

---

CONFERENCE PROCEEDINGS: 6TH ANNUAL TB EXPERTS COMMUNITY MEETING  
“GETTING TO ZERO BY ADDRESSING LATENT TB IN ASIA”

---

Hanoi, 4-5 August 2018



Sponsored By:



## Executive Summary

The TB Experts Community Meeting was held on 4-5 August 2018 in Hanoi, Viet Nam. During this conference strategies for ending TB were discussed with focus on addressing the seedbed of latent tuberculosis infection. There was consensus among all participants that community involvement must increase in order for tuberculosis prevalence to decrease. Participants also agreed on the need for stronger emphasis on preventive care, especially among contacts of active tuberculosis patients, in high-burden areas, and among other individuals at high risk of developing active tuberculosis. The Stop TB Partnership Japan opened the conference followed by a warm welcome from the Viet Nam Ministry of Health and the Viet Nam National TB Control Programme. Both reiterated Viet Nam's commitment to end tuberculosis and serve as pathfinding country for the Asian region and high tuberculosis burden countries around the world. Both the keynote speaker and Stop TB Partnership representative emphasized the need for comprehensive intervention to search, treat and prevent all – latent and active – forms of tuberculosis. The WHO representative stressed the importance of prevention as part of the End TB Strategy and the foundation for country-level implementation laid by the updated and consolidated guidelines. In a transition from policy to practice, representatives from Viet Nam, South Korea, Pakistan, China, Taiwan and Indonesia shared country-level aspirations and experiences about intensified interventions to address latent tuberculosis infection in the various countries. These presentations informed two subsequent lively panel discussions in high and low tuberculosis burden settings.

On the next day, industry representatives shared ongoing developments and new research for rifapentine and interferon gamma release assays sparking engaged discussions on the role of industry in facilitating greater uptake and broader implementation of comprehensive actions. Following these presentations, conference participants broke out into groups to discuss enablers and barriers to scale-up for comprehensive interventions against active and latent tuberculosis in their respective country settings. At the end of an intensive two days of discussions, all participants renewed their commitment to return to their communities and actively promote comprehensive actions to end TB in Asia with a stronger focus on integrated intervention against latent and active tuberculosis.

## Background

Many of history's greatest successes in the fight against preventable diseases have been characterized by momentous shifts in people's belief of what is possible. For too long, the world has believed that ending TB is not possible, and that business as usual will suffice. We know that neither is true and that we need a paradigm shift now more than ever. The End TB Strategy reflects this paradigm shift and must be implemented with urgency and vigor.

In 2018 World Health Organization (WHO) initiated a momentous shift by publishing the updated 'Guidelines on the Management of Latent TB Infection (LTBI)'. The new WHO guidelines on LTBI consider the probability of progression to active TB disease in a specific risk group, the epidemiology and burden of TB, the availability of resources and the likelihood of a broad public health impact. Two fragmented recommendations have been made for the management of LTBI, which resulted in a number of guideline documents, posing a challenge to implementation. Therefore, several WHO Member States requested consolidated guidelines on LTBI management. Along with the End TB Strategy which has well-defined milestones and targets to assess progress. Both represent a historic opportunity to wipe out an epidemic that has been the cause of death, illness and suffering for millennia.

The Stop TB partnership Japan is proud to host the 6<sup>th</sup> Annual Asian TB Experts meeting, which was held in Ha Noi, Vietnam from the 4<sup>th</sup> to 5<sup>th</sup> August 2018. This year's meeting herald a new chapter in the global response to TB by bringing together low and high burden country representatives from Asia to discuss **Getting to Zero by addressing LTBI in Asia**. Regional and international experts will convene to identify and address the challenges and best practices that should be adapted in order to achieve the targets set by The WHO End TB Strategy.

In order for Asia to harness growing momentum behind the idea of bringing the global tuberculosis (TB) epidemic into the elimination phase, focus on key cities by will be paramount. The Zero TB initiative was formed in 2014 with a particular focus on local government participation and catalytic successes in multiple locations. To achieve this goal, the Project acts as a platform for association and mutual assistance between comprehensive programs ambitiously tackling TB in all its forms in specific, geographically designed areas.

**Overarching goal:** Provide a forum for international discussion of action needed to achieve standards for TB screening and prevention across Asia.

**Objectives:** Create a forum for the presentation and discussion of:

1. Identify best practices, challenges, and opportunities in the implementation and management of LTBI in Asia.
2. Review the landscape of research including ongoing clinical trials of LTBI treatments and new diagnostic tools.

## DAY 1

### Objective 1: Global overview of guideline updates

#### **Prof. Toru Mori: Conference opening and objective setting**

Professor Mori opened the conference with a brief welcome address during which he first thanked the Viet Nam Ministry of Health and National TB Control Programme for agreeing to host the 6<sup>th</sup> Annual TB Experts Community Meeting on Getting to Zero by Addressing Latent TB in Asia. Professor Mori reflected on Japan's efforts to reduce tuberculosis prevalence over the past several decades, reducing prevalence from over 200/100,000 in 1965 to 30/100,000 in 2000 and down to less than 15/100,000 in 2015. Within these efforts, he emphasized the need to political commitment and comprehensive action. He particularly stressed that comprehensive action must entail treating all forms of TB, including latent TB infection. This is only feasible through multi-sectoral and broad stakeholder engagement. Closing with that statement, Prof. Mori welcomed all participants to the conference, reiterated the objectives of the meeting and once again thanked the participants for their attendance and the authorities in their role as host.

#### **Prof. Nguyen Thi Giang Huong: Welcome speech from Viet Nam Ministry of Health**

Opening the two-day conference with a warm welcome to Vietnam on 4 August 2018, Professor Nguyen Thi Giang Huong, Director General for International Collaborations, Viet Nam Ministry of Health, presented the current situation on tuberculosis in Viet Nam and globally. Prof. Huong introduced Vietnam as one of the leading countries in controlling tuberculosis and having achieved the three related Millennium Development Goals. She further elaborated on the central government's national strategy for tuberculosis control up to 2020 with a vision to 2030. Prof. Huong indicated that Viet Nam has been proactive in working towards ending tuberculosis with support from the World Health Organization (WHO) and from the Global Fund. Through this support, the National TB Control Programme (NTP) of Viet Nam has continuously improved patient support, treatment, and prevention of TB. Prof. Huong believed Vietnam has the potential to serve as a model for ending tuberculosis in Asia and globally. In this role, Viet Nam NTP will promote comprehensive treatment for all forms of tuberculosis and encourages the treatment of LTBI in addition to treatment of active tuberculosis. In conclusion, she stated that routine treatment of LTBI must be expanded worldwide to end TB.



