8TH ASIA DENGUE SUMMIT 2025

Towards Zero Dengue Deaths: Science, Strategy, and Solidarity

15 June 2025 Pre-Summit Workshop

16 – 17 June 2025
Crowne Plaza Manila Galleria, Philippines

18 June 2025 Post-Summit Workshop

Programme Book

International Co-convenors:

ADVA Asia Dengue Voice & Action Group

Fondation Mérieux

SEAMEO TROPMED Network for Tropical Medicine and Public Health

gdac Global Dengue+Aedes-Transmitted Diseases Consortium

The International Society for Neglected Tropical Diseases

Co-convenors:

Pediatric Infectious Disease Society of the Philippines

Philippine Society for Microbiology and Infectious Diseases

Local Hosts:

Philippine Medical Association

Philippine College of Physicians

Philippine Pediatric Society

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*Refer to the Bioline™ Dengue Duo Instructions for Use.

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WELCOME MESSAGE

Dear Colleagues,

Warm greetings from the Philippines—and Mabuhay to all joining us from across Asia and around the world!

On behalf of the organizing committee, it is our great pleasure to welcome you to the 8th Asia Dengue Summit, centered on the timely and urgent theme: “Towards Zero Dengue Deaths: Science, Strategy, and Solidarity.”

As dengue remains a major public health threat, this summit unites a global community of clinicians, scientists, researchers, entomologists and policymakers. Your presence here affirms a shared commitment to advancing science, refining strategies and fostering solidarity in the fight against dengue—still endemic in many regions worldwide.

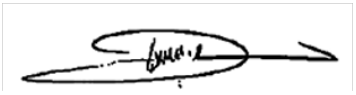
This year’s summit is jointly convened by the Pediatric Infectious Disease Society of the Philippines (PIDSP) and the Philippine Society for Microbiology and Infectious Diseases (PSMID), with support from the Philippine Medical Association (PMA), Philippine Pediatric Society (PPS), and Philippine College of Physicians (PCP). As in previous years, we are proud of the continuing collaboration of ADVA with GDAC, SEAMEO TROPMED and the International Society for Neglected Tropical Diseases. Together, we have worked to bring you a vibrant lineup of international and local experts, offering a unique platform to share insights on dengue surveillance, vector control, clinical management, vaccine development, communication and advocacy.

As we pursue the goal of zero dengue deaths, let us build on past achievements and focus on sustainable, evidence-based solutions. We hope this summit inspires meaningful dialogue, fosters new collaborations, and strengthens our collective efforts in dengue prevention and control.

We also invite you to experience the vibrant sights, sounds, and hospitality of the Philippines during your stay.

With best wishes for a successful and enriching summit,

MARIA ROSARIO Z. CAPEDING, MD
Organizing Chairperson
8th Asia Dengue Summit



PROF. ZULKIFLI ISMAIL, MD
Chairperson
Asia Dengue Voice and Action

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PIONEERING DIAGNOSTICS

ABOUT US

The Asia Dengue Voice & Action Group (ADVA) was officially set up in 2013 with a mission to identify opportunities to make practical recommendations in dengue-related areas such as improving surveillance and laboratory capacity for dengue disease confirmation with other relevant dengue initiatives, including V2V (vaccine to vaccination) and the Dengue Vaccine Initiative.
ADVA advocates for a collaborative approach to sharing surveillance data and relevant information to ensure the success of dengue prevention through vaccination across regions. ADVA also reinforces the importance of a united front against dengue, and presents a collaborative model for joint effort in the region to prevent the disease through the introduction and implementation of dengue vaccination.
The group has formulated recommendations with an ultimate aim of translating the science of dengue vaccination into messages for policy makers, general public and health care workers.

The Global Dengue & *Aedes*-Transmitted Diseases Consortium (GDAC) is a consortium composed of the Partnership for Dengue Control (PDC), the International Vaccine Institute (IVI), the International Vaccine Access Center (IVAC) at the Johns Hopkins Bloomberg School of Public Health and the Sabin Vaccine Institute. The World Health Organization advises and collaborates with GDAC.

The Southeast Asian Ministers of Education Organization (SEAMEO) is a regional intergovernmental organization established in 1965 among governments of Southeast Asian countries to promote regional cooperation in education, science and culture in the region.

Fondation Mérieux's mission is to fight the infectious diseases that affect vulnerable populations in developing countries, especially mothers and children, by building local capacities. They work in over 20 countries worldwide, in regions prone to infectious outbreaks, and mount their own projects, working closely with local and international partners.

The ISNTD is an independent organisation providing a multidisciplinary global platform to an international network of individuals working in the fields of Neglected Tropical Diseases, diseases of poverty and global development. The aim of the ISNTD is to focus on and highlight the research and programmes of colleagues and organisations worldwide, to ultimately have an impact on the health and prosperity of the world's poorest and most vulnerable, while sharing the goal of reaching sustainable healthcare provision & poverty reduction in the developing world.
The ISNTD believes that this goal cannot be achieved without strengthening the ties between all the parties already involved in NTD alleviation and addressing the socio-ecological and socio-political context of NTDs, in order to achieve not only the cure but also the prevention of NTDs with true and sustainable local leadership.

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COMMITTEE

Local Organising Committee:

Dr Maria Rosario Capeding

Dr Fatima Gimenez

Emertius Professor Lulu Bravo

Dr Janice Caoli

Dr Jo-Anne De Castro

Dr Florentina Ty

Dr Hector M. Santos Jr

Dr Cesar M.Ong

Professor Nemencio A. Nicodemus Jr

Dr Kristine Dela Cruz

Dr Francesca Pantig

Asia Dengue Voice & Action Group (ADVA)
Steering Committee:

Professor Zulkifli Ismail

Professor Usa Thisyakorn

Professor Sri Rezeki Hadinegoro

Associate Prof Daniel YT Goh

Dr Maria Rosario Capeding

Professor Terapong Tantawichien

Emertius Professor Sutee Yoksan

Asia Dengue Voice & Action Group (ADVA)
International Advisors:

Professor Duane Gubler

Professor Tikki Pangestu

Professor Ooi Eng Eong

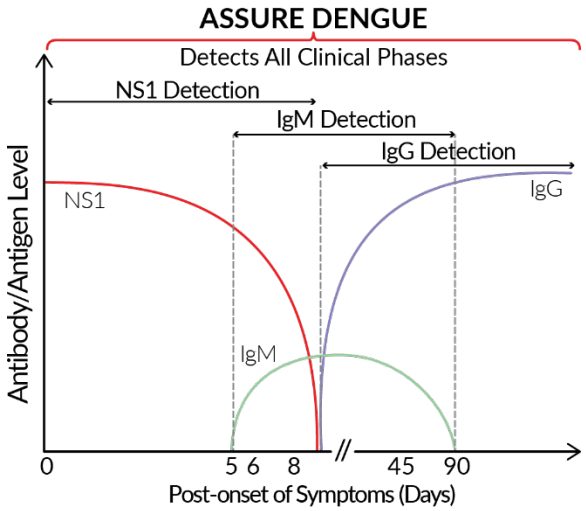
Emertius Professor Lulu Bravo

Professor Pratap Singhasivanon

Dr Valentina Picot

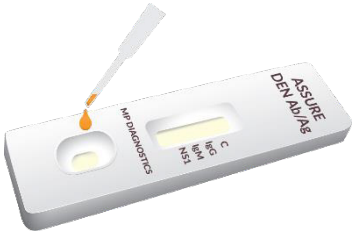
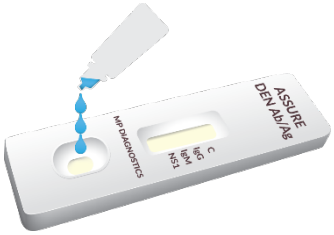
MP Biomedicals is a global life science and diagnostics company with headquarters in California and regional offices across the globe. The company offers a diverse portfolio of life science products, fine chemicals, and diagnostics used in industries ranging from basic research to clinical diagnostics and pharmaceuticals.

The MP Diagnostics **ASSURE Dengue Ab/Ag Rapid Test** is a qualitative *in vitro* immunochromatographic test that is intended to detect and differentiate IgG/IgM antibodies against Dengue virus and NS1 Dengue antigen in human plasma or serum or finger pricked whole blood or whole blood with anti-coagulants.



- ✓ The only test capable of detecting and differentiating dengue antigen (NS1) and antibodies (IgM and IgG) in a SINGLE cassette.
- ✓ Designed to detect ALL 4 Dengue serotypes (DEN-1, 2, 3 and 4) in a single test.
- ✓ Detection of all clinical stages from acute to convalescence phase.
- ✓ Specimen: Finger-pricked blood, whole blood, human serum and plasma.
- ✓ Results ready to read in 15 minutes.

Assay Procedure

Step 1	Step 2	Step 3
Add 30 µL of sample into the sample well	Add 3 drops of chase buffer into the same sample well	Start the timer • Read results at 15 minutes • Do not read results after 20 minutes
		

Diagnostic Performance

Diagnostic Parameter	Performance of ASSURE Dengue Ab/Ag Rapid Test	95% Confidence Interval
Sensitivity (n=341)	100%	97.42% - 100%
Specificity (n=289)	100%	98.73% - 100%
Positive Predictive Value (PPV)	100%	97.42% - 100%
Negative Predictive Value (NPV)	100%	98.73% - 100%

AGENDA

15 June 2025, Sunday – Pre-Summit Workshop

Theme: Towards Zero Dengue Deaths: Science, Strategy and Solidarity

General Objective: To advance the region towards the aspiration of "Zero Dengue Deaths" through enhanced collaboration, innovation, and strategic implementation.

Key Objectives:

1. **Strengthen Regional Surveillance & Early Warning:** Foster the development and adoption of robust, integrated surveillance systems for early detection and prediction of dengue outbreaks across Asia, considering the Philippines' specific challenges.
2. **Optimize Clinical Management & Patient Outcomes:** Share best practices and establish standardized protocols for timely diagnosis, effective clinical care, and efficient management of dengue cases, particularly for severe dengue and vulnerable populations in resource-limited settings.
3. **Accelerate Innovative Vector Control Strategies:** Discuss and promote the implementation of novel and sustainable vector control methods, including community-based approaches and technological advancements, tailored to diverse regional contexts like the Philippines.
4. **Advance Dengue Vaccine Development & Implementation:** Review progress in vaccine research and explore strategies for equitable access and effective deployment of available and future dengue vaccines.
5. **Enhance Multi-Sectoral Collaboration & Advocacy:** Forge stronger partnerships among governments, healthcare professionals, researchers, industry, and communities to mobilize resources, streamline policies, and amplify public awareness for comprehensive dengue prevention and control.

TIME	PROGRAMME	SPEAKER/S
1200 – 1300	**Registration**	
1300 – 1310	**Opening Remarks**	Cesar M. Ong Nicodemus Jr Nemencio A
	Pearls in Clinical Management of Dengue	
1310 – 1315	**Introductory session, overview of dengue** **Introduce workshop objectives**	Fatima I. Gimenez
	Workshops on Clinical Management Chairperson: Janice Caoili	
1315 – 1345	**Classification of Dengue** **Diagnostics in Clinical Management**	Suzette Urbano- Cruz
1345 – 1400	**Life Stage (Infancy to Adolescent, Adult)**	LakKumar Fernando
1400 – 1430	**1. Dengue without warning signs – OPD management in the public and private setting**	Arthur Dessi Roman
1430 – 1500	**2. Dengue with warning signs – inpatient management in a secondary/tertiary setting**	Ma. Charmian Hufano
1500 – 1530	**3. Severe dengue (no co-morbidities)**	Thea Pamela Cajulao
1530 – 1545	**Expert Panel Q & A** Lucy Lum Chai See, Suzette Urbano- Cruz, LakKumar Fernando, Arthur Dessi Roman, Ma. Charmian Hufano, Thea Pamela Cajulao	
1545 – 1600	**Coffee break**	
1600 – 1630	**Severe Dengue and Its Complications** **(Sri Lanka Experiences)**	LakKumar Fernando
1630 – 1700	**Dengue in Special Populations**	Jemelyn Garcia Ricardo Manalastas, Jr
1700 – 1730	**PPS Dengue Integrated Program** **Pediatric Clinical Management**	Florentina Ty
1730 – 1745	**Expert Panel Q & A** Lucy Lum Chai See, LakKumar Fernando, Jemelyn Garcia, Ricardo Manalastas, Jr, Florentina Ty	
1745 – 1755	**Summary and Conclusion**	Kristine Dela Cruz

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AGENDA

Day 1 - 16 June 2025, Monday

TIME	PROGRAMME	SPEAKER/S
0730 – 0800	**Registration**	
	Opening Ceremonies	
0800 – 0810	**Introduction to Asia Dengue Summit** **Dengue in the Philippines: A Continuing Public Health Challenge**	Maria Rosario Capeding
0810 – 0820	**Welcome Address**	DOH Representative
0820 – 0850	**Keynote Address: Dengue and Global Health** Moderator: Tikki Pangestu	Manuel Dayrit
0850 – 0900	**Welcome Performance**	
0900 – 0910	**Coffee Break**	
	The evolving epidemiology of Dengue: country experiences - gains, challenges, and ways forward	
0910 – 0940	**Preview of Lancet Commission Findings**	Oliver J. Brady
0940 – 1020	**Dengue in the Midst of Climate Change** (Singapore / Philippines)	Ng Lee Ching Venus Oliva Cloma-Rosales
1020 – 1040	**Dengue Epidemiology: Modeling the Future**	Angkana T. Huang
1030 – 1050	**Dengue Pathogenesis**	Ooi Eng Eong
1050 – 1100	**Welcome Performance II**	
1100 – 1200	**Industry Sponsored Symposium: BioMerieux** **New Diagnostic Differential Approaches to Achieving Zero Dengue Deaths' Ambition**	Ramon V. Najarro Arthur Dessi Roman
1200 – 1245	**Lunch, poster viewing, visit to exhibitors' booths** **Group Photo**	
	Dengue pathogenesis and management - navigating best practice options in resource-limited settings	
1245 – 1305	**Dengue viruses are not monolithic**	Nathan Grubaugh
1305 – 1400	**Testing of Dengue: Use Cases Across the Control and Care Continuum** 1. Strengthen Early Warning through Health System-Integrated Testing 2. Prevention and Vaccine Strategy 3. Case Management and Outbreak Response	Moderator: Kristine Dela Cruz Panelists: Raul Destura Rukie de Alwis Rontgene Solante

AGENDA

Day 1 - 16 June 2025, Monday

TIME	PROGRAMME	SPEAKER/S
1400 – 1445	**ADVA Educational Symposium: Supported by DNDi** **Dengue and the missing cure: Why are therapeutics still absent?** Moderator: Mohd Ridzuan	Panelists: Neelika Malavige Andre Siqueira
1445 – 1500	**Coffee break & Poster viewing**	
1500 – 1520	**Dengue Human Infection Model – Filling the Immunology Knowledge Gaps**	Adam Waickman
1520 – 1620	**Best practices in Clinical Management of Dengue** Moderator: Jo-Anne De Castro	Panelists: Nattachai Srisawat Janice Caoili Ramon Najaro Hasitha Tissera Somia Iqtadar LakKumar Fernando
1620 – 1700	**Dengue Immunity - Lessons from the Field**	Michelle Ylade Laura Rivino
1700 – 1720	**Dengue Immunity - Lessons from Clinical Trials**	Shirin Kalimuddin
1720 – 1730	**Summary and Close of Day 1**	Francesca Mae Pantig

AGENDA

Day 2 - 17 June 2025, Tuesday

TIME	PROGRAMME	SPEAKER/S
0730 – 0810	**Registration**	
0810 – 0830	**Key Learnings from the Clinical Management Workshop**	Lucy Lum Chai See Lakkumar Fernando
0830 – 0930	**Dengue vaccine updates and innovations** Modelling the efficacy and impact of the Dengue Vaccine Mass vaccination during dengue outbreak Dengue Vaccine Policy Making	 Ilaria Dorigatti Albert Ko Kim Mulholland
0930 – 1030	**Real-world experience with dengue vaccine:** Thailand Indonesia Brazil	 Sunate Chuenkitmongkol William Stephenson Tjeng Fernando Bozza
1030 – 1045	**Coffee break & Poster viewing**	
1045 – 1145	**Industry-sponsored Symposium: Takeda** **Dengue Defense: Where Science, Strategy, and Society Converge** Moderator: Nikki Kitikiti	Panelists: Shirin Kalimuddin Joao Bosco Asrul Akmal Shafie Eduardo Lopez-Medina
1145 – 1225	**Lunch, poster viewing, visit to exhibitors' booths**	
1225 – 1315	**Research oral presentations – by invitation only.** 1. Motoharu Abe 2. Chang Chia-chen 3. Wei-kung Wang 4. Jarir At Thobari 5. Arvin U. Pacoma 6. Mohammad Shafiul Alam 7. Freya Rasschaert	
	Policy, Advocacy, Research and Innovation Co-Chairs: Hasitha Tissera & Maria Rosario Capeding	
1315 – 1335	**Vector Control for Dengue Control**	Lim Jue Tao
1335 – 1355	**Integrating innovative vector control tools into dengue control programs**	Katie Anders
1355 – 1415	**Challenges to Vector Control in the Philippines**	Frances E. Edillo
1415 – 1435	**Human Movement Drives Dengue Transmission**	Martin Hibberd
1435 – 1455	**Coffee break, poster viewing**	

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Day 2 - 17 June 2025, Tuesday

TIME	PROGRAMME	SPEAKER/S
1455 – 1615	**Dengue Slayers Challenge (ADVA-JA)**	Grand Final
1615 – 1715	**Advocacy, communication and collaboration** Moderator: Lulu Bravo	
	Changes worldwide in dengue advocacy - what has been achieved and what still needs to be done	Marianne Comparet
	Effective Communication Strategies **Call to Action**	Panelists: Zulkifli Ismail Erica Tania Davillo Naveen Thacker Sri Rezeki Hadinegoro
1715 – 1730	**Prize Ceremony for Dengue Slayers Challenge (ADVA-JA)** **Photo-Taking**	
1730 – 1750	**Summary and close of day 2**	Francesca Mae Pantig Maria Rosario Capeding

AGENDA

Post-Summit Workshop - 18 June 2025, Wednesday

Operational Workshop: Integrating *Wolbachia* into dengue prevention programs.
Supported by World Mosquito Program

TIME	PROGRAMME	SPEAKER/S
0800 – 0850	**Registration**	
0850 – 0900	**Welcome**	Tracy Loh
0900 – 0930	**Best Practices for the implementation of *Wolbachia* for dengue control**	Peter Ryan
0930 – 1000	**Case Study: Implementation of *Wolbachia* in Indonesia**	Riris Andono Ahmad
1000 – 1020	**Morning Tea**	
1015 – 1045	**Case Study: Implementation of *Wolbachia* in New Caledonia**	Nadege Rossi
1045 – 1115	**Case Study: Large-scale roll out of *Wolbachia* in Brazil**	Luciano Moreira
1115 – 1200	**Panel Discussion: Cross Country reflections on *Wolbachia* implementation** Moderator: Cam Watson	Panelists: Peter Ryan Riris Andono Ahmad Nadege Rossi Luciano Moreira
1200 – 1210	Closing Remarks	Tracy Loh

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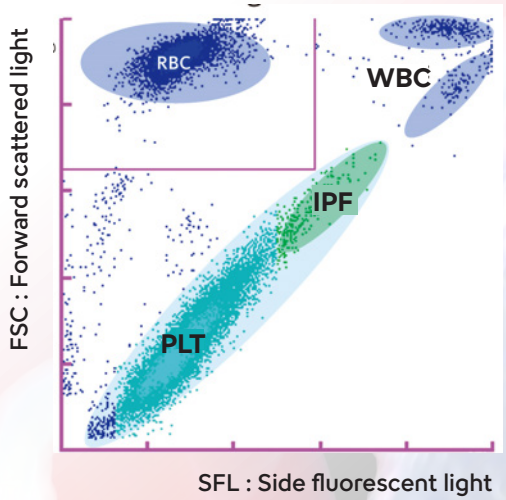
- PLT IPF tells you where they could be tomorrow

PLT-F scattergram



Clinical Advantages That Transform Patient Care*

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**(Looi et al., 2021)*

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ORGANISING COMMITTEE

DR. MARIA ROSARIO Z. CAPEDING

Chairperson, 8th Asia Dengue Summit Organising
Asia Dengue Voice and Action Group (ADVA) Steering Committee
Pediatric Infectious Disease Specialist, Clinician, Researcher Scientist
Head, Medical Research Unit, Tropical Disease Foundation, Inc
Consultant, Infectious Diseases, Asian Hospital and Medical Center, Philippines

Dr. Capeding is a pediatrician, an infectious disease specialist, and a clinical microbiologist of the Research Institute for Tropical Medicine, Philippines. She is the Head of the Department of Microbiology, Consultant of the Medical Department, and Head of the Dengue Study Group of the said institute. She is the Section Head of Infectious Diseases of the Department of Pediatrics, Asian Hospital and Medical Center, Philippines.

She has engaged in significant researches on the safety, immunogenicity and efficacy of childhood vaccines: Haemophilus influenzae type b, Pneumococcal and Meningococcal Conjugate; Influenza; Hepatitis A; Hepatitis B; DtaP-Hib-IPV-HepB combination vaccine; Typhoid Conjugate; Cholera; Japanese Encephalitis, and Dengue.

She is an accomplished medical researcher though her contributions: 54 original articles and reviews in peer reviewed international and local journals; presented scientific papers in 77 international medical conferences; acted as an expert or member of advisory board to 31 international consultative meetings; and 47 completed and current researches and clinical trials. She is an active member of national and international professional medical societies and global, regional scientific fora. She is also a frequent lecturer to numerous conventions of medical societies, postgraduate courses and local chapter meetings.

Dr. Capeding is an awardee of the 23rd Dr. Jose P. Rizal Memorial Award for Research by the Philippine Medical Association (PMA). She was given the distinction as one of the world's Top Women in Biotech Industry 2014. The paper, Clinical Efficacy and Safety of a Novel Tetravalent Vaccine in Healthy Children in Asia: Phase 3, Randomized, Observer-Masked, Placebo-Controlled Trial, Maria Rosario Capeding, Ngoc Huu Tran, Sri Rezeki, et. al. (The Lancet, 2014. 384:1358-1365 was adjudged Paper of the Year 2014 by the International Society for Vaccines (ISV). She is a recipient of the 2015 Outstanding Professional of the Year Award in the Field of Medicine and Eric Nubla Excellence Award given by the Philippine Professional Regulation Commission.

ORGANISING COMMITTEE

DR. FATIMA IGNACIO GIMENEZ

8th Asia Dengue Summit Organising Committee, Co-Chair Scientific
Immediate Past President , Pediatric Infectious Disease Society of the Philippines (PIDSP)
Training Officer , Pediatric Infectious Disease Section, Philippine Childrens Medical Center (PCMC)
Chair, Immunization Committee , Philippine Pediatric Society (PPS)
Editorial Board, Pediatric Infectious Disease Society Journal
Infectious Disease Consultant,Pediatrics Department, Philippine Heart Center (PHC)
Visiting Volunteer Infectious Disease Consultant,Pediatrics Department , Armed Forces of the Philippines

Dr. Fatima Ignacio Gimenez is a highly dedicated medical professional specializing in pediatric infectious diseases. She earned her Bachelor's degree in Public Health from UP Manila and her Doctor of Medicine degree from the University of the East Ramon Magsaysay Memorial Medical Center (UERMMMC). Dr. Gimenez underwent extensive training, including a residency at The Medical City and a fellowship in Infectious Disease at the Philippine Children's Medical Center (PCMC). She also received additional training in Infectious Disease at Baylor College of Medicine and specialized training in Antimicrobial Stewardship and Infection Prevention and Control at Stanford University Medical Center.

As a consultant, Dr. Gimenez provides her expertise in infectious diseases at various medical institutions, including the PCMC, Victor R. Potenciano Medical Center (VRPMC), and The Medical City (TMC). She also volunteers as a visiting consultant at the Armed Forces of the Philippines V Luna Hospital and the Philippine Heart Center.

Dr. Gimenez is actively involved in multiple roles and organizations within her field. She currently serves as the President of the Pediatric Infectious Disease Society of the Philippines (PIDSP) and as the Training Officer at the PIDS Section of the Philippine Children's Medical Center. She holds positions on the editorial board for the Pediatric Infectious Disease Journal and as the chair of the Immunization Committee for the Philippine Pediatric Society. She also contributes as a board member of the Catholic Physicians' Guild of the Philippines and co-chairs the Infection Control Committee at the Philippine Children's Medical Center. Furthermore, Dr. Gimenez is a member of the Disaster Preparedness Team of the Philippine Pediatric Society and shares her insights as an opinion columnist for the Philippine Daily Inquirer.

Dr. Gimenez is affiliated with esteemed medical organizations such as the Philippine Pediatric Society, the Pediatric Infectious Disease Society of the Philippines, the Philippine Medical Association, the Asian Society of Pediatric Infectious Disease (ASPID), the Catholic Physicians Guild of the Philippines, and the Philippine Foundation for Vaccination (PFV).

In addition to her clinical practice, Dr. Gimenez has contributed significantly to the medical field. She has been involved in the development of Clinical Practice Guidelines on various diseases, including Tuberculosis, Community Acquired Pneumonia, Dengue, Bacterial Meningitis, and Leptospirosis. She is also the author of the Handbook of Pediatric Infectious Diseases, focusing specifically on Tuberculosis in Infancy and Childhood.

With her extensive education, training, and active involvement in numerous capacities, Dr. Fatima Ignacio Gimenez is a highly respected and accomplished physician in the field of pediatric infectious diseases. Her expertise, dedication, and contributions have made a significant impact on the healthcare community and the well-being of her patients.

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ORGANISING COMMITTEE

EMERITUS PROF. LULU BRAVO

International Advisor, Asia Dengue Voice and Action Group (AVDA)

Professor Emeritus at the College of Medicine,
University of the Philippines

Lulu Bravo is a Professor Emeritus at the College of Medicine, University of the Philippines Manila. She is the former Vice Chancellor for Research and Executive Director of the National Institutes of Health, University of the Philippines Manila (2005 – 2011) and current head of the Vaccine Study Group of the NIH – UPM.

