

# Research Institute of Tuberculosis Japan Anti-Tuberculosis Association



Annual Newsletter from Kiyose  
No. 41, March 2026

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## Technical collaboration with overseas partners

**Our mission is to contribute to global health**, a goal advanced through joint research and collaborative activities with overseas partners. This year's newsletter features research activities in the Philippines, Nepal, and Sri Lanka, as well as collaboration with an overseas researcher from the United Kingdom.

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## JICA international training program

**RIT has contributed to global capacity building by delivering international training** through numerous projects, benefiting more than 2,500 experts from over 100 countries and areas. This newsletter features one of our flagship and long-lasting programs implemented in collaboration with the Japan International Cooperation Agency (JICA).

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## Collaboration with the International Union Against Tuberculosis and Lung Disease (The Union)

**RIT maintains strong technical collaborations with international organizations**, including the World Health Organization (WHO) and the International Union Against Tuberculosis and Lung Disease (The Union). This year's newsletter features our collaboration with The Union.

# 1 Message from the Director, Dr. Seiya Kato: RIT/JATA contribute more for global health

Driven by the initiative of Dr. Shigeru Omi, the Chairman of the Board of Directors of the JATA and the Director-General Emeritus of WHO Western Pacific Regional Office (WPRO), the RIT/JATA aims to make greater contributions to global tuberculosis control. To this end, the “Committee on the Future of the RIT” was established, comprising ten external members. The proposals in the report align with the direction RIT has pursued thus far. In the field of international cooperation, the RIT will strengthen its activities by providing technical support for prevalence and drug-resistance surveys, as well as for inventory studies, in collaboration with the WHO and the UNION. In addition, RIT will conduct operational research on strengthening case detection using Artificial Intelligence-Based Computer-Aided Detection (AI-CAD) and rapid diagnostics. Priority laboratory research areas include developing rapid diagnostics for acid-fast bacilli and drug resistance, as well as innovative biomarkers for predicting active TB and the pathophysiological states of tuberculosis patients. We will participate in clinical trials on candidate vaccines and anti-TB drugs in partnership with relevant organizations and private companies.

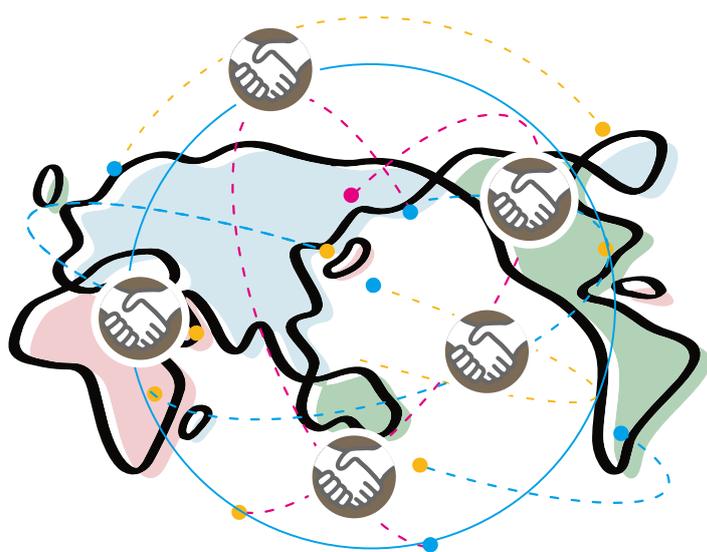
Regarding human resource development, the experience of the COVID-19 pandemic made pandemic preparedness and response (PPR) a top health policy priority for many countries. RIT conducted a JICA-funded Knowledge Co-Creation Program that focused on PPR and invited instructors from numerous relevant domestic and international organizations. Since various training needs exist in tuberculosis control, such as the introduction of new technologies, RIT/JATA stands ready to provide tailored training in response to requests from countries.

Leveraging its leadership in driving universal health coverage (UHC) in global health, the government of Japan established the UHC Knowledge Hub in Tokyo in collaboration with the World Bank and the WHO in December 2025. While strengthening health systems and disease control were once considered conflicting concepts, the experience of the pandemic has reaffirmed the importance of health systems for pandemic preparedness. Discussions also highlighted how the history of TB control in Japan demonstrates its contribution to establishing UHC. Evidence shows that the establishment of public health insurance, a basic component of UHC, contributed to the

identification of symptomatic TB patients by reducing financial barriers to seeking medical care.