*This meeting was made possible by the provision of an unrestricted grant to Stop TB Japan by Sanofi-Aventis and Qiagen.*

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

**Prof. Nguyen Viet Nhung: Welcome from Vietnam's Tuberculosis Control Programme (NTP)**

Introducing the Viet Nam NTP, Prof. Nguyen Viet Nhung, Director of the Viet Nam National Lung Hospital, addressed current issues with tuberculosis treatment in the country. Prof. Nhung observed that tuberculosis was diagnosed 136 years ago, yet, millions of people get new infections to tuberculosis every year, and millions still die. There are billions of people in the world currently infected with tuberculosis. He stated not enough attention has been paid to tuberculosis infection treatment. During the a recent meeting between WHO Global TB Programme and Viet Nam NTP, three main strategies were reiterated to eliminate tuberculosis: preventing infection, treating latent tuberculosis, and treating active tuberculosis. To end tuberculosis, Prof. suggested the need for four types of innovation: innovation of thinking, technology, application, and investment. Prof. Nhung argued everyone in the community must understand that tuberculosis is curable, and eradication of the disease is feasible. He urged health professionals to also pay close attention to those with high risk of infection as well as those with respiratory infections, asthma, and smokers. According to Prof. Nhung, there should be routine annual check-ups for tuberculosis, regardless of health. National and international awareness on this issue must expand.



6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018



6

**Prof. Richard Chaisson: Keynote address**

Dr. Chaisson from Johns Hopkins University delivered the keynote speech on tuberculosis infection. He compared defeating tuberculosis to killing the Greek mythological Nemean Lion. In his words, there is no one way to defeat tuberculosis; multiple strategies must take place in order for effective progress. Dr. Chaisson then reiterated the global target of reducing TB prevalence to one per million people and deaths to one per ten million population. He emphasized the need to employ comprehensive approaches to tuberculosis control: “Find TB, Treat TB, Prevent TB,” calling it a platform for controlling tuberculosis globally. For finding tuberculosis, Prof. Chaisson suggested more action: going to people’s homes to collect sputum, rather than just waiting at health clinics for people to come. Through active case finding of tuberculosis, treatment becomes more efficient and immediate. According to Prof. Chaisson, preventing tuberculosis is equally important as treating active TB. In homes with placebo treatment for tuberculosis infection rates lowered as patients were more cautious about spreading the disease with a 15% difference in households with preventive therapy. Dr. Chaisson then presented new findings on one-month rifapentine/isoniazid regimen for LTBI treatment that proved non-inferior to 9H standard treatment in people living with HIV. In summary Prof. Chaisson concluded, to defeat TB, it is necessary to attack from several angles, just like the Nemean Lion.

*This meeting was made possible by the provision of an unrestricted grant to Stop TB Japan by Sanofi-Aventis and Qiagen.*

**Dr. Suvanand Sahu: Paradigm Shift: What is required for Asia to achieve TB elimination?**

Dr. Suvanand Sahu from the Stop TB Partnership emphasized the global danger of tuberculosis and called on the necessity of a “Paradigm Shift” as presented in the Partnership’s Global Plan. First, Dr. Sahu addressed gaps between goals and actual progress on ending tuberculosis. Given the 90-90-90 targets stated in the Global Plan, he stated that 90% of all people with tuberculosis should be treated, yet only 61% are actually placed on treatment. Similarly, of all MDR-TB patients treated, 90% should complete treatment successfully, yet only 12% of all MDR-TB patients are successfully treated. Dr. Sahu presented a target of “FIND. TREAT. ALL. #ENDTB.” By 2022, he urged treatment to increase by 30 million by 2022. Currently, Dr. Sahu lamented the poor coverage of tuberculosis treatment. In order to eliminate tuberculosis, he stated, LTBI must be addressed alongside active tuberculosis. Simultaneously, treatment must be carried out using the Zero TB Initiative, also known as the STP Plan: “Search, Treat, Prevent.” Preventive therapy and case findings must increase in order to achieve the eradication of tuberculosis. Although the goal is ambitious, Dr. Sahu believed this achievement is feasible as modeled by the various examples from the US and Russia.

**Dr. Mase Sundari: WHO updated LTBI Guidelines 2018**

Dr. Mase from WHO presented the updated LTBI guidelines for 2018 and reviewed the risk of developing the disease along the cascade from infection to onset of active disease, but noted a higher prevalence among those with risk factors such as diabetes, illicit drug usage, recent infection, and HIV. Since such a small percentage of those infected are treated, Dr. Mase urged the all participants to mobilize their communities to engage more actively in LTBI management. By identifying reasons why LTBI diagnosis and treatment fail, Dr. Mase believed these issues can be more acutely addressed. As key barriers, she observed that tuberculin skin tests are inaccurate, not enough people are screened, and active tuberculosis must be ruled out first as an additional step to treatment of latent TB. She also noted that patients are less likely to take medication when they are asymptomatic and that only 41% of newly enrolled patients complete medication. Among people living with HIV, Dr. Mase emphasized that chest x-rays should be used to diagnose tuberculosis instead of sputum smears for more accuracy. Dr. Mase also mentioned the benefits of the weekly 12-dose regimen for adults and children two years and above in countries with high tuberculosis incidence. For this regimen, treatment completion can be defined as completing 11 out of 12 doses. According to Dr. Mase, research showed there is no risk of developing drug resistance unless the patient already had MDR-TB to begin with. In conclusion, Dr. Mase surmised that preventive treatment is feasible and scalable.

