Invited paper

The challenge of establishing a migrant sensitive, rights-based approach to tuberculosis screening in Sri Lanka

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Abstract

Limited attention has been made by countries of 'new immigration' to define an immigration medical examination requirement of inbound migrant flows. Importation of TB through inbound migration routes have been a largely neglected strategy in TB control in Sri Lanka despite increasing migrant flows from endemic regions. We contend that establishing a health assessment for those long stay resident visa applicants to Sri Lanka may be useful in mitigating the spread of TB. However the approach should harness a 'rights based' approach to health assessment, and also be linked to the national health system. In this way the assessment becomes a vital mechanism for global public health good rather than be perceived as a tool for discrimination or immigration control. Migrants need to be included in national and global TB control strategies, especially since mobility is a key feature of the post-2015 Millennium Development Goals agenda.

Key words: Migrants, tuberculosis screening, health policy

Tuberculosis control among migrants – current practices and debates

The International Organization for Migration (IOM) estimates that one out of every 33 persons in the world today is a migrant.[1] The total number of international migrants has been progressively increasing, reaching 232 million in 2013.[1] The rapid movement of people due to liberalization of economies, permeability of border crossings and introduction of faster and larger aircrafts has opened avenues for rapid introduction of communicable diseases.[2] The risk of disease transmission may be rapid, as the case of a SARS outbreak, or prolonged, as in tuberculosis (TB). The spread of pathogens within the global village have also exposed obsolete systems of border health management and heralded advances in global disease containment.

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Travel restrictions on the basis of active TB status have been imposed on immigrants and those seeking temporary residency by a number of countries with a low incidence of TB in the host population, usually comprising of high-income nations.[3] Not surprisingly, the health screening of migrants is contested within political, public health, migration and development domains.[4, 5]

The rationale for non-admissibility is based on one which ensures public health protection to the host community, and for health conditions that may results in significant health care costs to the host country, especially in those operating within a socialized health care system.[6] People migrating to these countries are required to undergo a compulsory health assessment determined by the migrant 'receiving country'. The health assessment protocols are decided based on the categories of migrants, epidemiological profile of the country they come from and their duration of stay. The timing and location of the health assessment may vary where it can be undertaken at the pre-departure migration phase (warranting an 'off-shore' examination), or an 'on-shore' examination conducted upon arrival at destination country.[7] The screening for active TB is a universal requirement of all migration health assessments.[8]

Despite the risk of transmission, there is limited evidence that imported tuberculosis actually leads to an increase in disease incidence of host countries.[9] Imported tuberculosis is mainly transmitted within population subgroups, often within the immigrant community in the destination country.[10-13] Tuberculosis cases within foreign-born population subgroups have also been shown to be increasing in some settings. In the United Kingdom, foreign-born individuals account for 74% of all TB notifications and have a 20 fold higher TB incidence than UK-born individuals.[14] In the United States of America, 62% of TB cases were among foreign-born individuals and this percentage is increasing steadily since 1993.[14] In Denmark, 6.6% of all TB cases from 1992 through 2004 were migrants.[15] In Singapore, 49% of new TB cases diagnosed in 2011 were among non-residents and comprised of work permit applicants, work permit holders and short-term social visitors.[16] A systematic review and meta-analysis to determine the yield for pulmonary tuberculosis among new immigrants at the point of entry was established at 3.5 cases per 1,000 screened (95% CI 2.9–4.1).[3] Migrants from countries with a high prevalence of tuberculosis may therefore have the potential to influence the epidemiology of TB in host countries with a low-incidence of tuberculosis.[17,18]

Considerable variability exists between nations in the model used for immigration TB screening.[7] Some countries in the Middle-Eastern region such as Saudi Arabia, Kuwait, Bahrain and Jordan impose both pre-departure and upon-arrival health examinations for temporary migrant workers arriving to their country.[19] Differing country specific priorities on TB control, weak health systems, limited political support and technical capacity and financial constraints may be some of the reasons for non-establishment of immigrant health assessment systems in countries experiencing high volumes of migrants from high TB incidence countries, especially in the developing world.