The U.S. government’s retreat from global health, symbolized by dismantling the United States Agency for International Development (USAID) and withdrawing from the WHO, has had a significant negative impact on global health. Regarding tuberculosis, numerous reports and papers have indicated an increase in patients and excess mortality. At RIT/JATA, the project on new tools to improve case finding in Africa was delayed because the counterpart employed under USAID funding lost their position. Discussions of joint epidemiological research with U.S. academia in high-burden countries remain suspended due to uncertain funding prospects. The interruption or stagnation of innovative technological development is a serious concern that could lead to long-term negative impacts on the End TB initiative.

Although the situation is critical, RIT/JATA is striving to enhance cooperation and collaboration with relevant organizations to contribute more to global TB control.



## 2 Technical collaboration with overseas partners

### 2.1 Philippines: Impact of the introduction of bedaquiline (BDQ) and delamanid (DLM) in the Philippines on the prevalence of BDQ- and DLM-resistant tuberculosis.

The Philippines is listed as one of the highest tuberculosis (TB) burden countries globally, with a considerable number of newly diagnosed cases reported each year. Drug-resistant TB (DR-TB) also poses a major public health challenge, and intensive efforts have been made to strengthen prevention and control measures. Although treatment options for DR-TB are limited, the Philippines has actively reviewed and promptly introduced new drugs and regimens as they have been recommended by the World Health Organization (WHO).

The Research Institute of Tuberculosis (RIT) has collaborated with the Philippines counterparts through various frameworks in both research and programmatic implementation. One such initiative is an international collaborative research project with the Research Institute for Tropical Medicine – National Tuberculosis Reference Laboratory (RITM-NTRL) and the University of the Philippines, both in the Philippines, the University of California, the United States, and NHO Kinki-Chuo Chest Medical Center, Japan, focusing on drug-resistant TB: Impact of the introduction of bedaquiline (BDQ) and delamanid (DLM) in the Philippines on the prevalence of BDQ- and DLM-resistant tuberculosis.

This project was launched in 2020 with the aim of assessing the emergence of resistance to newly introduced anti-TB drugs, BDQ and DLM, by comparing populations of drug-resistant *Mycobacterium tuberculosis* isolates before and after their introduction in the Philippines. The study also aims to elucidate the risk factors for resistance through genomic analysis. To achieve three key objectives: (i) comparison of minimum inhibitory concentrations (MICs) and detection of resistance-associated single nucleotide polymorphisms (SNPs) before and after drug introduction, (ii) evaluation of acquired resistance to companion drugs using genomic data, and (iii) integrated analysis of risk factors related to drug–drug interactions, the project joint team conducted the following activities:

#### (1) Establishment and optimization of MIC testing and validation of resistance frequency

The RIT team developed MIC plates for newly introduced anti-TB drugs, including BDQ and DLM. To enhance laboratory

capacity and ensure quality assurance at the RITM-NTRL, standard operating procedures (SOPs) were provided, accompanied by on-site training and online video-based instruction. In addition, the introduction of the digital imaging system PICTMIC (Kyokuto Pharmaceutical Industrial Co., Ltd.) contributed to a marked improvement in laboratory performance.

Drug susceptibility testing was conducted on isolates obtained from patients with drug-resistant TB before and after the introduction of BDQ and DLM. Differences in resistance patterns to several anti-TB drugs were observed between the two periods. Further validation using an expanded number of isolates is required to refine resistance thresholds and improve testing accuracy.

#### (2) Analysis of cross-resistance and drug–drug interactions

As part of foundational research on extensively drug-resistant TB and its precursor stages, the relationship between resistance-associated genes and MIC values was examined to determine appropriate critical concentrations and resistance categories. The presence of cross-resistant strains and isolates with low-level MICs was identified, highlighting the need for comprehensive whole-genome sequencing analyses to identify novel genetic markers of resistance.

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This project is supported by CRDF Global and the Japan Agency for Medical Research and Development (AMED).

#### Next steps

The data generated through this project are expected to serve as a baseline for future drug resistance surveillance studies. Comparative analyses with resistant strains emerging after implementation of the BPAL regimen are planned. In addition, the impact of other long-term regimens for rifampicin-resistant and multidrug-resistant TB, as well as their association with treatment outcomes and pharmacokinetic/pharmacodynamic parameters, will be explored.

## 2.2 Nepal: Active case finding (ACF) and evaluation of TB-LAMP

Nepal faces a substantial TB burden, with an estimated incidence of 227 per 100,000 population in 2024. A considerable proportion of individuals with TB are believed to remain undiagnosed or unregistered in the national surveillance system. In addition to passive case detection, which relies on symptomatic individuals seeking care at health facilities, active case finding (ACF), where health workers proactively screen communities, is critically important for identifying missing cases.