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

**Prof. Le Van Hoi: Zero TB Viet Nam**

Prof. Le Van Hoi, NTP's Deputy Manager put forward Vietnam's strategy towards ending the national tuberculosis epidemic. He acknowledged the main issue in treatment of LTBI that the relevant stakeholders do not sufficiently focus on prevention, but instead focus mainly on active TB treatment. He expressed that this attitude must change and introduced the Zero TB Viet Nam project that employs a new 5-step framework:

- Raise detection through community integration and systematic screening
- Improve timely and effective treatment through more sensitive diagnostic algorithm and tools
- Improve of adherence via social support and promote latent TB infection treatment
- Raising notification from non-NTP healthcare providers
- Prepare for scale up through evidence generation, dissemination and policy translation

The main goal of this project would provide cost effective model for sustainable nationwide adoption to end tuberculosis. In order to achieve this goal, more active case finding activities via chest x-ray screening are needed. Prof. Hoi also emphasized the importance of screening elderly and high-risk groups. Equally important, intensified and integrated LTBI management is required to combat the epidemic. With regard to testing for TB infection, Viet Nam mainly employed TSTs in the past, but Prof. Hoi encouraged a more widespread usage of IGRA due to its accuracy gains. Prof. Hoi expressed Viet Nam's next steps that should include providing more testing and expecting to implement 3HP.



*This meeting was made possible by the provision of an unrestricted grant to Stop TB Japan by Sanofi-Aventis and Qiagen.*



**Dr. Hee Jin Kim: TB Free Korea Project**

Dr. Hee Jin Kim, director of the Korean Institute of Tuberculosis, presented the success of tuberculosis treatment in South Korea through the TB Free Korea Project. Treatment completion rates were very high at 83%-88%, but could still be improved to reach the goal of 90%. Despite this, Dr. Kim stated that Korea has succeeded with this project. Some aspects of the program included a registration system, similar to the US system of requiring children to have TB screening before 1<sup>st</sup> grade. Dr. Kim highlighted the importance of a legal framework; all health care workers, maternity units, teachers, and educational units need screening and treatment. Dr. Kim quoted from a recent study that found only 2.1% in a sample of first graders testing positive for latent tuberculosis. As a final point, Dr. Kim stressed to definitely treat LTBI in areas of high risk, consider treatment in moderate risk areas, and approach with caution for areas in low risk.

**Dr. Aamir Khan: Creating Islands of Elimination: Zero TB Karachi**

Dr. Aamir Khan, Executive Director of Interactive Research and Development, presented the Zero TB Karachi project, a seminal initiative that may offer a blueprint for eliminating tuberculosis in Southeast Asia. Dr. Khan viewed Zero TB not just an intervention, but as a social movement involving the community and all individuals. As a social movement, Dr. Khan presented participants in the community getting involved to reduce social stigma reduction, ranging from prominent figures driving the Ao TB Mitao slogan to 40,000 schoolgirls helping with screening for persons with suspected TB in the community. The project reportedly is set to have activities in each of the four provincial capitals by 2020. Dr. Khan stated this program tries to obtain private and public support, as well as support from NGOs. Public health facilities have set up screening sites at all outpatient departments, with two specific sites for latent TB. In private sectors, there have been active case finding activities, mobile X-rays camps, and expanded GeneXpert deployment. As part of their activities, the project has verbally screened 2.9 million individuals and identified 7,500 tuberculosis cases. Dr. Khan once again emphasized that preventive therapy programs should not be a standalone intervention. Instead, active case findings should link with the preventive therapy programs.

**Dr. Wang Lixia: TB Control in China**

Dr. Wang Lixia, presenting on behalf of the China CDC, followed suit and outlined the success of the tuberculosis control efforts in China. In particular, Dr. Wang noted that TB incidence in China declined at more than twice the global rate since 2000. Dr. Wang observed China has reached the tuberculosis target five years early and continues to progress towards ending TB, while maintaining high treatment success rates of around 95%. Dr. Wang also indicated that research on tuberculosis in China, both international and domestic, has increased in recent years and that diagnosis and treatment standards have been updated to classify LTBI as a new standard patient category. Additional efforts to improve the tuberculosis burden in the country include efforts to reduce the economic burden on TB patients and ensure access to free annual physical examination for every single person. To actively combat tuberculosis in China in the future, Dr. Wang identified the need for a (better) vaccine, a reduction in the MDR-TB epidemic, and increased emphasis on preventive treatment. Additionally, to improve the

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

system, Dr. Wang believed consolidation is necessary, alongside improved accessibility and quality, and essential supports for patients and service providers.

**Prof. Anita Chan: TB in Taiwan**

Professor Chan shared the current progress of tuberculosis control in Taiwan, illustrating the success of the country's efforts. From 2005-2017 tuberculosis incidence had declined from 17,000 to less than 10,000, particularly subsequent to the inclusion of TB services within Taiwan's universal health coverage schemes. Today's TB epidemic in Taiwan is concentrated among the elderly and Dr. Chan noted that reaching the 2035 goal for those older than 45 will be difficult. While tuberculosis rates among PLHIV in Taiwan are much higher, the absolute number of cases has continuously declined. A key legislative change was the mandatory reporting of tuberculosis. The Taiwan CDC coupled this notification mandate with the UHC, where since 1997 TB cases not reported in the registry would not trigger reimbursement. Subsequently, a web-based system for tuberculosis reporting was instituted nationwide. Prof. Chan explained the relationship between NTP and NHI, which planned to automatically link cases to national TB Case Management System in 2018 via RFID card. In the end, Prof. Chan noted five key elements to end TB:

1. Good case holding and DOTS
2. Strong political commitment
3. Focus on contacts and children first
4. Expansion step by step
5. Evaluation and monitor

**Dr. Erlina Burhan: TB elimination in Asia/ MDR TB**

Dr. Erlina Burhan, Vice Chairman of TB Working Group from Indonesia, underlined the current flaws in treating tuberculosis globally of continuing to do the same thing and expecting different results. Dr. Burhan noticed the current optimal rate of TB incidence decline at an average of about 10% annually with new tools, new vaccines, new treatment regimens and TB prophylaxis as opposed to the current global annual decline of 2%. At this rate, global tuberculosis elimination achievement will not occur until 2270 she stated. Since 2007, WHO endorsed seven new diagnostic methods, with six still in development. There are an estimated 110,000 MDR-TB cases among notified pulmonary TB cases, but only 35,000 are diagnosed and only 32,000 are started on treatment, Dr Burhan bemoaned, suggesting continuing the same path will neither be productive nor successful. The main levers to rectify this issue, according to Dr. Burhan, is to introduce new, feasible and accessible treatments and diagnostic tests. Shorter regimen and additional new drugs besides bedaquiline, delamanid, and proteonamid are needed. Two-month treatments should be standard as six-month treatments are much too lengthy. Treatment of LTBI equally needs to be implemented and efficient vaccines are required. Most importantly, Dr. Burhan urged social protection and funding would need to increase in order for the execution of these strategies.