In this paper we analyze the dynamics of increasing inbound migrant flows and implications for the transmission, control and prevention of TB in Sri Lanka. We discuss the rationale, progress and challenges for the establishment of a health assessment requirement for inbound migrants to Sri Lanka. In providing a critical review of the existing models of migrant TB screening from selected countries, we emphasise the need for a rights based and evidence informed approach.

Tuberculosis burden in Sri Lanka and growing importance of inbound migrant flows

Sri Lanka is a middle income country considered as having a 'moderate burden' of TB with an estimated prevalence of 101 per 100,000 population, and the estimated incidence at 66 per 100,000 population.[20] The incidence of TB-HIV co-infection is very low (0.7 per 100,000 population). Multi-drug resistant (MDR) TB is also a rare occurrence, with only five MDR-TB cases detected in 2012. A case of MDR-TB from a foreign migrant worker from India was confirmed in 2011.[21] The population group with the highest incidence of TB (936 per 100,000 population) were observed among returning expatriate refugees from India, following the cessation of conflict in 2009.[22] Prisoners formed the second highest incident group (771 per 100,000 population), followed by the urban population in the capital city of the Colombo Metropolitan area (129 per 100,000 population).[22]

A major trend has been the importance of inbound migration on TB epidemiology in Sri Lanka. Inbound migration is defined as the population flow of people into a country.[23] The pattern of inbound migration dynamics shows an increasing trend of migrants from high TB burden countries.[21] With the dawn of peace, dynamics of inbound population movements to Sri Lanka have significantly increased across multiple categories. An estimated population of 90,000 Sri Lankan refugees living in refugee camps in Southern India are now returning home to districts mainly in Northern Sri Lanka for permanent settlement.[24,25] Sri Lanka is also regaining its popularity as a tourist destination with the influx of tourists growing annually. The nation is also heavily dependent upon labour migration, with nearly 2 million Sri Lankans working in regions such as the Middle East, and in emerging labour markets in South Korea. Sri Lankan workers are joined by workers from other labour sending countries in the region such as India, Philippines, Bangladesh and Pakistan at these work sites, where conditions often exacerbate health vulnerabilities.[26,27] All registered outbound workers to these Gulf states undertake a compulsory health screening for active TB, HIV and other conditions (as defined by the receiving country), within private clinics accredited by the same country. For instance, the Gulf Cooperation Council Approved Medical Centres' Association (GAMCA) is the accreditation and monitoring body for panel physicians and clinics operating within labour sending countries for migrant workers travelling to Gulf States.

However, a previously unrealised migration trend emerges from Sri Lanka's transformation from a labour sending country to a labour receiving one to fuel the economic development boom. A large volume of foreign migrant workers (mainly from China and India) have been absorbed into large scale development projects to rapidly develop the country infrastructure over the past 5 years. Furthermore, it has been reported by the Sri Lankan Immigration Controller General that increasing numbers of Indian nationals arriving to the country on tourist visa have overstayed, and engaged in both business and agricultural activities (mainly in the Eastern and Northern provinces).[28] Since there is a dearth in local labour to engage in agriculture and also due to labour from migrants being cheaper, there is a call for legalizing short-term migration from South India.

There were 35,826 resident visas issued by the Sri Lankan Department of Immigration and Emigration in 2011.[29] Of these, the majority (42%) were for persons involved in development projects in the state sector, private sector and in the Board of Investment (BOI) projects. Our analysis shows that 54% of resident visa applicants arrive from high TB prevalent countries, out

of which 70% are from India and China. The WHO lists India and China among the 22 high burden countries for tuberculosis, which also have a high MDR-TB burden and incidence of TB-HIV co-infection.[20] A qualitative study[30] conducted by IOM and the Ministry of Health in 2012 revealed that the majority of foreign migrant workers working in large construction sites from China and India belonged to low socio economic strata where the risk of TB and MDR-TB were generally higher.[31] There is currently no requirement for a person entering Sri Lanka for purposes of long stay/residency to undertake a health examination, and certainly no testing of these persons TB status.