When implementing ACF, key considerations include diagnostic sensitivity and affordability. In Nepal, sputum smear microscopy is currently the most commonly used diagnostic tool for ACF; however, it requires a high bacterial load and has limited sensitivity, making it suboptimal for screening purposes. More sensitive diagnostics, such as Xpert MTB/RIF Ultra, are available but are costly and may not be feasible for large-scale screening of high-risk populations. In this context, loop-mediated isothermal amplification for TB (TB-LAMP) represents a potentially optimal alternative.

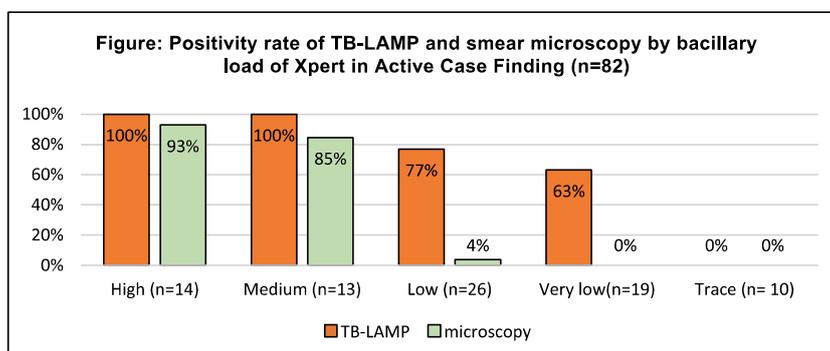
The Japan Anti-Tuberculosis Association (JATA), in collaboration with the Japan-Nepal Health and Tuberculosis Research Association (JANTRA), conducted ACF activities in Kathmandu, Nepal. In this study, participants were screened by two separate approaches: symptomatic assessment or chest X-ray examination regardless of symptoms. Individuals identified as presumptive TB by either method, based on the presence of TB-related symptoms or chest X-ray findings suggestive of TB, underwent bacteriological testing with sputum smear microscopy and TB-LAMP, with Xpert MTB/RIF and Xpert Ultra used as the reference standard. A total of 653 sputum samples of presumptive TB were tested with smear microscopy, TB-LAMP and Xpert assay (MTB/RIF: 91, Xpert Ultra: 562). Of the 82 Xpert MTB/RIF and Xpert Ultra positives, 25 were positive with smear microscopy and 59 were positive with TB-LAMP, resulting in sensitivity of 30.5% (95%CI: 21.6–41.4) and 72.0% (95%CI: 61.4–80.5), respectively (Table). The results demonstrated that TB-LAMP had substantially higher sensitivity than smear microscopy.

**Table: Diagnostic performance of TB-LAMP in comparison with smear microscopy in reference of Xpert MTB/RIF & Ultra**

Xpert MTB/RIF&Ultra		+	-	Total	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	Kappa value (95% CI)
Smear microscopy	+	25	1	26	30.5% (21.6–41.1)	99.8% (99.0–99.9)	96.2% (81.1–99.3)	90.9% (88.4–92.9)	0.43 (0.36–0.49)
	-	57	570	627					
TB-LAMP	+	59	2	61	72.0% (61.4–80.5)	99.7% (98.7–99.9)	96.7% (88.8–99.1)	96.1% (94.2–97.4)	0.80 (0.73–0.88)
	-	23	569	592					
	Total	82	571	653					

◀ This study also showed that TB-LAMP was able to detect TB more accurately in samples with low or very low bacterial loads, whereas smear microscopy showed limited detection capacity under these conditions (Figure).

▶ These findings suggest that TB-LAMP could effectively replace smear microscopy in ACF activities. For broader implementation, a cost-effectiveness analysis should be conducted to assess the feasibility and applicability of TB-LAMP in Nepal.



## 2.3 Sri Lanka: Inventory study to measure the scale of underreporting

Sri Lanka has experienced a gradual decline in its tuberculosis (TB) burden over the years, with an estimated annual incidence of 59 per 100,000 population in 2024. As the country

accelerates efforts to further reduce TB, the National Programme for Tuberculosis Control and Chest Diseases (NPTCCD) remains strongly committed to strengthening successful interventions

while addressing remaining gaps. One such gap is the relatively high proportion of TB cases that are either not diagnosed (under-diagnosis) or diagnosed but not reported to the national surveillance system (under-reporting).