**Panel discussion on country experiences on the management of LTBI. Identification of best practices, challenges, solutions, and opportunities.**

**Low-burden country panel**

**Moderator:** Richard Chaisson (USA)

**Panelists:** Justin Denholm (Australia), Chi Chiu Leung (Hong Kong), Cynthia Chee (Singapore), Seiya Kato (Japan)

**Question from moderator:** What is your policy on contacts? How do you prioritize? How do you treat child contacts? How do you evaluate them?

- Japan: We give treatment from six to nine months for contacts with LTBI. We recommend using both the IGRA and TST.
- Hong Kong: We focus on contacts of smear positive index cases. For testing of latent TB infection, we are using TST and IGRA, but patients have to pay extra for the latter. About 5% opt to do so.
- Australia: A contact is anyone who has more than 8 hours of contact with tuberculosis daily, especially those who have more concentrated recently or those who have had prolonged contact. Children under the age of five have higher risk of progression to active disease, as well as significantly older population groups. However, I believe we should have broader inclusion criteria for testing.
- Singapore: Screening is a national policy for pulmonary health. Nursing care, prisons, and schools are high-risk areas. For those contacts five and over, we treat with nine months of INH.
- USA: Prof. Chaisson commented that in the US, 4R is used universally as no one uses INH anymore. Access to rifapentine continues to be a problem, which will hopefully be changed soon. He also commented that rifampin is convenient because patients may receive treatment regardless of whether or not they are infected. The treatment length does not matter as much.



**High-burden country panel**

**Moderator:** Masae Kawamura (USA)

**Speakers:** Erlina Burhan (Indonesia), Aamir Khan (Pakistan), Phalin Kamolwat (Thailand), Nhung Nguyen Viet (Viet Nam), Srikanth Tripathy (India), Camillo Roa (Philippines)

*This meeting was made possible by the provision of an unrestricted grant to Stop TB Japan by Sanofi-Aventis and Qiagen.*

**Question from moderator:** What are some steps to take to reduce tuberculosis infection rates? What is the biggest challenge in your country for preventative treatment?

- Pakistan: The number of those infected or in close contact with the disease is too high. 1.8 million people are infected yearly. We should consider mass screening and treatment for LTBI in certain high risk populations such as contacts and slum dwellers. We need comprehensive measures for testing and treating both active and latent TB.
- Indonesia: We need more people screened for LTBI. Diagnosis is the big challenge. We need to prove infection and rule out active tuberculosis since we are a high burden country. To test the infection, tuberculin tests are not always available and IGRA is expensive. Even after diagnosis, it takes time to enroll patients onto treatment.
- Philippines: The linkage with private practitioners must be strengthened. Of active tuberculosis cases, 40% are still missing and many are suspected to be in the private sector. Another problem is that parents do not want their children to go through treatment for the active disease unless absolutely necessary and clear that it is TB. This makes it even harder to convince them to treat LTBI.
- Thailand: We must educate the population and let them know why tuberculosis treatment is important. This applies mainly to active tuberculosis, so building awareness for treatment of latent TB infection will be even more difficult. Another obstacle are the school contacts, which spread quickly and are hard to reach and because of stigma within schools and communities.
- India: We must consider what happens in the primary health care facilities like the clinics. The issue is the high number of people that would need treatment.
- Vietnam: We have 30 million persons with latent tuberculosis infection that would need treatment, so the burden is large. A great challenge is using tuberculin for testing as supply is short and the test is not very accurate.
- Comment from the moderator: Getting rid of the term “latent” in LTBI is essential so LTBI is more urgent for treatment. The goal to eliminate tuberculosis is set at 2050, not 2270. The biggest obstacle is ignorance about LTBI. They do not know that it is preventable, why treatment is necessary, and the difference between latent and active tuberculosis.
- Comment from audience member Prof. Richard Chaisson: Clinical screening is enough for diagnosis for child contacts. This eliminates the problem of needing tuberculin and IGRA.



## Day 2

### **Dr. Brigitte Demers: Rifapentine and what the future holds**

Dr. Demers from Sanofi introduced the history of rifapentine and the community's shifting interest from commercial product to academic area of interest. She then presented several studies that culminated in regulatory approval such as the PREVENT-TB/TBTC-S26 study establishing non-inferiority with 9H and the Soweto study the demonstrated non-inferiority to 6H in PLHIV. Dr. Demers reviewed the implementation of 3HP in countries with drug registration such as Taiwan and cited studies that found superior completion rates compared to 9H at comparable tolerability. Dr. Demers presented ongoing development efforts at Sanofi for new formulations such as an RPT/INH fixed-dose combination and dispersible 100mg (and 20mg) tablets for treatment of children. Other research partnerships are aiming to address some of the outstanding gaps involving pregnant women, children <2 years, PLHIV on ART (particularly involving dolutegravir) and self-administered treatment. Future studies also include periodic 3HP for PLHIV, expansion of the 1HP finding in PLHIV and use of RPT in the treatment of active TB. Dr. Demers admitted Rifapentine is an old drug, yet argues it could still be an effective drug. Partnership and funding is necessary for effective implementation. She further addressed concerns from the audience regarding pricing to state that GDF prices have been reduced from \$72 to \$45 per patient, and that individuals of Asian descent might have higher prevalence of side effects than those of Caucasian descent do.

