus signs of illness.

What are the signs of TB?
TB can affect any part of the body but the lungs are the most common site. People with TB disease may have some or all of the following signs:
- Always feeling tired
- Loss of appetite
- Unexplained loss of weight
- A cough that lasts more than three weeks
- Fever
- Sweating at night

Sometimes, people with TB may cough up blood-stained sputum. Some people with active TB disease may have only mild symptoms.

What are the common tests for TB?
- The Tuberculin Skin Test (TST) shows if a person is likely to have been infected.
- A chest x-ray can show whether TB has affected the lungs.
- A sputum test shows if TB germs are present in coughed up sputum.

Who should be tested for TB?
- People who have any signs of TB disease.
- People who live and work in close contact with someone who is known, or suspected to have TB disease of the lungs.
- People who have HIV infection or another condition that puts them at higher risk for TB disease.

How is TB treated?

**1 Infection**
- A doctor may prescribe a course of tablets or follow with regular chest x-rays.

**2 Disease**
Combination of special antibiotics to be taken for at least 6 months. It is important to remember that TB can be re-infected if treatment is completed and taken correctly, so never stop the treatment. People with TB in other parts of their body are not infectious. In most cases, after two weeks taking TB medicine, patients with TB disease will no longer spread germs. If a patient is infectious, a nurse from the Tuberculosis Program will assess which people need testing and arrange for this to be done. ‘Contacts’ are often family members but may be close friends or work mates. Contact tracing is always done sensitively and confidentially.

Can I be immunised for TB?
BCG vaccination (TB immunisation) is not routinely recommended for the general Australian community. Where the risk of exposure to TB is low. BCG vaccination is only indicated for specific groups at increased risk of TB.

Further Information
For further information, please contact:
TB Control Section
Department of Health
Communicable Disease Prevention and Control Unit
Phone: 1300 65 1 160
Email: infectious.disease@health.vic.gov.au

You can get language assistance through the Translating & Interpreting Service (TIS) for the charge of a local call 13 14 50.

Fact sheets available in:
- Arabic
- Cambodian
- Chinese
- Creole
- Dari
- Greek
- Italian
- Vietnamese.

You can find more information at:

APPENDIX D: TUBERCULOSIS FACTSHEET (VIETNAMESE)

Department of Health, Victoria

Bệnh lao: Những điều cần biết

Lao là bệnh gì?
Bệnh lao (còn gọi là TB) là bệnh do vi trùng (virus) gây ra. Bệnh lao thường tấn công phổi, nhưng có thể lan sang thận, xương, cầu thận, cơ và những bộ phận khác của cơ thể.

Bệnh lao (TB) gây ra những hậu quả?

Bệnh lao täm cùng có thể bùng phát như nào?
Những dấu hiệu của bệnh lao trong người, thường xuất hiện những đặc điểm (đặc biệt) có thể chấm dứt các vi khuẩn, khiến cho chúng bị nén sau một khoảng thời gian. Trong khoảng khoảng 10-20 năm, vi trùng lao sẽ không phát triển và không thể gây ra bệnh lao cho người khác. Trong thời gian này, người bệnh không bùng phát

Bệnh lao (TB)
Bệnh lao (TB) là bệnh do vi trùng lao hoạt động gây ra. Người bị nhiễm vi trùng lao có thể bị bệnh trong một thời gian ngắn sau đó, hoặc nhiễm vi khuẩn, khi hệ miễn dịch của người bị yếu, vì nghĩa là người đó không có đủ sức đề kháng trước vi khuẩn. Người bị bệnh lao (TB) có thể gây ra tổn thương SỨC KHỎI cho người khác. Các trường hợp bệnh lao (TB) có thể:

- Các trường hợp không bùng phát hoặc bùng phát ở người không tỷ lệ bùng phát
- Các trường hợp bùng phát ở người không tỷ lệ bùng phát
- Các trường hợp bùng phát ở người không tỷ lệ bùng phát

Những xét nghiệm để phát hiện bệnh lao có thể:
1. Thử lao kháng thể (Xét nghiệm MANToux) cho biết một người đã từng mắc bệnh lao.
2. Chụp hình học có thể cho thấy bệnh lao (TB) ở tổn thương hay chưa
3. Thử đờm cho biết vi trùng lao (TB) ở trong đờm hay không

Ai nên đi xét nghiệm để tìm bệnh lao (TB)?
- Người có triệu chứng bệnh lao (TB).
- Người có tiền sử nhiễm lao (TB).