Models for TB Screening criteria for migrants

In the development of a framework for migration health assessment for in-bound migrants, one of the main challenges would be to identify the best suitable model for Sri Lanka. The existing TB screening models in other countries among migrants vary widely.[7] In the Netherlands, migrants from countries with high prevalence of TB who intend to stay longer than 3 months undergo obligatory screening by chest X-ray at entry. This is followed by a half yearly voluntary screening for 2 years.[32] Under the United Kingdom Tuberculosis Detection Programme, long-term visa applicants for duration of six months or longer from a list of 67 countries with a high incidence of TB undergo pre-departure screening for TB.[33] All applicants undergo a chest X-ray examination followed by sputum smear examination if the chest X-ray shows signs of active TB. The recent introduction of sputum culture examination into the UK TB Detection Programme has led to a three-fold increase of case detection.[34]

In contrast to UK, the health screening of non citizen entrants to Australia is regulated less by public health law than by migration law.[35] Currently, health screening is managed through a complex visa system. Except for a few categories (for example, diplomatic visas and certain emergency humanitarian visas), the nature of the diagnostic tests to be undertaken vary according to the length of stay in Australia, the category of visa sought, and the risk status of the country from which the visa is applied. Applicants from countries deemed to be "very high risk", and who intend to stay over three months must fulfil the health criteria. Any applicant who wishes to stay over 12 months, and those seeking long term residency must likewise undertake a compulsory health screening process prior to departing their country of origin.

As a labour receiving country, Taiwan commenced health screening of blue collar foreign labourers where applicants are required to submit a certification of health to apply for an entrance visa. Those workers entering the country then undergo a health examination within three days of entry to country, and at regular intervals (at 6, 18 and 30 months) to ensure eligibility for work.[36] Applicants who fail the repeat assessment would be revoked of their employment permission.
The health assessment (HA) model adopted for foreign labour migrants to many Gulf States such as Saudi Arabia, Kuwait and Bahrain share similar pre-departure and post-arrival assessment models, with some upholding a policy of deportation of workers based on TB and HIV status.[37]

TB screening for inbound migrants may take place in one of three locations: at pre-departure phase, on arrival or at a defined period during the post-arrival phase.[7] Pre-departure screening that occurs at the country of origin has several advantages. Since the immigrant receives screening before departure, if detected positive for TB, he/she will receive treatment in a familiar environment. The advantage to the receiving country is that pre-departure screening prevents the

travel and arrival of individuals with active or infectious disease. The lack of quality-assured medical examination, laboratory tests, fraudulent documents or substitution are major challenges in establishing pre-departure screening programmes. Countries such as USA, Canada, New Zealand and Australia obtain support of IOM for undertaking health assessment processors, as well as utilise a network of trained "panel physicians" for pre-departure medical screening.[13] Beyond the requirement of high quality TB diagnostic facilities and time-efficient processors, pre-departure medical screening also requires investment in fraud prevention in the HA process.

Screening of migrants immediately on-arrival at points of entry (such as airports) from high burden TB countries provides a second option. However, the experience from UK has shown that TB assessment of migrants at point of entry using radiological assessment proved challenging to implement and resulted in a very small detection threshold of active TB cases.[13] The third option is post-arrival screening where the screening occurs within a few weeks of migrant arriving in the receiving country through the maintenance of a quality TB screening service with supportive facilities for TB treatment and referral care. When the consequences of untreated TB patients (as well as MDR-TB and TB-HIV co-infection) are taken into account, the receiving countries should consider it as an investment rather than a burden.

The median interval for the presentation with TB after arrival to host country was reported to be 2 years in Spain,[38] with a range of 2 to 5 years in the United States.[39] Activation of latent TB infection has also found to be a common cause of TB among immigrants.[6,38] The risk of TB transmission is also high during the first two post-migration years.[40,41] Repeated visits to the country of origin by the migrant individual during his/her stay in the host country further increases the risk. Therefore, TB screening should not be limited for screening at arrival.[15] Ideally, screening immediately after arrival to the host country should be followed with repeated assessments, for example, on an annual basis that links with existing resident visa renewal requirements.