### **Dr. Masae Kawamura: Ending TB: what will it take?**

Dr. Kawamura opened her presentation with a reminder of the historical virulence of tuberculosis and the passiveness with which current strategies approach tuberculosis diagnosis and treatment. In agreement with prior speakers, she also emphasized the need for comprehensive action through models such as the Zero TB, Search-Treat-Prevent approach and particularly stressed the need of prioritized screening for better case finding and prevention as TB is not evenly distributed. Dr. Kawamura stated as a concept, islands of elimination are powerful, especially in populated where spread of patients differs and that prioritization rid the US of tuberculosis, not extensive innovation. Dr. Kawamura reflected on the progress already made with the reduction in diagnosis turnaround time from 6 weeks to 2 hours advancing from culture to PCR. Dr. Kawamura further asserted that on the diagnosis of TB infection we have made similar progress with the development of IGRA and their relative benefits over TST. To execute the plan of ending TB, Dr. Kawamura stated that focus should heavily base on recent contacts and high-risk individuals, such as those exposed to school outbreaks, nursing outbreaks, prison outbreaks, and diabetics and HIV patients. With regard to LTBI treatment, Dr. Kawamura reiterated that although people do not like to treat individuals who are not sick, LTBI treatment is essential for reducing the epidemic and that it would not cause drug resistance. Since LTBI treatment initiation is often challenging, an accurate test is essential. Dr. Kawamura opined that it could be possible to cut waste and immediately treating high-risk patients. However, she suggested this strategy is not efficient nor moral: toxicity would be unnecessary and treatment could cause harm.

### **Discussion Group 1**

Among the first discussion group members, the main question discussed involved the opportunities that are applicable to low burden countries to increase case findings. In general, except for the US, regular screenings, with employee chest x-rays were standard. Focus increased on migrants, health care workers, and high-risk areas such as prisons. The US currently does not offer annual chest X-rays anymore. Contact investigations were also common, along with IGRA tests. The group indicated to prioritize active tuberculosis treatment with focus on active case finding and gave mixed responses on diagnosing and treating LTBI.

### **Discussion Group 2**

During the second discussion, the focus centered on more proactive case findings within ones country. All participants agreed that their countries needed more community involvement, with particular focus on high-risk individuals and high-burden areas. Also agreed was that evaluation gaps needed to diminish. The group suggested inclusion of tuberculosis as part of national health insurance. Disagreements occurred when discussing preventive therapy for risk groups. Some argued that the prophylaxis strategy would decrease tuberculosis transmission effectively, creating herd immunity. However, others countered the claim by advocating for the right of the patients, not wanting to increase unnecessary toxicity with additional medication.

### **Discussion Group 3**

The third discussion group considered the past challenges and successes of active case finding. Across countries, X-rays are preferred, however, they are too expensive and there are not enough qualified radiologists to read them. There are still setbacks involving social stigma around tuberculosis. Older patients have high mortality rates in Thailand because they come too late into the service. Often, evaluation and treatment gaps occur with immigrants because some may be illegal. In the Philippines, the same problem presents because of access barriers to public health care for select patient groups. Lastly, this discussion group agreed that there is greater need for patient education and must implement more active tuberculosis screening activities.

### **Discussion Group 4**

Emphasizing on the social aspect of treating tuberculosis, the following group communicated concerns about social awareness about the disease. The group mentioned social stigma, causing a gap in active case finding. As such, the group agreed that greater efforts for removal of this obstacle are essential. Across the board, the group further concluded that funding for active case finding needs to increase, as well as training for healthcare providers as well as general awareness building and advocacy within society.

**Discussion Group 5**

The fifth discussion group considered the current evaluation gaps in active as well as latent case finding. According to the group, the algorithm for household screening is present, but the implementation is varied and problematic. The group suggested using four-month rifampin regimen for LTBI treatment in high burden areas. In addition, new employees should require office screenings, hoping to close case finding gaps. The group also mentioned many patients were lost due to failure of follow-ups.

**Discussion Group 6**

Along the vein of current issues in tuberculosis treatment, the final discussion group listed their concerns about barriers to reaching the 2030 goal. Human resources are a challenge. IGRA is still too expensive for the people in Vietnam. TST are also available from the free market, but health insurance does not cover the entire costs for the test. Active tuberculosis and LTBI are also treated unequally as the health system and the patients do not prioritize preventive therapy. The government also does not provide enough subsidies for TSTs or chest x-rays. The group hopes that the integration of community health and social workers can be a way to cope with the increased burden of latent and active tuberculosis cases once LTBI interventions are scaled up programmatically.

## Annex I: Conference agenda

### Day 1

Saturday, 4th August		
08:00-08:30	Registration	
08:30-08:45	Welcome and objective setting	Toru Mori
08:45-09:00	Welcome to Vietnam from Ministry of Health	Health Ministry Leaders
09:00- 09:15	Welcome from Viet Nam TB Control Program	Nhung Nguyen Viet
<b>Objective 1: Global overview of guideline updates</b>		
Co-Chair: Abdul Razak and Nguyen Viet Nhung		
09:15-09:45	Key note speech on TB Elimination	Dick Chaisson
09:45-10:15	Paradigm shift: What is required for Asia to achieve TB elimination?	Suvanand Sahu
10:15-10:45	WHO Updated LTBI Guideline 2018	Mase Sundari
10:45-11:00	<b>Tea break</b>	
<b>Objective 2: Elimination in action: Examples from countries in Asia</b>		
Co-Chair: Justin Denholm and Luan Vo		
11:00-11:30	Zero TB Viet Nam	Le Van Hoi
11:30-12:00	TB Free Korea Project	Hee Jin Kim
12:00-12:30	Creating Islands of Elimination: focusing on Zero TB Cities (Durban, Pakistan)	Aamir Khan
12:30-13:00	TB Elimination in China	Wang Lixia
13:00- 14:00	<b>Lunch</b>	Oven D'or
14:00-14:30	Experience from Taiwan: Political commitment for LTBI diagnosis and treatment among TB contacts	Anita Chan
14:30-15:00	Drugs Resistance TB: New tools and approach to End TB	Erlina Burhan
15:00-15:15	<b>Tea break</b>	
<b>Objective 3: Panel discussion on country experiences on the management of LTBI. Identification of best practices, challenges, solutions, and opportunities</b>		
15:15- 16:00	Panel discussion: Perspectives on LTBI - Japan, Australia, HK, Singapore Moderator: Dick Chaisson	
16:00-17:00	Panel discussion: Perspectives on LTBI – Indonesia, India, Thailand, Vietnam, Philippines, Pakistan Moderator: Masae Kawamura	
17:00- 17:15	Wrap up	Toru Mori