TUBERCULOSIS: THE FACTS

- Người sống và làm việc gần người đã bùng phát hoặc nghỉ ngơi ở bệnh lao.
- Người bị nhiễm HIV hoặc bệnh khác liên quan đến bệnh lao (TB).

Cách trị bệnh lao (TB)
Những lao (TB) không có thể tự khỏi hoặc tự tan biến. Chăm sóc phổi đến khi hết bệnh. Kháng sinh và điều trị kết hợp

Có phải bệnh nhân lao (TB) lây bệnh cho người khác?
Người bị lao (TB) phải có hoặc có thể lây bệnh cho người khác. Người bị lao những bộ phận khác của cơ thể không lây bệnh. Trong cơ sở trường hợp, người bị nhiễm vi khuẩn lao (TB) phải được điều trị để ngăn chặn lây nhiễm cho người khác. Nếu một bệnh nhân có thể lây bệnh cho người khác, thì yếm Cục Chăm sóc Y tế không phải xét nghiệm và cấp phép y tế. Người Tiếp xúc là người trong gia đình hoặc người khác, khi tiếp xúc bệnh nhân lao (TB) để bùng phát

Có thể chứng ngừa lao (TB) hay không?
Thường người dân chịu đựng không cần phải chứng ngừa BCG (chủng người lao) nếu rủi ro tiếp xúc với bệnh lao thấp. Chủng ngừa BCG chỉ dành cho những nhóm nhất định, được bôi lên

Mưu biêt thêm chi tiết, xin liên hệ
Mycobacterial Infections Program
Communicable Diseases Section
Department of Human Services
GPO Box 1670N
Melbourne 3001
Điện thoại: 1300 651 160

Nếu cần giúp đỡ và ngôn ngữ, xin liên hệ cho Dịch vụ Thông tin Dịch vụ (TIS) ở 13 14 50 mà chia

Các tài liệu được dịch sang các ngôn ngữ khác:

<table>
<thead>
<tr>
<th>Tiếng &amp; Pháp</th>
<th>Tiếng Anh</th>
<th>Tiếng Hoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiếng Croatia</td>
<td>Tiếng Đại</td>
<td>Tiếng Xômaii</td>
</tr>
<tr>
<td>Tiếng Việt</td>
<td>Tiếng Anh</td>
<td>Tiếng Hoa</td>
</tr>
</tbody>
</table>

Thông tin này được phổ biến trên mạng internet:
Health Care Worker Participant Information

Title: Towards Elimination: understanding and addressing barriers to latent tuberculosis testing and treatment among high risk communities in Victoria

Short title: Towards Elimination

Project number: 2016.147

Principal investigator: Krista Watts

Telephone: (03) 9342 9476

Email: krissta.watts@mh.org.au

You are invited to contribute to *Towards Elimination: understanding and addressing barriers to latent tuberculosis testing and treatment among high risk communities in Victoria.*

You have been invited to participate in this project because you have been identified as working in a practice setting that provides services for a high number of people identified as being born in, or having a parent from, Vietnam, Somalia, Kenya, Ethiopia, Djibouti, Eritrea, South Sudan, Sudan or Uganda (>25% of your practice). In Australia migrants from these countries have a higher risk of having latent tuberculosis and are thus most likely to benefit from testing and treatment.

Participation is voluntary and you may decline if you wish. If you decide to take part and later change your mind you can stop at any time prior to submission of data. As the transcripts are coded and survey are anonymous to optimize privacy and confidentiality data cannot be retrieved from the larger pool once submitted.

Please read this information and ask questions if you need more information. Once you understand what the project is about and if you agree to take part in it, you will be asked to participate in a semi-structured interview at a time and location convenient to yourself.
Completion of the interview will be your consent to participate. You will also be invited to complete an anonymous survey that asks you to rate your confidence (efficacy) in tuberculosis testing and latent tuberculosis treatment, and in your practice population’s ability to engage in testing and treatment.

**Purpose**

This project aims to actively contribute to reducing the Victorian tuberculosis burden by:

- identifying and defining barriers to latent tuberculosis testing, and
- ascertaining the current perceived value of latent tuberculosis testing and treatment

This data will then be used to develop and implement information materials for high risk communities and education packages for the health care providers who service them.

**Procedures**

Participation in this project will involve engaging in a semi-structured interview about latent tuberculosis infection, health and working with the identified communities. The duration of interviews will vary, however we ask that you allow 50 minutes to speak with our worker about your experiences. The interview will be audio-recorded and then transcribed. Identifying information will be coded at transcription. Interview transcripts will be coded and data thematically analyzed. Please complete the attached consent form to participate in this project and bring it and the demographic questionnaire to the agreed upon interview.