She is the President of the Immunization Partners in Asia Pacific (IPAP), current Executive Director and past President of the International Society of Tropical Pediatrics (ISTP) 2008 – 2011, past Chair and Founder of the Asian Strategic Alliance for Pneumococcal Disease Prevention (ASAP) 2007 – 2011, and Executive Director, Sec-General (1998 – 2006) & past President of the Asian Society for Pediatric Infectious Disease (ASPID) 2006 – 2008. She has served in various capacities in many other Asian medical and professional societies and as WHO Technical Advisor. She has served as well in national medical organizations such as PMA, PPS, PIDPS, PSMID and the Philippine Foundation for Vaccination (PFV) of which she is the founding President and current Executive Director. In the international scene, she is a member of the Rota Council, Pneumococcal Awareness Council of Experts (PACE) and member of the Dengue Vaccine Initiative (DVI). Her work has earned for her various national and international honors and awards in the professional, academic and research fields, including the Outstanding Physician (2009) and the prestigious Dr Jose P. Rizal Memorial Award for Academe (2011) given by Philippine Medical Association, the 2012 Asian Outstanding Pediatrician Award given by the Asia Pacific Pediatric Association and 2018 Outstanding Professional in Medicine given by the Professional Regulation Commission of the Philippines. In 2008, she presented both written and oral evidence to the UK's House of Commons to justify the $ 2.5 Billion vaccination advance market commitment to provide needed vaccines for the developing world. She was named Pneumonia Fighter in 2018 by the JustActions Organization, a US-based advocacy movement and corporation associated with People Empowerment.

Dr Lulu Bravo completed her MD, pediatric residency and subspecialty training in infectious disease at Philippine General Hospital-College of Medicine of the University of the Philippines Manila. She supplemented her fellowship in pediatric infectious disease at the University of Texas Southwestern Health Science Center in Dallas, USA in 1986. She has published more than 100 scientific articles, books and book chapters in both local and international circles.

ORGANISING COMMITTEE

DR. JANICE C. CAOILI

Active Consultant, Section of Infectious Diseases, Department of Medicine, Makati Medical Center
President, Philippine Society for Microbiology and Infectious Diseases (PSMID)

Dr. Janice Campos Caoili, MD, is a leading infectious disease specialist recognized for her extensive contributions to clinical care, research, and public health. She is the current President of the Philippine Society for Microbiology and Infectious Diseases (PSMID) and serves as the Southeast Asia Hub Lead and Executive Board Member for the International Severe Acute Respiratory Infection Consortium (ISARIC).

Dr. Caoili practices at Makati Medical Center, where she is Head of the Infection Prevention and Control Department and an active consultant in the Section of Infectious Diseases. Her leadership has been pivotal in strengthening infection control programs and patient safety initiatives.

Dr. Caoili has a distinguished record of research, having been involved in major clinical trials and international collaborations, including the WHO Solidarity Trial for COVID-19 and several groundbreaking studies on tuberculosis and emerging infections. She has published widely in respected journals such as The Lancet Infectious Diseases and the New England Journal of Medicine, reflecting her commitment to evidence-based practice.

Her past leadership roles include serving as the National Chair of the Philippine Coalition Against Tuberculosis (PhilCAT), where she championed innovative public-private partnerships and TB control programs. She is also a Research Consultant at the Tropical Disease Foundation, leading studies on drug-resistant TB and co-infections.

Dr. Caoili completed her residency and fellowship at the Philippine General Hospital and pursued additional research fellowships at the Centers for Disease Control and Prevention (CDC) in the United States. She is a sought-after expert in infection prevention, antibiotic stewardship, and emerging disease management.

Honored with multiple awards for her contributions, Dr. Caoili remains a passionate mentor and advocate for health equity. Her dedication to global health, research excellence, and policy innovation continues to shape the field of infectious diseases in the Philippines and beyond.

ORGANISING COMMITTEE

DR. JO-ANNE DE CASTRO

Pediatric Infectious Disease specialist at De La Salle Health Sciences Institute

Dr. Jo-Anne A. de Castro is a recognized figure in pediatric infectious diseases in the Philippines. A distinguished clinician, educator, and advocate, she currently serves as the President of the Pediatric Infectious Disease Society of the Philippines (PIDSP).

She earned her Doctor of Medicine degree from the De La Salle Medical and Health Sciences Institute (DLSMHSI) in 1985. Her residency and fellowship training in Pediatrics and Pediatric Infectious Diseases were completed at the Philippine Children's Medical Center (PCMC)—a premier institution for pediatric care and training in the country.

Dr. de Castro holds concurrent academic leadership roles as Full Professor II in the Department of Pediatrics at DLSMHSI College of Medicine, and Associate Professor and Chair of the Department of Microbiology and Parasitology at Pamantasan ng Lungsod ng Maynila (PLM) College of Medicine. Her work as a teacher and mentor continues to shape future generations of Filipino physicians.

A Fellow of the Philippine Pediatric Society (PPS), the Pediatric Infectious Disease Society of the Philippines (PIDSP), and the Philippine Academic Society for Microbiology and Parasitology (PASMAP), she is also a member of ASPID and the Cavite Medical Society, and a Life Member of the Philippine Medical Association.

Dr. de Castro is widely recognized for her contributions to medical education and infectious disease practice, and she remains a sought-after speaker in both national and international scientific forums.

ORGANISING COMMITTEE

DR. FLORENTINA TY

President, Philippine Pediatric Society, Inc.

Dr. Florentina Uy-Ty is a distinguished Filipino pediatrician specializing in pediatric critical care, with a career spanning over four decades in clinical practice, academic leadership, and public health advocacy.

Dr. Uy-Ty earned her Doctor of Medicine degree from the Cebu Institute of Medicine in 1978. She completed her residency at MCU - FDTMF Hospital and pursued a fellowship in Pediatric Critical Care at the Philippine Children's Medical Center (PCMC). Furthering her expertise, she undertook an international fellowship at Cincinnati Children's Medical Center in the United States.

Dr. Uy-Ty held the presidency of the Philippine Pediatric Society (PPS) from 2022 to 2024. During her tenure, she spearheaded the Dengue Integrated Program, emphasizing community-based prevention through vector control, clinical training, and public education. She advocated for the "4S Strategy"-Search and destroy mosquito breeding sites, Secure self-protection, Seek early consultation, and Support fogging and spraying in hotspot areas-and aimed for zero dengue mortality by 2030.

In response to the COVID-19 pandemic, Dr. Uy-Ty contributed to a regional survey assessing adaptations in pediatric hospitals across Asia, highlighting her role in international pediatric healthcare collaboration.

Dr. Florentina Uy-Ty's dedication to pediatric healthcare, both in clinical settings and public health initiatives, has significantly contributed to the advancement of child health in the Philippines and the broader Asia-Pacific region.

ORGANISING COMMITTEE

DR. HECTOR M. SANTOS JR.

President, Philippine Medical Association (2024–2025)
Colorectal and Trauma Surgeon | Medical Educator | Health Policy Advocate

Dr. Hector M. Santos Jr. is a distinguished Filipino surgeon and medical leader currently serving as the President of the Philippine Medical Association (PMA) for the 2024–2025 term. With over three decades of experience in clinical practice, academic medicine, and healthcare advocacy, Dr. Santos is widely recognized for his expertise in colorectal and trauma surgery, as well as his steadfast commitment to improving public health in the Philippines.

Dr. Santos began his medical journey with a degree in medicine from a Philippine institution, eventually specializing in general surgery and further subspecializing in colorectal and trauma surgery. His commitment to medical education is evident through his work as an Associate Professor of Surgery, teaching at institutions such as the FEU–Nicanor Reyes Medical Foundation and the Philippine General Hospital.

He has presented more than 60 scientific papers on topics including surgical infections, trauma management, and colorectal diseases, both locally and internationally. Throughout his career, Dr. Santos has also taken an active role in organizing postgraduate courses, surgical symposia, and continuing professional development programs in collaboration with the Philippine College of Surgeons and academic hospitals nationwide.

Beyond academia and clinical practice, Dr. Santos has demonstrated a strong passion for service and leadership. He previously served as Director of the Philippine Band of Mercy (2002–2003), leading surgical missions that provided cleft lip and reconstructive operations for underserved communities. He was also elected President of the Philippine College of Surgeons in 2007, further solidifying his standing in the surgical community.

As President of the PMA, Dr. Santos has taken a bold stance on pressing health issues, including what he has called the “epidemic” rise in alcohol, tobacco, and e-cigarette use among Filipino youth. He has advocated for stronger taxation on harmful substances and urged national candidates to prioritize health policy in the 2025 elections. Under his leadership, the PMA has intensified efforts to shape public discourse on healthcare, emphasizing the importance of preventive care, health education, and youth protection.

Dr. Santos continues to serve as a beacon of professionalism, compassion, and integrity in Philippine medicine. His legacy is defined not only by his surgical skill and academic contributions but also by his tireless advocacy for a healthier, more equitable society.

ORGANISING COMMITTEE

DR. CESAR M. ONG

President, Philippine Pediatric Society, Inc.

Dr. Cesar M. Ong is a distinguished Filipino pediatrician and the current President of the Philippine Pediatric Society, Inc. (PPS), the foremost professional organization for pediatricians in the Philippines. With a deep commitment to advancing pediatric care, Dr. Ong brings decades of clinical experience, organizational leadership, and health advocacy to his role.

As PPS President, Dr. Ong leads the society's strategic efforts to promote excellence in pediatric practice, continuing education, and evidence-based medicine. He oversees national programs aimed at improving child health outcomes and enhancing the capabilities of pediatricians through training, collaboration, and policy engagement.

Dr. Ong chairs key committees within PPS, including those on External Affairs, Internal Affairs, Membership, and Building Management. Under his leadership, the organization continues to strengthen its partnerships with the Department of Health, PhilHealth, and the Philippine Medical Association, addressing crucial child health issues such as vaccination, nutrition, disease surveillance, and pandemic preparedness.

Renowned for his integrity and collaborative approach, Dr. Ong plays a central role in shaping pediatric health strategies at the national level. His vision centers on empowering pediatricians to be advocates for child health, especially in underserved communities, and ensuring the Philippine Pediatric Society remains a pillar of scientific and ethical excellence.

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ORGANISING COMMITTEE

PROF. NEMENCIO A. NICODEMUS JR

President, Philippine College of Physicians

Dr. Nemencio Nicodemus Jr. obtained his degree of Doctor of Medicine at the University of the Philippines-College of Medicine. He did his residency training in Internal Medicine and fellowship training in Endocrinology, Diabetes and Metabolism at the Philippine General Hospital. Subsequently, he went to the Mayo Clinic in Rochester, Minnesota as part of the Visiting Clinician Program.

He is presently a Professor at the University of the Philippines-College of Medicine, Department of Biochemistry & Molecular Biology, where he serves as the Chair. He is also a consultant at the Department of Medicine, Division of Endocrinology, Diabetes & Metabolism of the Philippine General Hospital where he is the Vice Chair for Postgraduate Training.

He is a council member of the Asia Oceania Thyroid Association (AOTA) and the current President of the Philippine College of Physicians.

He is the immediate past President of the Philippine Association for The Study of Overweight and Obesity (PASOO) and is the co-lead in the development of the Philippine Clinical Practice Guidelines in the Screening and Diagnosis of Obesity in Adults endorsed by the Department of Health.

He is a Past President of the Philippine College of Endocrinology, Diabetes and Metabolism (PCEDM) and Philippine Thyroid Association (PTA) and is a member of the Steering Committee of the Philippine Clinical Practice Guideline for the Diagnosis and Management of Hyperthyroidism.

He has written several peer-reviewed papers, and book chapters on diabetes mellitus, thyroid diseases and other endocrine disorders.

ORGANISING COMMITTEE

DR. KRISTINE ALVARADO-DELA CRUZ

Pediatrician | Infectious Disease Specialist | Research Leader

Dr. Kristine Alvarado-Dela Cruz is a distinguished Filipino pediatrician and infectious disease specialist with over two decades of experience in clinical medicine, research, and academic instruction. She currently serves as the Department Head of Microbiology at the Research Institute for Tropical Medicine (RITM), where she leads several National Reference Laboratories and plays a pivotal role in the country's infectious disease surveillance and response systems.

A Fellow of both the Philippine Pediatric Society (FPPS) and the Pediatric Infectious Disease Society of the Philippines (FPIDSP), Dr. Dela Cruz is widely recognized for her expertise in pediatric infectious diseases and her leadership during public health emergencies, notably during the COVID-19 pandemic.

In addition to her work at RITM, Dr. Dela Cruz is a consultant at Cardinal Santos Medical Center and the Medical City Clinic, and an associate faculty member at the Ateneo School of Medicine and Public Health, where she mentors medical students in infectious diseases and public health.

Her academic journey includes a Doctor of Medicine from the Pamantasan ng Lungsod ng Maynila and a Bachelor of Science in Biology from the University of Santo Tomas. She completed her pediatric residency at Cardinal Santos Medical Center and infectious disease fellowship at the Philippine Children's Medical Center.

Dr. Dela Cruz is a prolific researcher, having led or collaborated on numerous national and international studies, particularly on COVID-19, dengue, leptospirosis, and other emerging infectious diseases. She has authored peer-reviewed articles, presented at international conferences, and served as a principal or co-investigator on studies supported by the WHO, DOST, and ASEAN.

She is also actively involved in policy and advisory work, holding positions on various technical working groups and advisory boards related to vaccines, infectious disease control, and laboratory diagnostics. Notably, she contributed to the Philippine Centers for Disease Prevention and Control (PH CDC) initiative and serves on the steering committee for pediatric pneumonia guidelines.

Throughout her career, Dr. Dela Cruz has been honored with several awards, including the RITM Praise Award for her contributions to the COVID-19 response, and top research recognitions from the Philippine Pediatric Society.

Beyond her clinical and research achievements, Dr. Dela Cruz remains deeply committed to public health education, frequently speaking at professional seminars, training programs, and community health events across the Philippines.

ORGANISING COMMITTEE

DR. FRANCESCA MAE T. PANTIG

Pediatric Infectious Disease Specialist Division of Infectious and Tropical Diseases in Pediatrics (INTROP), Department of Pediatrics, University of the Philippines-Philippine General Hospital

Dr. Francesca Mae T. Pantig is a pediatric infectious disease specialist from the Philippines. She obtained her medical degree from the University of the Philippines College of Medicine (UPCM) then specialized in Pediatrics and Pediatric Infectious Diseases from the Philippine General Hospital (PGH). She also obtained a Master's Degree in Vaccinology and Drug Development from the Institute for Global Health, University of Siena, Italy. At present, she is a clinical associate professor at the UPCM and an attending pediatrician and pediatric infectious disease specialist at the PGH. She is a member of the Immunization, Dengue and Tuberculosis Committees of the Pediatric Infectious Disease Society of the Philippines (PIDSP), and serves as Associate Editor-in-Chief of the PIDSP Journal.

ORGANISING COMMITTEE

PROF. TIKKI PANGESTU

International Advisor, Asia Dengue Voice and Action Group (ADVA)
Visiting Professor, Yong Loo Lin School of Medicine, National University of Singapore

Professor Tikki PANG is an Indonesian citizen and is presently Visiting Professor, Yong Loo Lin School of Medicine, National University of Singapore. He was previously Visiting Professor, Lee Kuan Yew School of Public Policy, National University of Singapore (2012-2020) and Director, Research Policy & Cooperation, World Health Organization (WHO), Geneva, Switzerland (1999-2012). Prior to joining WHO, he was Professor of Biomedical Sciences, Institute of Postgraduate Studies & Research, University of Malaya, Kuala Lumpur, Malaysia (1989-1999) and Lecturer/ Associate Professor, Dept of Microbiology, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia (1977-1989). He was Co-Director of the WHO Collaborating Centre for Dengue & Dengue Haemorrhagic Fever at the University of Malaya, Kuala Lumpur, Malaysia (1982-1995). He holds a PhD in Immunology-Microbiology from the Australian National University, Canberra, Australia and is a Fellow of the Royal College of Pathologists (UK), Institute of Biology (UK), American Academy of Microbiology (USA), Academy of Medicine of Malaysia, and Academy of Sciences for the Developing World (TWAS). He is currently Chair of the Board of Directors, Asia Pacific Leaders Malaria Alliance (APLMA) and Co-Chair of the Asia Pacific Immunization Coalition (APIC). He has published >250 scientific articles and 12 books and was lead author on several major WHO reports including the World Health Report 2013: Research for Universal Health Coverage (2013), Knowledge for Better Health (2004) and Genomics and World Health (2002). Professor Pang has a recognisable profile as a public health expert both nationally and internationally. His research interests are in the epidemiology, pathogenesis, laboratory diagnosis and prevention of infectious diseases, biosecurity and dual-use research, genomics & health, and in health research policy, health research systems, global health governance, development of research capabilities in developing countries, linkages between research and policy, vaccine confidence and harm reduction approaches to mitigate health problems. He has >30 years of teaching experience at undergraduate & postgraduate levels in the fields of medical microbiology, immunology, global health policy & issues, and in evidence-informed policy development. He has supervised 20 Master's degree and 10 PhD candidates.

ORGANISING COMMITTEE

PROF. OOI ENG EONG

Professor, Signature Research Programme in Emerging Infectious Diseases,
Duke-NUS Medical School

Eng Eong trained in medicine at the University of Nottingham and then completed his PhD studies at the Department of Microbiology, National University of Singapore. He is a Professor in the Programme in Emerging Infectious Diseases and Associate Dean (Early Research Career Development) in the Office of Academic Medicine, Duke-NUS Medical School. He holds a joint Professorship at the Saw Swee Hock School of Public Health, at the National University of Singapore.

He received the Clinician-Scientist (Senior Investigator) Award by the National Medical Research Council of Singapore, in 2010, 2014 and 2019 and the Singapore Translational Research (STaR) Award in 2023. He was one of six to be named Straits Times Asians of the Year and a member of the team that was named Straits Times Singaporean of the Year, both in 2020. He is a member of the Scientific Advisory Board of Science Translational Medicine and an editorial board member of PLoS Biology

ORGANISING COMMITTEE

PROF. DR. SRI REZEKI SYARASWATI HADINEGORO SP.A(K)

International Advisor, Asia Dengue Voice and Action Group (AVDA)

Professor Sri Rezeki S Hadinegoro is a pediatrician, graduated from Faculty of Medicine University of Indonesia, Jakarta. She is working at Department of Child Health in the same university since graduated in 1983. In 1986 she certified as Infection and Tropical Pediatric consultant. Fellowship from Japan Society on Promoting of Sciences (JSPS), in Kobe University and Iwate Medical University, Japan she got in 1993 to 1995. Graduated as a PhD in medicine in 1996 from Faculty of Medical Universitas Indonesia (FKUI) and got professor in Pediatrics from FKUI as well in 2000.

She is also active in several organizations and research in the field of infection and tropical pediatrics especially in dengue and immunization. Since fourteen years ago she held the Immunization Committee, Indonesian Pediatric Society (IPS). At present she is a chairman of Indonesian Technical Advisory Group on Immunization (ITAGI), Indonesian Ministry of Health since 2007, and member of National Adverse Event Following Immunization Committee, Indonesian Ministry of Health (past chairman 1999-2012).

In the regional and international society she pointed as a board member of Asian Society of Pediatric Infectious Disease (ASPID, past president in 2008-2010). Member of Asian Strategy Alliance of Pneumococcal Diseases Prevention (ASAP) since 2007, member of Asian Dengue Voice and Action (ADVA) since 2012, and in 2017 she appointed as the president of International Society of Tropical Pediatrics (ISTP).

She wrote in some scientific journals and several books (as writer and editor), The Guideline of Dengue and Dengue Hemorrhagic Fever for Pediatrician in Indonesia, Textbook of Infections and Tropical Diseases, Guideline on Immunization in Indonesia (first to seventh editions), Immunization Guidance for Parents, and Dengue Chapter in Nelson Essential (Indonesian Edition) 2017.

Some medical awards have been delivered to her “Award in Science Development” from Indonesian Medical Association, “Award in Development & Education of Child Health” Indonesian Pediatric Society, “The Ten Immunization Experts” Indonesia Ministry of Health, “Outstanding Asian Pediatrician Award 2012” Asia-Pacific Pediatric Association, and “Lifetime Achievement Award FKUI 2014” from Medical Faculty of University of Indonesia and “Award of The Development of Immunization Program” from Ministry of Health for her strong support and participation in those activities.

ORGANISING COMMITTEE

PROF. DATUK ZULKIFLI ISMAIL

Chairperson, Steering Committee, Asia Dengue Voice and Action Group (ADVA)
Secretary General, Asia Pacific Pediatric Association & Chairman, Immunise4Life Technical Committee, Malaysia

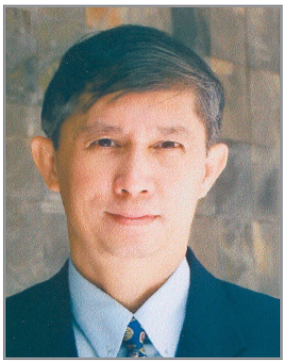
Prof. Zulkifli Ismail is a consultant paediatrician and paediatric cardiologist at a private hospital and Clinical Professor at the KPJ Healthcare University College. He was formerly a professor of paediatrics and paediatric cardiology in the Universiti Kebangsaan Malaysia (UKM). Dr Ismail has served as the head of the paediatric department and the director of Hospital Universiti Kebangsaan Malaysia (HUKM) as well as the medical director of its private wing, UKM Specialist Centre.

Prof. Zulkifli also served as a past president of the Malaysian Paediatric Association (MPA) and is currently the editor of Berita MPA, a quarterly newsletter publication distributed to fellow members of the Association. He chairs the Positive Parenting Management Committee (www.mypositiveparenting.org) and serves as the chief editor of the Positive Parenting Guide, a quarterly publication aimed to equip Malaysian parents with reliable and practical local information on maternal, child and family care since 2002. He is the Technical Chairman of Immunise4Life (www.ifl.my), a vaccination advocacy programme of the Ministry of Health Malaysia.

Prof. Zulkifli is currently the president of the Asia Pacific Paediatric Association (APPA) and current chairman of the Asian Strategic Alliance for Pneumococcal disease prevention (ASAP). He also serves as a board member of the National Population and Family Development Board (LPPKN), a member of the Ministry of Health Unrelated Transplant Approval Committee (UTAC) and in the editorial board of the Malaysian Journal of Paediatrics & Child Health (MJPCH). He has also served as a reviewer for the Medical Journal of Malaysia and the Philippines Paediatric Infectious Disease Journal.

Prof. Zulkifli has more than 35 publications in peer-reviewed international and local journals in addition to numerous abstracts and articles for the lay-public on various issues involving child health, paediatrics and vaccinology. He has authored or co-authored two books for parents, one for medical students and one for nurses. In 2008, he was conferred the Darjah Panglima Mahkota Wilayah by the Malaysian King that carries the honorific title of ‘Datuk’.

ORGANISING COMMITTEE



EMERITUS PROF. SUTEE YOKSAN

Consultant,
Center for Vaccine Development,
Institute of Molecular Biosciences, Mahidol University, Thailand

Sutee Yoksan graduated from Mahidol University with a M.D. in 1979 and a Ph.D. in 1987. After obtaining his MD he did training in clinical pathology at the Department of Pathology, Ramathibodi Hospital Faculty of Medicine, Mahidol University. To increase his research capability he continued laboratory work at the Department of Tropical Medicine and Medical Microbiology, U. Hawaii, USA, Sir William Dunn School of Pathology, U. of Oxford, UK. and Queensland Institute of Medical Research, Brisbane, Australia.

From 1984-2014, he had been Director of the Center for Vaccine Development, Mahidol University. Dr. Sutee is a world leader in research on dengue and other arthropod-borne viral infections. He has published over 180 scientific papers and book chapters on many areas of vaccine research and development, namely dengue, Japanese encephalitis, Chikungunya and Zika vaccines.

At present he serves as a consultant of the Center for Vaccine Development, Institute of Molecular Biosciences, Mahidol University, Thailand.

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SPEAKERS' BIOGRAPHIES

PROF. EMERITUS DATIN DR LUCY LUM CHAI SEE

Senior Consultant, Department of Paediatrics,
University of Malaya Medical Center, Kuala Lumpur

Honorary Professor, Department of Paediatrics, Faculty of Medicine,
University of Malaya, Kuala Lumpur

Lucy Lum is a pediatrician with 30 years of experience in dengue management and pediatric intensive care. She collaborated with clinicians in Southeast Asia and Latin America in developing the 2009 revised dengue case classification, evaluation, and clinical research.

Serving as a WHO temporary advisor in dengue outbreak areas in Laos PDR and the Solomon Islands she, together with local healthcare workers, adapted the clinical case management to the minimally resourced environment. In 2012 she was commissioned by WHO Department of Control of Neglected Tropical Diseases to develop a handbook on clinical management of dengue. The Western Pacific Regional Office in 2013, invited her to coordinate the development of a training package in dengue case management, in line with the WHO 2009 Dengue Guidelines. This package serves as the principal training material for the Western Pacific region and Africa.

Before her retirement, she started a second career to promote child health and early childhood nutrition and development focusing on the first 1000 days when the foundation for life-long health is laid. Her collaboration with NGOs in community out-reach programs aims to improve nutrition among young children of urban poor families. Her dream is to live the circular economy with a carbon-neutral footprint where every child can realize his best potential.

SPEAKERS' BIOGRAPHIES

DR. LORRIE SUZETTE URBANO-CRUZ

Medical specialist, Research Institute for Tropical Medicine (RITM)
Assistant Training Officer of its Infectious Diseases Fellowship Program

Dr. Lorrie Suzette J. Urbano-Cruz, MD, FPCP, FPSMID, is a highly regarded internist and infectious diseases consultant, known for her clinical expertise, teaching excellence, and research contributions. She is a Fellow of both the Philippine College of Physicians and the Philippine Society for Microbiology and Infectious Diseases. Currently, Dr. Urbano-Cruz practices as a medical specialist at the Research Institute for Tropical Medicine (RITM) and serves as the Assistant Training Officer of its Infectious Diseases Fellowship Program, where she actively mentors future infectious disease specialists.

Dr. Urbano-Cruz leads the Steering Committee for the 2025 Animal Bites Clinical Practice Guidelines. As an Evidence Review Expert for the 2023 Dengue CPG and a peer reviewer for the Philippine Journal of Chest Diseases, she demonstrates a commitment to evidence-based medicine and research translation.

She completed her Doctor of Medicine degree and residency training in Internal Medicine at Cebu Doctors' University, followed by a fellowship in Infectious Diseases at RITM. Her training in Cardiology at the National Heart Center Singapore and clinical work experience at the Singapore General Hospital further broadened her perspective. Her accolades include the Dr. Antonio Gonzaga Research Award at the 44th PSMID Convention and the National Heart Center Singapore Service Quality Silver Award.

Driven by a passion for infection prevention, antimicrobial stewardship, and public health, Dr. Urbano-Cruz aspires to be an influential voice in the Philippine medical community, advancing care and championing best practices in infectious disease management.

SPEAKERS' BIOGRAPHIES

DR. LAKKUMAR FERNANDO

Nawaloka Hospital Negombo; Centre for Clinical Management of dengue & Dengue Haemorrhagic Fever, Negombo, Sri Lanka

Dr. LakKumar Fernando is a senior consultant paediatrician from Sri Lanka and the founder clinical head of the Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever(CCMDDHF), Negombo Sri Lanka, which is a centre of excellence for Dengue in Sri Lanka.