6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

**Day 2**

<b>Sunday, 5<sup>th</sup> August</b>		
08:30-08:45	Welcome and review of the day 1 program	Toru Mori
<b>Objective 4: Industry role in TB elimination</b>		
Co-Chairs: Nick Paton and Hee Jim Kim		
08:45- 9:15	Rifapentine and what the future holds	Brigitte Demers
09:15-09:45	End Game of TB Elimination: What will it take?	Masae Kawamura
09:45- 10:00	Tea break	
10:00- 11:00	Breakout groups and report back: How are we going to achieve elimination in Asia? Using the Zero TB pillars (Search, Treat, Prevent) identify key program gaps. SONG DA – Group 1 SONG LO – Group 2 SONG THAO – Group 3 HEMISPHERES-Group 4 SONG HONG 1&2- Group 5 SONG HONG 1&2- Group 6	Nduku Ndunda
11:00- 11:45	Structured discussions: reflections on initiating and scaling LTBI programs	
11:45-12:00	Closing speech and vote of thanks	Toru Mori

## Annex II: List of Participants

Justin Denholm  
Australia  
Email: [justin.denholm@mh.org.au](mailto:justin.denholm@mh.org.au)

Richard Stapledon  
Australia  
Email: [Richard.Stapledon@sa.gov.au](mailto:Richard.Stapledon@sa.gov.au)

Peter Trevan  
Australia  
Email: [peter.trevan@mh.org.au](mailto:peter.trevan@mh.org.au)

Nduku Ndunda  
Australia  
Email: [Nduku.ndunda@qiagen.com](mailto:Nduku.ndunda@qiagen.com)

Tin Maung Cho  
Myanmar  
Email: [tmcho49@gmail.com](mailto:tmcho49@gmail.com)

Brigitte Demers  
Canada  
Email: [brigitte.demers@sanofi.com](mailto:brigitte.demers@sanofi.com)

Vanthy Ly  
Cambodia  
Email: [hou3@cdc.gov](mailto:houl3@cdc.gov)

Jiuwu Chen  
China  
Email: [franklin.chen@qiagen.com](mailto:franklin.chen@qiagen.com)

Wang Lixia  
China  
Email: [wanglx@chinacdc.cn](mailto:wanglx@chinacdc.cn)

Xin Shen  
China  
Email: [shenxin@scdc.sh.cn](mailto:shenxin@scdc.sh.cn)

Cheng Jun  
China  
Email: [chengjun@chinacdc.cn](mailto:chengjun@chinacdc.cn)

Qichao Pan  
China  
Email: [shenxin@scdc.sh.cn](mailto:shenxin@scdc.sh.cn)

Wang Qian  
China  
Email: [wangqian@chinacdc.cn](mailto:wangqian@chinacdc.cn)

Kaijin Xu  
China  
Email: [zdyxyukaijin@163.com](mailto:zdyxyukaijin@163.com)

Hui Zhang  
China  
Email: [zhanghui@chinacdc.cn](mailto:zhanghui@chinacdc.cn)

Wei Sha  
China  
Email: [shfksw@126.com](mailto:shfksw@126.com)

Lin Zhou  
China  
Email: [zhoulin@chinacdc.cn](mailto:zhoulin@chinacdc.cn)

Xiaojing Cui  
China  
Email: [cuixiaojing86@163.com](mailto:cuixiaojing86@163.com)

Xiaobing Zhang  
China  
Email: [zhangxiaobing@ipbcams.ac.cn](mailto:zhangxiaobing@ipbcams.ac.cn)

Adong Shen  
China  
Email: [shenad16@hotmail.com](mailto:shenad16@hotmail.com)

Lei Gao  
China  
Email: [gaolei@ipbcams.ac.cn](mailto:gaolei@ipbcams.ac.cn)

Yanyan Niu  
China  
Email: [niya.niu@qiagen.com](mailto:niya.niu@qiagen.com)

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

Isabelle Cieren-Puisseux  
France

Email: [isabelle.cieren-puisseux@sanofi.com](mailto:isabelle.cieren-puisseux@sanofi.com)

Sofia Imad  
France

Email: [sofia.imad@sanofi.com](mailto:sofia.imad@sanofi.com)

Chi Chiu Leung  
Hong Kong

Email: [ccleungpnc@netvigator.com](mailto:ccleungpnc@netvigator.com)

Alan Chi-kuen Chan  
Hong Kong

Email: [chikuen\\_chan@dh.gov.hk](mailto:chikuen_chan@dh.gov.hk)

Suvanand Sahu  
India

Email: [sahus@stoptb.org](mailto:sahus@stoptb.org)

Nguyen Viet Nhung  
Vietnam

Email: [vietnhung@yahoo.com](mailto:vietnhung@yahoo.com)

Ameeta Joshi  
India

Email: [ameeta.joshi@gmail.com](mailto:ameeta.joshi@gmail.com)

Srikanth Tripathy  
India

Email: [srikanthtripathy@gmail.com](mailto:srikanthtripathy@gmail.com)

Prijanti Soepandi  
Indonesia

Email: [priyantisoepandi@gmail.com](mailto:priyantisoepandi@gmail.com)

Diah Handayani  
Indonesia

Email: [diahzulfitri@yahoo.com](mailto:diahzulfitri@yahoo.com)

Telly Kamelia  
Indonesia

Email: [tellybahar@gmail.com](mailto:tellybahar@gmail.com)