While under-diagnosis cannot be measured directly, under-reporting can be investigated epidemiologically. Estimating the level of under-reporting enables indirect inference of under-diagnosis using statistical approaches known as capture–recapture models.

To better understand the scale of under-reporting, the NPTCCD, in collaboration with the Research Institute of Tuberculosis of the Japan Anti-Tuberculosis Association (RIT-JATA) and the World Health Organization (WHO), is conducting an inventory study. The study aims to match the national TB database with other data sources, such as hospital and laboratory records, to identify cases that were diagnosed but not reported.

For example, if facility-level records include patients who are not found in the national database, these cases can be identified as under-reported. By comparing multiple data sources, the study assesses where and to what extent under-reporting occurs. This approach is supported by Sri Lanka’s electronic TB reporting system, which has been progressively implemented in recent years.

From a general perspective, under-reporting can occur for various reasons, including the absence of mandatory TB



Kick-off meeting at the NPTCCD in Sri Lanka

notification laws, limited reporting requirements for the private sector, or insufficient enforcement of existing regulations. This inventory study is expected to provide valuable insights not only for TB surveillance but also for strengthening disease reporting systems more broadly. It also offers an opportunity to examine and enhance collaboration between public and private healthcare sectors.

In early January 2026, a joint mission involving the NPTCCD, RIT-JATA, and WHO Regional Office for South-East Asia (SEARO) visited public and private healthcare facilities and laboratories to develop a shared understanding of TB case detection and reporting pathways. The next steps include finalizing study protocols and implementing the inventory study.

## 2.4 Hosting researchers from overseas

RIT regularly hosts short-term or long-term researchers from overseas. As of January 2026, RIT is hosting a researcher, Dr Claudio Köser, from the University of Cambridge, United Kingdom, who is also a consultant for WHO and the TB Alliance, and is involved in the diagnostic industry. His primary focus is to use modern microbiological principles for setting breakpoints for phenotypic antimicrobial susceptibility testing for *Mycobacterium tuberculosis*. Using his expertise, he is serving as a core team member for the WHO mutation catalogue, the global reference for genotypic antimicrobial susceptibility predictions using next-generation sequencing. Below are some comments on his research activities and his life in Japan.

*“It has been a pleasure and privilege to collaborate with researchers from across the globe who go beyond the call of duty to improve public health despite geopolitical tensions. Professor Mitarai, the head of the Department of Mycobacterium Reference*

*and Research at RIT, has been a tireless supporter of WHO. For example, his team contributed the largest dataset of in vitro mutants that enabled WHO to endorse several linezolid resistance mutations. During my three-month stay at his laboratory, we will investigate whether there are intrinsic differences in the susceptibility of *M. tuberculosis* to quabodepistat, a new anti-tuberculosis agent developed by Otsuka that is currently in phase 3 clinical trials. These results will inform the ongoing and planned clinical trials, as well as the evaluations of these trials by regulators.*

*Everyone at RIT has been welcoming and kind, for which I am very grateful. In my spare time, I am planning to see as much art as possible, including at the upcoming Tokyo University of the Arts Graduation Works Exhibitions and the screens at the Nezu Museum.”*

# 3 JICA international training program

## From building robust TB program to building resilient health systems for infectious diseases

In partnership with the Japan International Cooperation Agency (JICA), RIT organized two international training programs in 2025: one for laboratory experts with the title “Frontline Defense: Managing outbreaks and laboratory network” and another for public health specialists “Innovations in Infectious Disease Control: Pandemic Prevention, Preparedness, and Response (PPPR)”. The training program is now called Knowledge Co-Creation program (KCCP), reflecting that everyone involved is expected to build knowledge together.