His concept, the CCMDDHF, is the world's first dengue treatment facility that handles both Children and Adults with dengue under one roof, together by a common team using common management principles. The centre has received international recognition for its record-low case fatality rate.

He is a key contributor to Sri Lanka's National Guidelines on Dengue for Children, Adults, and Pregnancy and to WHO/SEARO's latest guideline on dengue.

He received the Outstanding Asian Paediatrician Award from APPA in 2016 and the highest category of 'Civil Awards of Pakistan' conferred to any Sri Lankan national from the Government of Pakistan in 2018, for the impact he created by saving lives during its major dengue epidemic of 2011.

He is the coordinating Principal Investigator for Sri Lanka in Takeda's dengue vaccine trial.

He has many publications and presentations, both national and international, to his credit and is a well-known invited speaker at many international conferences on Dengue. In 2020, he won the 'New Investigator Award' from the International Society for Infectious Diseases (ISID) for his research on his new regimen of fluid therapy in DHF. He pioneered the use of limited bedside ultrasound scanning as a routine practice in dengue management. He campaigns to make dengue a zero mortality disease by perfecting the fluid management of the disease. He is also a member of the WHO/ RTAG for SEARO on Dengue and other Arboviruses.

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SPEAKERS' BIOGRAPHIES

DR. ARTHUR DESSI E. ROMAN

Internal Medicine - Infectious Diseases and Tropical Medicine
Medical Specialist III, Research Institute for Tropical Medicine

Dr. Arthur Dessi Roman is a practicing, board-certified internist and infectious disease specialist in Manila, The Philippines for over a decade. He took his Masters Degree with distinction in Tropical Medicine at the Nagasaki University - Institute of Tropical Medicine in 2014 under the Joint Japan/ World Bank Graduate Program Scholarship. He also undertook a Biomedical Research Fellowship under the Korea Centers for Disease Prevention and Control in 2013. He finished his Clinical Fellowship Training in Adult Infectious Diseases at the University of the Philippines - Philippine General Hospital in 2011.

He is Past President (2016-2018) and Adviser of the Philippine Hospital Infection Control Society. Currently, he is the Vice President of the Philippine Society for Microbiology and Infectious Diseases (PSMID) and the Head of the Medical Department, Research Institute for Tropical Medicine under the Department of Health of the Philippines.

He is a clinical associate professor at the U.P. Manila – Philippine General Hospital. He has been involved in the development of local clinical practice guidelines including being the Task Force chair on the CPG for dengue in the primary care. He is currently a member of the DOH Strategic Advisory Group of Experts for Emerging and Re-emerging Diseases.

SPEAKERS' BIOGRAPHIES

DR. MA. CHARMIAN M. HUFANO

Internal Medicine-Infectious
Disease Specialist

Dr. Ma. Charmian M. Hufano, MD, FPCP, FPSMID, is a distinguished infectious disease specialist and internal medicine consultant with extensive experience in antimicrobial stewardship, resistance surveillance, and infection prevention. She holds a Doctor of Medicine degree from the University of the East Ramon Magsaysay Memorial Medical Center and completed her residency in Internal Medicine at The Medical City, followed by a fellowship in Infectious Diseases at St. Luke's Medical Center.

Dr. Hufano is the Section Head for Infectious Diseases at De Los Santos Medical Center, where she also chairs the Antimicrobial Stewardship Committee and previously served as Chairperson of the Department of Medicine. At St. Luke's Medical Center, she is the Deputy Head of the Antimicrobial Stewardship Committee, reflecting her commitment to responsible antibiotic use and patient safety.

Her expertise extends to research and policy. As Assistant Head of the Antimicrobial Resistance Surveillance Program at the Research Institute for Tropical Medicine, Dr. Hufano managed microbiology laboratory networks, quality assurance, and surveillance initiatives. She has co-authored numerous genomic surveillance studies, including work on MRSA, Pseudomonas aeruginosa, and Acinetobacter baumannii in the Philippines, published in respected journals such as Nature Communications and the Western Pacific Surveillance and Response Journal.

A recognized leader, Dr. Hufano currently serves as Assistant Treasurer and Board Member of the Philippine Society for Microbiology and Infectious Diseases (PSMID). She actively contributes to PSMID committees focused on antimicrobial stewardship and adult immunization and is a member of the Philippine Medical Association and Philippine College of Physicians.

Dr. Hufano has received accolades for her leadership and contributions, including the CEO Award and the Award for Distinguished Service as Chair of the Department of Medicine at De Los Santos Medical Center. Her dedication to infection control, clinical care, and mentorship continues to make her an influential figure in the field of infectious diseases in the Philippines.

SPEAKERS' BIOGRAPHIES

DR. THEA PAMELA CAJULAO

Medical Specialist IV
Chairman
Baguio General Hospital and Medical Center

Dr. Thea Pamela Tabangin-Cajulao, MD, FPCP, FPSMID, is a respected internist and infectious disease specialist with over two decades of experience in clinical care, infection prevention, and public health. A graduate of Saint Louis University, she holds both a Bachelor of Science in Medical Technology and a Doctor of Medicine degree. Dr. Cajulao completed her residency in Internal Medicine at Baguio General Hospital and Medical Center (BGHMC) and her fellowship in Adult Infectious Diseases at the University of the Philippines-Philippine General Hospital.

Currently, Dr. Cajulao serves as Medical Specialist IV and Chair of the Infection Prevention and Control Unit at BGHMC, where she has led initiatives that garnered multiple national awards for excellence in infection control, including Best in Hand Hygiene and Best in Healthcare Waste Management. She also serves as Assistant Chair of the hospital's Antimicrobial Stewardship Committee and is actively involved in the TB DOTS Diagnostic Committee and Emerging and Re-Emerging Infectious Disease (EREID) initiatives.

Beyond hospital practice, Dr. Cajulao is Vice President of the Northern Luzon Chapter of the Philippine College of Physicians and sits on the board of the Philippine Society for Microbiology and Infectious Disease (PSMID). She has held key leadership roles in PSMID and has contributed to national technical working groups and research committees.

An accomplished researcher, Dr. Cajulao has authored and co-authored studies on typhoid fever diagnostics, antibiotic resistance, and infection trends, presented at international conferences such as ICAAC and published in peer-reviewed journals. She has also participated in clinical trials, including the WHO SOLIDARITY Treatment Trial for COVID-19.

Dr. Cajulao's unwavering commitment to infection prevention, research, and mentorship underscores her dedication to advancing patient care and infectious disease control in the Philippines.

SPEAKERS' BIOGRAPHIES

DR. JEMELYN U. GARCIA

Member, Technical Working Group on Antimicrobial Resistance, Department of Health Medical Specialist III, Antimicrobial Stewardship Committee Chair, and Overall Training Officer, Research Institute for Tropical Medicine
Antimicrobial Stewardship Committee Chair, Asian Hospital and Medical Center Active Consultant/ Infectious Disease Specialist at Asian Hospital and Medical Center

Dr. Jemelyn U. Garcia, MD, FPCP, FPSMID, is a distinguished infectious diseases specialist, researcher, and educator. She is a Fellow of both the Philippine College of Physicians and the Philippine Society for Microbiology and Infectious Diseases. Dr. Garcia earned her Doctor of Medicine degree from the University of the Philippines Manila in 2001, graduating in the top 10 of her class, after achieving magna cum laude honors for her Bachelor of Science in Public Health in 1996.

She completed her residency training in Internal Medicine and a fellowship in Infectious Diseases at the Philippine General Hospital. Dr. Garcia also enriched her expertise through an Infectious Diseases observership at the Mayo Clinic in Minnesota, USA.

Currently, Dr. Garcia is a Medical Specialist III and the Overall Training Officer at the Research Institute for Tropical Medicine, where she also chairs the Antimicrobial Stewardship Committee. She is the Antimicrobial Stewardship Committee Chair at Asian Hospital and Medical Center, where she practices as an active consultant. Her contributions extend to the national level as a member of the Technical Working Group on Antimicrobial Resistance of the Department of Health.

Dr. Garcia's research interests are centered on antimicrobial stewardship and infectious diseases epidemiology. She has co-authored numerous studies presented at prominent international conferences and published in peer-reviewed journals, including work on the Global Point Prevalence Survey and antimicrobial resistance.

Her leadership in professional societies and national health policy underscores her commitment to advancing infectious disease care and policy in the Philippines. Dr. Garcia's career is marked by her dedication to evidence-based practice, mentorship of emerging physicians, and relentless pursuit of better health outcomes through research and clinical excellence.

SPEAKERS' BIOGRAPHIES

PROF. RICARDO MANALASTAS

College of Medicine
Philippine General Hospital
UP Manila

Dr. Ricardo M. Manalastas Jr. is a Clinical Professor of Obstetrics and Gynecology at the University of the Philippines Manila, where he also served as full professor until his retirement in 2023.

With over three decades of experience at the Philippine General Hospital, he is a leading expert in infectious diseases in women, maternal health, and ethical issues in clinical care.

Dr. Manalastas completed his Doctor of Medicine at the University of the Philippines, followed by residency training in OB-GYN and subspecialty training in infectious diseases. He holds a Master of Science in Bioethics and has led and advised multiple research initiatives in reproductive health, sexually transmitted infections, and maternal infections, including dengue in pregnancy.

He currently chairs the National Ethics Committee under the Department of Science and Technology and is an active member of the Philippine Health Research Ethics Board. Widely published, he has also spoken internationally on HPV, HIV, and maternal infections.

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SPEAKERS' BIOGRAPHIES

MANUEL M. DAYRIT

Senior Research and Innovation Fellow
Ateneo School of Medicine and Public Health

Manuel M. Dayrit is one of the Philippines's leading public health practitioners. He has dedicated his life to improving health care and strengthening the Philippine health system.

Dr. Dayrit was Secretary of Health from 2001 to 2005 when he led the country in preventing the community spread of SARS in 2003. The Department of Health (DOH) was then recognized as one of the country's top performing government agencies.

His public health career spans 49 years. He has served in government, the NGO sector, the private sector, academia, and WHO. Early on, he established community-based health programs in the rural areas of Davao del Norte and pioneered in the training of community health workers. At the DOH, he was founding Director of the Field Epidemiology Training Program in 1987, directing it for 10 years. At WHO Geneva, he led the Department of Human Resources for Health in developing the WHO Code of Practice on the International Recruitment for Health Personnel. Ratified at the World Health Assembly in 2010, the WHO Code set out ethical principles to mitigate the loss of health workers from poor countries to richer countries. He served as Dean of the Ateneo School of Medicine and Public Health (ASMPH) from 2013 to 2019, overseeing the development of the next generation of health leaders.

He has degrees from the Ateneo de Manila University (Honorable Mention), the University of the Philippines College of Medicine and the London School of Hygiene and Tropical Medicine (Mark of Distinction). He became an Honorary Fellow of the London School in 2006.

He is the current Chairperson of the philanthropic Zuellig Family Foundation. He is also a Commissioner of the recently-launched Georgetown-Lancet Commission for Faith, Trust, and Health.

Dr. Dayrit has co-authored over 50 scientific articles including on the Dengvaxia controversy.

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PROF. OLIVER J. BRADY

Associate Professor, London School of Hygiene & Tropical Medicine
Lead, Dengue Mapping and Modelling Group

Professor Oliver J. Brady is an internationally recognized expert in the epidemiology and modeling of mosquito-borne diseases, including dengue, Zika, chikungunya, and yellow fever. Based at the London School of Hygiene & Tropical Medicine (LSHTM), he leads a multidisciplinary team dedicated to quantifying the global burden and predicting the transmission dynamics of these arboviral infections.

His research has contributed significantly to the development of disease risk maps, outbreak forecasting systems, and evaluation of novel control strategies such as *Wolbachia* interventions. Professor Brady collaborates closely with global partners including the World Health Organization, national health ministries, and development agencies to translate research into policy and practice.

He is also a dedicated educator, teaching spatial epidemiology, infectious disease modeling, and data science to postgraduate students and global health professionals. His work is supported by the MRC, Wellcome Trust, Bill & Melinda Gates Foundation, and the AXA Research Fund.

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ASSOC. PROF. NG LEE CHING

Group Director, Environmental Health Institute,
National Environment Agency, Singapore

Associate Professor Ng Lee Ching is Group Director of National Environment Agency's Environmental Health Institute in Singapore and a WHO Collaborating Centre. She spent 20 years contributing to building laboratory capability for Singapore's public health and developing tools and strategies for mitigation of risks.

Dr Ng is also associated with the Nanyang Technological University; serves as Advisor to WHO for dengue and chikungunya surveillance and control and is Director of the WHO Collaborating Centre for Reference and Research of Arbovirus and their Associated Vectors.

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DR. VENUS OLIVA CLOMA-ROSALES

Founder and Managing Director, 101 Health Research

Dr. Cloma-Rosales is the founder of 101 Health Research, a private independent firm established in 2014 that specializes in research methodology, biostatistics, and health data science. Her firm supports evidence-based policymaking through work with institutions such as the Philippine Department of Health, PhilHealth, the Department of Science and Technology, UNAIDS, and several private healthcare organizations.

She currently serves as a member of the Healthcare Technical Working Group of the 2nd Congressional Commission on Education, contributing to policy reforms to support healthcare education and training. She is also the Chairperson of the National University of Singapore Alumni Network in Manila and serves as Assistant Vice President of the Philippine Association of Medical Journal Editors, reflecting her commitment to research quality and capacity-building in the region.

Dr. Cloma-Rosales holds a BS Biology degree from the University of the Philippines Diliman and earned her Doctor of Medicine from the University of Santo Tomas. She completed her Pediatrics residency at Makati Medical Center and later obtained a Master in Public Health from the National University of Singapore Saw Swee Hock School of Public Health. She also graduated as Class Valedictorian from the Asian Institute of Management with a Master in Entrepreneurship.

For this session, she will share recent research in health policy and systems related to dengue control in the Philippines.

SPEAKERS' BIOGRAPHIES

DR. ANGKANA T. HUANG

University of Cambridge

Angkana T. Huang, aka Hat, leverages her multidisciplinary experiences (industrial design, computer science, and biology) to understand factors that shape transmission of infectious pathogens, focusing on those that disproportionately affect under-resourced populations, and to develop suitable means to combat public health threats in these settings. At population scales, she studies how changes in demography and societal interactions impact the ecology and evolution of pathogens.

At molecular scales, she works to uncover molecular mechanisms responsible for antigenic differences between closely related strains. In addition to advancing knowledge through complex mathematical models, she also works to expand the capabilities of local communities to improve their ability to address their own specific challenges.

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DR. RAMON V. NAJARRO

Pediatric Intensivist | Former Chief of Medical Services, Vicente Sotto Memorial Medical Center

Dr. Ramon V. Najarro is a highly respected pediatrician and critical care specialist with over four decades of dedicated service in Philippine medicine. A leader in pediatric intensive care, he has significantly contributed to the development and advancement of pediatric critical care in the country.

Dr. Najarro completed his medical degree at the Cebu Institute of Medicine, followed by postgraduate internship and pediatric residency at Vicente Sotto Memorial Medical Center (VSMMC), where he later served as Chief Resident. He trained further in Pediatric Critical Care at the Philippine Children's Medical Center and as a Visiting Fellow at the Children's Medical Center of Dallas, USA.

Throughout his career, Dr. Najarro has held numerous leadership roles. He served as Chief of Medical Services at VSMMC (2019–2021) and is currently Chairman of the Department of Pediatrics at the same institution. He also leads the Pediatric Intensive Care Units (PICUs) at Chong Hua Hospital–Mandaue, Perpetual Succour Hospital, and the University of Cebu Medical Center.

An active educator and speaker, Dr. Najarro is a regular resource person in national and international workshops and conventions focused on pediatric critical care, sepsis, and dengue management. His expertise is widely recognized, having served as Past President of both the Society of Pediatric Critical Care Medicine – Philippines (SPCCMP) and the Philippine Pediatric Society – Central and Eastern Visayas Chapter.

Dr. Najarro received a 40 Years in Service Award from Vicente Sotto Memorial Medical Center in 2022. He is currently a member of the board of examiners of the Society of Pediatric Critical Care Medicine, Philippines (SPCCMP). He is a long-standing member of the Philippine Pediatric Society, Philippine Society of Critical Care Medicine, and the Philippine Medical Association.

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ASSOC PROF. NATHAN GRUBAUGH

Yale School of Public Health

Nathan Grubaugh joined the faculty at Yale School of Public Health in 2018. Before going to graduate school, he spent ~7 years working in the biotech industry developing early phase vaccine candidates. He earned his MS in biotechnology from Johns Hopkins University (2011) while conducting research at the NIH and the US Army Research Institute of Infectious Diseases (focus on mosquito-borne virus surveillance).

Dr. Grubaugh earned his PhD in microbiology from Colorado State University in 2016 (focus on West Nile virus evolution), and went on to be a postdoctoral fellow at The Scripps Research Institute to study the 2015-2017 Zika virus epidemic. Now at Yale, the Grubaugh Lab uses genomics and phylogenetics to uncover the epidemiological, ecological, and evolutionary determinants of virus outbreaks.

They primarily focus on mosquito- and tick-borne viruses, like dengue, West Nile, and Powassan, that are increasingly spreading into new areas and have high outbreak potential. The Grubaugh Lab is diverse and multidisciplinary, including expertise in molecular biology, phylogenetics, statistics, and mathematical modeling. His lab was critical during the COVID-19 response, from designing and evaluating diagnostics (such as SalivaDirect) to establishing the Yale SARS-CoV-2 Genomic Surveillance Initiative to track emerging variants.

Expanding on this work, the lab is an academic partner for the Pathogen Genomics Centers of Excellence to foster and improve innovation and technical capacity in pathogen genomics, molecular epidemiology, and bioinformatics to better prevent, control, and respond to microbial threats of public health importance.

Read more about their team and work at grubaughlab.com.

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DR. RAUL V. DESTURA

Professor & University Scientist 2
National Institutes of Health
University of the Philippines Manila

Dr. Raul V. Destura, MD, is a leading physician-scientist in infectious diseases, biosafety, and biosecurity, celebrated for his contributions to Philippine and global health. With a Bachelor of Science in Microbiology from the University of Santo Tomas and a Doctor of Medicine degree from De La Salle University Health Sciences, and Fellowship in Infectious Diseases at the Philippine General Hospita-Universty of the Philippines Manila, Dr. Destura has dedicated his career to advancing infectious disease care, research, and public health.

Dr. Destura currently serves as the founder and CEO of Manila Healthtek inc., the developer of the local Dengue Isothermal Diagnostic amplification technology, the Biotel-M Dengue kit. Previously, he held the position of Deputy Executive Director for Strategic Initiatives and Emerging Programs of UP-National Institutes of Health and Deputy Executive Director at the Philippine Genome Center, where he was instrumental in developing cutting-edge diagnostic tools and genomic solutions for emerging infectious threats. Dr. Destura's leadership in biosafety and biosecurity, led to the creation of over 130 advanced biosafety officers in the country that spearheaded the Biosafety Education and Awareness Training (BEAT) against COVID-19, has shaped national policies and strengthened laboratory preparedness.

An award-winning researcher, Dr. Destura has been recognized by the National Research Council of the Philippines and the Philippine Medical Association for his outstanding work in modern medicine. His commitment to innovation has earned him the Presidential Lingkod Bayan Award for Research in Medical Sciences, among other honors. In addition to his clinical and research leadership, Dr. Destura is a sought-after educator and mentor, sharing his expertise through seminars and workshops across Asia and beyond. His unwavering dedication to public health, innovation, and capacity-building continues to make a transformative impact on the health sector in the Philippines and throughout the region

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DR. DE ALWIS, RUKLANTHI (RUKIE)

Deputy Director, Centre for Outbreak Preparedness, Duke-NUS Medical School
Assistant Professor, Emerging Infectious Diseases Programme, Duke-NUS Medical School

Ruklanthi (Rukie) de Alwis is the Deputy Director of the Center for Outbreak Preparedness (COP) and Assistant Professor in the Emerging Infectious Diseases (EID) Programme at Duke-NUS Medical School. Rukie is a viral immunologist and vaccinologist with over a decade of experience working on infectious diseases. Her research interests include antibody responses, surveillance, and vaccines against viral pathogens. She particularly values working in close collaboration with local and international partners, including low and middle-income countries.

Rukie obtained her PhD in Microbiology and Immunology at the University of North Carolina (UNC), Chapel Hill, USA. During her doctoral work, she contributed to mapping of both neutralizing and enhancing human antibody responses following infections and vaccination against arboviruses (specifically Dengue virus). She then spent some time at La Jolla Institute (LJI), CA, USA learning about virus-specific T cell responses. Rukie further acquired training in epidemiology and public health during her MPH at the London School for Hygiene and Tropical Medicine (LSHTM), UK. After which she worked for Oxford University, UK as an epidemiologist, setting up epidemiological surveillance studies and vaccine trials at OUCRU, Ho Chi Minh City, Vietnam.

Her vast interests in both infectious diseases and vaccination ultimately brought her to the Emerging Infectious Diseases Programme at Duke-NUS Medical School, Singapore. At Duke-NUS, she set up systems serology to investigate antibody responses to natural infections or vaccinations against Dengue virus, yellow fever virus, and chikungunya virus etc. During COVID-19, she worked together with a network of collaborators on developing a self-amplifying RNA vaccine against COVID-19.

Rukie now leads and support several vaccine-related projects and genomics initiatives, including the Asia Pathogen Genomics Initiative (Asia PGI). Asia PGI partners with 15 Asian countries (mostly lower resourced) to improve access to pathogen genomic sequencing to maximize public health utility. One of her key roles in Asia PGI is capacity development and to ensure that pathogen genomic information is utilized to optimize new tool design (i.e. diagnostics and vaccines) and implementation.

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DR. RONTGENE M. SOLANTE

Chairman,
Adult Infectious Diseases and Tropical Medicine (AIDTM) Fellowship Program
San Lazaro Hospital

Dr. Rontgene M. Solante, MD, FPCP, FPSMID, FIDSA, is a highly respected infectious disease expert with over three decades of clinical, research, and teaching experience in the Philippines. Dr. Solante earned his Doctor of Medicine degree from the Cebu Institute of Medicine and completed his fellowship in infectious diseases at the University of the Philippines-Philippine General Hospital (UP-PGH).

He currently chairs the Adult Infectious Diseases and Tropical Medicine Fellowship Program at San Lazaro Hospital, Manila, and the Section of Infectious Diseases at Adventist Medical Center Manila. At ManilaMed Medical Center Manila, he leads the Antimicrobial Stewardship Program and the Infection Prevention and Control Committee, underscoring his dedication to patient safety and infection control.

Dr. Solante has been a trusted voice in the national COVID-19 response, serving as a member of the Vaccine Experts Panel of the Department of Science and Technology, the COVID-19 Vaccine Pool of Experts at the Philippine Food and Drug Administration, and the Technical Working Group for the COVID-19 Vaccine Cluster at the Department of Health.

Recognized for his clinical leadership and health advocacy, Dr. Solante has received several prestigious awards, including the Gawad Bayaning Kalusugan by the Department of Health in 2020 and the Philippine College of Physicians Presidential Award for Physicians Caring for the Philippines. In 2018, he was granted Fellow status by the Infectious Diseases Society of America (IDSA), an acknowledgment of his international standing.

Dr. Solante also holds academic roles as a Clinical Assistant Professor at the University of the East Ramon Magsaysay Memorial Medical Center. A prolific speaker and mentor, he continues to champion antimicrobial stewardship, vaccine confidence, and the care of immunocompromised patients, making significant contributions to both national health policy and patient care.

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DR. MOHD RIDZUAN MOHD ABDUL RAZAK

Head of the Bioassay Unit
Herbal Medicine Research Centre
Institute for Medical Research
Malaysia's Ministry of Health

As the Head of the Bioassay Unit at the Herbal Medicine Research Centre within the Institute for Medical Research, part of Malaysia's Ministry of Health, he earned his PhD in Structural and Molecular Biology from University College London in 2012. His expertise includes researching herbal medicine for combating dengue, malaria, and COVID-19. Currently, he is a member of Dengue Alliance Pre-clinical Working Group, Ministry of Health Malaysia.

He is also a committee member for SEAMEO TROPMED Regional Centre for Microbiology, Parasitology and Entomology and Animal Care and Use Committee for Ministry of Health, Malaysia. He is one of the expert panel members for National Institutes of Health Research Evaluation Committee, Ministry of Health Malaysia and Ministry of Science, Technology & Innovation (R&D Project Funds. He is also a Quality Assurance Officer for Good Laboratory Practice Laboratory in the Institute for Medical Research.

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PROF. GATHSAURIE NEELIKA MALAVIGE

Department of Immunology and Molecular Medicine
Institute of Allergology and Immunology
University of Sri Jayewardenepura

Neelika Malavige is a Professor at the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura and an academic visitor at the Weatherall Institute of Molecular Medicine, University of Oxford. She is also the president elect of the International Society of Infectious Disease. Her research focus has been on immunopathogenesis of dengue, biomarkers and immune correlates of protection and translating these findings into clinical trials. She sits on or chairs numerous national and international scientific advisory boards, funding panels and editorial boards.

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DR. ANDRE SIQUEIRA

Head of Dengue Global Programme, DNDi

André has worked in clinical research for the past 15 years, focusing on acute febrile illnesses such as malaria, dengue and chikungunya. He has designed and conducted several observational and intervention studies for the prevention and treatment of these diseases and was part of the team that described the risk of microcephaly in foetuses of pregnant women infected with Zika. He is also one of the Principal Investigators for Butantan's dengue vaccine clinical trial and founded/coordinated the Chikungunya Clinical and Applied Research Network (REPLICK).

He is a member of several national and international advisory committees, including CEPI's Scientific Advisory Committee and Brazil's National Malaria and Arbovirus Programmes, involved in drafting the most recent versions of the Clinical Management Guidelines for Malaria, Chikungunya and Dengue for the Ministry of Health. Currently, Andre is the Head of Dengue Programme at DNDi.

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ASST. PROF. ADAM WAICKMAN

Department of Microbiology and Immunology
Upstate Medical University

Dr. Adam Waickman, PhD is an Assistant Professor in the Department of Microbiology and Immunology and Laboratory Director at the Institute for Global Health and Translational Sciences at SUNY Upstate Medical University in Syracuse, NY. He received his PhD from the Johns Hopkins University School of Medicine in Baltimore, MD, and performed his postdoctoral training at the National Institutes of Health (NIH) and the Walter Reed Army Institute of Research (WRAIR). His group at SUNY Upstate is dedicated to understanding how the interactions between infectious organisms and the human immune system result in pathogenesis and/or durable immunity. His work is primarily focused on viral pathogens – such as dengue, Zika, and SARS-CoV-2 - and leverages "next generation" technologies such as single cell RNA sequencing, multi-parametric flow cytometry, and computational modeling.