Erlina Burhan  
Indonesia

Email: [erlina\\_burhan@yahoo.com](mailto:erlina_burhan@yahoo.com)

Fathiyah Isbaniah  
Indonesia

Email: [fey\\_emir@yahoo.co.id](mailto:fey_emir@yahoo.co.id)

Arya Wibitomo  
Indonesia

Email: [arya.wibitomo@sanofi.com](mailto:arya.wibitomo@sanofi.com)

Ida Parwati  
Indonesia

Email: [idaparwati2008@gmail.com](mailto:idaparwati2008@gmail.com)

Dyah Erti Mustikawati  
Indonesia

Email: [dyahmustikawati0@gmail.com](mailto:dyahmustikawati0@gmail.com)

Rina Triasih  
Indonesia

Email: [rina\\_triasih@yahoo.com](mailto:rina_triasih@yahoo.com)

Wiranata Khat  
Indonesia

Email: [wiranata.khat@ubcindonesia.com](mailto:wiranata.khat@ubcindonesia.com)

Heda Melinda Nataprawira  
Indonesia

Email: [heda\\_1155@yahoo.com](mailto:heda_1155@yahoo.com)

Nathan Tirtana  
Indonesia

Email: [tirtana.n@gmail.com](mailto:tirtana.n@gmail.com)

Nastiti Kaswandani  
Indonesia

Email: [nkaswandani@ikafkui.net](mailto:nkaswandani@ikafkui.net)

Seiya Kato  
Japan

Email: [kato@jata.or.jp](mailto:kato@jata.or.jp)

Toru Mori  
Japan

Jin Takasaki  
Japan

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

Email: [tmori-rit@jata.or.jp](mailto:tmori-rit@jata.or.jp)

Hidetoshi Igari  
Japan

Email: [hide306@gmail.com](mailto:hide306@gmail.com)

Sang Nae Cho  
Korea

Email: [raycho@yuhs.ac](mailto:raycho@yuhs.ac)

Jae Seuk Park  
Korea

Email: [jspark@dankook.ac.kr](mailto:jspark@dankook.ac.kr)

Kim Jusang  
Korea

Email: [kimjusang@catholic.ac.kr](mailto:kimjusang@catholic.ac.kr)

Sujong Lee  
Korea

Email: [sujong.lee@qiagen.com](mailto:sujong.lee@qiagen.com)

Abdul Muttalif Abdul Razak  
Malaysian

Email: [drrazak@gmail.com](mailto:drrazak@gmail.com)

Zamzurina Abu Bakar  
Malaysian

Email: [zamzurina76@yahoo.com.my](mailto:zamzurina76@yahoo.com.my)

Alvin Lee  
Malaysian

Email: [Alvin.lee@qiagen.com](mailto:Alvin.lee@qiagen.com)

Asmah Binti Razali  
Malaysian

Email: [dr.asmahrazali@moh.gov.my](mailto:dr.asmahrazali@moh.gov.my)

Regina Berba  
Philippines

Email: [rpberba@gmail.com](mailto:rpberba@gmail.com)

Roderick Africa  
Philippines

Email: [eaafrika@unilab.com.ph](mailto:eaafrika@unilab.com.ph)

Email: [jintakaji@gmail.com](mailto:jintakaji@gmail.com)

Takashi Kitoh  
Japan

Email: [takashi.kitoh@qiagen.com](mailto:takashi.kitoh@qiagen.com)

Hee Jin Kim  
Korea

Email: [hatchingbird@yahoo.co.kr](mailto:hatchingbird@yahoo.co.kr)

Unyeong Go  
Korea

Email: [unyngo@korea.kr](mailto:unyngo@korea.kr)

Sunny Park  
Korea

Email: [sunny.park@qiagen.com](mailto:sunny.park@qiagen.com)

Adeeba Kamarulzaman  
Malaysian

Email: [adeeba@ummc.edu.my](mailto:adeeba@ummc.edu.my)

Naiemy Binti Reffin  
Malaysian

Email: [drnaiemy@moh.gov.my](mailto:drnaiemy@moh.gov.my)

Noorliza Mohamad Noordin  
Malaysian

Email: [noorliza.noordin9@gmail.com](mailto:noorliza.noordin9@gmail.com)

Jack Yap  
Malaysian

Email: [Jack.Yap@qiagen.com](mailto:Jack.Yap@qiagen.com)

Aamir Khan  
Pakistan

Email: [aamir.khan@ird.global](mailto:aamir.khan@ird.global)

Camilo Roa  
Philippines

Email: [Camiloroa@yahoo.com](mailto:Camiloroa@yahoo.com)

Cynthia Chee Bin Eng  
Singapore

Email: [cynthia\\_chee@ttsh.com.sg](mailto:cynthia_chee@ttsh.com.sg)

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

Romy Ho  
Singapore  
Email: [romy.ho@qiagen.com](mailto:romy.ho@qiagen.com)

Refiloe Matji  
South Africa  
Email: [refiloem@urc-sa.com](mailto:refiloem@urc-sa.com)

Jann-Yuan Wang  
Taiwan  
Email: [jywang@ntu.edu.tw](mailto:jywang@ntu.edu.tw)

Yiwen Huang  
Taiwan  
Email: [jywang@ntu.edu.tw](mailto:jywang@ntu.edu.tw)

Pei-chun Chan (Anita)  
Taiwan  
Email: [pcanita.tw@gmail.com](mailto:pcanita.tw@gmail.com)

Anchalee Avihingsanon  
Thailand  
Email: [anchaleea2009@gmail.com](mailto:anchaleea2009@gmail.com)

Phalin Kamolwat  
Thailand  
Email: [phalin1@hotmail.com](mailto:phalin1@hotmail.com)

Tawee Chotpitayasunondh  
Thailand  
Email: [cctawee@gmail.com](mailto:cctawee@gmail.com)

Charoen Chuchottaworn  
Thailand  
Email: [charojnj@hotmail.com](mailto:charojnj@hotmail.com)

Nicholas Paton  
UK  
Email: [nick\\_paton@nuhs.edu.sg](mailto:nick_paton@nuhs.edu.sg)