You are also invited to complete a brief and anonymous self-efficacy and community-efficacy survey. This survey should take approximately 10 minutes and enables you to consider your position with complete anonymity by using survey monkey, or if you prefer, by mail. If you are interested in completing this survey please complete and submit the attached Expression of Interest form. Submission of the completed survey will be considered implicit consent for this aspect of the project.

**Privacy, Confidentiality and Disclosure of Information**

The interview will be audio-recorded and later de-identified via coding. Hardcopy information obtained in connection with this project will be stored securely for a period of no less than five years and then securely destroyed. Electronic records will be stored in a password protected computer dedicated to the Victorian Tuberculosis Program and accessible only by project workers. Electronic records will be kept indefinitely. Your privacy is important to us and anything that can identify you will remain confidential. It will only be disclosed with your permission,
except as required by law. In any publication of the results of the project, information will be provided in such a way that you cannot be identified.

Results of the Project

The outcomes of this project, including recommendations for resources and education packages will be published. If you are interested in receiving an invitation to attend the launch of the results please complete and submit the attached Expression of Interest form.

This project aims to inform the development and delivery of community-based resources on tuberculosis and to education materials for health care providers. If you are interested in participating in the development of community resources and education materials please complete the separate Expressions of Interest form attached.

If you choose to express your interest in designing and delivering community resources and education materials after completing the questionnaire and surveys you are not committed to further actions. The principal investigator will contact you once all the data has been analyzed to discuss with you what the results reveal, the next steps in using the data to craft the resources and what you can expect should you choose to be involved. You may choose to withdraw at any time without repercussion.

If you have any questions about this project please contact Krista Watts on the details provided.

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a participant, then you may contact

Name: Ms Jessica Turner
Position: Manager Human Research Ethics Committees, Melbourne Health
Telephone: (03) 9342 8530

You will need to tell Ms Turner the number or name of the project (refer to page 1).

Thank you for considering a contribution to this project. Your thoughts, opinion and time are valued.
Consent

I have read this document and I understand the purposes, procedures and risks of this research project as described within it.

I have had an opportunity to ask questions and I am satisfied with the answers I have received. I understand that my information will remain confidential.

I freely agree to participate in this research project as described.

I understand that I will be given a signed copy of this document to keep.

I understand that the interview will be audio-recorded.

Participant’s name (printed) .................................................................
Signature                                                    Date:     /   /   

Declaration by Principal Investigator: I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

Investigator’s name (printed) .................................................................
Signature                                                    Date:     /   /   

Note: All parties signing the consent section must date their own signature.
## Section 1: Demographic Information

1. **What is your designation?**
   - [ ] doctor
   - [ ] specialist
   - [ ] nurse
   - [ ] allied health

   **Specialty:** __________
   **Craft:** __________

2. **What is your role in the agency?**
   _______________________

3. **What type of service do you work for?**
   _______________________

4. **How many years have you been practicing?**
   - [ ] ≤ 1
   - [ ] 2 - 5
   - [ ] 6 - 10
   - [ ] 11 - 15
   - [ ] 16 - 20
   - [ ] 21 +

5. **Are you:**
   - [ ] Female
   - [ ] Male

6. **What is your country of birth?**
   _______________________

7. **Country of primary medical qualification?**
   _______________________

8. **How many health care professionals operate out of your primary practice?**
   - [ ] 1 - 5
   - [ ] 6 - 10
   - [ ] 11 - 15
   - [ ] 16 - 20
   - [ ] 21 +

9. **Do you have any previous experience of screening or treating TB?**
   - [ ] Yes
   - [ ] No

10. **Do you have previous experience of treating latent TB?**
    - [ ] Yes
    - [ ] No

11. **If you marked yes in question 9 and/or 10 please describe the context for your experience.**
    _______________________

12. **Do you consider TB to be a problem in your practice population?**
    - [ ] Yes
    - [ ] No
I'd now like to ask you about your ‘at risk’ patients.

