Addressing social determinants of health through tuberculosis control programmes in the Western Pacific Region

Nobuyuki Nishikiori
Catharina van Weezenbeek

World Health Organization, Regional Office for the Western Pacific; Manila, Philippines
**Disclaimer**

**WCSDH/BCKGRT/6/2011**

This draft background paper is one of several in a series commissioned by the World Health Organization for the World Conference on Social Determinants of Health, held 19-21 October 2011, in Rio de Janeiro, Brazil. The goal of these papers is to highlight country experiences on implementing action on social determinants of health. Copyright on these papers remains with the authors and/or the Regional Office of the World Health Organization from which they have been sourced. All rights reserved. The findings, interpretations and conclusions expressed in this paper are entirely those of the author(s) and should not be attributed in any manner whatsoever to the World Health Organization.

All papers are available at the symposium website at [www.who.int/sdhconference](http://www.who.int/sdhconference). Correspondence for the authors can be sent by email to sdh@who.int.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers’ products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters. The published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.
Executive Summary

Despite progress in tuberculosis control in the Western Pacific Region over the past decade, tuberculosis (TB) epidemic tends to concentrate in vulnerable and marginalized populations that often have limited access to health care and are difficult to reach. Without focusing on the vulnerability to and social determinants of TB, countries are unable to make further impact towards the elimination of the disease. The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) placed “Universal and equitable access to quality TB care for all people” as the first core objective. The Strategy highlighted emerging challenges such as rapid urbanization and migration, increasing socioeconomic disparities, social and financial insecurities affecting tuberculosis patients.

There are a number of upstream and downstream social determinants that contribute to the TB epidemic. While it is crucial to catalyse changes in the upstream determinants, equally important is to take concrete actions to address downstream social determinants through targeted service delivery for vulnerable populations. TB control programmes are in a good position to make significant impact on health outcomes among vulnerable populations by incorporating the health equity angle in planning and implementation of TB programmes.

WHO WPRO has developed a package of guiding tools to facilitate country level planning for TB control activities targeting vulnerable populations. The package consists of three main tools: (1) electric tool for in-country prioritization of TB high risk groups based on cost-effectiveness analysis, (2) Regional Framework on TB high risk and vulnerable populations, and (3) A national workshop package to promote TB control among TB high risk and vulnerable populations. The first national workshop was implemented in Cambodia in July 2011 with a total of 68 participants from both government and non-government sectors. The workshop reviewed existing evidence on TB high risk and vulnerable populations that were under-served by the existing services. As a result of workshop, multiple partnerships were created to formulate TB control activities for high risk populations. Particularly encouraged were collaboration between health and non-health sector organizations to address social determinants in vulnerable populations.
Prisons are environments that concentrate poverty, conflict, discrimination and ill-health including TB. To promote health in prisons in the Region, WHO WPRO developed Health in Prison Framework as an assessment and guidance tool. The framework were initially used for conducting in-country assessment in selected countries in the Region but can also be used for overall policy guidance for country. Amongst targeted countries, the first health in prison assessment was conducted in November 2010, in coordination with Ministry of Health, Ministry of Justice, WHO and World Vision Mongolia. The assessment revealed significant achievement made in TB control in Mongolia, which set a model for other countries in the Region.

The Stop TB unit of WHO WPRO has been embarking a number of initiatives by targeting different types of migrants. Among them, a project has been prepared to target irregular cross-border migrants in Cambodia in one of the border points between Cambodia and Thailand. Every year approximately 98,000 Cambodian migrants are officially deported from Thailand and Malaysia, of which as much as 20% of them spend more than a month in detention centres. In coordination with national and local authorities, WHO and International Organization for Migration will provide comprehensive TB services for the deported Cambodian migrants. The project will employ the latest molecular diagnostic technology (Xpert TB/RIF) thus facilitate timely TB diagnosis for the deported migrant populations. The project will provide valuable lessons to provide health access and services to this particularly hard-to-reach population.

In search for an innovative strategy for targeted service delivery, WHO WPRO has been looking into the potential of using existing socioeconomic information to contribute to the TB programme targeting. Context specific knowledge on geographical and socioeconomic determinants of TB helps national programmes identify the population most vulnerable to the disease. Metro Manila, the Philippines has been selected as the study site. The analysis was designed to identify socioeconomic determinants in a small geographical unit (neighbourhood) associated with TB disease burden. It also explores the application of this methodology to predict the yield of contact investigation for intensified TB case finding activity to alleviate disease consequences by identifying infectious TB early. The result of the study will contribute to increased understanding of socioeconomic
determinants at a micro-geographical level, which can guide future strategies and policies for targeted interventions for innovative case finding and care delivery.