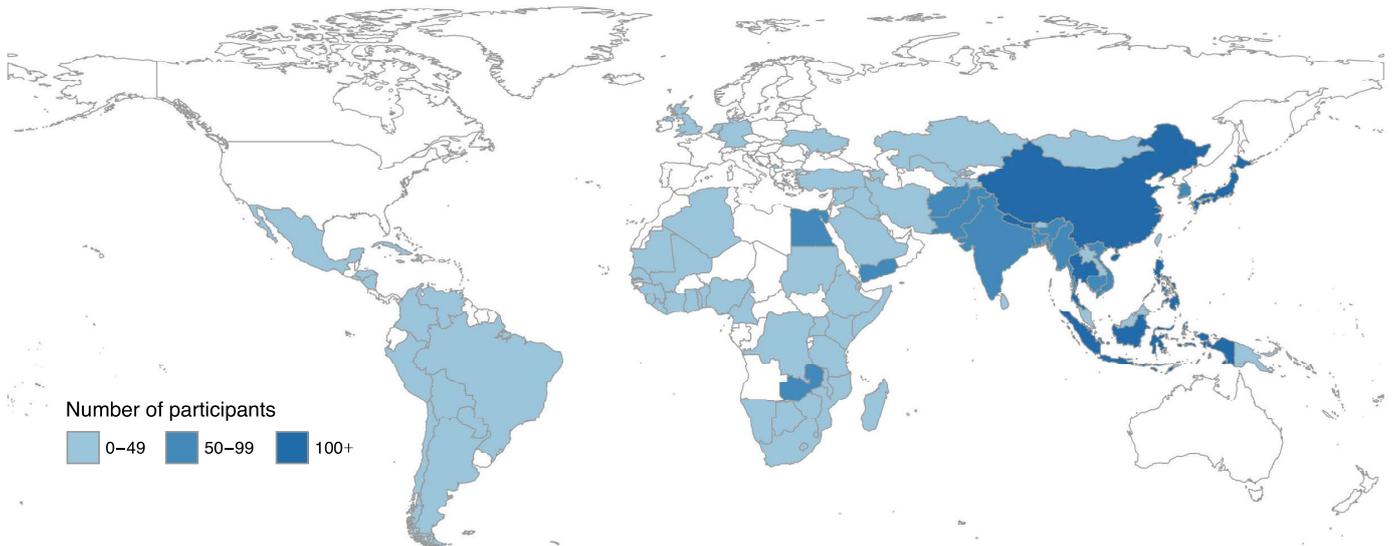
### From a high TB burden country to a low burden country

Japan’s experience with TB control forms the foundation of RIT’s role as an international training provider. When RIT began offering international training in 1963, TB was a major public health challenge in Japan. Nationwide prevalence surveys conducted between 1950’s to 1960’s revealed an exceptionally

high TB burden, prompting the government to accelerate comprehensive countermeasures. These included establishing a legal framework for vaccination, financial support for patients, quality assurance in diagnosis and care, contact investigations, and standardized recording and reporting systems.

These measures, supported by strong local health center networks and patient cooperation, strengthened the health system and led to sustained reductions in TB burden. To share this experience, RIT has organized international training programs for public health officers and laboratory experts worldwide. These programs have been delivered in various formats, including but not limited to JICA KCCP, bilateral initiatives, and multi-country programs. To date, more than 2,500 participants from over 100 countries have completed these international training programs.

Figure 1: Geographical distribution of international training program participants by country, 1963-2025



Country borders are shown for illustrative purposes only and do not imply the expression of any opinion regarding political status or boundaries.

### Expanded scope: From tuberculosis to infectious disease outbreaks

While TB remains the leading cause of death from a single infectious disease, the COVID-19 pandemic underscored the need for robust pandemic prevention, preparedness, and response. This global momentum was reflected in the endorsement of the Pandemic Agreement\* at the World Health Assembly in May 2025.

Recognizing that TB control experience, such as surveillance, diagnostics, contact tracing, and strong local health systems,

is applicable to other infectious diseases, the scope of the JICA KCCP program was expanded in 2025 to include emerging and re-emerging infectious disease outbreaks. These programs were conducted with support from partners including the WHO Health Emergencies Programme, WHO Regional Office for the Western Pacific, the Japan Institute for Health Security, the Ministry of Health, Labour and Welfare of Japan, airport quarantine offices, Japanese private companies, public-private

partnership funding agency, and local health centers and laboratories.

The training brought together infectious disease experts from countries across the world and aimed to strengthen their capacity to enhance pandemic prevention, preparedness, and response in their home countries.

#### Connection across generations

RIT values its strong connections with alumni. Relationships built through this program have contributed significantly to academic collaboration, including joint research and support for national policy implementation. These connections often extend beyond academia, creating lasting, heart-to-heart ties across generations.

In early 2025, we welcomed a visitor from Ethiopia—the daughter of a former program participant. She knew that her father had trained in tuberculosis control at RIT, and had returned home with souvenirs and cherished memories. Her visit to RIT was a way to trace her father’s journey and honor his legacy.