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PROF. NATTACHAI SRISAWAT

Consultant, Clinical Instructor,
Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Dr. Nattachai Srisawat joined the Division of Nephrology, Department of Medicine at Chulalongkorn University in 2011 and is currently working as a clinical instructor. He is actively involved in several centers at Chulalongkorn University (Critical Care Nephrology Research Unit, Tropical Medicine Cluster), King Chulalongkorn Memorial Hospital (Excellence Center for Critical Care Nephrology) and Royal Society of Thailand (Associate Fellow, Academy of Science) in Thailand. He is an active member and having an active association with different professional societies and academies both regional and international level such as be a steering committee of Kidney Disease Improving Global Outcome, AKI controversies conference in Italy. His current research interests involve in tropical infectious disease especially dengue, leptospirosis, Critical Care Nephrology. He has published his contributions and works in national and international text books including reputed professional journals. He also works as an Associate Editor for Nephrology journal and Subject Editor for BMC Nephrology.

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DR. HASITHA TISSERA

Chief Epidemiologist
Ministry of Health & Mass Media
Sri Lanka

Dr. Tissera is a senior medical epidemiologist and specialist in public health, currently serving as the Chief Epidemiologist at the Ministry of Health, Sri Lanka. In his capacity, he leads the country's national programmes for the surveillance, prevention, and control of communicable diseases, and serves as the Programme Manager of the National Immunization Programme.

He previously served as the Director and Coordinator of the National Dengue Control Programme from 2013 to 2019, where he played a central role in designing and implementing strategies to combat dengue and other vector-borne diseases. From 2022 to 2024, Dr. Tissera was appointed as a Consultant to the World Health Organization's Global Arbovirus Initiative at the WHO Regional Office for the Western Pacific in Manila.

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ASSOC. PROF SOMIA IQTADAR

King Edward Medical University
Lahore, Pakistan

She received her bachelor's degree in sciences in 2001 and completed her bachelor's in medicine & surgery in 2004 from her country's top medical institution, King Edward Medical University where she's serving as Associate Professor in Department of Medicine. Prof. Somia completed her post graduation in internal medicine in 2010 and became fellow of College of Physicians and Surgeons Pakistan and was also awarded FRCP from Royal College of Physicians London in 2021 . She is also trained at Asian Institute of Technology Thailand, Sri Lanka and WHO Singapore in Dengue fever and is currently working as a Master Trainer of Dengue Fever for the government of Punjab, and for WHO for the Asia Pacific. She has served in the capacity of Secretary and later Chairperson of Dengue Expert Advisory Group (DEAG),Pakistan which provides national guidelines on clinical management of Dengue infection and imparts training to doctors and paramedical staff and advises policy makers on Dengue Control .She has more than 50 publications to her name and is author of three books. She is the primary author of Guidelines on Dengue and Pregnancy and COVID-19 for Govt of Pakistan. Prof Somia has also contributed chapters on Dengue in Kumar and Clark and McMaster textbook of Medicine. She is the Secretary General of Pakistan Society of Internal Medicine and recipient of Governors award in year 2021 for her contribution to the field of Medicine.

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DR. MICHELLE YLADE

Institute of Child Health and Human Development

Dr. Michelle Ylade is a medical doctor and an epidemiologist. She has been conducting research since 2008 as a sub-investigator in clinical trials and doing epidemiologic research conducted by the Pediatric Infectious Disease Section of the Philippine General Hospital and De La Salle Health Sciences Institute. She worked on research mainly involving vaccine preventable diseases such as influenza, Neisseria meningitidis, hepatitis B, cholera, measles, pneumonia and dengue. Dr. Ylade received her bachelor's degree from De La Salle University Manila (BS Human Biology) and her medical degree from De La Salle University Health Sciences Institute. She obtained her master's degree from the London School of Hygiene and Tropical Medicine, London, United Kingdom.

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ASSOC PROF. LAURA RIVINO

Associate Professor in Immunology
School of Cellular and Molecular Medicine
University of Bristol

Dr Laura Rivino graduated with a MSci in biological sciences at University of Milan in Italy and completed a PhD in Immunology at the Institute for Research in Biomedicine in Bellinzona, Switzerland in 2007. Her PhD work focused on understanding how human memory T cells are generated and maintained during health and disease. During her post-doctoral training in Singapore at the National University of Singapore (NUS) and subsequently at Duke-NUS Medical School she became passionate about translational research and defining the role of T cells in virus infections of clinical importance, including dengue virus and Hepatitis B virus. In 2016 Rivino was awarded a NMRC New Investigator grant to study the role of T cells in dengue virus infection and she was appointed Assistant Professor at Duke-NUS Medical School, Singapore.

In 2019 Dr Rivino joined the School of Cellular and Molecular Medicine at the University of Bristol (UK) as Senior Lecturer and was promoted to Associate Professor of Immunology in 2023. She holds an adjunct faculty appointment at the Emerging Infectious Diseases Programme, Duke-NUS, Singapore. Her team's research focuses on immune responses in virus infections including dengue, zika and SARS-CoV-2 and during vaccination for different virus infections. A strong interest of her team is to define correlates of protection and immunopathology for dengue. Her team's work is supported by funding from the Wellcome Trust, the Academy of Medical Sciences and UKRI.

Dr Rivino is the Immunology theme lead at the School of Cellular and Molecular Medicine of the University of Bristol and is a member of the congress committee of the British Society for Immunology (BSI) and of the Wellcome Trust Immune System in Health & Disease Discovery Advisory Group. She is currently a consultant for the Novartis dengue programme.

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ASST. PROF. SHIRIN KALIMUDDIN

Assistant Professor, SingHealth Duke-NUS Medicine Academic Clinical Programme

Dr. Shirin Kalimuddin is a senior consultant with the Department of Infectious Diseases at the Singapore General Hospital (SGH), and is a faculty member of the Programme in Emerging Infectious Diseases at Duke-NUS Medical School. Her research focuses on infectious disease outbreaks and emerging infections. Her goal is to combine clinical epidemiology with deep molecular investigations to define the aetiology and identify potential therapeutic strategies to control outbreaks. This goal is exemplified by the investigation into the large 2015 Group B Streptococcal outbreak in Singapore, which she led. Detailed molecular epidemiology findings pinpointed consumption of raw freshwater fish as the cause of the outbreak - changes in public health regulation led to curtailment of the outbreak.

Since the onset of the COVID-19 pandemic in 2020, she has played a key role in a multi-institutional research collaboration to study the immunopathogenesis of SARS-CoV-2. These investigations have led to insights on how host response to viral infection shapes disease outcome, which has led her to now explore novel therapeutic strategies that modulate host response to infections. Her ability to translate insights from host response studies into therapeutic strategies recently received a boost as she was awarded the National Medical Research Council Transition Award in 2019 to develop new antiviral strategies for pandemic response. Dr. Kalimuddin has co-authored over 50 research papers, and has published in authoritative journals such as NEJM, Nature and The Lancet.

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ASSOC. PROF. ILARIA DORIGATTI

School of Public Health
Imperial College London
United Kingdom

Dr Ilaria Dorigatti is Associate Professor in Infectious Diseases Analysis and Modelling at the School of Public Health at Imperial College in London, UK. She has contributed to collective efforts to characterising the epidemiology and real-time outbreak response to several emerging viruses including Ebola, Zika, Yellow Fever and SARS-CoV-2. Dr Dorigatti uses statistical and mathematical models to link epidemiological data from multiple sources to better understand transmission dynamics and the potential impact of new control interventions, ultimately to inform policy decision using a data-driven evidence-based approach. To date, Dr Dorigatti's research is entirely focused on arboviruses. Her recent analyses of the Takeda dengue vaccine clinical data have informed the latest WHO SAGE recommendations on dengue vaccine use globally. In collaboration with DNDi, she has led the design, analysis and modelling of dengue seroprevalence surveys using convenient samples in Ghana, DRC and Senegal.

Working in collaboration with African partners in Benin, Gabon, Togo, Nigeria, Ethiopia, Uganda, Tanzania and Madagascar, she is currently leading the Wellcome-funded xSTAR (multiplex Serology Testing and Analysis Platform) project which aims to generate arbovirus seroprevalence data across hundreds of locations to identify climate, ecological and environmental drivers of infection risk. Dr Dorigatti's group also focuses on better understanding how climate affects arbovirus risk in humans, and as part of the VIMC Climate Change project, she is developing dengue transmission models to project the impact of climate change.

In a collaboration with WHO SEARO and the Sri Lanka Ministry of Health, Dr Dorigatti's team has recently developed dengue forecasting models that will soon be operationalized within the National Dengue Control Unit to help inform decision making and vector control planning in the country. Last but not least, Dr Dorigatti is currently supervising 6 PhD students and is passionate about training the next generation of scientists around the world.

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PROF. ALBERT KO

Yale Schools of Public Health and Medicine
Gonçalo Moniz Institute, Oswaldo Cruz Foundation, Brazilian Ministry of Health

Dr. Albert Icksang Ko is the Raj and Indra Nooyi Professor of Public Health at the Yale School of Public Health and Collaborating Researcher at the Oswaldo Cruz Foundation, Brazilian Ministry of Health. He served as Chair of the Department of Epidemiology of Microbial Diseases at Yale (2010-2021) after being stationed with the Brazilian Ministry of Health in Salvador, Brazil for 15 years. His research centers on the health problems that have emerged as a consequence of rapid urbanization and social inequity. Dr. Ko coordinates an urban health program in Brazil, which focuses on delineating the role of social marginalization, urban ecology, and climate on infectious disease threats to informal settlements and implementing community-driven interventions in these settings. He and his team have mobilized the research and public health response to multiple epidemics, which include meningitis, leptospirosis, dengue, Zika virus infection and associated birth defects, and the COVID-19 pandemic.

He is a member of the WHO R&D Blueprint Working Group and Taskforce for Zika Virus and the NASEM Forum of Microbial Threats. During the pandemic, he was the co-chair of Reopen Connecticut Advisory Group which developed the state's COVID-19 response plan and served as advisor to Governor Lamont, in addition to providing support to the Oswaldo Cruz Foundation for its pandemic response in Brazil.

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PROF. KIM MULHOLLAND

Role Group Leader / Snr Princ Research Fellow
University of Melbourne and The Royal Children's Hospital, Melbourne

Kim Mulholland is an Australian paediatrician, trained at Melbourne University & the RCH, Melbourne. With post-graduate training in immunology, respiratory medicine & tropical medicine he joined the MRC Gambia in 1989, where he developed a program of research covering all aspects of the problem of childhood pneumonia. This included studies of the aetiology, clinical signs, & treatment of pneumonia cases, with particular reference to infants & malnourished children. These studies helped to guide WHO policy in the field & oxygen & antibiotic management for hospitalized children, & contributed to the strategy development of IMCI. In Gambia he worked on projects relating indoor air pollution to pneumonia. His Hib vaccine trials were the 1st to demonstrate the capacity of a conjugate vaccine to prevent bacterial pneumonia & paved the way for Hib vaccine introduction in Africa.

Kim chaired the MRC/Gambia Government Ethics Committee for 3 years. 6 years later, he joined WHO HQ where he oversaw the development of standardized methods for the evaluation of pneumonia vaccines in developing countries. At WHO Kim was the focal point for air pollution in the Child & Adolescent Health Department & helped design the RESPIRE study in Guatemala. He co-chaired a review of ethics at WHO HQ.

Since 2000 Kim has continuously work in the pneumonia field with focus on vaccines. He was one of the founders of GAPP, & one of the leaders of Hib Initiative that saw the introduction of Hib vaccines into the poorest countries. Kim established leading pneumococcal microbiology & immunology laboratories at the MCRI, along with major pneumococcal field research programs in Vietnam, Fiji & Mongolia. He established the CICH in 2001 & remains involved in Global Health leadership at MCRI. In Mongolia he works with NCCD on pneumonia control in children & adults, & leads HPV research programs in Mongolia, Vietnam & Ethiopia.

With Kim's over 30-years' experience in RSV research projects, he currently leads projects in Mongolia & Vietnam. He has led the typhoid research project in Fiji since 2012. Kim has been involved in the oversight of many vaccine trials, serving on steering committees & DSMBs for a range of vaccines of Pneumococcal, Dengue, RSV & Covid-19. He is currently a member of the WHO SAGE on Immunization, & has served on Working Groups of pneumococcal, measles & rubella, Covid-19, Dengue & RSV.

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DR. SUNATE CHUENKITMONGKOL

Deputy Director
National Vaccine Institute Thailand

Dr. Sunate Chuenkitmongkol is a medical doctor with a vaccine development background who currently serves as Deputy Director at the National Vaccine Institute (NVI), Thailand. She earned her M.D. degree from Mahidol University and has extensive experience in vaccine clinical trial design and operations across Phase II–IV studies. Her work has covered vaccines for diseases including dengue, influenza, and Japanese encephalitis, and she has published over 10 research articles on epidemiology, vaccine immunogenicity, and safety studies.

Prior to joining NVI, she spent 19 years as Vaccine Medical Director in the private pharmaceutical sector, working closely with Thailand's Ministry of Public Health (MOPH) on vaccine-preventable disease programs. Dr. Sunate combines vaccine advocacy with technical expertise and has deep knowledge of immunization program management, policy decision-making, and technical support.

Currently, she supports Thailand's National Advisory Committee on Immunization Program (ACIP), advising on the technical and operational introduction of new vaccines, including COVID-19, HPV, pneumococcal, and influenza vaccines. During the COVID-19 pandemic, she advised on clinical research development for local vaccine candidates, including mRNA, NDV-HXP-S, and plant-based subunit vaccines, and prioritized investments in vaccines with significant public health impact, such as dengue and influenza.

She played a pivotal role in supporting vaccine strategies during the Delta outbreak in 2021, providing scientific evidence for booster doses, heterologous vaccine regimens, and adolescent vaccination policies. She also contributed to accelerating vaccine procurement and strengthening public communication efforts through webinars and partnerships with WHO, academia, and the private sector.

Regionally, Dr. Sunate spearheads the ASEAN Vaccine Security and Self-Reliance (AVSSR) initiative, leading the implementation of the AVSSR Strategic and Action Plan (2021–2025) across ASEAN Member States and promoting international collaboration with WHO, CEPI, RVMC, UNICEF, and IVI.

SPEAKERS' BIOGRAPHIES

DR. WILLIAM STEPHENSON TJENG

Asian Society of Pediatric Infectious Disease
Indonesian Pediatric Infectious and Tropical Disease Coordination Work Unit
Indonesian Pediatric Association

Dr. William Stephenson Tjeng is a pediatrician and lecturer at the Department of Child Health, Faculty of Medicine, Public Health, and Nursing, Mulawarman University, East Borneo, Indonesia. At Abdul Wahab Sjahranie General Hospital in Samarinda, he practices as a pediatrician in the Division of Infectious and Tropical Diseases. Dr. Tjeng also serves as the Head of the Diphtheria Expert Committee in East Borneo and as the Head of the Regional Committee for Adverse Events Following Immunization (AEFI) in East Borneo.

Dr. Tjeng earned his Pediatrician degree from Sam Ratulangi University, North Sulawesi, Indonesia, and completed his Pediatric Infectious Disease Consultant training at Indonesia University, Jakarta.

Dr. Tjeng has recently begun research focusing particularly on dengue and adverse events following immunization. His current research collaborations include studies on the cost-effectiveness of dengue vaccination and the assessment of adverse events following dengue vaccination.

SPEAKERS' BIOGRAPHIES

DR. FERNANDO BOZZA

Senior Scientist, Oswaldo Cruz Foundation (FIOCRUZ), and IDOR, Rio de Janeiro, Brazil

Dr. Fernando A. Bozza is a medical professional and clinical researcher with expertise in public health, critical care, and infectious diseases. He obtained his medical degree in 1987 and a Master's in Biological Sciences (Pharmacology) in 1994 at the Federal University of Rio de Janeiro (UFRJ). He then pursued a Ph.D. in Cellular and Molecular Biology at FIOCRUZ in 2004. His research has focused on severe emerging and re-emerging infectious diseases, antimicrobial resistance, and the long-term consequences of critical illness.

Bozza has been actively involved in clinical and translational research throughout his career. As founder and first president of BRICnet (Brazilian Research In Intensive Care Network), he established collaborative clinical research initiatives, including large-scale trials, to address knowledge gaps of severe illness in LMICs.

During the COVID-19 pandemic, his team conducted comprehensive analyses assessing its impact on the Brazilian health system, healthcare disparities, mortality trends, and vaccination campaigns. He developed community-based interventions, facilitating extensive testing and integrated surveillance, healthcare, and communication to reduce mortality rates in vulnerable communities. Additionally, he led initiatives like Dados do Bem (Data for Good), a Mobile testing strategy; #VacinaMare, a large-scale vaccination program in Favela da Maré; and the Cohorts of Maré, a population-based study focusing on vaccination and health system utilization.

He serves as a board of directors member at the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC) and offers technical advice to WHO and GLoPID-R. He is supported by Wellcome Trust, Bill and Melinda Gates Foundation, CDC-Atlanta, and Fiocruz grants. He is a co-author of over 250 peer-reviewed publications.

SPEAKERS' BIOGRAPHIES

DR. NIKKI KITIKITI

Vaccines External Engagement & Advocacy Lead,
Takeda Pharmaceuticals International Emerging Markets Region

Dr Nikki Kitikiti (MD, MPH, FAMS) is Vaccines External Engagement & Advocacy Lead at Takeda Pharmaceuticals International Emerging Markets Region which covers Asia-Pacific, Latin America, Africa and the Middle East. She is also an Associate Visiting Expert at the Duke-NUS Medical School Centre of Regulatory Excellence (CoRE). Dr Kitikiti completed her medical degree and Public Health Medicine specialist training in Singapore where she maintains full registration and part-time clinical practice. She has a diverse range of health system experience including roles in Singapore government health agencies, clinical practice, hospital administration, global health policy and outbreak management.

SPEAKERS' BIOGRAPHIES

PROF. DR. JOÃO BOSCO SIQUEIRA JR

MD, MSc, PhD Tropical Medicine

Professor Dr. João Bosco Siqueira Jr, MD, MSc, PhD in Tropical Medicine, is an Associate Professor of Epidemiology at the Department of Public Health, Institute of Tropical Pathology and Public Health, Federal University of Goiás. His extensive experience in disease surveillance is underscored by his tenure as an Advisor for Disease Surveillance in the National Dengue Control Programme at Brazil's Ministry of Health from 2005 to 2016. Additionally, he has served as a Consultant for the Regional Programme on Dengue at the Pan American Health Organisation, contributing to the Working Group on Dengue (GT-Dengue) in Bolivia and Venezuela in 2003 and 2005, respectively. Professor Dr. Siqueira Jr's research focuses on dengue and other arboviruses, communicable disease surveillance, and the epidemiological investigation of outbreaks and epidemics.

SPEAKERS' BIOGRAPHIES

PROF. ASRUL AKMAL SHAFIE

Professor of Pharmacoeconomics and Director, Institutional Planning & Strategic Centre, Universiti Sains Malaysia

Prof. Asrul Akmal Shafie is currently the Professor of Pharmacoeconomics and the Director of the Institutional Planning & Strategic Centre at Universiti Sains Malaysia. In this capacity, he is responsible for strategically driving the university's excellence and competitiveness at both global and national levels.

He completed his Ph.D. in 2008. His research interests lie in pharmacoeconomics and health services research, and he has published more than 400 peer-reviewed journal articles, books, and monographs, with an H-index of 41. Prof. Shafie is also an appointed expert member for the UK National Institute for Health Research Committee, the Malaysia Institute of Health Services Research, and the Malaysia Pharmacoeconomic Technical Committee.

SPEAKERS' BIOGRAPHIES

DR. EDUARDO LÓPEZ-MEDINA

MD, Pediatrician, Infectious Diseases Specialist on Inmunocomromised Host.Centro de Estudios en Infectología Pediátrica CEIP

Dr. Eduardo López-Medina, MD, MSc, is a distinguished Scientific Director and Investigator at the Centro de Estudios en Infectologia Pediatrica (C.E.I.P) in Cali, Colombia. He currently leads the study titled "Epidemiology of dengue infection in the era of the introduction of tetravalent vaccines: a prospective, longitudinal time series analysis," which underscores his expertise in epidemiological research. Dr. López-Medina was honored with the prestigious Journal of the American Medical Association (JAMA) Paper of the Year award in 2021, reflecting the significant impact of his work. He also serves as the Latin American representative in the Educational Committee and the Journal Club Steering Committee of the World Society for Pediatric Infectious Diseases, showcasing his commitment to advancing pediatric infectious disease knowledge. His primary research interests include vaccine clinical trials, vaccine-preventable infections, and infections in immunocompromised hosts.

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DR. MOTOHARU ABE

Specialist, Production Technical Development Department, KM Biologics Co., Ltd.
Professor, DEJIMA Infectious Disease Research Alliance (DIDA), Vaccine Research and Development Center (VRDC), Nagasaki University

Dr. Motoharu Abe is a Specialist of Production Technical Development Department, at KM Biologics Co., Ltd. (KM Biologics). KM Biologics is a leading vaccine manufacturer in Japan, taking its roots back to 1945. Dr. Abe has been working for KM Biologics and its predecessor, The Chemo-Sero-Therapeutic Research Institute (Kaketsuken) for around 30 years. During his career he has been continuously involved in numerous human vaccine research and development projects. Notably, Dr. Abe has contributed significantly to the development of a Japanese encephalitis vaccine and DTaP-Sabin IPV, and research into an influenza vaccine. He is now pursuing the development of several vaccines especially a live attenuated Dengue vaccine as the specialist, and containment of polio virus as the general director of the internal committee of GAPIV, which is WHO Global Action Plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of oral polio vaccine use. Furthermore, Dr. Abe is also dedicating his time and effort as a professor of DEJIMA Infectious Disease Research Alliance (DIDA), Vaccine Research and Development Center (VRDC) at Nagasaki University.

SPEAKERS' BIOGRAPHIES

PROF. WEI-KUNG WANG

Department of Tropical Medicine, Medical Microbiology and Pharmacology,
John A. Burns School of Medicine, University of Hawaii at Manoa (UH)

Wei-Kung Wang M.D., Sc.D. Professor, Department of Tropical Medicine, Medical Microbiology and Pharmacology, John A. Burns School of Medicine, University of Hawaii at Manoa (UH).

Dr. Wang received his M.D. from the National Taiwan University in 1986 and Sc. D. from Harvard School of Public Health in 1995.

In the past few decades, several mosquito-borne flaviviruses and alphaviruses have caused disease outbreaks of public health concern in the tropics and subtropics. Among these, the four serotypes of dengue virus (DENV) are the leading cause of flavivirus infection and disease globally. With his background and training in internal medicine, infectious diseases and molecular virology, his research aimed at understanding the pathogenesis and immune response following DENV and other flavivirus infections to facilitate the development of vaccines and serodiagnostics. Previously, his laboratory demonstrated the quasispecies nature of DENV in humans and mosquitoes, and identified several important functions of premembrane and envelope proteins using virus-like particles. He further discovered a significant proportion of anti-envelope antibodies in dengue serum are cross-reactive and recognize the absolutely conserved fusion loop residues, which may account for the serological cross-reactivity. Since the Zika virus (ZIKV) outbreak, he developed serological tests in various platforms to distinguish ZIKV and DENV infections, and reported that anti-premembrane antibody can discriminate four flavivirus serocomplexes. These studies with improved serological assays laid the groundwork for his ongoing serosurveillance study in flavivirus and alphavirus endemic countries including Brazil and Nigeria. Recently he showed that the UH DENV1−4 non-structural protein 1 enzyme-linked immunosorbent assay can determine baseline DENV serostatus among Dengvaxia recipients without prior serological testing, and provided a useful tool to assess the long-term safety of Dengvaxia in real-world settings.

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MR. ARVIN U. PACOMA

Mosquito Research Laboratory, Department of Biology, University of San Carlos, Talamban Campus, Cebu city, Philippines
Department of Natural Sciences, College of Arts and Sciences, Eastern Visayas State University - Main Campus, Tacloban city, Eastern Visayas, Philippines

Mr. Arvin U. Pacoma earned his Bachelor of Science and Master of Science degrees in Biology from the University of the Philippines Tacloban College (formerly the University of the Philippines Visayas – Tacloban College) in Tacloban City and the University of San Carlos, Cebu City, respectively. He was a full scholar under the Science Education Institute (SEI) of the Philippine Department of Science and Technology (DOST) for both degrees.

He previously worked as a research assistant at the University of the Philippines Tacloban, where he contributed to the first Philippine report of Coolia malayensis, a toxin-producing dinoflagellate.

His research focused on the co-persistence of *Wolbachia* and chikungunya virus in *Aedes albopictus*, involving field-based mosquito surveillance, PCR-based detection of pathogens and endosymbionts, and analysis of infection patterns. His broader research interests include vector ecology, mosquito–microbe interactions, and the application of molecular tools in disease ecology and environmental monitoring.

He is currently a faculty researcher at the Department of Natural Sciences, Eastern Visayas State University – Main Campus, where he teaches courses in zoology, microbiology, and environmental science. He also mentors undergraduate student researchers on topics such as mosquito biodiversity, local parasite and vector surveillance, microbial detection, and the biodiversity of aquatic organisms in both freshwater and marine ecosystems.

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DR. MOHAMMAD SHAFIUL ALAM

Scientist and Lead
Parasitic and Vector-borne Infections, Infectious Diseases Division

Dr. Mohammad Shafiul Alam is a Scientist and Lead of the Parasitic and Vector-borne Infections Unit within the Infectious Diseases Division at icddr,b, Bangladesh. After completing his MS and BSc (Honors) in Zoology from the University of Dhaka, he began his career at icddr,b, where he has risen through successive roles over two decades, demonstrating an unwavering commitment to infectious disease research.

Dr. Alam's research centres on point-of-care diagnostics, host-parasite interactions, vector control, anti-malarial drug resistance, and, most notably, arboviral disease control. He currently serves as the study coordinator for phase-2 NIH-sponsored dengue vaccine trials in Bangladesh, a critical step toward reducing the burden of dengue in endemic regions. His team made a landmark contribution by first documenting pyrethroid resistance in dengue vector mosquitoes in Dhaka, findings that prompted a major shift in vector control strategies by municipal authorities during the 2019 dengue outbreak.

Recognizing the need for sustainable vector control, Dr. Alam's research also focuses on long-lasting biological interventions, including pioneering work to introduce *Wolbachia*-based dengue control programs in Bangladesh. His contributions have significantly advanced the understanding of dengue virus transmission dynamics and the development of innovative, environmentally friendly solutions to curb arboviral diseases.