The various work embarked for TB high risk and vulnerable populations in the Region can be collectively seen as an important discovery process to find successful models to accelerate TB control in the Region. WHO WPRO will continue to promote this critical area of work, carefully monitor the progress, and document the results and impacts. We strongly believe that our experience will contribute to the regional and global policy formulation to realize the universal and equitable access to quality TB services for all segments of the population.

**Problem Space**

“Tuberculosis is a social disease, and presents problems that transcend the conventional medical approach...It is the consequence of gross defects in social organization, and of errors in individual behaviour.” – René and Jean Dubos, The White Plague, 1952.

The statement still holds truth today after the discovery of chemotherapy and successful DOTS expansion in the past half century. Despite significant progress in TB control in the Western Pacific Region, TB is still prevalent among specific segments of the population such as the poor, marginalized and socially excluded.

There is an urgent need for a paradigm shift in TB control programmes that traditionally assumed that the DOTS strategy expansion through public primary health care facilities and good coverage among the general population are sufficient for effective TB control. Coordinated and systematic actions are required to address social determinants through TB control programmes. Only with that, further impact in TB control can be pursued in the coming decade towards the elimination of TB as a public health problem.

**Context**

Significant progress has been made in tuberculosis (TB) control in the Western Pacific Region over the past decade. Every year, more than 1.3 million patients in the Region are diagnosed with TB and more than 90% of those with infectious forms of pulmonary tuberculosis are successfully treated. As
a result of the successful expansion of quality TB services, the number of prevalent TB patients in the Region fell from 3.6 million in 2000 to 2 million in 2008.

Despite these successes, TB epidemic tends to concentrate in vulnerable and marginalized populations that often have limited access to health care and are difficult to reach. Without focusing on the vulnerability to and social determinants of TB, countries are unable to make further impact towards the elimination of the disease.

The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015), endorsed by the Member States in October 2010, placed “Universal and equitable access to quality TB care for all people” as the first core objective. The Strategy was developed based on an in-depth analysis of the evolution of the TB epidemiology in the Region highlighting emerging challenges such as rapid urbanization and migration, increasing socioeconomic disparities, social and financial insecurities affecting tuberculosis patients.

A number of upstream and downstream social determinants of TB have been identified (Figure 1). While it is crucial to advocate for and catalyse changes in multiple upstream determinants, equally important is to take concrete actions to address downstream social determinants through targeted service delivery for vulnerable populations. As a public health programme dealing with an infectious disease of poverty, TB control programmes are in a good position to demonstrate how focusing on the social determinants can directly impact on health outcomes among vulnerable populations.
This paper aimed to describe selected activities promoted and conducted both at the Regional and country levels in the Western Pacific Region to address social determinants of health through TB control programmes.

**Regional and country experiences in the planning process**

The Regional Strategy to Stop Tuberculosis in the Western Pacific (2011–2015) is providing overarching guidance to promote universal access to quality TB care for all segments of the population. Since priority target populations depend on the country context, identification of target populations and modalities for tailored service delivery should be discussed through in-country
consultative processes preferably with relevant stakeholders beyond TB control programmes.

WHO WPRO has developed a package of guiding tools to facilitate country level planning for TB control activities targeting vulnerable populations. The package consists of three main tools: (1) electric tool for in-country prioritization of TB high risk groups based on cost-effectiveness analysis, (2) Regional Framework on TB high risk and vulnerable populations, and (3) A national workshop package to promote TB control among TB high risk and vulnerable populations.

The electric tool is a web-based application developed and hosted by WHO WPRO. The tool can produce cost-effectiveness analysis particularly for active case finding activities targeting different TB risk groups by using a set of country specific parameters on TB epidemiology. The tool aims to provide practical guidance on which target populations can benefit from TB active case finding and what would be the most cost effective diagnostic strategies for them. The Regional Framework is a guiding document describing general principles and approaches for TB high risk populations, which were derived from the cost-effectiveness analysis and experiences in the Region. The national workshop package is a practical set of tools, documents and presentations that are intended for organizing a workshop with all relevant stakeholders and partners to promote TB control activities for TB high risk populations.

The first such workshop was organized in Phnom Penh, Cambodia in July 2011 and was attended by a total of 68 participants from both government and non-government sectors. Some partners have been playing important roles in TB control in the country while some others, especially those from non-TB health programmes or non-health sectors, had little previous engagement in TB control but had the potential in providing access to priority risk populations.