Her brother, a medical doctor, later shared the following reflection:

*“Our father deeply admired Japan’s culture, traditions, and medical training. I vividly remember the items he brought home: handcrafted toys, a Hitachi tape recorder filled with classical music, a Nikon camera, and a slide projector showing images of Tokyo, and beyond. These memories brought his experience to life*

*for us.*

*The emphasis on punctuality and discipline profoundly shaped our upbringing. After completing his TB training, our father became head of the Eastern Ethiopia TB Center; where he treated patients, trained young health workers, and conducted research. He was highly respected by both government officials and, most importantly, his patients.”*

\* World Health Organization Pandemic Agreement available at : [https://apps.who.int/gb/ebwha/pdf\\_files/WHA78/A78\\_R1-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA78/A78_R1-en.pdf)



Opening ceremony of JICA KCCP in 2025

## 4 Collaboration with the International Union Against Tuberculosis and Lung Disease (The Union)

The Research Institute of Tuberculosis of the Japan Anti-Tuberculosis Association (RIT-JATA) has been a longstanding technical and financial partner of the International Union Against Tuberculosis and Lung Disease (The Union). The partnership includes editing publications for the International

Journal of Tuberculosis and Lung Disease (IJTLD), supporting the publication of conference abstract, organizing workshops and training programs. This section introduces examples of partnership activities between the Union and RIT-JATA.

### 4.1 Late breaker session for students

Since 2017, RIT contributed to the Student Late Breaker Session. The session provides opportunities for students to present research in lung health. RIT supports the session by sponsoring students, particularly those from low- and lower-middle-income countries, and by facilitating the session

discussions. The session was attended by a diverse audience of students and researchers, who shared innovative and timely findings of broad relevance to global lung health. The presentations were followed by dynamic question-and-answer sessions that stimulated active discussion.

## 4.2 The Princess Chichibu Memorial TB Global Award

The Princess Chichibu Memorial TB Global Award is presented annually at the Union World Conference on Lung Health by JATA in memory of Princess Chichibu of Japan. The Award recognizes outstanding contributions to global TB control.

In 2025, the Award was presented to Professor Keertan Dheda of the Division of Pulmonology at the University of Cape Town and Groote Schuur Hospital, South Africa. Professor Dheda is a highly cited clinician-scientist who has dedicated his career to the study and management of infectious diseases in TB-endemic, resource-limited settings in Africa and Asia.

He is a global leader in TB research and a key opinion leader in the field, having received the highest rating (A1) from the South African National Research Foundation. His research focuses on the diagnosis, transmission, and treatment of multidrug-resistant mycobacterial and non-mycobacterial pathogens, and the immunopathogenesis of resistance amplification in both TB and non-TB infections. His work has significantly influenced WHO guidelines, national policy documents, and the work of international academic societies such as the American Thoracic Society amongst others.

Beyond academic excellence, Professor Dheda's work is characterized by strong social responsiveness. He consistently directs his research and influence toward reducing TB burden in vulnerable communities, saving lives, alleviating suffering, and improving social well-being. This commitment is reflected in his extensive capacity-building efforts, including teaching, mentoring, and training the next generation of clinician-scientists in Africa.



From the left, Dr. Seiya Kato (RIT director), Prof. Keertan Dheda (awardee)

## 4.3 Prevalence survey workshop in APRC 2026, Thailand

RIT hosted a workshop during the 10th Asia Pacific Region Conference of the International Union Against Tuberculosis and Lung Disease (APRC 2026), which took place in February 2026 in Thailand. The workshop featured prevalence surveys, including adaption of WHO's recommended screening algorithm, methods for sampling and data analysis, country experiences from Nepal and Thailand, and implications for the National TB Programmes using results from the Cambodia prevalence survey as an example.

The presentations stimulated active discussions. Key topics included differences between prevalence surveys and routine diagnostic practices in interpreting positivity rates from culture and GeneXpert, as well as the validity of the AI-CAD cut-off values used in previous prevalence surveys. Another important topic was whether the world is on track to achieve the End TB and SDG targets based on findings from prevalence surveys, for which all participants, including audience, share responsibility.

The workshop was delivered by an international team, with RIT serving as the core organizer responsible for both technical and financial aspect, together with contributions from collaborating partners. Where applicable and feasible,

prevalence surveys are one of the most effective approaches for understanding disease burden. RIT is committed to the global health through collaborative efforts with partners worldwide on key TB agendas, including the conduct of prevalence surveys.



From the left to right, Dr. Ikushi Onozaki, Dr. Chutima Siripanumas, Dr. Ashish Shrestha, Dr. Norio Yamada, Dr. Khay Mar Aung (former RIT staff), and Dr. Kosuke Okada (Chair)