With over 100 publications in leading international journals, Dr. Alam's research has greatly enhanced global knowledge of malaria, dengue, and other vector-borne diseases across South Asia. Beyond research, he actively engages with global scientific networks, including the Asia Pacific Malaria Elimination Network and the American Society of Tropical Medicine and Hygiene, and is a life member of the Zoological Society of Bangladesh.

Through his leadership, research excellence, and mentorship, Dr. Alam has become a prominent voice in tropical medicine and public health, both nationally and internationally.

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DR. FREYA RASSCHAERT

Johnson & Johnson

Dr. Freya Rasschaert is a distinguished medical doctor with a postgraduate degree in tropical medicine. With over a decade of experience working with Médecins Sans Frontières, Freya Rasschaert has demonstrated unwavering commitment and expertise in the field of tropical diseases across various countries and settings.

In addition to clinical practice, Dr. Freya Rasschaert furthered her education by completing a Master's in Public Health and Disease management and obtaining a PhD at the Institute of Tropical Medicine of Antwerp -Belgium. This academic background complements a robust clinical career, emphasizing a deep understanding of public health challenges associated with tropical diseases.

For the past ten years, Dr. Freya Rasschaert has been with Johnson & Johnson, dedicating the last five years as the Medical Lead of the drug development program for mosnodenvir, an antiviral small molecule targeting dengue. In this role, she is responsible for overseeing the medical aspects of the development program, striving to contribute significantly to the fight against dengue and improve health outcomes for affected populations.

SPEAKERS' BIOGRAPHIES

ASST. PROF. LIM JUE TAO

Assistant Professor, Infectious Disease Modelling,
Lee Kong Chian School of Medicine
Assistant Professor, Lee Kong Chian School of Medicine

Assistant Professor Lim Jue Tao is an Assistant Professor in the Lee Kong Chian School of Medicine at Nanyang Technological University. He holds a BSc (Hons) in Economics, as well as a Masters in Statistics. He obtained his PhD in Public Health from the Saw Swee Hock School of Public Health in 2021, where his work was focused on modelling the transmission dynamics of vector-borne diseases.

Prior to joining LKCMedicine, he was Head of Informatics at the Environmental Health Institute, National Environment Agency, Singapore. He has led the Informatics group which focused on translating and adapting tools from statistics, econometrics and computational epidemiology to conduct inference on the transmission dynamics of pathogens, such as dengue and SARS-CoV-2.

Asst Prof Lim is a biostatistician and infectious disease modeller with a long-standing and deep interest in developing new models for infectious disease forecasting, transmission and control. He uses these tools to advise and design disease control implementation and policy, and has contributed to more than 40 publications in journals such as Lancet Infectious Diseases and Lancet Western Pacific and is involved in multiple local and international collaborations.

SPEAKERS' BIOGRAPHIES

ASSOC. PROF. KATIE ANDERS

Associate Professor and NHMRC Research Fellow in the Planetary Health division of the School of Public Health and Preventive Medicine at Monash University

Katie Anders is an Associate Professor and NHMRC Research Fellow in the Planetary Health division of the School of Public Health and Preventive Medicine at Monash University, and a member of the Monash Health and Climate Initiative. Her focus is on applied public health research and implementation research that can inform the targeting and scale-up of effective strategies for controlling dengue and other vector-borne diseases. Katie also has research interests in the interactions between local and macro drivers of arboviral disease epidemiology and intervention effectiveness.

Katie has extensive international experience in epidemiological research and public health practice, with expertise in the design and implementation of field trials, disease surveillance, and clinical research. Until December 2024, Katie was Director of Impact Assessment at the World Mosquito Program (WMP), a Monash University translational research program and not-for-profit company, where she collaborated with partners in 14 countries in Asia-Pacific and the Americas on a program of epidemiological and implementation research to evaluate the effectiveness, cost-effectiveness and scalability of WMP's *Wolbachia* mosquito replacement method for control of dengue and other Aedes-borne viruses. Katie previously spent six years at the Oxford University Clinical Research Unit in Ho Chi Minh City, Vietnam, where her research was focussed on the epidemiology of dengue and other viral infections in young children, and prior to that worked in infectious disease surveillance at the (former) UK Health Protection Agency in London. Katie undertook her PhD studies with Monash University, Department of Epidemiology and Preventive Medicine and a Masters in Control of Infectious Disease at the London School of Hygiene and Tropical Medicine.

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PROF. FRANCES E. EDILLO

Mosquito Research Laboratory, Biology Department, University of San Carlos, Cebu city, Philippines

Frances E. Edillo, Ph.D. is a tenured full-professor in Vector Biology and Genetics from the Biology Department of the University of San Carlos, Cebu city, Philippines. Apart from teaching at the tertiary and graduate levels and Editor-in-Chief of The Philippine Scientist journal, she has been leading the Mosquito Research Laboratory at her university. Majority of her group's works contribute to the United Nation's sustainable development goal 3 on good health and well being. Specifically, her works aim to understand higher-level phenomena of vector biology, arbovirology, and population genetics applicable to combat the health and economic burdens imposed by dengue and other mosquito-borne diseases. Her team recently added new broadly applicable microsatellite loci of the Philippine *Aedes aegypti*, the primary dengue mosquito vector, to GenBank. She has expanded to collaborating about 3D printing project using bone, muscle, and pancreatic tissues.

Recently, Professor Edillo was a recipient of the prestigious Australia Awards Fellowship at Queensland University of Technology, Brisbane, Australia. She obtained her Doctor of Philosophy in Biology at the University of California at Los Angeles, California, USA as a Fulbright scholar and had her post-doctoral program in Harvard School of Public Health, Boston, Massachusetts, USA, during which she studied the population genetic structure of Culex pipiens s.l., the West Nile virus mosquito vector in North-Eastern America.

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PROF. MARTIN HIBBERD

London School of Hygiene and Tropical Medicine

Dr Martin Hibberd BSc(Hons) PhD; is Professor of Emerging Infectious Diseases since 2012 and Head of the Department of Infection Biology (since 2022) at the London School of Hygiene and Tropical Medicine (LSHTM).

He has adjunct positions at University of the Philippines, Manila, in Human Genetics (at NIH) and the Genome Institute of Singapore (where he was previously associate director from 2003 to 2016). He also has a visiting position at the Philippine Genome Centre.

He graduated from Brunel University in 1985 in Applied Biology, and received his Doctorate from King's College, London in 1994.

He has worked at UK public health agencies, Imperial College London and the Genome Institute of Singapore, before his current job at LSHTM.

He has a broad scientific background spanning both microbial and human determinants of infectious and inflammatory diseases. His current research interests utilize genomic applications to cover both pathogen and host aspects of infectious disease; together with integrating modelling to understand transmission and outbreaks.

He has over 250 publications, in journals with an impact factor averaging 9, with more than 30,000 citations in total, and an h-index of 82.

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MARIANNE COMPARET

Co-Founder & Director
The International Society for Neglected Tropical Diseases

Marianne Comparet is currently Director at the International Society for Neglected Tropical Diseases, based in London. She has an academic background in Development Economics, and has previously worked with the World Trade Institute in Bern, the emerging markets division of Citibank and at JP Morgan before joining The Economist Newspaper as Economist & Statistician. She has lived in Jakarta, Paris and London.

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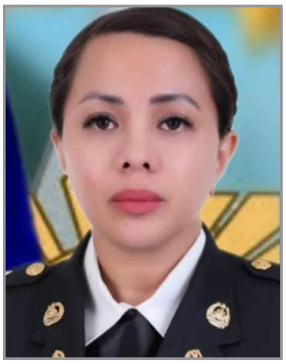

DR. CPT ERICA TANIA DAVILLO

Armed Forces of The Philippines, Philippine Medical Association,
Harvard Medical School, Philippine Academy of Family Physicians,
Philippine College of Occupational Medicine, End Dengue Coalition

CPT Erica Tania Davillo, MC, is a Military Physician in the Armed Forces of the Philippines, her pioneering contributions to Family and Community Medicine, as well as Occupational and Environmental Medicine has been instrumental in shaping healthcare standards within the military, ensuring the well-being of personnels.

An alumna of Harvard Medical School, Dr. Davillo exemplifies excellence in medical leadership and advocacy. Also currently taking Master in Occupational Health at University of the Philippines Manila to expand knowledge on Occupational and Environmental Medicine. Appointed as Chairperson of the AdHoc Committee on Dengue Advocacy of the Philippine Medical Association, where she spearheads strategic communication initiatives to combat dengue. Additionally, as President of the Association of Medical Doctors for Asia-Philippines, she actively promotes healthcare prevention and professional development to young generations, playing a vital role in strengthening medical disaster assistance across the region.

Dr. Davillo is deeply committed to mental health advocacy. Through her initiative, Grateful Mind. Stress Positive emphasizes the importance of psychological resilience and holistic well-being, particularly for military personnel who face unique stressors. Her dedication to fostering a culture of wellness within both military and civilian communities.

Dr. Davillo was honored with the Gawad sa Kaunlaran Award, one of the highest distinctions conferred by the Armed Forces of the Philippines upon civilians and government officials. This prestigious accolade acknowledges her unwavering commitment and passion as military physician, driving public health initiatives that benefit both military personnel and the broader population. With a distinguished career rooted in excellence, leadership, and advocacy with the guidance of mentors.

Dr. Erica Tania Davillo continues to inspire the medical community through her dedication to improving healthcare practices, enhancing occupational health, inspiring younger generation physicians and shaping public health policies in the Philippines. Her trailblazing efforts in dengue prevention, mental health awareness, and military medicine exemplify her commitment to creating a lasting impact on national and global healthcare.

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DR. NAVEEN THACKER

Executive Director of the International Pediatric Association
Director - Deep Children Hospital and Research Centre, Gandhidham

Dr Thacker is a distinguished pediatrician and global health leader, currently serving as Executive Director of the International Pediatric Association. President, International Pediatric Association 2023-2025. Dr. Thacker served as President of the Asia Pacific Pediatric Association (2016-18) and the Indian Academy of Pediatrics (2007).

Dr. Thacker is an active member of the Scientific Committee and faculty for ADVAC in France. He is also Vice-chair of Steering Committee of the International Collaboration on Advanced Vaccinology Training. He is a member of India's Expert Advisory Group on Measles and Rubella and co-chair of 30th and 31th India Expert Advisory group on Polio Eradication. He served on Gavi board and PMNCH board. UN listed him as Top Most Influencer of Polio Eradication in the World in 2017.

Dr. Thacker has played a key role in polio eradication, pneumonia prevention, and routine immunization efforts, particularly in South Asia. His leadership continues to drive improvements in pediatric care, medical education, and vaccine access globally.

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DR. PETER RYAN

Director of Regulatory Affairs with the World Mosquito Program

Dr Peter Ryan is Director of Regulatory Affairs with the World Mosquito Program (WMP) (http://www.worldmosquitoprogram.org/). He has specialist knowledge and experience in the development, regulation and implementation of novel vector control tools, including over 25 years of experience in the control of *Aedes aegypti* mosquitoes across various countries, with a major focus in Asia and Pacific Countries. His career has focussed on improving public health and eliminating mosquito-borne diseases through the translation and delivery of cutting edge science and innovation into impactful programs.

DR. RIRIS ANDONO AHMAD

Director of the Center for Tropical Medicine, Faculty of Medicine,
Public Health and Nursing (FKKMK), Gadjah Mada University

Riris Andono Ahmad is currently Director of the Center for Tropical Medicine, Faculty of Medicine, Public Health and Nursing (FKKMK), Gadjah Mada University. He is a medical doctor and holds a master's degree in public health from the Umeå International School of Public Health, Epidemiology and Public Health Sciences, Umeå University, Umeå, Sweden. He then completed his PhD at the Department of Public Health at Erasmus MC in Rotterdam, The Netherlands. In addition, he is the Director of the Department of Biostatistics, Epidemiology and Public Health and the Coordinator of the Field Epidemiology Training Program at the FKKMK Graduate Program. Riris Andono Ahmad has experience as a consultant and senior researcher in the health sector, and he has served as a temporary consultant to WHO on several occasions in the development module of the Research Practice Course on Health.

SPEAKERS' BIOGRAPHIES

DR. LUCIANO MOREIRA

CEO of Wolbito do Brasil

Luciano Moreira, BSc. in Agricultural Engineering and Ph.D. in Genetics and Plant Breeding (1998). First post-doctorate at Case Western Reserve University (USA) from 1998 to 2002, on mosquitoes and malaria parasite. Public Health Researcher at FIOCRUZ from 2002-2024, working on vector biology and pathogen/ invertebrate hosts interactions. From 2008-2010 dia a sabbatical at the University of Queensland (Australia) with Scott O'Neill, on *Aedes aegypti*, *Wolbachia* and dengue virus. In 2012, he brought the World Mosquito Program to Fiocruz. Since 2024 he is the CEO of Wolbito do Brasil, a joint venture between IBMP/Fiocruz and WMP, aiming to expand the *Wolbachia* Method in Brazil.

DR. NADEGE ROSSI

Public Health Project Manager for the Government of New Caledonia

Dr. Nadege Rossi is currently a public health project manager for the government of New Caledonia. She previously worked as the project coordinator to implement the *Wolbachia* method in the four main cities of New Caledonia in partnership with Monash University, Institut Pasteur of New Caledonia and the government of New Caledonia. She is still involved in the World Mosquito Program to manage the long term monitoring of the program.

She obtained a phD degree in ecology (University of Toulon, France) and worked several years for national and European environmental programs before working for the World Mosquito Program

003 Post mortem of recent dengue outbreak in Bangladesh: what's next?

MS Alam[1], A Hasan[1], MF Zamil[1], AT Trina[1], MS Hossain[1], S Afreen[1], D Ahmed[1]

1. International Centre for Diarrheal Disease Research, Bangladesh (icddr,b), Dhaka, Bangladesh.

Background

Dengue fever, first identified in Bangladesh as 'Dacca fever' in 1964, has demonstrated shifting serotype patterns and escalating severity. Since the initial outbreak in 2000, it expanded from Dhaka-centered outbreaks to nationwide spread by 2019, culminating in the most severe outbreak in 2023. This study investigates the root cause of this heightened severity during 2023–24 by analyzing circulating dengue serotypes (DENV) and exploring co-infections with two major arboviruses, Chikungunya (CHIKV) and Zika (ZIKV), to identify factors driving the intensified burden.

Methods

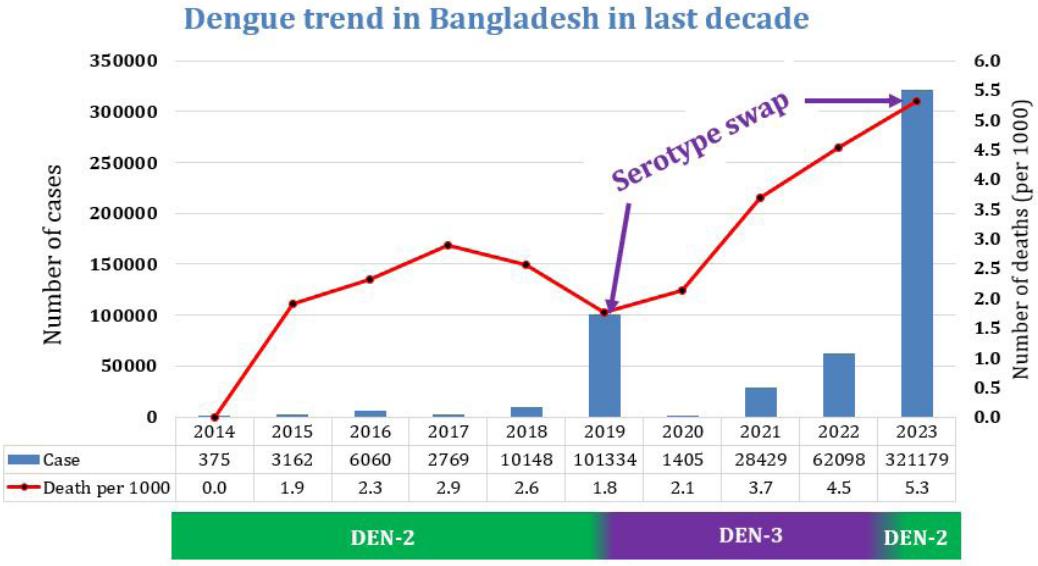
Participants aged 5–65 years with fever onset within 2–5 days and other dengue-like febrile symptoms were enrolled between October 2023 and December 2024 after meeting inclusion criteria and providing consent. Blood samples were collected, serum tested via Dengue NS1 RDT, and RNA extracted for RT-PCR to detect DENV infection and two other arboviruses, CHIKV and ZIKV.

Results

Out of 1635 screenings, 747 participants were enrolled, with DENV serotype RT-PCR conducted on 412 cases, yielding 204 positive results. Among these, 19 were co-infections (8 DENV-1/DENV-2 and 11 DENV-2/DENV-4), while 185 were mono-infections comprising 3 DENV-1, 172 DENV-2, 6 DENV-3, and 4 DENV-4 cases. Additionally, DENV co-infections included 6 with CHIKV and 2 with ZIKV, indicating concurrent arboviral transmission.

Conclusion

The findings highlight shifting dengue serotype patterns, with DENV-2 re-emerging as dominant in 2023, replacing DENV-3 circulating from 2019 to 2022. Rare and complex co-infections with other arboviruses exacerbate diagnostic and treatment challenges. Both serotype swaps and arboviral co-infections often lead to severe disease manifestations, significantly increasing morbidity and mortality.



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004 Inhibitory potential of red seaweed Gracilaria changii on virus replication

CS Tang[1], RD Victor[1] , N Zainal[2], KL Chin[2,3]*

1 Department of Biomedical Science, Universiti Malaya, Kuala Lumpur, Malaysia

2 Department of Medical Microbiology, Universiti Malaya, Kuala Lumpur, Malaysia

3 Institute for Advanced Studies, Universiti Malaya, Kuala Lumpur, Malaysia

The emergence of arboviruses such as dengue virus (DENV) and chikungunya virus (CHIKV) presents significant public health challenges. Natural antiviral compounds, particularly from marine sources, offer promising therapeutic alternatives. This study investigates the antiviral potential of *Gracilaria changii*, a red seaweed with medicinal properties, against DENV and CHIKV replication in Huh7 cells.

Cytotoxicity of *G. changii* water and ethanol extracts was assessed using MTS assays to determine non-toxic concentrations. Virus infection assays were conducted by treating Huh7 cells with varying extract concentrations post-infection. Virus titers were quantified using the focus-forming assay (DENV) and plaque-forming assay (CHIKV). The half-maximal inhibitory concentration (IC50) and selectivity index (SI) were calculated, and statistical significance was analyzed using two-way ANOVA.

Both extracts exhibited low toxicity, maintaining cell viability above 75%. The ethanol extract demonstrated greater antiviral efficacy against DENV1, with an IC50 of 7.83 µg/mL and an SI of 36.39, compared to the water extract (IC50 = 19.25 µg/mL, SI = 27.93). Interestingly, the water extract enhanced CHIKV replication, while the ethanol extract significantly inhibited CHIKV replication, suggesting that different bioactive compounds in *G. changii* may either promote or suppress CHIKV replication by influencing protein synthesis, viral integrity, or host antiviral pathways.

Overall, these findings highlight the potent antiviral properties of ethanol *G. changii* extract against DENV and CHIKV, emphasizing its potential as a natural antiviral candidate for arbovirus infections. Future research should focus on isolating active compounds and exploring their mechanisms to advance antiviral drug development.

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005 Risk assessment to identify Dengue hot spots for early interventions

Kien Quoc Do[1,2], Thi Thanh Thao Nguyen[1,2], Huy V. Nguyen[3,4], Wala Areed[1], Chan Quang Luong[2], Quang Quan Le[2], Manh Hung Trinh[1], Hong Le[1], Nu Quy Linh Tran[1], Dang Khanh Linh Vien[1], Sinh Nam Vu[5], Duc Thinh Nguyen[5], Dan Weinberger[6], Robert Dubrow6, Dung Phung[1]

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Dengue poses global public health threats due to its significant burden. Current indications for outbreak response are not on a reasonable scale, which is too small from 100m to 200m around the index houses or too large, aligning with administrative levels such as districts consisting of more than 450,000 households. This study aims to systematically develop criteria to identify dengue hotspots at sub-commune levels.

A cluster-based cross-sectional study was conducted in 4 provinces in the Mekong Delta Region (MDR), Vietnam. The outcome was dengue outbreak events at the sub-commune level, including villages, hamlets, and wards. Potential risk factors at the sub-commune level, including recurrent dengue outbreak events, human movement, socio-economic features, and larvae index (BI: Breteaux Index and HI: house Index), were collected. Factors for risk assessment criteria were identified by a multivariate logistic regression model combined with time series analysis. The accuracy, validity, and predictive values of these criteria were then validated by using the ROC curves.

Historically recurrent dengue outbreak events, the existence of schools, the value of BI > 20 and the 4-week-lag frequency of dengue cases were statistically associated dengue outbreak events with the adjusted ORs of 3.17 (95%CI: 2.48 – 4.08), 4.05 (95%CI: 2.92 – 5.77), 4.78 (95%CI: 3.36 – 6.96) and 4.11 (95%CI: 3 – 56.4) respectively at sub-commune level. Criteria set for dengue hotspot identification were determined with an accuracy of 99.3% (99.15% - 99.43%), sensitivity of 81.4% (51.18% - 52.82%), specificity of 99% (97.5% - 100%), positive predicted value of 81.48% (80.35% - 81.64%) and negative predicted value of 90.43% (97.12% - 100%).

These criteria for Dengue hotspot identification could be used at the grassroots level for dengue proactive prevention. These criteria could be integrated into an early warning system to optimize the predictions and target the proactive interventions at the finest scale to enhance the effectiveness in dengue prevention.

006 Development of a multiplex microsphere immunoassay to detect pathogenic arboviruses in endemic counties

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Background

In the past few decades, several mosquito-borne arboviruses including dengue (DENV), Zika (ZIKV), West Nile (WNV), yellow fever (YFV), and chikungunya (CHIKV) viruses have caused disease outbreaks of public health concern. The overlap distribution of these arboviruses and cross-reactivities of antibodies to flavivirus envelope protein highlight the need of a reliable and convenient serological test to distinguish these arboviruses in endemic countries.

Methods:

We developed a multiplex IgG microsphere immunoassay (MIA) including 13 antigens (non-structural protein 1 [NS1], E protein and virus-like particles [VLP]) to test serum panels (n=374) of well-documented arbovirus infection including primary DENV, ZIKV and WNV infections, secondary DENV, ZIKV plus DENV, and CHIKV infections, as well as YF-17D vaccinees and negative samples reported previously.

Results

The sensitivity/specificity of combined DENV1–4 NS1, ZIKV NS1, WNV NS1, YFV NS1, and CHIKV VLP IgG MIAs were 96.0%/98.3%, 100%/79.9%, 94.4%/73.4%, 52.2%/94.4%, and 100%/99.7% for DENV, ZIKV, WNV, YF-17D, and CHIKV panels, respectively. We employed the assay to test serum samples (n=300) collected from Saude, a town in the state of Bahia, Brazil with equivocal samples confirmed by previously reported neutralization tests and Western blot analysis, we found a seropositivity of 70.3%, 22.3%, 39.7% and 5.7% for DENV, ZIKV, YFV and CHIKV, respectively and the majority with multiple arbovirus infections or exposure including DENV+ZIKV, DENV+YFV, DENV+ZIKV+YFV.

Conclusion

The multiplex and high-throughput MIA assay combined with other confirmations tests can be applied to serodiagnosis and serosurveillance of DENV, ZIKV, WNV, CHIKV and YFV infections/exposure in countries where multiple arboviruses co-circulate.

008 Prospective Evaluation of the FUJIFILM SILVAMP Dengue NS1 Ag for Early Dengue Detection: A Multicenter Study in Thailand.

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Background:

Early detection of dengue is crucial for preventing severe outcomes. This study evaluated the FUJIFILM SILVAMP Dengue NS1 rapid test (SILVAMP NS1) in comparison to another commercially available rapid NS1 test (non-SILVAMP NS1) and NS1 enzyme-linked immunosorbent assay (ELISA), using real-time reverse transcription polymerase chain reaction (rRT-PCR) as the gold standard.

Methods

A multicenter prospective cohort study enrolled 402 patients with acute febrile illness across four hospitals in Thailand between March 2023 and September 2024. SILVAMP NS1, non-SILVAMP NS1, and NS1 ELISA were tested using whole blood and serum samples.

Results

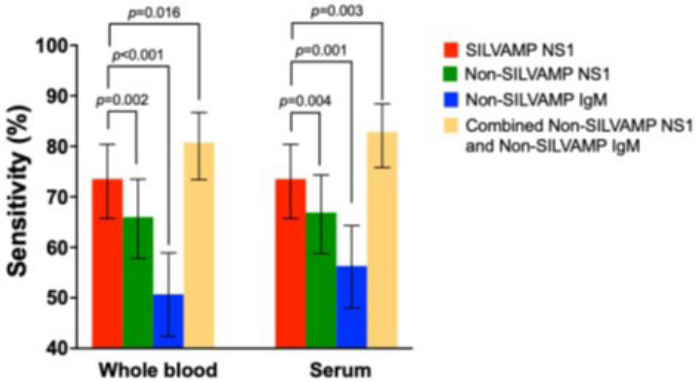
Among participants, 37.6% tested positive for dengue by rRT-PCR, with DENV-2 being the most prevalent serotype. SILVAMP NS1 showed 73.5% sensitivity and 90.4% specificity, comparable to NS1 ELISA in sensitivity (78.1%, p=0.092) but with higher specificity (p<0.001). SILVAMP NS1 had higher sensitivity than non-SILVAMP NS1 (66.9%, p<0.05) with similar specificity (91.6%). SILVAMP NS1 maintained stable performance across sample types, illness duration, serological statuses, and dengue serotypes.

Conclusion

SILVAMP NS1 demonstrated strong diagnostic performance, making it a reliable tool for early dengue diagnosis, especially in resource-limited, point-of-care settings.

Keywords

Dengue diagnosis, SILVAMP NS1, Rapid diagnostic tests (RDTs), rRT-PCR, Point-of-care testing



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009 A Phase I, Randomized, Placebo Controlled, Double Blind, Ascending-Dose and Single-Center Study to Evaluate Immunogenicity and Safety of a Live Attenuated Tetravalent Dengue Vaccine (KD 382) in Flavivirus Antibody-Naïve Healthy Adults

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Background

Dengue viruses (DENV1-4) cause dengue fever and dengue hemorrhagic fever. Developing a live attenuated tetravalent dengue vaccine (LATDV) faces challenges in overcoming viral interference to induce a balanced immune response. KD 382 is an LATDV candidate for dengue prevention.