Kimberly Green  
USA  
Email: [kgreen@path.org](mailto:kgreen@path.org)

Rachel Forse  
USA  
Email: [rachel.forse@tbhelp.org](mailto:rachel.forse@tbhelp.org)

Andrew Codlin  
USA  
Email: [andrew.codlin@tbhelp.org](mailto:andrew.codlin@tbhelp.org)

Dang Ngo  
USA  
Email: [dang.ngo@clintonhealthaccess.org](mailto:dang.ngo@clintonhealthaccess.org)

Loyce Masae Kawamura  
USA  
Email: [Masae.kawamura@qiagen.com](mailto:Masae.kawamura@qiagen.com)

Sundari Mase  
USA  
Email: [mases@who.int](mailto:mases@who.int)

Amy Bloom  
USA  
Email:

Richard Chaisson  
USA  
Email: [rchaiss@jhmi.edu](mailto:rchaiss@jhmi.edu)

Le Van Hoi  
Vietnam  
Email: [hoilv@yahoo.com](mailto:hoilv@yahoo.com)

Vo Nguyen Quang Luan  
Vietnam  
Email: [luan.vo@tbhelp.org](mailto:luan.vo@tbhelp.org)

Khieu Thi Thuy Ngoc  
Vietnam  
Email: [kttngoc@gmail.com](mailto:kttngoc@gmail.com)

Nguyen Binh Hoa  
Vietnam  
Email: [nguyenbinhhoatb@yahoo.com](mailto:nguyenbinhhoatb@yahoo.com)

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

Khuat Oanh  
Vietnam  
Email: [oanhkhuat@scdi.org.vn](mailto:oanhkhuat@scdi.org.vn)

Tran Lien  
Vietnam  
Email: [ltran@path.org](mailto:ltran@path.org)

Luu Tuan  
Vietnam  
Email: [ltuu@clintonhealthaccess.org](mailto:ltuu@clintonhealthaccess.org)

Tran Ngoc Phap  
Vietnam  
Email: [phapqnam@gmail.com](mailto:phapqnam@gmail.com)

Nguyen Anh  
Vietnam  
Email: [nguyentuananh.fsh@gmail.com](mailto:nguyentuananh.fsh@gmail.com)

Truong Thanh Huyen  
Vietnam  
Email: [thanhhuyenntp@gmail.com](mailto:thanhhuyenntp@gmail.com)

Giang Do  
Vietnam  
Email: [dochaugianghcmc@gmail.com](mailto:dochaugianghcmc@gmail.com)

Nguyen Giang  
Vietnam  
Email: [nhgiang@gmail.com](mailto:nhgiang@gmail.com)

Nguyen Huu Lan  
Vietnam  
Email: [nguyenhuulan1965@yahoo.com.vn](mailto:nguyenhuulan1965@yahoo.com.vn)

Truong Van Vinh  
Vietnam  
Email: [drvinhpnt@gmail.com](mailto:drvinhpnt@gmail.com)

Le Phuoc Hung  
Vietnam  
Email: [bslephuochung@yahoo.com.vn](mailto:bslephuochung@yahoo.com.vn)

Dang Thi Minh Ha  
Vietnam  
Email: [hadt2015@gmail.com](mailto:hadt2015@gmail.com)

Nguyen Duc Bang  
Vietnam  
Email: [mmdbang@gmail.com](mailto:mmdbang@gmail.com)

Le Truong Giang  
Vietnam  
Email: [letruonggiang05@gmail.com](mailto:letruonggiang05@gmail.com)

Vu Nguyen Thanh  
Vietnam  
Email: [thanh.vu@tbhelp.org](mailto:thanh.vu@tbhelp.org)

Mo Thi Lan Huong  
Vietnam  
Email: [huong.mo@tbhelp.org](mailto:huong.mo@tbhelp.org)

Vu Nhat Linh  
Vietnam  
Email: [linh.vu@tbhelp.org](mailto:linh.vu@tbhelp.org)

La Thi Huyen Nga  
Vietnam  
Email: [nga.la@tbhelp.org](mailto:nga.la@tbhelp.org)

Dong Thi Thu Thuy  
Vietnam  
Email: [thuy.dong@tbhelp.org](mailto:thuy.dong@tbhelp.org)

Nguyen Quynh May  
Vietnam  
Email: [quynhmvnguyen@gmail.com](mailto:quynhmvnguyen@gmail.com)

Pham Huy Minh  
Vietnam  
Email:

Dinh Ngoc Sy  
Vietnam  
Email: [syminhquan@gmail.com](mailto:syminhquan@gmail.com)

Vu Quang Hieu

Nguyen Thu Anh

6<sup>th</sup> Annual TB Experts Community Meeting: Getting to Zero by Addressing Latent TB in Asia  
Hanoi, 4-5 August 2018

Vietnam

Email: [vuh@who.int](mailto:vuh@who.int)

Nguyen Thi Hoang Yen

Vietnam

Email: [Yen.Nguyen@finddx.org](mailto:Yen.Nguyen@finddx.org)

Le Thi Ngoc Anh

Vietnam

Email: [ngocanhhsph@yahoo.com](mailto:ngocanhhsph@yahoo.com)

Pham Minh Khue

Vietnam

Email:

Ho Van Anh

Vietnam

Email: [hny8@cdc.gov](mailto:hny8@cdc.gov)

Nguyen Thai

Vietnam

Email: [nguyenthai@tekmax.com.vn](mailto:nguyenthai@tekmax.com.vn)

Vietnam

Email: [thuanh.nguyen@sydney.edu.au](mailto:thuanh.nguyen@sydney.edu.au)

Nguyen Thien Huong

Vietnam

Email: [huong.nguyen@kncvtbc.org](mailto:huong.nguyen@kncvtbc.org)

Phan Ha

Vietnam

Email: [ha.phan@ucsf.edu](mailto:ha.phan@ucsf.edu)

Alyssa Finlay

Vietnam

Email: [avf0@cdc.gov](mailto:avf0@cdc.gov)

Raditia Nurcahya

Indonesia

Email:

Duong Thi Huong

Vietnam

Email: