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Asia-Pacific Dengue Dialogue 2025: Regional Strategies for Prevention and Protection

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The 9th Singapore International Dengue Workshop A WHO-recommended dengue vaccine, Takeda's Qdenga, is the only vaccine recommended for strategic dengue prevention and management globally and regionally. The immune-boosting vaccine, proven effective in 41 countries, complements other prevention measures like mosquito control and community awareness to reduce the risk of severe disease and transmission.

- **Dr Mahender Nayak**, Senior Vice President, Asia Pacific Countries, Takeda (left)
- **Prof. Ooi Eng Eong**, Professor in Emerging Infectious Diseases, DUKE-NUS Medical School (center)
- **Dr Derek Wallace,** President, Global Vaccine Business Unit, Takeda (right)

The 9th Singapore International Dengue Workshop, held on November 4, 2025, underscored the urgent need for global collaboration in addressing the growing threat of dengue, as cases surge under the pressures of climate change. The event, which brought together global experts, emphasized that dengue respects no borders and requires collective action, as no single entity can combat the disease alone.

With collaboration at the center of discussion, "**The Asia-Pacific Dengue Dialogue: Regional Strategies for Prevention and Protection**" was held to discuss how fostering cross-border and cross-sector partnerships could enhance preparedness for recurring dengue outbreaks and the associated strain on healthcare systems.

The dialogue is particularly timely, as October 2025 saw the announcement of the Asia-Pacific Economic Cooperation (APEC) "**Roadmap to Advance Dengue Prevention & Control in APEC Economies 2026–2030**." This strategic framework aims to support member economies in transitioning from reactive outbreak responses to proactive, coordinated, and sustainable dengue prevention and control measures.

Globally, since January 2025, more than 4 million dengue cases and over 2,500 dengue-related deaths have been reported in 101 countries/territories. Given dengue outbreaks occur in cycles, while the case numbers in 2025 are not as high as the peak in 2023-2024 across endemic countries in APAC, the possible occurrence of dengue outbreaks cannot be ignored.

Coupled with the first discovery of mosquitos in Iceland, and the fact that climate change creates warmer and wetter conditions that aid mosquito breeding, to prevent potential major dengue outbreaks and surge in number of cases and hospitalizations, it is crucial for both endemic and non-endemic countries to stay alert and prepared. To address the question about dengue prevention and management strategies, regional infectious disease and public health expert, **Professor Ooi Eng Eong**, Professor in Emerging Infectious Diseases, DUKE-NUS Medical School, global vaccine innovation specialist, **Dr Derek Wallace**, President, Global Vaccine Business Unit, Takeda; and regional public health specialist, **Dr Mahender Nayak**

, Senior Vice President, Asia Pacific Countries, Takeda came together at the Asia Pacific Dengue Dialogue to share insights and recommendations.

The regional dialogue, the first of its kind in the Asia Pacific region, focused on exploring broader actions that countries in the region can adopt to combat the threat of dengue through pre-emptive measures.

- **Dengue cases vary annually, and despite existing tools and strategies, the Asia Pacific region continues to report cases. How can the APAC region take proactive steps to prevent future increases in severe dengue cases and related healthcare burdens?**

Prof Ooi: Infectious diseases do not remain constant throughout the year; they occur in cycles influenced by various factors, particularly the transmissibility of the virus. The intervals between peaks in cases depend on the level of transmission in a given area—shorter intervals are observed in regions with high transmission rates.

When disease control measures are effective, the intervals between peaks become longer. However, this does not mean the risk is eliminated during non-epidemic periods. For dengue, the first infection is not the primary concern; it is the second infection that often leads to severe disease. Even when an epidemic is not ongoing, infections between outbreaks can increase the risk of severe disease when the next epidemic occurs.

Essentially, the key to controlling dengue is constant vigilance. If you let your guard down, the intervals between epidemics become shorter, and infections that occur between outbreaks increase the risk of severe disease during the next epidemic.

- **Over the past two years, vaccination has become a new tool in dengue prevention strategies in Southeast Asia and Latin America. What role does vaccination play in overall outbreak preparedness, and how does it complement other measures such as mosquito control and community awareness?**

Prof Ooi: Developing a dengue vaccine has been a 70-year journey, beginning with initial efforts in the 1950s. The complexity lies in the fact that dengue is caused by four distinct viruses, not variants of a single virus. Reaching this point where dengue is now a vaccine-preventable disease is a significant achievement.

Singapore could be a good example to understand the challenges and measure in designing the strategic dengue control measures. The country has been implementing mosquito control practices for over 50 years. During the first 15 years after the program was fully launched, Singapore experienced no outbreaks, even as outbreaks occurred throughout Southeast Asia. However, since 1990, Singapore has faced 7–8-year cycles of dengue epidemics, with each outbreak becoming larger than the previous one.

The issue arises because mosquito control reduces transmission, and as we learned during COVID-19, reduced transmission leads to lower immunity in the population. When an epidemic occurs, the population becomes highly susceptible to the disease, including severe forms. This is what is happening in Singapore. Whether you are reducing mosquito populations or using Wolbachia, a bacterium that infects mosquitoes to reduce transmission, the result is the same: lower population immunity. The solution, therefore, is to reduce transmission while maintaining population immunity, and the only way to achieve this is through vaccination.

Additionally, across the Asia Pacific region and beyond, multiple partnerships have been developed in the region to enhance action against dengue, including:

- Collective Action on Dengue (CAD), a coalition aiming to transform how the world tackles dengue. The CAD bridges gaps across sectors, aligning efforts with climate and urban health agendas to foster innovation, shape policy, and accelerate implementation.
- United Against Dengue alliance, a multi-year strategic collaboration initiated by International Federation of Red Cross and Red Crescent Societies and Takeda that is dedicated to advancing the WHO's goal of achieving zero preventable dengue deaths by 2030, by championing collective action through community programs.
- Dengue-Zero Memorandum of Understanding in Thailand, where a dozen of public and private organizations joined together to promote knowledge about dengue, develop and extend an effective prevention system to control dengue in Thailand, strengthening community-led actions for dengue control.

- Dengue Zero Coalition: Kobar Lawan Dengue in Indonesia, a public-private partnership that aims to strengthen stakeholder commitment to dengue control efforts through public awareness and fostering sustainable actions to mitigate the risks of dengue.

- **How does the WHO-recommended dengue vaccine contribute to global and regional prevention efforts?**

Dr Wallace: The WHO-recommended dengue vaccine, Takeda's vaccine, plays a key role in global and regional dengue prevention. It reduces the risk of severe disease and transmission by providing immunity, complementing other prevention measures like mosquito control and community awareness. As a result, it is the only vaccine recommended for strategic dengue prevention and management.

The first time that this vaccine was registered was back in late 2022. And so, I think about the progress we've made in reducing dengue starting in 2022. Over the past three years, the Q-denga vaccine has gained approval in 41 countries worldwide.

The vaccine is approved for dengue prevention, regardless of serostatus, for individuals aged 4 to 60 in some countries and from age 4 and above in others. The World Health Organization (WHO) also recommends its use in endemic settings and includes it on the WHO prequalification list, with support from Pan American Health Organization (PAHO).

Over 21 million doses of the vaccine have been distributed globally, with more than 75% allocated to public programs. Our primary focus is on delivering the vaccine to endemic countries, where the dengue burden is highest. Of the doses distributed, 95% have gone to these countries, with 75% provided through public programs to ensure equitable access. We are proud of the progress made in reducing the dengue burden through this initiative.

- **With the recent release of 7-year clinical data for the vaccine, how do you assess the overall evidence on its safety and effectiveness? Additionally, how is Takeda leveraging these long-term, real-world insights to inform national immunization strategies, particularly for vaccinating vulnerable age groups?**

Dr Wallace: With more than 240 years of legacy, Takeda is passionate about public health. Takeda's dengue vaccine reflects this dedication, as it aims to combat a disease that affects half the world's population, and is recognized by the World Health Organization as one of the top 10 threats to public health.

The real impact of a dengue vaccine lies in its ability to reduce the burden of hospitalizations, as dengue is often asymptomatic and causes little morbidity in most individuals. Dengue becomes more than an individual or family concern when severe cases requiring hospitalization arise. These severe cases represent the "tip of the iceberg," signaling a shift to a disease that significantly impacts communities and healthcare systems.

In other words, the most valuable aspect of a dengue vaccine is its ability to reduce the burden of hospitalization. What we have observed is sustained protection against hospitalization over the 7-year period. A seven-year follow-up is a significant duration in vaccine development, and we have demonstrated the vaccine's safety throughout this period. The key takeaways focus on long-term safety and the sustained reduction in hospitalizations over time.

- **The public vaccination programs against Dengue have been implemented in Brazil, Argentina, and now in Indonesia. How can other countries strengthen their dengue preparedness following the lessons learnt?**

Dr Nayak: In 2025, we already have around 4 million cases as well as in over 2,500 deaths, and last year it was much more. Brazil and Argentina provided us with some great learnings.

In Brazil, we worked with the local government to be able to vaccinate millions among the population, focusing on those 6 to 16 years. Then in Argentina, similarly last year there was a more targeted approach going into particular provinces with the strategic vaccination programs, which made these learnings extremely valuable.

Over the past two years in Indonesia, we have focused on prioritizing school children across different provinces, which has been a significant success. This experience has provided valuable insights across the countries where we have launched. Currently, the Q-denga vaccine is available in over 41 countries, and this remains a key focus area.

- **Collaboration among various stakeholders is essential in the fight against dengue. With public-private partnerships and community engagement being vital to building resilient health systems, how is Takeda contributing to these efforts, and what further impact can such partnerships achieve?**

Dr Nayak: Vaccine hesitancy remains a significant challenge. To address this, Takeda is working closely with various stakeholders. Collaboration is crucial in addressing the challenges of vaccination hesitancy caused by misinformation and disinformation. One of our key focuses is on education, working with stakeholders across academia and policymakers to ensure accurate and relevant information is available, enabling informed decision-making. This includes community outreach campaigns and supporting governments in promoting vector control and the importance of vaccination. These initiatives are ongoing in all regions where Takeda's dengue vaccine is registered.

Strengthening healthcare systems is another key focus. We collaborate with governments and institutions to train doctors and develop the necessary cold chain infrastructure. These efforts are essential to ensure the vaccine reaches a broader population equitably, and we are dedicating significant resources to this area.

As a community, we must remain proactive, maintain vigilance and resist complacency, ensuring continuous collaboration with various stakeholders to prevent the next outbreak.

Collaboration will be essential in the effort to prevent dengue. Through Takeda's dengue vaccine, the goal is to reduce severe cases, hospitalizations, and deaths caused by the disease.

- **Could you provide more details about the efforts in vaccine distribution across the Asia-Pacific region, particularly in Southeast Asia? How is the distribution of dengue vaccines progressing in various locations, especially in hard-to-reach communities?**

Dr Wallace: When a novel vaccine is launched, it is initially introduced in the private markets, accessible to those who can afford it. Tiered pricing considers a country's ability to afford and subsidize. While this mechanism can ensure access, this is not a perfect mechanism to promote equitable access to global communities. A government-led approach is the most effective way to ensure equitable access to vaccines for communities. As a result, we prioritize collaborating with governments that have embraced public vaccination programs proactively.

Public dengue vaccine distribution has been implemented in various countries, including Indonesia, Peru, Paraguay, and Honduras. Indonesia was the first to launch a regional program in five cities with school-based initiatives. However, regional programs are less sustainable than national ones. We are working closely with governments to understand the data and pathways needed for effective public programs, ensuring better access and availability, even in hard-to-reach areas, as a long-term focus.

One noticeable trend following COVID-19 is the increased speed with which vaccines are being incorporated into national immunization programs. This was evident in Brazil, where the process was completed in record time. In contrast, in some Southeast Asian countries, the timeline for inclusion in immunization programs has traditionally been much longer. However, ongoing discussions with governments and policymakers suggest that these timelines are expected to be shortened, ultimately benefiting the broader population.

In September, at APEC, the APEC roadmap for advancing dengue prevention was introduced—a significant initiative. The focus is to transition, starting in 2026 through 2030, from a reactive approach of responding to outbreaks to implementing proactive measures aimed at preventing dengue.

Dr Nayak: Additionally, we have a partnership with Biological E Limited, an Indian biotechnology and biopharmaceutical company for manufacturing massive quantities of vaccines in multidose vials to meet the demand of the global population and support public health programs. Together, we aim to manufacture over 100 million doses annually, with approximately half of this capacity coming from India. We anticipate reaching this annual production expansion by the end of the decade.

In India, Bio-E is a critical collaborator in ensuring we can produce sufficient doses to address the significant global burden of dengue. Notably, the multidose vial format will play a crucial role in supporting dengue elimination goals.

- **Mosquitoes have now been detected even in Iceland for the first time. What implications does this have for Southeast Asia? Should we consider implementing specific strategies or integrated programs in response?**

Prof Ooi: While it is important to acknowledge the impact of altered climate, it is worth noting that dengue outbreaks occurred in Boston 200 years ago, long before global warming. The Aedes aegypti mosquito, which transmits dengue viruses, is highly adapted to humans and thrives in all environments where humans can sustain.

Nevertheless, mosquito control requires a collaborative effort involving not only the government and public health teams but also homeowners, employers, and the entire community. Everyone must take responsibility for ensuring that mosquito breeding sites are eliminated.