Methods

Phase I study of KD-382 is a randomized, placebo controlled, double-blind, ascending-dose study in 60 flavivirus antibody naïve healthy subjects aged 18-65 years. The study was conducted in two parts evaluating low dose (103FFU/dose) and standard dose (105FFU/dose). In each part, subjects were randomized in a 3:2:1 ratio to receive either KD-382 as a single dose, two doses, or placebo. Subjects received subcutaneous injections on Days 1 and 29 and were followed up for 1 year.

Results

Both low and standard doses of KD 382, regardless of the dosing regimen, showed a 100% seroconversion rate for all four serotypes (DENV1-4) at Day 57 and retained 100% seropositivity for DENV1, 2, and 4 through the 12 month follow-up. For DENV3, a single dose in the low dose group of KD-382 retained a 100% seroconversion rate at Months 3 and 12, while in the standard dose group, it was 91.7% at Month 12. No serious or severe solicited treatment emergent adverse events (TEAEs,) or TEAEs leading to study vaccine withdrawal or death were reported.

Conclusion

KD-382 was safe and well-tolerated in flavivirus antibody-naïve healthy subjects. It elicited a long-lasting neutralizing antibody response for all four DENV serotypes during the 1-year follow-up, even with single-dose administration.

010 Healthcare Providers' Knowledge, Attitudes, and Practices Towards Dengue Vaccination: A Cross-Sectional Study in Six Asian and Latin American Countries Using the COM-B Framework

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Background

Dengue is a major public health concern, with healthcare providers (HCPs) playing a key role in prevention and vaccination. However, gaps in HCP knowledge, attitudes, and practices (KAP) may impact vaccine uptake. Understanding behavioural drivers through the COM-B framework can inform strategies to improve vaccine recommendation.

Objective

This study assessed HCP KAP towards dengue vaccination and examined behavioural determinants influencing vaccine recommendation using the COM-B model.

Methods

A cross-sectional online survey was conducted in Argentina, Brazil, Colombia, Indonesia, Malaysia, and Thailand, recruiting 815 HCPs involved in vaccination. Principal Component Analysis (PCA) generated composite KAP scores, while descriptive statistics and multivariate regression analysed KAP responses. The COM-B framework identified key behavioural drivers influencing vaccine uptake.

Results

Global KAP scores showed moderate Knowledge but stronger Attitudes and Practices. PCA identified three Knowledge, six Attitude, and two Practice subdomains.

Multivariate regression showed that 'Severity and Risk of Dengue' significantly influenced both 'Likelihood to Recommend' dengue vaccination (0.24, $p=0.015$) and 'Peer Advocacy' (0.13, $p<0.03$). Attitudes were the strongest predictors, with 'Urgency to Protect Against Dengue' (0.37, $p<0.01$), 'Confidence in Available Vaccines' (0.34, $p<0.01$), and 'Perceived Ease of Recommending Dengue Vaccine' (0.30, $p<0.01$) driving "Likelihood to Recommend", though their influence on "Peer Advocacy" was weaker (0.23, $p<0.01$; 0.18, $p<0.01$; and 0.23, $p<0.01$, respectively). Practice subdomains were not significantly associated with outcomes.

COM-B analysis identified Motivation (0.61) as the strongest driver of vaccine recommendation, followed by Capability (0.52) and Opportunity (0.39).

Conclusion

Despite high awareness, attitudinal and behavioural barriers limit vaccine recommendation. Strengthening HCP confidence and social reinforcement through targeted interventions can enhance uptake and improve dengue vaccination efforts.

011 Exploring the role and practices of digital opinion leaders (DOLs) in dengue prevention: a qualitative study

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Background

Dengue fever is a major public health concern. Digital Opinion Leaders (DOLs) play a key role in disseminating health information and countering misinformation.

Objective

This study explored the impact of DOLs on dengue prevention and their preferences for collaboration with health sector entities.

Methods

A qualitative study was conducted using semi-structured interviews with 37 DOLs from eight countries in Latin America and Southeast Asia. Participants were selected based on their online presence and dengue-related content. Interviews, conducted in participants' preferred languages, were transcribed and analysed using thematic analysis.

Results

Five themes were identified and grouped into three sections:

1. **The increasing influence of DOLs in infectious disease prevention**

   DOLs use social media to enhance public health communication by raising awareness, correcting misconceptions, and promoting preventive behaviours. They educate audiences on disease symptoms, address vaccine hesitancy, and share personal health practices to encourage similar actions.

2. **Current practices of DOLs contributing to dengue prevention**

   Many DOLs reported a lack of public knowledge about dengue prevention, with even less awareness of an available vaccine. Misinformation and vaccine hesitancy further challenge prevention efforts. In response, DOLs leverage their influence to educate the public, emphasising vector control and vaccines as key preventive strategies.

3. **Exploring ways of collaboration to strengthen dengue prevention**

   DOLs are open to collaborating with health stakeholders to enhance dengue awareness and public health efforts, provided partnerships maintain ethical and scientific integrity.

Conclusions

DOLs are critical in dengue prevention efforts, providing evidence-based information and addressing vaccine hesitancy. Strengthening collaborations with health sector stakeholders could improve outreach and impact.

012 Whole Genome Analysis and Clinical Characteristics of Dengue Virus Serotypes Circulated During a Major Outbreak in 2022, Nepal: "Implications for Vaccine Development.

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Background

Dengue has been a growing public health threat in Nepal since its introduction in 2004. In 2022, the country experienced its largest dengue outbreak, which spread throughout the country, including high altitudes. However, the genetic characteristics, mutations, and strain variations of the circulating dengue viruses (DENV) remain inadequately explored. This study presents the whole-genome sequence analysis of DENV from the 2022 outbreak and assesses its implications for vaccine strategies.

Methods

A total of 538 clinical samples from dengue-suspected patients collected at the tropical and infectious disease hospital were analyzed by serology, real-time and conventional reverse transcription polymerase chain reaction (RT-PCR), whole-genome sequencing, phylogenetic and molecular analysis in representative samples.

Results

Serological assay confirmed 411 cases (76.3%) of DENV infection, with the majority being primary infection (84.9%). There were significant differences in clinical markers between patients with and without warning signs. The predominant serotype was DENV-1 (52.8%), followed by DENV-3 (36.5%) and DENV-2 (10.7%), with 12 patients showing mixed infections. The whole genome and E gene sequences of DENV-1,2,3 isolates were identified as Genotype III, cosmopolitan genotype and Genotype III, respectively. These DENV isolates were genetically close to previously reported isolates from Nepal, India, China, and Singapore. Key mutations were observed in the E, NS1, and NS3 proteins, with potential functional implications.

Conclusion

This study offers crucial insights into the viral evolution and dynamics of dengue, establishing a foundation for monitoring outbreaks, assessing mutation impacts, vaccine development impacts, and early detection efforts to achieve the WHO's goal of zero dengue-related deaths by 2030.

013 Clinical and Laboratory Characteristics of Patients with Dengue Fever and Their Transfusion Profile in a Tertiary Hospital in General Santos City, May 2019-May 2024

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Abstract

Background. Dengue continues to be one of the top morbidities in our country. Although preventable, death still occurs in severe cases. Management in dengue is supportive, but complications such as bleeding may be an indication for blood transfusion. This study compared the clinical outcomes of dengue patients who were transfused with blood components versus dengue patients with no transfusions.

Methodology. Retrospective study was done comparing transfused and not transfused group based on demographics, hematologic indications, and clinical outcomes.

Results. Majority of patients (553, 75%) were 7-12 years old and there was no difference in male and female patients. There is a significant difference in patients in the outcomes between the transfused group and non-transfused group. The blood transfusion group had a higher PICU/ICU admission rate (76%, $p<0.001$), higher number of expired patients (89%, $p<0.001$). There was a longer length of hospitalization in the blood transfusion group (mean=6.43 days, SD 2.82) compared to without blood transfusion group (mean=4.48 days, SD 1.83), $p=0.0000$. Most common blood products used are fresh frozen plasma and platelet concentrates. Eight patients (3.5%) had adverse effects during blood transfusions.

Conclusions. Blood transfusions should be done judiciously, as it can lead to a longer hospital stay, increased costs of hospitalization, and worse outcomes.

Keywords: dengue, blood transfusion, clinical outcomes

014 *Wolbachia* establishment may increase dengue risk in settings with low wildtype mosquito abundance but high environmental carrying capacity

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Abstract

Replacement of wildtype *Aedes* mosquito populations with mosquitoes infected with the *Wolbachia* bacterium has emerged as a promising dengue control strategy, as the latter are significantly less likely to transmit the virus. However, the success of this approach depends not only on its impact on vector competence of individual mosquitoes, but also on the vectorial capacity of a population. Using deterministic temporal and spatial models, we assessed how the baseline population ratio (defined as initial size of the wildtype mosquito population prior to releases—relative to the maximum population at equilibrium that can be supported by the environment) affects *Wolbachia* establishment and vectorial capacity of a population under relaxed environmental pressure. The results show that *Wolbachia* establishes faster in areas with smaller baseline population ratio, but leads to increases in vectorial capacity as the overall population rises. The net impact on transmission risk is influenced by the virus-blocking efficacy of *Wolbachia*; a weaker blocking requires much higher baseline population ratio to have net positive impact on dengue risk. In spatial simulations, *Wolbachia* releases at an area with high baseline population ratio spreads to neighboring areas with low baseline population ratio, resulting in an overall increase in vectorial capacity despite reduced vectorial capacity at the release site. These findings highlight the importance of understanding local mosquito population ecology specifically baseline population ratio of both release sites and neighboring sites, and the spatial contiguity could play a critical role in the overall effectiveness of *Wolbachia*-based interventions.

015 Vitamin D Deficiency (VDD) and Susceptibility towards Severe Dengue Fever—A Prospective Cross-Sectional Study of Hospitalized Dengue Fever Patients from Lahore, Pakistan

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Background

Dengue is a mosquito-borne flaviviral serious febrile illness, most common in the tropical and subtropical regions including Pakistan. Vitamin D is a strong immunomodulator affecting both the innate and adaptive immune responses and plays a pivotal role in pathogen-defense mechanisms. There has been considerable interest in the possible role of vitamin D in dengue viral (DENV) infection.

Methods

In the present prospective cross-sectional study, we assessed a possible association between serum vitamin D deficiency (VDD) and susceptibility towards severe dengue fever (DF) illness. Serum vitamin D levels were measured at the time of hospitalization in 97 patients diagnosed with dengue fever (DF), dengue hemorrhagic fever (DHF) or dengue shock syndrome (DSS) at Mayo Hospital, King Edward Medical University, Lahore, PK, from 16 November 2021 to 15 January 2022. In terms of disease severity, 37 (38.1%) patients were DF, 52 (53.6%) were DHF grade 1 and 2, and 8 (8.2%) were DSS.

Results

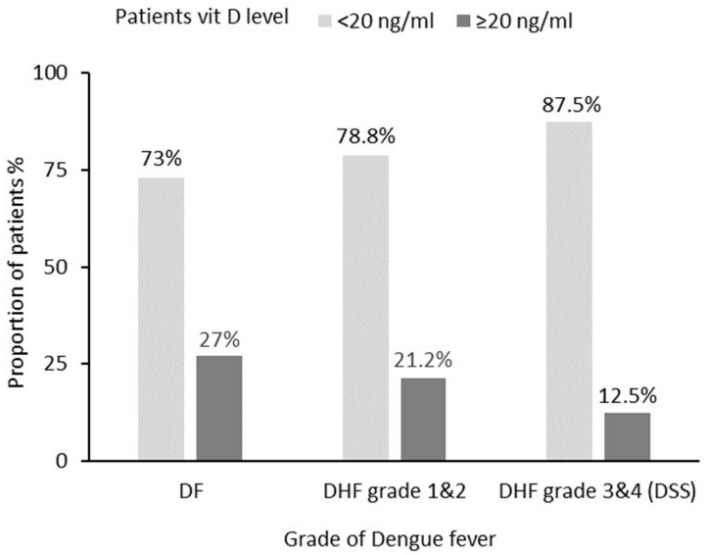
The results revealed that most patients (75 (77.3%)) were vitamin-D-deficient (i.e., serum level < 20 ng/mL), including 27 (73.0%) in DF, 41 (78.8%) in DHF grade 1 and 2, and 7 (87.5%) in DSS. The degree of VDD was somewhat higher in DSS patients as compared to DF and DHF grade 1 and 2 patients. Overall, serum vitamin D levels ranged from 4.2 to 109.7 ng/mL, and the median (IQR) was in the VDD range, i.e., 12.2 (9.1, 17.8) ng/mL.

Conclusion

Our results suggest that there may be a possible association between VDD and susceptibility towards severe dengue illness. Hence, maintaining sufficient vitamin D levels in the body either through diet or supplementation may help provide adequate immune protection against severe dengue fever illness. Further research is warranted.

Keywords

vitamin D deficiency, dengue fever, dengue hemorrhagic fever, dengue shock syndrome



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016 Dengue: Neglected Infection in Malaria Endemic Area? Findings from Timika, Central Papua, Indonesia

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Background

Timika, located in Central Papua, Indonesia, is well recognized as a malaria-endemic area. Dengue has been historically considered low-endemic in this region; however, recent clinical observations suggest an emerging burden. This study aimed to investigate dengue virus (DENV) infections among both malaria-suspected and malaria-confirmed patients and to characterize the circulating DENV serotypes and genotypes.

Methods

Retrospective studies were performed to detect a total of 188 (119 in 2020, 69 in 2022) malaria-suspected and -confirmed patient samples for dengue infection using RT-PCR, NS1 antigen detection, and IgM/IgG serology. Malaria speciation was performed using microscopy and verified by qRT-PCR. Samples positive for DENV were further analyzed by whole genome sequencing. Phylogenetic analyses were performed to determine genotypic characteristics and assess relatedness to regional DENV strains.

Results

Among malaria-suspected patients, 30 (25.2%) were positive for dengue, predominantly DENV-3 (n=29) and DENV-2 (n=1), with six cases demonstrating malaria and dengue co-infection. In malaria-confirmed patients, 3 (4.3%) were co-infected, involving DENV-2 and DENV-4. Identified malaria species included P. vivax, P. falciparum, and P. malariae. Phylogenetic analysis showed DENV-2 belonging to the Cosmopolitan genotype, DENV-3 to Genotype I, and DENV-4 to Genotype II, closely related to strains from Makassar and Singapore, suggesting regional virus movement.

Conclusions

Our findings reveal a substantial burden of dengue among malaria-suspected and malaria-confirmed patients, with co-infection prevalence ranging from 4.3% to 25.2%, underscoring dengue's neglected presence in this malaria-endemic setting. Strengthening integrated surveillance, diagnostic capacity, and vector control measures is critical to managing overlapping infections in Central Papua.

017 Whole Blood Transcriptomic Analysis of Dengue Infected Index Cases and their Household Contacts (HHCs) in Nha Trang, Vietnam

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Background

Despite growing global significance of dengue virus (DENV), key pathways associated with the timing and heterogeneity in immune responses to DENV infection remains incompletely understood. While prior immunity can increase the risk of severe disease via antibody-dependent enhancement, it does not fully explain the spectrum of clinical manifestations. Using an index-household contact study, with longitudinal sampling, we address these research gaps by integrating clinical and diagnostic characteristics, including immune history, into a whole-blood transcriptomics approach.

Methods

From April 2022 to February 2023, 130 DENV-positive index cases from Nha Trang, Vietnam, were enrolled within 72 hours of fever onset. Their healthy adult household contacts (HHCs, n=301) were also recruited. Of all enrolled index cases, 28.5% (37/130) had primary infections, and 50% (65/130) were hospitalized, with follow-up samples collected from hospitalized cases (mean: 5 days; range: 2-10). 91.7% (276/301) of HHCs completed all follow up visits: bi-weekly for four weeks, and final visit on day 40. Blood samples from this cohort underwent transcriptomic analysis.

Results

In a preliminary analysis, mRNA expression profiles were compared between 30 PCR-positive (DENV-1 = 13, DENV-2 = 15, DENV-4 = 2) index cases, presenting between day 1-4 of fever and 3 PCR-, NS1-, IgM-negative HHCs. Key pathways identified as upregulated in index samples included interferon signalling ($p=1.1\times10^{-16}$), cytokine signalling ($p=1.1\times10^{-16}$), and antiviral mechanisms mediated by IFN-stimulated genes ($p=7.2\times10^{-7}$), consistent with previous literature.

Conclusions

Further analysis will assess how transcriptomic response pathways vary with respect to time course analysis, outcomes and infection history.

018 Weathering Dengue: The Impact of Meteorological Factors on Confirmed Dengue Cases in Ilocos Norte, Philippines

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Abstract

Dengue incidence has significantly risen in recent decades, posing a major public health challenge. In the Philippines, dengue fever is endemic, with the highest risk of transmission occurring during and shortly after the rainy season. Climate change, through its effects on temperature and rainfall, has become a key driver of dengue spread, especially in tropical regions like the Philippines. This study investigates the spatiotemporal distribution of confirmed dengue cases in Ilocos Norte from 2009 to 2023 and examines the influence of the El Niño Southern Oscillation (ENSO), temperature, and rainfall on dengue incidence. We utilized NASA's monthly Terra MODIS Land Surface Temperature and Emissivity (MOD11C3 v061) data at 0.05° spatial resolution and daily GPM IMERG Final Run precipitation data (IMERG V07) at 0.1° spatial resolution. Pearson correlation analysis was conducted to assess relationships between dengue incidence and climatic variables. Results reveal that dengue cases exhibit strong temporal variation, with patterns emerging on monthly, seasonal, monsoonal, and annual scales. Significant correlations were observed between dengue incidence and ENSO, temperature, and rainfall, with lag effects extending over several months. Changes in ENSO phase, temperature, and rainfall were associated with subsequent fluctuations in dengue case numbers. Understanding the behavior of these climatic factors can contribute to estimating and forecasting dengue incidence. Such forecasts could enhance early warning systems and assist public health interventions aimed at minimizing dengue outbreaks.

Keywords: dengue, temperature, rainfall, climate change, ENSO

019 Tracing Dengue's Footprint: From Vaccine Studies to Climate-Driven Research

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Background

Dengue remains a significant public health threat in the Philippines[1], shaped by interactions between host immunity, viral factors, and climate change. Since 2017, the ICHHD has advanced the understanding of dengue through vaccine-focused studies. Recognizing dengue as a climate-sensitive disease, our research has since expanded to examine the impact of climate change on dengue transmission dynamics.

Methods

We conducted local epidemiologic studies[1,2] focusing on the effectiveness of CYD-TDV, and the effect of baseline serostatus among dengue vaccine recipients on subsequent dengue infection. Building on these epidemiologic and immunologic foundations, and in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and DOST-PAGASA, we have expanded our work into climate-dengue research. Using ecological designs, time-series analyses, and modeling techniques, we are exploring how climate variables affect dengue under the project "Effect of Climate Change on Health: Data from the Philippines".

Results

The vaccine studies yielded critical evidence on the effectiveness of CYD-TDV and the modifying role of baseline serostatus. Through the climate-dengue studies, we aim to highlight associations between temperature, rainfall patterns, and vector dynamics, indicating the significant influence of climate variability on dengue incidence. These combined factors offer a more comprehensive understanding of dengue transmission dynamics and reinforce the need for integrated public health strategies that account for both vaccination coverage and climate variability.

Conclusion

The research progression from vaccine-focused to climate-driven studies underscores the need for integrated approaches to dengue prevention. Strengthening public health strategies requires that we address both immunologic protection and the growing influence of climate change.

020 Molecular epidemiology of dengue virus in Singapore: 2020-2024

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Background

Dengue virus (DENV) populations are highly diverse in hyperendemic settings, where all DENV serotypes circulate. Their dynamic nature is characterized by lineage emergences and replacements that are often associated with outbreaks. Understanding the temporal changes in the lineage composition, dominating patterns, spatial distribution and association with outbreaks provides important information for outbreak risk assessments and intervention studies.

Methods

The study analysed the serotype data and envelope gene sequences (n=1,025) of four DENV serotypes present in Singapore from 2020 to 2024 that coincided with two local outbreaks. Lineages were identified based on the monophyletic clustering (clades) in phylogenetic analyses. The temporal and spatial patterns of lineages were determined by using geo-tagged data generated weekly. The local lineages were compared with a subset of global sequences to determine their genetic relatedness to those reported elsewhere.

Results

Phylogenetic analyses identified 14 genetically distinct clades in four DENV serotypes (DENV-1; n=3, DENV-2; n=2, DENV-3; n=3, DENV-4; n=6). Despite co-presence, the level of dominance and spatio-temporal distribution varied largely among them. Notably, the drastic drop in DENV-1 proportion close to extinction during the COVID-19 pandemic and its re-emergence after the easing of cross-border travel exemplified virus introductions through importations, which was also supported by the genetic relatedness analyses.

Conclusion

The hyperendemic transmission of DENV is likely to be driven by the long-established lineages and periodic emergence of newly introduced lineages. Regular monitoring of DENV through genomic surveillance is important to identify lineages with high transmission potential and their fitness attributes contributing to outbreaks.

021 Virologically confirmed symptomatic homotypic dengue reinfections: a case series

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Background

Homotypic dengue reinfection appears to be infrequently observed, likely due to the limited number of prospective dengue cohort studies with virologic and serotype confirmation, as well as the high proportion of asymptomatic DENV infections. We describe cases of symptomatic homotypic virologically confirmed dengue (VCD) reinfection detected prospectively in a cohort study in Cebu, Philippines.

Methods

From May to June 2017, we enrolled 2,996 healthy children aged 9 to 14 years and collected baseline sera for determination of dengue serostatus. Active surveillance for an acute febrile illness in the cohort was conducted from November 2017 to October 2023. During an acute febrile illness, clinical data were recorded and we obtained acute sera for confirmation of dengue by RT-PCR and acute and convalescent sera for IgM and IgG ELISA.

Results

We found three participants with homotypic VCD reinfections. At baseline, two of the participants had a dengue multitypic profile and one was dengue naïve. Two had received a single dose of CYD-TDV. The initial and reinfecting serotypes identified were DENV-2 (in one participant) and DENV-3 (in two participants). The interval between the homotypic VCD episodes ranged from 47 to 121 days.

Conclusion

Additional investigations including sequencing and/or genotyping of the infecting viruses, quantification of viral loads in each sample, and analysis of the IgG and IgM antibody responses is recommended to strengthen the findings of this report.

022 Intracellular delivery of antibodies against dengue envelope protein (E) through polymersome nanoparticles

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Background

Dengue is a mosquito-borne infectious disease. The causative agent is the dengue virus (DENV). To date, there are no effective vaccines or antiviral therapeutics. Several approaches have been developed to reduce dengue infectivity and disease severity. The development of therapeutic antibodies for dengue is challenging because it is difficult to identify antibodies that are both protective and do not cause antibody-dependent enhancement (ADE). ADE occurs when antibodies-viral complexes bind to antibody Fc receptors and mediate viral entry. In contrast, by intracellular delivery of antibodies into dengue virus-infected cells, the antibodies can specifically target cytoplasmic viral proteins and interfere with viral production.

Methods

imHC cells (immortalized hepatocyte-like cells) were treated with antibody-encapsulated nanoparticles (mAb-NPs) and cellular uptake was determined by flow cytometry. Cell viability was performed by MTT assay. In addition, imHC cells were infected with DENV serotype 2, and subsequently treated with mAb-NPs. M513 is anti-dengue E antibody, whereas 12.5 is an irrelevant antibody control. The expressions of cytoplasmic antibodies and dengue non-structural protein 1 (NS1), a representative marker of newly syntheized viral protein, were measured by flow cytometry.

Results

The encapsulated mAb exhibited cellular uptake in a dose-dependent manner of antibodies, while the % cell viability of cells treated with the empty NPs and 20 µg/ml mAb-loaded NPs was comparable. A higher uptake of m513 with a decrease in NS1 protein was observed in DENV-infected cells (MOI of 0.5), compared to the cells treated with 12.5.

Conclusion

The delivery of encapsulated anti-E antibodies to living cells was successful. Anti-E antibodies specifically retained in DENV-infected cells, whereas the cytoplasmic expression of newly syntheized DENV protein likely reduced.

023 Interactions among Chikungunya, Dengue, and Zika Viruses in natural populations of *Aedes albopictus* in Cebu city, Philippines

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Background

Clinical symptoms of dengue overlap with those of chikungunya and Zika infections. Dengue virus serotypes (DENVs) co-circulate with chikungunya virus (CHIV) and Zika virus (ZIKV) in natural populations of *Aedes albopictus* in Cebu city, Philippines. Determination of these viral interactions in mosquito vectors can shed light on their co-transmission and possible host misdiagnosis.

Method

Minimum infection rates (MIRs) of CHIKV, DENVs, and ZIKV derived from molecular detections in adult *Ae. albopictus* collected from Cebu city, Philippines in March- November (2021) and February-June (2022) were analyzed for their main and interaction effects.

Results

CHIKV negatively affected the MIRs of DENV-2 and DENV-4. DENV-4's two-way interactions with DENV-1 and DENV-3 and four-way interactions with DENV-1, DENV-2, and DENV-3 affected CHIKV's MIR with negative correlation between DENV-4 and CHIKV's MIR. Co-infections of DENV-1, DENV-2, DENV-3, and DENV-4 did not affect the MIRs of each serotype, however, interactions of DENV-2 with CHIKV and ZIKV affected the MIR of DENV-4. Likewise, the interaction between DENV-3 and ZIKV also affected the MIR of DENV-4. Both DENV-2 and DENV-3 were positively correlated with DENV-4. CHIKV's MIR and not DENVs' MIRs were significantly associated with local dengue cases.

Conclusion

The negative correlation of CHIKV and DENV-4 suggests a two-way antagonistic relationship in their transmission in *Ae. albopictus*. DENVs affect the co-infection of each other but only when co-infections among DENVs, CHIKV, and ZIKV exist in mosquito vectors. Local suspected dengue cases in Cebu city might be misdiagnosed as CHIKV infections.

024 Efficacy and Safety of Two Prophylactic Mosnodenvir Regimens Against Dengue in Household Contacts of Infected Cases: Results from a Phase 2 Field Study

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Background

This Phase 2 clinical field trial (NCT05201794) evaluated the efficacy and safety of mosnodenvir (JNJ-1802), a small molecule dengue antiviral, in preventing laboratory-confirmed dengue virus (DENV) infections among household contacts (HHCs) of infected index cases (ICs) in dengue-endemic regions (Southeast Asia and American continent).

Methods:

Asymptomatic HHCs (aged 16 to ≤65 years) of ICs were randomized in a 1:1:1 ratio to receive mosnodenvir high- or low-dose regimens or matching placebo in a double-dummy fashion for 28 days (2 days loading dose and 26 days maintenance dose). Safety, virology, serology and pharmacokinetic parameters were evaluated throughout the study.