The workshop reviewed existing evidence on TB high risk and vulnerable populations that were under-served by the existing services. The participants were encouraged to discuss opportunities for providing different vulnerable populations with increased access to TB services. As a result of workshop, multiple partnerships were created to formulate TB control activities for high risk populations. Particularly encouraged were collaboration between health and non-health sector organizations to address social determinants in vulnerable populations.
WHO WPRO will further improve the contents of the package and disseminate the national workshop in other countries in the Region. It will certainly facilitate the engagement of multiple stakeholders and expand the scope and capacity of national TB control programmes to promote TB control activities targeting TB high risk and vulnerable populations.

Regional and country experiences in implementation and progress

TB control in prisons

Prisons are environments that concentrate poverty, conflict, discrimination and ill-health including infectious diseases. Often, prisoners originate from the most vulnerable sectors of society, like the poor, the mentally ill or those dependent on alcohol or drugs. In prison, these problems are amplified by poor living conditions and overcrowding. The overcrowded, unhygienic conditions in prisons further promote diseases with TB being the most prominent example.

Prisoners carry substantially higher disease burden than the general population. According to the available data in the region, the prevalence of TB among prisoners is up to 8 times higher than the ones for the general population. Ensuring the provision of TB services in prisons is critically important to realize the universal access to quality TB care. Despite its importance, the coverage and quality of TB services provided in prisons significantly varies between countries. There is a large potential for improving case detection and TB care provision in prisons in many countries in the Region.

Health issues in prisons do not limit to TB or infectious diseases. Prisoners are prone to many other health issues that are often uncovered and neglected. In this regard, TB control activities in prisons can provide optimal entry to widening the scope of disease control and health promotion.

To promote health in prisons in the Region, WHO WPRO developed Health in Prison Framework as an assessment and guidance tool. The framework covers critical items to assess health related activities in prisons over six broad domains: (1) Policy and coordination, (2) General information on prisons, (3) Health situation assessment, (4) Prison health system, (5) Environmental health and infection control, and (6) Protecting and supporting prison staff. The framework were initially used for
conducting in-country assessment in selected countries in the Region but can also be used for overall policy guidance for country.

Amongst targeted countries, the first health in prison assessment was conducted in November 2010, in coordination with Ministry of Health, Ministry of Justice, WHO and World Vision Mongolia. The assessment revealed significant achievement made by the long standing TB control efforts in prisons in Mongolia. Annual TB notification rate from prisons has been declining dramatically from approximately 2500 per 100,000 population in 2001 to less than 900 per 100,000 population in 2010 (Figure 2). Compared with the national rates, TB case notification rate from prisons was 18-folds higher in 2001, which reduced to 10-folds in 2005 and five-folds in 2009. Particularly noteworthy is that the significant reduction appeared to be synchronized with important policy and programmatic development. The first reduction was followed by the establishment of TB screening policy in 2002, and further reduction was seen after the substantial support from Global Fund since in 2005.
The achievement in TB control in prisons in Mongolia provided empirical evidence on the feasibility and potential impact on reducing disease burden among marginalized populations thus addressing health inequity. The assessment also identified some gaps in priority health services among inmates, which further contributed to promote health in prisons in the country.
TB and migration

Migrants are not a homogeneous population. For operational purposes, four types of vulnerable migrant populations have been identified by the Stop TB unit of WHO WPRO: (1) internal migrants, (2) floating vulnerable populations, (3) cross-border informal migrants, and (4) international labour migrants (Table 1). Although there are still variations within a group, each group has distinctive characteristics and poses specific challenges in health care provision and infectious disease control. It is also important to note that the issues and geographical focus considerably varies thus priority actions differ for each country.

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Internal migrants</td>
<td>Usually rural to urban migrants in search for economic opportunities, Issues liking with the civil registration system of a country.</td>
<td>Access to health care and social services, social exploitation, occupational risk, lack of social and financial protection</td>
</tr>
<tr>
<td>2. Floating vulnerable population</td>
<td>Urban poor dwellers often (but not necessarily always) do not have proper civil registration and highly mobile Mining communities also often consisted of floating population (though not much prevalent in the Region).</td>
<td>Concentration of poverty and diseases, neighbourhood factors enforcing vicious cycle, environmental health Risky health behaviours may also be prevalent</td>
</tr>
<tr>
<td>3. Cross-border informal migration</td>
<td>Casual and sometimes illegal cross-border migrations as a part of day-to-day activities of the local population or intended migration in search for economic opportunities.</td>
<td>Illegal immigration, engaging risky economic activity (drug trafficking, commercial sex work), risky health behaviour (drug addiction), political sensitivities, very different health &amp; risk profile for each border area</td>
</tr>
<tr>
<td>4. International labour migration</td>
<td>International labour migrants from high burden countries constituting a significant burden of TB in intermediate burden countries and areas.</td>
<td>Economic deprivation, risky economic activities, importation of infectious diseases</td>
</tr>
</tbody>
</table>

Source: Stop TB, WHO WPRO
Among a variety of activities embarked in the Region, a project has been prepared to target irregular cross-border migrants in Cambodia. In one of the border points between Cambodia and Thailand, every year approximately 98,000 Cambodian migrants are officially deported from Thailand and Malaysia. According to the information from immigration authority of Cambodia, as much as 20% of them spend more than a month in detention centres before the deportation, which significantly increase their risk of acquiring TB infection. Nevertheless, there are very limited health interventions provided to this highly vulnerable population before they are release to the communities.