Existing migrant screening programmes target detection of active TB disease but most programmes extend this to include screening for latent TB infection (LTBI). The prevalence of active TB among refugees from high-incidence countries migrating to low-incidence countries was less than 1% but latent infection with chest radiographic abnormalities is higher, ranging from 3-5%. Latent infection without chest radiographic abnormalities is even higher with prevalence estimates between 35-42%.[42] Since latent TB infection is not an indication for treatment under the National Programme, the objective of a migrant TB screening programme in Sri Lanka can be limited to detection of only active TB disease. Despite its low sensitivity (59-82%) and specificity (52-63%) in the detection of active pulmonary TB,[42] CXR remains the main screening tool in almost all migrant TB screening programmes. Interpretation of radiological findings is commonly subject to errors. Expertise and experience of interpreters and the number of interpreters affect interpretation. To overcome this limitation, standardization of interpretation is recommended and can be done by digital CXR facilities which allow centralized interpretation by experts with extensive TB experience.[7] To overcome the low predictive values of CXR in diagnosing active pulmonary TB, sputum smear examination for acid fast bacilli and culture when CXR is abnormal and/or the migrant is having other signs and symptoms suggestive of TB should be undertaken. Conventional TB culture in Lowenstein Jensen (LJ) media takes two to eight weeks on average to produce results and has no value in migrant screening programmes. Liquid

culture is rapid and should be the method of choice. All TB isolates should be followed up with drug sensitivity testing. Rapid methods such as line probe assays should be offered rather than conventional sensitivity testing which takes several weeks to produce results. Xpert-MTB Rif, the molecular testing method for sputum, provides results in two hours for TB as well as for rifampicin resistance which is a proxy indicator for MDR-TB.[43] Xpert-MTB Rif is ideal for migrant TB screening where rapid results are required and for testing individuals from high MDR-TB settings. Whilst such genomic technologies are powerful, cost implications may prohibit its use in district health systems. It is therefore recommended that interventional research, feasibility and costing studies be undertaken to evaluate its use, if indeed Xpert-MTB Rif is to be utilized for routine screening purposes in Sri Lanka.

Ensuring a rights based and public health approach to TB screening

Poverty and low socioeconomic status as well as legal, structural and social barriers prevent universal access to quality TB prevention, diagnosis, treatment and care.[3] Diminishing peoples' vulnerability to TB is integral for the promotion of their "right to health".[4] In order to reduce the global TB burden, the importance of continuous free access to screening, diagnostics and treatment for TB has been emphasised.[5] TB control is therefore a global responsibility, with the successful treatment of a person benefiting both host and migrant sending countries. Migrant health assessments should therefore be based on principals of a humane, rights-based approach to health. Irrespective of citizenship and place of testing, any person detected as having active TB should be provided and afforded access to effective TB treatment and care. This approach promotes TB screening for migration as a force of global public health good.[44]

Despite the public health rhetoric, the question of 'who pays' for screening and subsequent treatment of positive cases of non-citizen residents at country level (especially considering high costs of treating MDR-TB), has been a limiting factor for ensuring universal access to TB treatment in many health systems. Usually, the resident visa applicant, migrant worker or the employer of the migrant pays for the costs of health screening prior to entry. If the applicant is found positive for TB and meets the non-admissibility criteria they are disallowed to travel. It is unclear if there are formal requirements/measures taken to facilitate those that 'fail' their medical assessment within routine health systems. A number of those who have passed the medical screening develop symptomatic TB after their arrival (due to the latency feature of the disease). As described earlier, some countries that practice compulsory post-arrival screening deport such individuals. In Taiwan, the Government has planned to accommodate additional TB cases diagnosed among immigrants for both ambulatory and in-ward TB care.[36] In Thailand, even irregular migrants are provided with a health insurance card which also gives them access to free DOTs treatment.

Linking immigrant health assessments to health systems and ensuring rights based approach

A 'missing agenda' in immigration health assessments appears to be the lack of meaningful linkages to national health systems. There is a need to move away from the narrow approach of viewing the health assessment as an 'immigration requirement', to utilizing it as an instrument/mechanism for global public health benefit. This necessitates a strengthening of

coordination and linkages between health assessment providers (usually private sector) and national TB control programmes. Technical cooperation between labor sending and labor receiving countries on joint strategies and information sharing on TB screening and control of migrants (especially large volumes of migrant workers from Asia to Middle East) are needed. Joint research among such countries may also facilitate the development of improved screening algorithms and the evidence base for diagnostic test performance in real world settings.

Enabling policy and legal framework for inbound health assessment in Sri Lanka

Since 2010, the Government of Sri Lanka, with the technical support of IOM, established an inter-ministerial mechanism to address the migration health challenges faced by the changing migration flows. The World Health Assembly Resolution 61.17 on the Health of Migrants provided a platform to initiative the discourse on the health needs and vulnerabilities of migrants and mobile populations. A series of national research studies were commissioned to gain better understanding on the health risks and vulnerabilities of each migrant category, and to inform policy and practices.[45]

Sri Lanka's 'National Migration Health Policy' was launched in October 2013 after a four year inter-ministerial process. The policy also recognizes the need to provide accessible, effective and affordable primary health care services in a way that will not be a burden in any manner to the country's free health services.[23] The policy ensures all inbound, outbound, internal migrants (and their families), irrespective of their legal status, are to be provided health care in a dignified and humane manner. Safeguards to public health of the host population are also articulated. Thus, the policy provides a conducive framework to pursue the above mentioned recommendations on establishing a health assessment of inbound migrants with not only rights based but a public health and evidence based approach. This conducive domestic legal framework can be harnessed in designing the inbound health assessment model.

A potential model for health assessment for long-stay resident visa applicants for Sri Lanka

Current immigration procedures and practice in Sri Lanka require a prospective resident visa applicant to arrive in Sri Lanka on an 'entry visa' and then apply for the resident visa after obtaining necessary endorsement from the relevant line-Ministry. A health assessment model therefore needs to be performed on a post-arrival basis where screening for tuberculosis needs to be carried out within the first week of arrival. A proposed algorithm to be followed may involve undertaking chest radiography by a qualified radiologist and if TB is suspected, three consecutive sputum samples (taken over two consecutive days) can be used for microbiological testing (liquid culture) and/or Xpert analysis. In order to ensure efficient and effective Health Assessment processing for the large applicant caseload, a dedicated centre is preferred. Those confirmed with TB diagnosis may opt to undertake supervised DOTs treatment at country level, or choose to return to their country of origin. The onus on the health authority is however to ensure an effective, efficient and migrant sensitive screening process and provide information to the immigration authority for visa issuance and communication to the applicant on follow up steps. Such methods are well described and used by many labor receiving countries implementing on-arrival health assessments.[3] The details of the model are subject to current technical development and will be published separately.

Conclusion

Drawing upon epidemiological and program data from Sri Lanka's National TB program, this paper contends that importation of TB through inbound migration routes have been a largely neglected strategy in TB control. Establishing a migrant sensitive health assessment model for long-stay resident visa applicants may be an effective strategy to mitigate such threats as MDR-TB which has already occurred through such routes. With a growing trend in inbound migration, Sri Lanka can embrace the lessons outlined in this paper to formulate a health assessment model that embraces not only an evidence based public health approach but also a *rights based* approach to immigrant TB screening. As country that has recently launched a dedicated national level policy on protecting health of migrants, Sri Lanka has an ideal opportunity to develop a model that embraces such elements for global public health good. More generally, migrants need to be included in national and global TB prevention and control strategies. For the achievement of global health goals, it is indispensable that migrants' health is addressed in the post-2015 UN development framework.

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