Results

Of the 847 HHCs dosed, 10 had laboratory-confirmed DENV infections based on detectable RNA in the primary analysis population (HHCs without laboratory-confirmed DENV infection at baseline).

For the primary endpoint, both high- and low-dose regimens provided a prophylactic efficacy (PE) of 67% against laboratory-confirmed DENV infection (based on DENV RNA and/or NS1) at the 20% 1-sided significance level (p=0.14 for both regimens) in the primary analysis population.

For the key secondary endpoint, the high-dose mosnodenvir regimen provided an 88% PE (p=0.02) against laboratory-confirmed symptomatic DENV infection in the entire analysis population, while the low-dose regimen demonstrated a 63% PE (p=0.11) in the same study population. No safety concerns were identified and the pharmacokinetics showed well-separated mean plasma concentration-time profiles for both regimens.

Conclusion

This trial demonstrates PE of high- and low-dose mosnodenvir regimens in preventing laboratory-confirmed (symptomatic) DENV infections in HHCs in dengue-endemic regions, without identified safety concerns.

025 Co-circulation of Dengue and Malaria in Palawan, Philippines

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Background

Dengue is endemic throughout the Philippines, whereas malaria is primarily endemic in Palawan. Co-circulation of dengue and malaria is not well documented and seldom reported as the vectors for these diseases (*Aedes and Anopheles* mosquitoes respectively) exhibit distinct ecological and behavioral characteristics. This study aimed to describe the trends in malaria and dengue incidence in the province of Palawan.

Methods

Yearly historical data from 2015 to 2020 of confirmed malaria and dengue cases in each Palawan municipality were extracted from the records of Palawan Provincial Health Office.

Results

Malaria cases were heavily concentrated in a few municipalities, while dengue cases were more widely distributed across most areas. Malaria cases were consistently higher than dengue cases in all years. Malaria shows a decreasing trend, while dengue exhibits an increasing trend. Both malaria and dengue cases declined in 2017 and increased again in 2018. The highest number of dengue cases was recorded in the city of Puerto Princesa, while malaria cases were highest in the municipality of Rizal. There is co-circulation of dengue and malaria in the municipality of Bataraza and in the city of Puerto Princesa.

Conclusion

While malaria remains concentrated in specific municipalities and shows a declining trend in Palawan, dengue is becoming more widespread and its incidence is increasing. The presence of both diseases in areas such as Bataraza and Puerto Princesa highlights the need for further investigation into the potential influence of geography, urbanization, and climate variables, as well as the possibility of malaria and dengue co-infection.

026 Molecular epidemiology and evolutionary characteristics of dengue virus serotype-2 strains in Sri Lanka

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Background

Regular surveillance of varying dengue virus (DENV) lineage changes is essential in instigating effective control strategies and vaccine design. Here, we studied the DENV-2 strains in Sri Lanka from 2016-2023, examining their evolutionary trends to gauge geographical spread as well as emerging mutations.

Methods

Sequencing was performed on 80 DENV2 collected from acute dengue patients from 2016 to 2018. An additional 12 DENV2 samples from 2022-2023 were examined with Oxford Nanopore Technology. We used the Galaxy hosted IQ-TREE tool to conduct phylogenetic analysis based on the sequence alignment data. Subsequently, the sequences underwent analysis to identify non-synonymous shifts in the envelope and NS1 regions.

Results

All Sri Lankan DENV-2 sequences from 2016 to 2023 belonged to genotype II.F.1 lineage, closely related to strains in South and Southeast Asia, during the same period. We discovered 15 envelope and 22 NS1 non-synonymous region mutations. There were seven mutations in the E region (M6I, Q52H, E71A, V129I, N390S, I484V, T478S) and 10 mutations in the NS1 region (S80T, T117A, Q131H, K174R, F178S, N222S, L247F, I264T, T265A, K272R) consistently present in most samples. Previous research links some of these to enhanced viral replication, NS1 secretion, and immune evasion.

Conclusions

With rising dengue transmission globally, our findings highlight the need for stringent DENV checks to understand its evolution. This can enable effective, prompt control and prevention measures.

027 Evolutionary and Epidemiological Dynamics of Dengue Virus Circulation in Medan, North Sumatra, Indonesia

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Background

Dengue, an acute febrile disease caused by dengue virus (DENV), is endemic to Indonesia, where all four DENV serotypes circulate. Medan, the capital city of North Sumatra province, reports a rolling 5-year average of about six thousand dengue cases annually. The latest available DENV serotype data from Medan in 2008 demonstrated a predominance of DENV-2.

Methods

Between January 2023 and September 2024, 302 serum samples were collected from acutely febrile patients hospitalized with symptoms suggestive of dengue. DENV infection was confirmed using NS1 antigen and/or real time RT-PCR detection and serotyping. Immunologic status was determined using indirect IgG ELISA. Whole genome sequencing and phylogenetic analyses were performed to identify the DENV genotype circulating Medan.

Results

Of 302 patients, 148 (49%) were virologically confirmed for dengue. Of these, 123 (83%) were secondary infections, and 88 (60%) were classified as DHF (dengue hemorrhagic fever) or DSS (dengue shock syndrome). The predominant serotype was DENV-3 (64%), followed by DENV-4 (22%), DENV-1 (7%), and DENV-2 (7%). Analyses of the E-gene sequences revealed the circulating genotypes to be Genotype I for DENV-1, Cosmopolitan Genotype for DENV-2, Genotype I for DENV-3, and Genotype II for DENV-4.

Conclusion

This study demonstrates a serotype shift of circulating DENV in Medan from DENV-2 in 2008 to DENV-3 in 2024. Additionally, DENV-4, the serotype typically found to be least prevalent in most of Indonesia and other dengue-endemic countries, was the second most prevalent serotype in Medan between 2023-2024, indicating a possible trend of rising DENV-4 cases.

028 High genomic diversity of Dengue virus strains in Latin America and Asia-Pacific: insights from a Phase 2 Mosnodenvir clinical trial

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Background

While dengue disease monitoring is in place, genomic surveillance of DENV strains remains limited. The global Phase 2 clinical trial (NCT05201794) of mosnodenvir prophylaxis, which includes participants from 7 countries (The Philippines, Thailand, Brazil, Colombia, Mexico, Panama, Peru), is well suited for genomic classification of the circulating DENV strains during 2023-2024.

Methods

Whole-genome viral sequencing was conducted on a subset of DENV samples (n=150), that represented the DENV serotypes observed at regular time intervals across 29 clinical sites. DENV lineage classifications were determined using the Genome Detective Dengue Virus Typing Tool.

Results

All 4 DENV serotypes were identified in both Latin-America (LATAM) and Asia-Pacific (APAC) regions, with additional diversity when considering genotype, major and minor lineage assignments, resulting in a total of 24 distinct DENV lineages throughout the study period. DENV1 viruses were detected in all 7 countries but clear distinctions were noted at (sub)genotypic levels (DENV1V_B/D/E in LATAM versus DENV1I_K & DENV1IV_B in APAC). Similarly, region-specific major lineages were observed for the other DENV serotypes (with DENV2III_C/D & DENV3III_C, DENV4II_B exclusively detected in LATAM). The Philippines had a unique set of circulating DENV strains (DENV1IV_B, DENV2II_C, DENV3I_C and DENV4II_A). Additionally, Thailand exhibited a distinct pattern of circulating DENV viruses, apart from 2 virus lineages similar to those found in LATAM.

Conclusion

The classification of DENV viruses by genotype, major, and minor lineages underscored the high diversity of circulating DENV strains observed in this study, revealing unique patterns both within and between LATAM and APAC countries.

029 Hierarchical Forecasts of Dengue in Sri Lanka Using a Temporal Fusion Transformer

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Background

Dengue continues to be a pressing public health challenge in Sri Lanka, necessitating robust models that integrate climate variables to guide timely interventions and capacity planning. We used a temporal fusion transformer (TFT), a deep learning-based time series forecasting method, to generate forecasts of the weekly number of dengue cases in Medical Officer of Health (MOH) areas and districts in Sri Lanka.

Methods

We used the weekly number of dengue cases from 2017–2024 across 26 districts and 34 MOH areas (forming Colombo and Gampaha) provided by the Sri Lankan Ministry of Health National Dengue Control Unit (MOH-NDCU) as the analysis target. Model covariates included the stringency index (Oxford COVID-19 tracker), temperature, humidity, and precipitation. A TFT was fitted with hyperparameters tuned using Optuna. Seasonal and rolling forecasts with minimum trace reconciliation were evaluated and forecasts for 2025 were generated.

Results

Over the first half of 2025, we forecast a total of 16,007 (95% UI: 13,196–21,070) cases across Sri Lanka, representing a 43.38% (95% UI: 25.47–53.32%) decrease in cases compared to the same period in 2024. Seasonal forecasts were more accurate in districts (scaled continuous ranked probability score [sCRPS] mean 0.08 [Range: 0.03–0.14]) compared to MOH areas (sCRPS: 0.09 [Range: 0.05–0.21]). Rolling forecasts improved model sCRPS (MOH 1-week-ahead forecast sCRPS: 0.06 [Range: 0.04–0.11]).

Conclusion

Forecasts matched out-of-sample data well, showing that TFTs present a promising forecasting approach. The pipeline developed here can generate forecasts to help the MOH-NDCU better prepare for outbreaks.

030 One-Year Evaluation of Cross-Genotype Immunogenicity and Antibody-Dependent Enhancement Risk of a Single-Dose KD-382 Live-Attenuated Tetravalent Dengue Vaccine in Flavivirus-Naïve Adults

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Background

A robust neutralizing antibody (nAb) response is essential for dengue vaccines to protect against all four dengue virus (DENV) serotypes while minimizing antibody-dependent enhancement (ADE) risk. This study evaluated the cross-genotype immunogenicity and ADE potential of a single low dose of the live-attenuated tetravalent KD-382 dengue vaccine in 15 healthy, flavivirus-naïve adults in a Phase I clinical trial.

Methods

Serum samples were collected at 1, 2, 3, 6 and 12 months post-vaccination. Single-round infectious particles (SRIPs) representing 17 genotypes were used to assess nAb and ADE responses. While some SRIPs shared genotypes with vaccine strains, they were derived from different viral isolates to enable genotype-specific evaluation. Neutralization assays were performed using BHK-21 cells, while ADE assays employed BHK-21 cells expressing human FcγRIIA. Peak enhancement titers (PET) were calculated to assess in vitro ADE potential.

Results

KD-382 induced durable nAb titers at 12 months for DENV-1, DENV-2, and DENV-4 (GMTs: 120, 128, and 88, respectively), with a lower response for DENV-3 (GMT: 24). Seropositivity was sustained at 100% for DENV-1, DENV-2 and DENV-4, and 86.7% for DENV-3. Vaccine-homologous genotypes also demonstrated durable nAb titers. All 17 genotypes demonstrated in vitro enhancement . Although PET declined over time, it remained above the proposed ADE risk threshold (PET >80). Despite this decline, enhancement profiles stabilized from 2 to 12 months, suggesting that KD-382-induced antibodies may mitigate ADE risk.

Conclusions

These findings support KD-382 as a safe, broadly protective dengue vaccine and highlight the critical need for thorough ADE risk evaluation.

031 Understanding Climate and Dengue in the Philippines from 1991 to 2020

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Background

Dengue remains a significant public health concern in the Philippines, with thousands of cases reported annually. In Southeast Asia, it is projected to reach its peak this century, with 93% of the cases expected to be from Indonesia, Malaysia, Vietnam, and the Philippines, and will eventually decline due to economic growth and unfavorable climate conditions for mosquito survival.1 Given these projections, this study examines the relationship between the country's climate and dengue incidences.

Methods

Secondary dengue surveillance data from the Department of Health and climate data (rainfall, relative humidity, and temperature) from the Philippine Atmospheric, Geophysical and Astronomical Services Administration were utilized. Spearman Correlation and time series analyses were conducted to identify the associations between variables and to observe trends, patterns, and seasonality.

Results

From 1991 to 2020, the annual average temperature showed an increasing trend of +0.026°C, while the changes in average humidity and rainfall over the decades were statistically significant but varied across the region. Dengue exhibits a 2-3-years cyclic pattern and a seasonal rise during the rainy season (June-September). Temperature positively correlates with high dengue incidence between 21.6°C and 32.9°C, but beyond this range, incidence decreases and drops significantly as it approaches 42°C and above.

Conclusion

The results confirm a significant link between climate and dengue incidence in the Philippines. The influence of climate factors on dengue incidence underscores the need for climate-informed surveillance and response, targeted prevention efforts, and strengthened collaboration between health and climate agencies to improve long-term dengue control.

032 Biobanking of Vector-Borne Viruses for Future Health Research Applications in Selected Hospitals in Luzon

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Background

A biobank is a repository of biological specimens and their associated data. In the Philippines, biobanking is a novel health research interest and only few institutions maintain biobanks of vector-borne viruses. This study aims to develop a procedural framework for biobanking human-derived vector-borne virus specimens for future health research applications.

Methods

This biobanking initiative is a DOST-PCHRD-funded project entitled, *Molecular Profiles and Biobanking of Vector-borne Viruses in Selected* Hospitals in Luzon. Samples were collected from individuals aged 19-60 years old with febrile illness or viral infection symptoms at two tertiary hospitals between September 2024 and March 2025. Standard Operating Procedures (SOPs) were established for specimen collection, storage, processing, and biobanking. Virus detection and characterization were done prior to the biobanking of specimens.

Results

Fifteen SOPs were drafted to guide the biobanking process. Serum aliquots were analyzed for the presence of Dengue (DENV), Chikungunya (CHIKV) and Zika (ZIKV) viruses by real time PCR, and stored for biobanking. A total of 153 serum samples were collected, resulting to 305 banked vials. Associated data were stored in a secure database. Overall, 43 DENV, 2 ZIKV and 2 CHIKV-positive samples were identified.

Conclusion

SOPs are necessary for streamlining the biobanking process and ensuring consistent specimen quality and integrity. To date, a framework has been established for collecting, storing, processing, and biobanking vector-borne viruses for future health research applications. This collection could pave the way for novel innovations in research and development, enhancing the country's capacity to combat outbreaks and pandemics.

033 Laying the Foundation: Streamlining protocols for the establishment of physical biobanks of medically important viruses in the Philippines

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Background

Biobanks of medically important viruses are critical for infectious disease research, yet sustainable and systematic biobanking remains a challenge in many developing countries. In the Philippines, respiratory viral infections is a major public health concern, substantiating the need for a dedicated biobank to support surveillance and response. This study aimed to identify common respiratory viruses in Metro Manila, streamline virus biobanking protocols suitable for resource-limited settings, and establish a physical biobank of biological resources including swab specimens and respiratory virus isolates.

Methods

Swab specimens were collected from 114 pediatric patients with influenza-like illness and analyzed using the BioFire respiratory panel test. Samples were stored in duplicate cryogenic vials at -80°C ultra-low freezer at the Department of Science and Technology – Industrial Technology Development Institute, following international biobanking standards. A Laboratory Information Management System (LIMS) utilizing R and Microsoft Excel was developed for sample tracking and data security.

Results

The most frequently detected viruses were rhinovirus (29%), influenza A (18%), human metapneumovirus (13%), and respiratory syncytial virus (12%), with co-infections in 19% of cases. Biobank planning and operations were streamlined, consisting of pre- (Standard Operating Procedures development, staff training, LIMS development) and post-sample (post-collection processing, disaster preparedness, and data management and sustainability) collection protocols. A total of 456 vials were banked.

Conclusion

This study serves as a guide for future virus biobanking initiatives in similar settings, and provides a foundation for future research and development, and strengthened public health preparedness against infectious diseases in the Philippines.

034 Spatiotemporal Analysis of Dengue Virus Transmission in Changing Climate Scenarios in the Philippines

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Background

Dengue virus (DENV), spread by *Aedes aegypti*, is influenced by bioclimatic factors, which remains a major health threat, with 340,860 cases and 881 deaths in the Philippines in 2024. This study aimed to (1) determine DENV detection rate in Baguio General Hospital and Medical Center and Rizal Medical Center, and (2) predict the current and future transmission under different climate change scenarios using species distribution models, informing public health interventions.

Methods

DENV transmission under current and changing climate scenarios (optimistic and pessimistic) was modeled using MaxEnt algorithm with 19 bioclimatic variables. Occurrence data included (a) RT-qPCR-confirmed cases from BGH and RMC, and (b) *Ae. aegypti* records from published journals. Data was processed using RStudio and QGIS.

Results

RT-qPCR analysis identified 43 DENV-positive cases, with higher detection among females (25:18), and peak detection rate in October 2024 (56.8%). Chikungunya and Zika virus, also transmitted by *Ae. aegypti*, were each detected in two individuals. The current scenario model highlights Region I, CAR, Cagayan Valley, Central Luzon, and northern Mindanao as high-risk areas for DENV transmission. Optimistic model projects reduced risk in Visayas and Mindanao, while pessimistic models indicate increased risk in Region I. Key contributing variables include temperature annual range (BIO7) and precipitation of the driest month (BIO14).

Conclusion

Molecular detection revealed the highest DENV-positive case in October. The pessimistic model revealing concerning risk expansion in Region I and the co-detection of other arboviruses necessitate continuous disease surveillance and climate-responsive interventions.

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035 Establishment of the A129 mouse model for studying antibody-dependent enhancement in dengue infection and single-cell profiling

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Background

Two major challenges in dengue vaccine development are antibody-dependent enhancement (ADE) and the absence of reliable, cost-effective animal models that accurately mimic human immune responses. To address this, we evaluated A129 mice, deficient in interferon-α/β receptors, as a potential ADE model by administering monoclonal antibodies (mAbs) prior to DENV infection.

Methods

A129 mice (6–8 weeks old) were divided into three groups. Group 1 received 400–50 µg of 4G2 mAb intraperitoneally, followed 24 hours later by subcutaneous DENV-2 infection. Group 2 was infected with DENV-2 without mAb treatment. Group 3 received a mock infection as a control.

Results

Group 1 mice that received 400–50 µg of 4G2 mAb exhibited dose-dependent survival rates ranging from 60% to 0% following DENV-2 challenge, whereas Group 2 showed 100% survival. ADE was observed for DENV-1 and DENV-2 at all doses, and for DENV-3 at 50 µg; no ADE was seen with DENV-4. Group 1 also exhibited significantly higher viral RNA levels in blood, liver, spleen, intestine, and brain, with reduced platelet and white blood cell counts compared to Group 2. Single-cell RNA sequencing using the 10x Genomics Chromium FLEX assay on liver tissue revealed altered immune cell clustering, dynamics, DENV-2 genome expression, immune gene signatures, and signaling pathways among the three groups.

Conclusion

Our study establishes the A129 mouse as a robust model for dengue ADE, demonstrating pathophysiological features and immune responses relevant to human infection. This model offers a valuable tool for vaccine evaluation and mechanistic studies, especially when combined with single-cell transcriptomic analysis.

036 Understanding Dengue in Rural Area: Molecular and Epidemiological Surveillance in Sintang, West Kalimantan, Indonesia

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Background

Dengue virus (DENV) is endemic across Indonesia, yet molecular surveillance efforts remain concentrated in urban centers, leaving rural and remote areas underrepresented. Sintang, located in the interior of West Kalimantan on the island of Borneo, is one such region with limited virological data. This study presents the first molecular surveillance of DENV in Sintang, aiming to characterize the circulating serotypes and genotypes from 2023–2024.

Methods

Serum samples from patients clinically suspected of dengue were collected at Ade Muhammad Djoen Hospital, Sintang. Samples were screened using NS1 antigen and IgM/IgG rapid test. NS1-positive specimens underwent one-step quantitative RT-PCR for serotyping, and genome sequencing was conducted using Oxford Nanopore Technology. Demographic, clinical, and hematological data were also gathered to contextualize findings.

Results

The Majority of dengue patients in Sintang were children under 18 (79.5%), and 53.2% of the cases were female. Of 310 confirmed dengue cases, all four DENV serotypes were identified. DENV-3 was the dominant serotype (88.8%), followed by DENV-1 and DENV-2 (each 4.4%), mixed infections (2.0%), and DENV-4 (0.4%). Genotypic analysis revealed that DENV-3 and DENV-1 isolates belonged to Genotype I, while DENV-2 isolates were of the Cosmopolitan genotype—all consistent with strains circulating in other parts of Indonesia.

Conclusion

This study confirms the co-circulation of all four DENV serotypes in rural Sintang, with DENV-3 genotype I being predominant. As the first molecular report from this understudied region, our findings underscore the importance of expanding surveillance to rural areas to support more comprehensive dengue control strategies across Indonesia.

037 Severity of Dengue Co-Infection among Children in Cebu, Philippines: A case series

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Background

Dengue co-infection is defined as simultaneous infection with multiple dengue (DENV) serotypes. This occurs in hyperendemic areas such as the Philippines. We aim to describe demographic information, clinical manifestations, dengue severity and co-infecting DENV serotypes from children who participated in our dengue cohort study (ClinicalTrials.gov, NCT03465254).

Methods

We conducted a study in Cebu, Philippines that collected data on febrile episodes among children 9-14 years of age. Demographic and clinical characteristics were obtained. Virologically confirmed dengue cases were determined including infecting DENV serotypes.

Results

Out of 160 reported virologically confirmed dengue from 2017 to 2022, five children with DENV co-infection were identified. The median age was 11 years, and 80% were female. Three participants (60%) were from Balamban and two (40%) from Bogo City.

Fever (100%), headache (80%), body malaise (60%), and anorexia (40%) were the most common symptoms. Among dengue warning signs, abdominal pain was observed in 60% of cases. Four cases had dengue with warning signs (80%) and one had dengue without warning signs (20%). No severe dengue cases were reported, and none were hospitalized. Co-infecting serotypes included DENV-2 and DENV-3 (n=3), DENV-1 and DENV-3 (n=1), and DENV-3 and DENV-4 (n=1).

Conclusion

We report the occurrence of dengue co-infections in a cohort children in a hyperendemic country. Although most cases had warning signs, none progressed to severe dengue. These findings still underscore the importance of early detection and prompt management of dengue cases.

038 Genomic Analysis of Dengue Virus 3 From Encephalopathy Patient in Palembang, Indonesia: Genetic Relationship and Signature Mutations

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Background

The neuropathogenesis of dengue virus (DENV) infection with central nervous system (CNS) involvement, such as encephalopathy, is poorly understood despite being classified as severe dengue. Apart from the host immune factor, the characterization of DENV related to encephalopathy is extremely few. This study aims to study DENV from encephalopathy case found in Palembang, Indonesia.

Methods

DENV from an encephalopathy patient from Palembang (PLB-ECP-2024) was isolated from blood-sera, serotyped using RT-PCR, and whole-genome sequenced using MinION. A related dengue shock syndrome case (PLB-DSS-2024) the patient's sibling, was also sequenced for comparison. Phylogenetic, genetic distance, and signature mutations were analysed along with the only available DENV-3 encephalitis isolate, JKT-ECP-2016 (KY863456) from Jakarta 2016.

Results

All encephalopathy and DSS cases were identified as DENV-3 genotype I. Genetic analysis revealed 99.2% similarity between the two sequences and share 99.4% similarity to isolate from Singapore 2019. Both isolates were grouped in a different clade with JKT-ECP-2016 (~96.7% similarity). Twelve uncommon DENV-3 amino acid mutations in Indonesia, including four novel ones (NS1S17N, NS1M109V, NS1A146V, NS5T39A) were identified. Notably, the ML37F mutation was found in DENV with encephalopathy and encephalitis. The NS4BF160Y mutation was found in all three sequences, while EP124L, EK386R, and NS2AF38I were found in PLB-ECP-2024 and PLB-DSS-2024.

Conclusion

Our findings revealed genetic characteristics and mutations of DENV-3 with encephalopathy complication from Palembang, warranting further investigation and reinforcing the importance of genomic surveillance, especially for those with CNS severe complications.

039 First Record of Insect-Specific Flaviviruses in *Aedes aegypti* Populations from the Philippines

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Background

Understanding the virome of *Aedes aegypti* is critical for predicting risks in arboviral transmission and enhancing vector control. This study investigated the diversity of flaviviruses circulating in *Ae. aegypti* populations from Liloan, Cebu, Philippines, an area with persistent dengue incidence.

Methods

Eggs were collected by ovicidal/larvicidal traps, reared to adults, and separated by sex. RNA extracted from pooled mosquitoes underwent nested RT-PCR targeting the NS5 gene, followed by Illumina next-generation sequencing. Flaviviral sequences were identified through BLAST similarity searches and phylogenetic analyses.

Results

Insect-specific flaviviruses (ISFs)—Cell Fusing Agent Virus (CFAV), Aedes Flavivirus (AeFLAV), and a novel Flaviviridae lineage—were detected in 40% of male and 50% of female mosquito pools. Phylogenetic analyses showed CFAV and AeFLAV clustered closely with strains from Asia, the Americas, and Australia. The novel Flaviviridae sequences were aligned with those from Argentina. No human-pathogenic flaviviruses were detected, suggesting ISFs may influence local vector competence.

Conclusion

This first molecular survey of *Ae. aegypti* viromes in Cebu reveals a dynamic ISF landscape with potential ecological roles in modulating arboviral transmission. Uncovering these viruses is vital for developing adaptive dengue prevention strategies amid intensifying climate and urbanization.

040 Determining age-stratified past exposure to dengue and Zika in a sub-cohort of children in Sri Lanka

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Background

Investigating past monotypic and multitypic dengue exposure is essential to fully understand dengue transmission dynamics. It is also crucial to understand how cross-reactive flaviviral antibodies influences population immunity and spread of dengue. Therefore, we conducted an age stratified analysis of dengue (DENV) and Zika (ZIKV) exposure in children in Sri Lanka.

Methods

A Luminex microsphere-based multiplex assay was used to determine antibody responses against DENV1-DENV4 and ZIKV, to identify the incidence of monotypic and multitypic dengue infections and ZIKV in a sub-cohort of children (n=604) (previously confirmed to have dengue antibodies by an in-house ELISA) from Gampaha district, Sri Lanka.

Results

Of the 604 children, 258 (42.7%) had a past monotypic infection, 209 (34.89%) had a multitypic infection, and 100 (16.5%) had a past ZIKV infection as well. However, 3.33% of children had only a ZIKV infection. Of the monotypics, DENV2 (56.83%) was found to be the predominantly exposed serotype in children, followed by DENV1 (30.57%). Age stratified analysis showed that there was a significant increase in the number of monotypic infections with age (Spearman's=0.62, p=0.026), but no difference in multitypic infection with age. However, an inverse correlation was observed between ZIKV exposure and age (Spearmans's r=-0.72, 0=0.007).

Conclusion

The presence of previous exposure to DENV may reduce the risk of acquiring ZIKV. Also, it suggests that alongside seroprevalence data, studying different exposures to DENV serotypes and previous flavivirus exposure may be crucial to make public health decisions, especially in vaccine and vector control strategies.