In coordination with immigration authority, National TB Control Programme and local health authorities, WHO and International Organization for Migration will provide comprehensive TB services for the deported Cambodian migrants. The project started with some seeding activities such as situation assessment, engaging relevant stakeholders, and establishing effective partnership. These preparatory activities resulted in mobilizing a larger fund to employ the latest molecular diagnostic technology (Xpert TB/RIF) thus facilitate timely TB diagnosis for the deported migrant populations. The project will also provide comprehensive patient care including peer education, treatment support, patient referral and follow-up systems.

The project will provide valuable lessons to provide health access and services to this particularly hard-to-reach population.

**Addressing TB in poor urban communities – Neighbourhood factor analysis for TB programme targeting**

In search for an innovative strategy for targeted service delivery, WHO WPRO has been looking into the potential of using existing socioeconomic information, such as census data, to contribute to the TB programme targeting. TB is unevenly distributed in communities, with the poor and the marginalized bearing a disproportionally high disease burden. Context specific knowledge on geographical and socioeconomic determinants of TB helps national programmes identify the population most vulnerable to the disease. This allows for cost-efficient targeting of service deliveries. Metro Manila, a highly populated capital of the Philippines with 11 million population, has been selected as the study site. The analysis was designed to identify socioeconomic determinants in a small geographical unit (neighbourhood) associated with TB disease burden. It also explores the
application of this methodology to predict the yield of contact investigation for intensified TB case finding activity to alleviate disease consequences by identifying infectious TB early.

Ecological study design was employed to describe and analyse spatial distribution of TB case notification and neighbourhood (barangay) socioeconomic characteristics. The number of notified TB cases between 2007 and 2009, were extracted from the electric TB recording system, which served as the primary source of TB morbidity data. Selected neighbourhood socioeconomic variables were extracted from the national census data in the following five domains: demography (population density, average household size, etc), living standard, occupation, education and environment. There are more than 1600 barangays in Metro Manila, which were used as a unit of analysis. The indicators associated with TB case notification rate were identified by univariate analysis and subsequently by generalized linear regression modelling. The analysis extended to identify socioeconomic predictors that were associated with the yield of contact investigation.

The result of the study will contribute to increased understanding of socioeconomic determinants of the TB burden at a micro-geographical level, which can guide future strategies and policies for targeted interventions for innovative case finding and care delivery.

**Follow-up and lessons learned**

This paper reviewed selected regional and country activities addressing social determinants through TB control programmes. Targeting TB high risk and vulnerable populations can immediately benefit national TB control programme by increasing TB case detection and effectively cut the chain of the transmission thus reduces the overall disease burden in the countries. Moreover, not limiting to the epidemiological importance, equally important benefits includes reducing health inequity.

Health inequity has been amongst most important bottlenecks in further pursuing health development goals including Millennium Development Goals. Since TB often affects the most marginalized segment of the population, targeted TB control activities can provide an important entry point for other health programmes as well. The example from Mongolia illustrated that good practice in TB control in prisons encourage the prison authority to expand the scope of health service delivery further. In Cambodian
example, other priority health issues can be explored once the TB services to the deported migrants are established such as HIV and sexually transmitted diseases prevention, reproductive health and childhood immunization for mobile children, etc.

Through regional and country experiences, it has been firmly confirmed that inter-programme or inter-sectoral collaborations are the key for successful TB service delivery to high risk populations. TB control programme alone hardly reach the most marginalized populations, and access doors to marginalized target populations are often opened by non-TB programmes and non-health sector partners. The national consultative workshop outlined in this paper provides a viable opportunity to discuss and formulate multiple partnerships and collaborations in a systematic manner.

The various work embarked for TB high risk and vulnerable populations in the Region can be collectively seen as an important discovery process to find successful models that complement the conventional DOTS strategy and further accelerate TB control in the Region. WHO WPRO will continue to promote this critical area of work, carefully monitor the progress, and document the results and impacts. We strongly believe that our experience will contribute to the regional and global policy formulation to realize the universal and equitable access to quality TB services for all segments of the population.