13. Approximately what percentage of your patient population identifies as Vietnamese/Horn of African? ____________________ %

Thinking about those patients

14. In which country were most of your patients born?
   - Djibouti
   - Somalia
   - Eritrea
   - Sudan
   - Ethiopia
   - Uganda
   - Kenya
   - Vietnam

15. On average, how long have they lived in Australia?
   - Less than a year
   - 1 - 5
   - 6 - 10
   - 10+  

16. What is their usual preferred language?
   - Language of birth
   - English

17. How would you describe the patients' literacy in their preferred language?
   - Good
   - Fair
   - Poor
   - Illiterate

18. How would you describe the patients' literacy in English?
   - Good
   - Fair
   - Poor
   - Illiterate

19. Approximately what percentage of your patients has ever lived in a refugee camp? ____________________ %  
   - Unsure

20. Who do your patients typically live with?
   - Immediate family
   - Friends
   - Extended family
   - Other: __________

21. On average how many people do they live with?
   - Most patients live alone
   - Including the patient, most patients live in a household of:
     - 2 - 4
     - 5 - 7
     - 8 - 10
     - 10+
22. Do you believe they are living in crowded conditions? □ Yes □ No □ Unsure
Why? ______________________________

23. What is the most common employment status for patients of your service? □ Employed (for wages/salary)
□ Self-employed
□ Centrelink benefits
□ Centrelink pension
□ A homemaker
□ A student
□ Retired (self-funded)

24. On average, what is the highest level of education that your patients have completed? □ Never attended school
□ Primary school/grade 6
□ Secondary school/grade 10
□ Completed secondary school/grade 12
□ Tertiary school/Undergraduate qualification
□ Advanced education/Masters/PhD

Thank you.
Expressions of interest - survey

I, ________________________________, agree to receipt of the self-efficacy and community efficacy survey via

☐ email link to survey monkey.

My email address is ____________@__________________________

☐ global mail. My address is

Number: ____________________________

Street name: __________________________

Suburb: __________________________

Postcode: __________________________

☐
The Victorian Tuberculosis Program

Expressions of interest – results and knowledge translation

I, ________________________________, am interested in

☐ Receiving an invitation to the launch of the project results
☐ Assisting in the development of educational materials on TB for my community

Please contact me at the details provided above or
Number: _______________________________________
Street name:
Suburb: ________________________________
Postcode: ________________________________

OR by
Email: ____________________________@______________________________

I understand that this form will be used only for its intended purpose and that it will be held separately from my responses.

Signed: ________________________________

Date: ________________________________

The Royal Melbourne Hospital
The Victorian Tuberculosis Program is a service of The Royal Melbourne Hospital

Participant Information and Consent – HWC, July 22, 2016
Local governance version

Version 3
APPENDIX E: HEALTHCARE WORKER PARTICIPANT INTERVIEW GUIDE

The Victorian Tuberculosis Program

Tuberculosis Semi-structured interview

Introduction

Thank you for agreeing to participate in the Towards Elimination project. Your willingness to participate in this interview is appreciated.

My name is Krista Watts and I am one of the principal investigators for this project.

The purpose of the interview is to identify and illustrate barriers to latent tuberculosis testing and treatment to facilitate development of tailored health promotion and education packages. Your input as a health care provider is invaluable in this process; as such we ask for your honest and open thoughts.

Do you have any questions for me before we begin?

Whilst I set up for recording I invite you to submit your consent form and the demographic survey.

(Provide collection box)

The guide consists of six questions, however today is really about a conversation. Shall we start?

(Complete interview, then...)

Thank you for your insight and time today. As per the plain language information guide I’d ask that you now consider the invitation to:

- Complete a 10 question anonymous confidence survey.
- Receive an invitation to the launch of the project results
- Participate in the development of resources for the community

(Provide forms as appropriate).

Thank you.
Section 2: Knowledge

1. Thinking about your service users/patients, how would you describe their knowledge of TB and latent TB?
   1.1. Studies out of the US and UK report that respondents generally know that TB is spread through the air by an infectious person’s cough. Beyond that there is widespread lack of knowledge about TB generally with respondents stating “I don’t even know how folks catch the TB”.
   (PROMPTS: transmission, prevention, testing, treatment)

PROBES

1.

   1.2. Participants in other studies have described the TB skin test as an immunization – can you speak to the understanding that your patients/service users have about LTBI testing?

   1.3. How would you describe the community’s knowledge of LTBI as opposed to TB disease?
   (PROMPT: infectious; treatable)

   1.4. Studies evidence a great deal of confusion and debate among participants about the prevention of illness and/or cure of LTBI. How would you describe the knowledge of your patients/service users with regard to issues of disease prevention and cure of LTBI?

2. In addition to knowledge, belief is recognized as a significant factor in health care engagement. With this in mind how do you believe your patients/service users perceive TB and LTBI?

PROBES

   2.1. How does the community you provide care to discuss TB and LTBI?

   2.2. Do you think this high risk community is confident in their knowledge of LTBI? Why?

   2.3. In assessing the community’s awareness of and concern about TB and LTBI what factors would you highlight?
3. Thinking further about belief can you describe the impact of health beliefs upon LTBI testing and treatment?

(PROMPTS: western medicine vs. eastern or alternative medicine, faith based beliefs, health care provider beliefs)

PROBES

1.

2.

3.1. Would you consider treatment for LTBI for yourself? Would this influence your recommendations for patients?

3.2. What factors influence how likely you are to test for TB or recommend LTBI treatment?

(PROMPTS: consultation with specialists, cost, professional development)

4. Consistent in all studies on TB and LTBI are issues of TB-related fear. What observations have you made about the impact of this fear on the health seeking behaviours of your patients/service users?

PROBES

4.1. Can you comment upon the impact of TB stigma on disclosure and LTBI testing?

4.2. In what ways have the patients/service users described the perceived or experienced impact of this fear and stigma?

4.3. Curiosity has me thinking about the role of community leaders and socialization on TB-related fear and LTBI testing and treatment – what observations have you made with regard to this?
5. What do you believe are the barriers to LTBI testing and treatment for high risk communities in Victoria?

(PROMPTS: language, cultural and ethnic mores, health care experience, social determinants of health i.e. housing, poverty, food security)

PROBES

5.1. What impact, if any, do you think your patients/service users views of the Australian health system have on LTBI testing and treatment?

6. A UK study examined health care provider experiences of TB testing and LTBI treatment. Key enablers/barriers included:
   6.1. the experience and training of practitioners,
   6.2. timely access to specialist support
   6.3. resources including funds and human resources
7. In your opinion what can and should be done to address these barriers? How do we improve rates of TB testing and LTBI treatment in Victoria for high risk communities?

(PROMPTS: sources, modes and preferences for community resources)

PROBES

7.1. What assistance do doctors and health care workers need to facilitate TB testing and LTBI treatment?
7.2. Is cultural awareness or sensitivity among health care providers a barrier to encouraging TB testing and LTBI treatment?
7.3. Studies report a disparity in community preferred sources (television, internet, videos) and modes of information delivery versus community leader recommended sources (internet) and modes (word of mouth) of delivery. What do you think about verbally is always best?
Section 3: Opinion

In considering the identifying and addressing of the barriers to latent TB testing and treatment in high risk communities in Victoria we wondered about your role as a health care provider. We believe that you have many health care concerns that you need to understand and a busy practice. As a result we’d like to ask some questions about your confidence in TB testing and latent TB infection treatment in these high risk communities. We remind you that your privacy is important to us and that your responses will be de-identified. Your participant is voluntary and we thank you for it.

For the following questions a 10 point scale of confidence will be used. Please indicate which number best describes your confidence, from not at all confident to totally confident, by marking the box.

1. How confident are you in discussing TB and latent TB infection (LTBI) with your patients?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

2. How confident are you that you can get accurate information about LTBI in appropriate community languages?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

3. How confident are you that you can convince a patient of the value of LTBI treatment for their health?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

4. How confident are you that you can convince a patient of the value of TB testing to protect their loved ones?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

5. How confident are you that your patients would discuss TB testing with you?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

We are now going to ask a short series of questions about your confidence in your community.

6. LTBI testing and treatment requires patients to understand different types of tests, undertake a lengthy period of treatment with a moderate pill burden. How confident are you that your patients have the behavioural, cognitive and emotional capacity to undertake this process?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
   Not at all confident  □ □ □ □ □ □ □ □ □ Totally confident

7. LTBI testing and treatment requires patients to understand different types of tests, undertake a lengthy period of treatment with a moderate pill burden. How confident are you that your patients have the material conditions (e.g. security of income, housing, food) to undertake this process?

   □ 1  □ 2  □ 3  □ 4  □ 5  □ 6  □ 7  □ 8  □ 9  □ 10
The Victorian Tuberculosis Program

8. How confident are you that community-based TB and LTBI knowledge gaps negatively influence health behaviour and contribute to continued TB transmission and disease?

[ ] 1  [ ] 2  [ ] 3  [ ] 4  [ ] 5  [ ] 6  [ ] 7  [ ] 8  [ ] 9  [ ] 10
Not at all confident  Totally confident

9. How confident are you that other health care providers are aware that comprehension of TB and LTBI is likely to be low within high risk communities in Victoria?

[ ] 1  [ ] 2  [ ] 3  [ ] 4  [ ] 5  [ ] 6  [ ] 7  [ ] 8  [ ] 9  [ ] 10
Not at all confident  Totally confident

10. Do you have any innovative suggestions as to the source or mode of community or health care provider education on the value of TB testing and LTBI treatment?

________________________________________________________________________________________
________________________________________________________________________________________

Thank you for your generosity in completing this survey.