041 Investigating the age-stratified seroconversion rates to dengue in children in Sri Lanka

Shyrar Tanussiya Ramu[1], Madushika Dissanayake[1], Chamini Kanatiwela-de Silva [2], Naduni Dasanthi[1], Amaya Gunaratne[1], Chandima Jeewandara[1], Nicole L. Achee[3], John P. Grieco[3], H. Asitha de Silva[4], D. S Anoja F. Dheerasinghe[5], Hasitha Aravinda Tissera[6] , Gathsaurie Neelika Malavige[1]

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Background

Understanding age-stratified seroconversion rates following natural dengue infection is critical in assessing susceptibility to infections, studying population immunity and informing vaccine strategies. Therefore, this study aimed to identify the seroconversion rates in children in a dengue endemic area in Sri Lanka.

Methods

We assessed seroconversion rates in a sub-cohort of 1051 children aged 4 to 16 years who were previously identified as seronegative for dengue, recruited from three MOH areas (Negombo, Kelaniya, Wattala) in Gampaha district, Sri Lanka. Serum samples collected a year later were subjected to an in-house DENV specific IgG ELISA to identify the serostatus.

Results

Of the 1051 individuals tested, 808 remained seronegative in 2024 (76.88%), whereas, 243 individuals had seroconverted (23.12%). Febrile illnesses were reported in 21/243 children with only 3 being dengue confirmed cases. The highest seroconeversion rate of 36.78% was seen in Wattala, followed by Negombo (20.39%) and Kelaniya (12.38%). Age-stratified analysis showed a gradual increase in the overall seroconversion rate from 17.23% in children aged 4 to 5 years to 30.15% in those aged 14 to 16 years. However, a significant positive correlation was observed between the seroconversion rates with the age groups only in Kelaniya ($r= 0.8857$, $p= 0.0333$), but not in Negombo ($r= 0.8286$, $p= 0.0583$) and Wattala ($r=0.08571$, $p= 0.9194$).

Conclusion

The seroconversion rates in children increased with age and varied across different geographical locations, showing that identifying these areas, along with the infecting serotype may be crucial in public health decision making, vaccine and vector control implementation.

042 Exposure to dengue in a malarious area in the Philippines

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Background

Palawan is the only Philippine province reporting malaria since 2022; dengue is also a disease of public health importance here. Rizal municipality reports 60-70%, and less than 3% of the total malaria and dengue cases, respectively, in the province. We present observations on the prevalence of dengue and malaria from two studies on enhanced disease surveillance carried out in Rizal, Palawan.

Methods

In 2023, multiplex serology assays for malaria and dengue IgG antibodies using Luminex were performed on 1,948 dried blood spots (DBS) on filter paper collected through health facility malaria surveys in Rizal in 2016, and 1,125 DBS collected through a community-based survey also in Rizal in 2022. The multiplex bead-based assay (MBBA) used monoclonal antibodies (mAbs) of dengue (NS1.1, NS1.2, NS1.3, and NS1.4) and malaria (PfAMA, PfMSP, PfGlurp, Etramp5, GexP18, PvAMA, PvMSP, and PvEBP). The seropositivity rates were analyzed overall and by age groups (0-5, 6-15, 16-44, and >45 years).

Results

The overall seropositivity rates for samples collected in 2016 were higher for malaria compared to those for dengue. The rates increased with age for both diseases and were similar in the >45 y/o group. The overall seropositivity rates for all four dengue serotypes were 20% higher in samples collected in 2022 compared to samples collected in 2016.

Conclusion

These findings indicate (a) dengue cases are underreported in Rizal; (b) a disease outbreak occurred between the two time periods; and (c) dengue must be tested in areas where malaria is also reported.

043 The Role of Intraserotypic Variation of Dengue 3 and the Viral Strain Selection for Vaccine Development

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Background

Dengue virus (DENV) vaccine development has mainly focused on differences between serotypes, but intraserotypic variation may also influence vaccine efficacy. Between 2007 and 2014, Thailand experienced a genotype shift from DENV3 genotype II to III, raising questions about the role of antigenic differences in this replacement and implications for vaccine strain selection.

Methods

We evaluated antigenic variation among DENV3 strains isolated from Thai patients (2004–2015) using neutralization assays with monotypic DENV3 immune and vaccine sera. Antigenic cartography and amino acid sequence alignments of envelope proteins were performed. Selected genotype II and III strains were used for immunization in monkeys to assess the breadth of neutralizing antibody responses. Structural modeling was used to visualize amino acids contributing to antigenic variation.

Results

Although antigenic diversity among DENV3 strains was observed, it did not consistently correlate with genotype. Sequence analysis identified eight amino acid positions associated with antigenic subgroup differences, with key residues (aa81, aa124, aa172) located on the virion surface, potentially affecting neutralization sensitivity. Both genotype II and III isolates showed antigenic differences from the vaccine strain (genotype I). Immunization of DENV3 either genotype II and II in monkeys induced broadly neutralizing antibody responses against all three genotypes, suggesting cross-genotypic coverage.

Conclusion

Our findings do not support a major role for intraserotypic antigenic variation in DENV3 genotype. Genotypic variation within DENV3 may not present a significant barrier to effective vaccine strain selection.

044 Aedes-borne Arbovirus Threats: A Scoping Review of Dengue, Chikungunya, Zika and Yellow Fever in Burkina Faso, Cameroon, Côte d'Ivoire, and Tanzania

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Abstract

The rising threat of Aedes-borne arboviral diseases (AVDs) disproportionately affect low-income countries in the Africa where critical surveillance and response gaps exist. This scoping review was conducted to gather information on arbovirus preparedness in four countries in Africa - Burkina Faso, Cameroon, Cote d'Ivoire, and Tanzania.

Databases including PubMed, Web of Science and Scopus Library were searched using terms covering entomology, surveillance, diagnosis, outbreak response and policy. Articles in English published between 1 January 2019 and 20 October 2024 were included, except for preprints.

From 235 studies initially screened, we included 104 eligible studies (Burkina Faso n=24, Cameroon n=33, Cote d'Ivoire n=13, Tanzania n=26, multi-country n=8). Outbreaks of dengue, chikungunya and yellow fever occurred in all four countries, while Zika was only detected in Burkina Faso and Tanzania. Of the 85 country-specific articles, 50% were hospital and laboratory-based studies, 54% were human population focused, 58% focused on dengue and 81% were entomological-epidemiological studies. *Aedes aegypti* and *Ae. albopictus* were the primary vectors of Aedes-borne AVDs, while dengue serotype 1-4 were all circulating in the countries. Challenges identified during outbreaks included insufficient surveillance systems, lack of specific guidelines and policies for the prevention and control of AVDs, difficulties in coordination between stakeholders, inadequate diagnostic, laboratory capacities, and outbreak preparedness.

The presence of vectors and four dengue serotypes presents an ongoing outbreak risk in these countries. Further efforts are needed to enhance AVDs surveillance and control measures and develop related policies to boost countries' preparedness for disease outbreaks.

045 Development of an archetype approach for informing optimal local dengue vaccination strategies

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Background

Dengue epidemiology varies across locations; therefore, vaccination strategies need to be setting-specific to maximise disease prevention. Ideally, these strategies should be informed by setting-specific epidemiological models. However, this may not always be feasible, potentially delaying or restricting vaccine introduction. We developed an archetype approach that provides insights to guide vaccination programme design.

Methods

Following a targeted literature review on dengue burden in 11 endemic countries, dengue archetypes were identified based on the distribution of cases across ages. A dengue dynamic transmission model was used to define optimal routine vaccination strategies for each archetype, allowing for the greatest reduction of symptomatic and hospitalized cases.

Results

Three dengue archetypes were identified. Archetype-1 (reference: Brazil) had the highest dengue incidence in young adults with a relatively flat distribution, showing moderate differences between age groups and remaining high in older adults. Archetype-2 (reference: Thailand) had a distinct peak in young adolescents. Archetype-3 (reference: Philippines) had a distinct peak in young children. Optimal age of routine vaccination was found to be shortly before or at the peak for Archetype-1 and several years before the peak for Archetypes-2 and -3. These findings enable countries to map their epidemiological patterns to the relevant archetype and determine their optimal vaccination cohorts.

Conclusion

Three dengue archetypes were identified based on available data along with the optimal age of routine vaccination for each. This archetype approach provides a ready-made solution to guide dengue vaccination strategies in settings where local modelling studies may not be feasible.

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046 Decoding dengue transmission intensity in Sri Lanka: a spatiotemporal analysis using case notification data

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Background

The recent licensure of a second-generation vaccine and novel vector control interventions provide new opportunities for dengue control. To evaluate their impact, it is necessary to characterise transmission intensity of dengue, as measured by the force of infection (FOI), which is the annual per-capita risk of infection for a susceptible person. The age-stratified incidence of case notifications is a valuable data source which can be used to estimate the FOI and thus characterise the burden of dengue.

Methods

We applied catalytic models applied to the age-stratified dengue incidence (2017-2023) across Sri Lankan districts to characterise the heterogeneity of dengue FOI and compared it with seroprevalence-based estimates. Moreover, we investigate the effect of potential climatic and socioeconomic drivers of the observed heterogeneity in dengue transmission.

Results

We found heterogeneous FOI estimates and reporting rates across districts, with an estimated seroprevalence at age 9 of 38.8% (95% CrI 38.4%-39.0%) in Colombo, the capital of Sri Lanka (age at first infection of 18 years) to an average seroprevalence at age 9 of 20% (95% CrI 18.5%-24.9%) in Moneregala (age at first infection of 42 years). Our estimates also suggest increased severity and hospitalisation of secondary infections compared to primary ones.

Conclusion

Overall, we find evidence of moderate FOI in Sri Lanka and that seroprevalence at age 9 does not exceed 40% even in the most densely populated urban areas. These results suggest that *Wolbachia*-carrying mosquitoes could potentially eliminate dengue, whilst vaccine introduction needs to be carefully evaluated.

047 Bayesian spatiotemporal models for predicting dengue incidence in Sri Lanka

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Background

Dengue is recognized by the World Health Organization as a major global public health threat. In Sri Lanka, dengue hospitalisations place considerable strain on the healthcare system, particularly during the monsoon seasons. Since 2009, dengue cases in Sri Lanka have increased significantly, totalling 186,101 reported cases in 2017, which underscores the urgent need for accurate outbreak prediction models.

Methods

We analysed dengue case data from 2017 to 2023 collated by the National Disease Control Unit, alongside population data from the 2012 census. Environmental and climatic predictors—including temperature, rainfall, relative humidity, enhanced vegetation index, middle infrared reflection, and elevation—were incorporated. We developed four Bayesian hierarchical spatiotemporal models to predict dengue incidence at a small-area level: Model 1 included spatial and temporal random effects; Model 2 added selected predictors; Model 3 introduced a flexible long-term trend; and Model 4 incorporated spatiotemporal interactions. Cross-validation was performed using four forecasting horizons: 4, 9, 26, and 52 weeks. Model performance was evaluated using bias, root mean square error, and 95% coverage probability.

Results

From 2017 to September 2024, Sri Lanka reported 611,561 dengue cases. Maximum temperature and total rainfall were the strongest predictors of dengue risk, with the risk decreasing at higher temperatures but increasing with more rainfall. Model 4 showed the best predictive accuracy, particularly for short-term forecasts up to 9 weeks.

Conclusion

This study presents the first Bayesian spatiotemporal model for dengue prediction in Sri Lanka, demonstrating strong short-term forecasting potential to support early response and control intervention planning.

048 Diagnosing Dengue in the Context of TAK-003 Vaccination – What Has Changed? Insights From the TIDES Trial

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Background

Dengue vaccination may affect diagnostic test interpretation. Using data from the phase 3 TIDES trial (NCT02747927), we investigated the effect of TAK-003 vaccination on the ability of routine tests to detect wild-type dengue infection.

Methods

All participants presenting with febrile illness or clinically suspected dengue had an acute blood sample taken for dengue confirmation using RT-PCR (reference test). A convalescent sample was collected up to 18 months post second dose, and from all hospitalized participants. Samples were tested using immunoglobulin (Ig)M, IgG, and NS1 antigen (Ag) ELISAs, and sensitivity, specificity, and positive/negative predictive value (PPV/NPV) were calculated against reference test. Results were stratified by TAK-003 versus placebo.

Results

From first dose to 30 days post second dose, IgG and IgM tests exhibited lower sensitivity (52.9% vs 89.6%) and specificity (43.6% vs 68.2%) in TAK-003 versus placebo recipients. NS1 Ag test exhibited lower sensitivity in TAK-003 versus placebo recipients (50.0% vs 87.0%); however, specificity was high irrespective of vaccination status (≥91.0%). Test sensitivities were lowest in baseline seropositive participants. Sensitivity and specificity were similar between TAK-003 and placebo recipients from 18-54 months post second dose. NPV of all tests was high (≥78.6%). 11/35 cases of vaccine RNAemia were also positive with RT-PCR.

Conclusion

From first dose to 30 days post second dose, serological tests showed reduced ability to reliably confirm dengue infection in the presence of vaccine-induced immunity, especially in individuals with prior dengue exposure. RT-PCR was also impacted by the presence of vaccine-derived RNA within 30 days post vaccination.

049 Surveillance and Control Capacities for Arboviral Diseases: Insights from 2021 and 2024 Self-Assessments in Four African Nations

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Background

A 2021 WHO survey revealed significant gaps in the African region's capacity to combat arboviruses, including dengue. To understand national preparedness for arbovirus outbreaks, in 2024, we conducted a self-assessment survey in Burkina Faso, Cameroon, Côte d'Ivoire and Tanzania, under the Resilience Against Future Threats initiative.

Methods

The online questionnaire, based on WHO guidelines, included 69 questions across nine domains and was completed by 14 representatives from relevant departments in the four countries.

Results

Although arboviruses including dengue, chikungunya, and yellow fever are circulating in all surveyed countries, we found only Burkina Faso has a national strategic plan for arboviruses. Individual case data is available at primary healthcare facilities, using both paper-based and electronic systems in all countries. PCR confirmation is conducted for all cases in Burkina Faso and Côte d'Ivoire, and for suspected cases in Cameroon and Tanzania. Standard guidelines for diagnosis and management are present in Burkina Faso and Côte d'Ivoire. Compared with the WHO findings in 2021, we found improvements had been made in the frequency of health staff training, establishment of sentinel sites for entomological surveillance in Burkina Faso and Côte d'Ivoire, the presence of dedicated vector surveillance programs in Burkina Faso and Cameroon. Outbreak response mechanisms are implemented in all countries, with Burkina Faso having a contingency plan. Emergency funding is available in all countries except Cameroon.

Conclusion

Despite improvements in surveillance, staff training, outreach programs, and emergency funding, gaps remain in capacity and preparedness for outbreak response in the four countries.

050 Strengthening Dengue Policies Based on Analysis Across Ten Countries in Asia

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Background

Dengue continues to pose a significant economic and public health threat in tropical regions, with rising incidence driven by climate change, urbanisation, and global travel. 2024 saw a resurgence in dengue outbreaks, exposing gaps in existing dengue prevention and case management measures.

The Asia Dengue Policy Working Group conducted a policy mapping across ten countries – Singapore, Malaysia, Indonesia, the Philippines, Thailand, Vietnam, Cambodia, India, Sri Lanka, and Bangladesh – to optimise national dengue strategies.

Methodology

A desk review and expert interviews informed the policy mapping, to evaluate vector control, surveillance, case reporting, diagnostics, vaccination, patient care, and resource allocation. Country profiles were validated through consultations with in-country and regional experts; recommendations were developed through expert interviews to ensure relevance and alignment with the goal of Zero Dengue Deaths by 2030.

Results

While all countries maintain dengue programmes, only a subset have dengue-specific legislation and formal national strategies.

An accompanying White Paper outlines three tiers of recommendations: (1) Regional collaboration via shared dengue management and prevention toolkits, data sharing platforms and alignment with existing WHO and ASEAN strategies; (2) Overarching national strategies, including setting up a multi-sectoral taskforce and ensuring equitable funding and sustained investment; and (3) Country-specific actions tailored to local gaps and opportunities.

Conclusion

The White Paper offers a roadmap of prioritised, evidence-based actions for regional collaboration and recommendations tailored to each country's context. By supporting policy reform and implementation through regional coordination, countries can accelerate progress towards Zero Dengue Deaths by 2030.

051 Temperature and not season influences the development-related phenotypes of Philippine *Aedes albopictus*: Implications for vector control

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Background

Mosquito survival and arboviral transmission are greatly influenced by climate change. *Aedes albopictus* eggs can undergo dormancy as an adaptive mechanism under adverse conditions. This study aimed to assess the hatching rate and viability of *Ae. albopictus* F1 eggs.

Methods

Field-collected eggs of *Ae. albopictus* from selected sites in Luzon, Visayas, and Mindanao during wet (2018-2020) and dry (2019) seasons were reared to obtain F1 eggs. F1 eggs were exposed to 18°C, 25°C, and 38°C under laboratory conditions for six weeks. Percent pharate larvae (PPL), hatch rates (HRs), and reproductive outputs (ROs) of F1 eggs were determined.

Results

Temperatures showed significant ($p<0.05$) main effects on PPL and ROs of F1 eggs of wet season-collected *Ae. albopictus*, and on PPL, HRs, and ROs of F1 eggs of dry season-collected samples. Temperatures significantly affected ($p<0.05$) PPL, HRs, and ROs across all sites but no seasonal differences. Mean PPL (14.01%) was highest at 25°C and lowest (0.64%) at 38°C. First record of *Ae. albopictus* pharate larvae was observed at 38°C. PPL, HRs, and ROs were similar between highlands and lowlands in Visayas and Mindanao.

Conclusion

Temperature is more important than season in influencing the development-related phenotypes of *Ae. albopictus*. F1 eggs can withstand cooler and warmer temperatures, hence, are a public health threat amidst global warming. Results support an all-year round vector control strategy against dengue mosquitoes in the Philippines and installation of water pipelines in the rural mountains to prevent potential mosquito breeding sites.

052 Natural Co-infection of *Wolbachia* Supergroups A and B Slightly Inhibits Zika Virus in *Aedes albopictus* Mosquitoes from Selected Sites in Cebu city, Philippines

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Background

While *Wolbachia*, a bacterial endosymbiont, can reduce arbovirus transmission in some mosquito species, the effects of co-infection with different *Wolbachia* supergroups can vary. This study investigated the relationship between natural *Wolbachia* and ZIKV in *Aedes albopictus* populations from selected sites (Pit-os and University of San Carlos Talamban Campus) in Cebu city, Philippines.

Methods

Aedes eggs were sampled bimonthly by the use of ovitraps from October-November 2022 (wet months) to February-March 2023 (dry months) and were reared into adults in the insectary. Pooled adult *Ae. albopictus* were processed by PCR using primers for detection of ZIKV and *Wolbachia*. The latter was sequenced and phylogenetically analyzed. Genomic densities were determined by UV-vis spectrophotometry.

Results

Results showed 27.5% of *Ae. albopictus* were ZIKV-positive, 100% *Wolbachia* wsp-positive, and 90% *Wolbachia* 16s rDNA-positive. *Wolbachia*'s minimum infection rates (MIRs) differed from those of ZIKV. Genomic densities increased from wet to dry months of *Wolbachia* (2.2×1018 to 8.31×1019 copies per host genome, respectively) and ZIKV (1.11×1018 to 5.92×1019, respectively). Correlation analyses showed negative but insignificant linear correlations between ZIKV and *Wolbachia* parameters, implying slight inhibition only against ZIKV in *Ae. albopictus*. Sequencing of wsp genes revealed *Wolbachia* supergroups A and B.

Conclusion

Natural *Wolbachia* supergroups A and B only slightly inhibit ZIKV in *Ae. albopictus* populations in Cebu city, Philippines. Results imply that the prevalence of the different *Wolbachia* strains within supergroups A and B may vary in their abilities to inhibit ZIKV in *Ae. albopictus* population and can influence their overall effect.

Table 1. Results of Pearson's product-moment correlation tests on the interaction effects (α=0.05) of the monthly MIR and genomic densities of ZIKV and *Wolbachia* in *Ae. albopictus* collected from Pit-os (below the diagonal line) and USC-TC sites (above the diagonal line) (N=4 for each correlation pair).

		ZIKV MIR	ZIKV Genomic density	*Wolbachia* (*wsp*) MIR	*Wolbachia* (*wsp*) Genomic density	*Wolbachia* (*16s* rDNA) MIR	*Wolbachia* (*16s* rDNA) Genomic density
ZIKV MIR	Correlation	---	0.977	-0.107	0.492	0.225	-0.809
	Sig. (2-tailed)	---	**0.024***	0.893	0.508	0.775	0.191
ZIKV Genomic density	Correlation	0.935	---	0.017	0.649	0.221	-0.797
	Sig. (2-tailed)	0.065	---	0.983	0.351	0.779	0.203
***Wolbachia* (*wsp*) MIR**	Correlation	-0.099	-0.292	---	0.706	0.783	0.551
	Sig. (2-tailed)	0.901	0.708	---	0.293	0.217	0.449
***Wolbachia* (*wsp*) Genomic density**	Correlation	0.605	0.46	-0.599	---	0.505	-0.191
	Sig. (2-tailed)	0.395	0.538	0.401	---	0.495	0.809
***Wolbachia* (*16s* rDNA) MIR**	Correlation	-0.247	-0.446	0.986	-0.525	---	0.39
	Sig. (2-tailed)	0.753	0.554	**0.014***	0.475	---	0.61
***Wolbachia* (*16s* rDNA) Genomic density**	Correlation	0.047	-0.286	0.815	0.043	0.825	---
	Sig. (2-tailed)	0.953	0.714	0.185	0.957	0.175	---

* Significant (p<0.05)

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053 S989P Mutations as a Mechanism of Insecticide Knockdown Resistance: Prevalence and Its Association with *Wolbachia* in *Aedes aegypti* Population from Cebu City Dengue Hotspots, Philippines

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Background

Aedes aegypti (Linnaeus) is the primary mosquito vector of dengue, chikungunya, and Zika viruses in the Philippines. Synthetic insecticides have been effectively used to protect humans from mosquito-borne diseases through mosquito bites. However, knockdown resistance (kdr) mutations in mosquitoes may develop in voltage-gated sodium channel (VGSC) gene. One such mutation, S989P (i.e., serine is replaced by proline), is common in Southeast Asia. Little is known about the natural occurrence of S989P kdr mutations and *Wolbachia* pipientis in *Ae. aegypti* population. This study aimed to detect the presence of S989P kdr mutations and *Wolbachia* pipientis, a bacterial endosymbiont in dengue mosquitoes, that causes cytoplasmic incompatibility and reduce dengue virus transmission.

Methods

Eggs were bimonthly collected from dengue hotspots in Talamban and Labangon, Cebu city during summer 2024, and reared into adults. Detection of *Wolbachia* and S989P kdr mutations was done using PCR with their associated primers.

Results

S989P mutations (32.95%) in VGSC gene as insecticide knockdown resistance prevailed than *Wolbachia* infection (3.41%) in *Ae. aegypti* samples collected during summer. However, Spearman's correlation test analysis showed a weak positive correlation ($r=0.21$) with borderline significance ($p = 0.05$). Separate site analysis also showed weak, insignificant positive correlations (Labangon: $r = 0.15$; Talamban: $r = 0.28$, $p > 0.05$).

Conclusion

Ae. aegypti samples collected in summer from selected dengue hotspots in Cebu city, Philippines developed S989P kdr mutations which had weak positive correlation with *Wolbachia* prevalence. These findings may support the development of integrated vector control strategies.

055 Low Insecticide Usage Reflects the Absence of Phenylalanine to Cysteine Kdr Mutations of *Aedes aegypti* Mosquitoes from Selected Dengue Hotspots in Cebu city, Philippines

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Background

Mosquito-borne diseases (dengue, chikungunya, and Zika infections) transmitted by *Aedes aegypti* (Linnaeus) pose significant global health threats. This study aimed to detect the knockdown resistance (kdr) gene mutations that confer insecticide resistance in *Ae. aegypti* populations in selected dengue hotspots (Guadalupe, Lahug, and Tisa) in Cebu city, Philippines.

Methods

Aedes subadults were field-collected bimonthly in July-September 2023 and reared in the insectary. Thirty-six pools (1 pool =12 individuals) of adult *Ae. aegypti* (N=423) were processed for multiplex PCR using their associated primers to detect F1534C mutations of the voltage gated sodium channel (VGSC) gene. Householders (N=180) in the study sites were interviewed on insecticide use among others.

Results

Results showed a 0% prevalence for the homozygous recessive mutant allele (CC) and heterozygous mutant allele (FC) in all pooled samples. The absence of phenylalanine (F) to cysteine (C) mutations at position 1534 of VGSC gene was linked to non-usage of insecticides by majority of householders from Tisa (71.67%), Guadalupe (63.33%), and Lahug (58.33%). Only a few residents used insecticides: brand A (18.89%), brand B (11.67%), and brand C (3.33%). Majority employed self-protection against dengue such as the use of electric fans (46%) and mosquito nets (4%) and covering water containers (11%) for domestic use.

Conclusion

Employing low insecticide use and more self-protective practices along with the other enhanced 4S strategy of the Philippine Department of Health is linked to the absence of F1534C kdr mutations in *Ae. aegypti* from selected dengue hotspots in Cebu city, Philippines.

056 Age-Stratified Prognostic Utility of World Health Organization's Warning Signs for Predicting Dengue Disease Progression

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Background

In 2009, World Health Organization recommended seven warning signs (WS) that predict progression to severe dengue. This study aims to assess the age-stratified prognostic performance of these WS in predicting Dengue Hemorrhagic Fever (DHF) and Severe Dengue (SD) in adults.

Methods

Hospitalized adult patients at Tan Tock Seng Hospital with PCR- or IgG/IgM-confirmed DHF and SD were retrospectively identified and analyzed by age groups (18–35, 36–49, and ≥50 years) from 2005 to 2008. Sensitivity, specificity, and predictive values (PPV, NPV) were calculated for each warning sign.

Results

Among the study cohort (n=6240), 11% (526/4790) and 6% (305/5100) fulfilled DHF and SD respectively. Twenty six percent had no WS at presentation and no significant proportional difference across age groups. In younger adults (18–35 years), mucosal bleeding showed the highest sensitivity (~61%), while hepatomegaly demonstrated high specificity (>95%) for both DHF and SD. In older adults (≥50 years), sensitivity declined markedly (<20%) across individual signs, particularly mucosal bleeding, abdominal pain, and persistent vomiting, whereas specificity remained high (>94%). NPVs decreased with age although remained consistently high (>90%) across age groups, while PPVs remained low (<20%). Presence of any WS yielded high sensitivity (≥85%) and NPV (>90%) but low specificity (~28%) in older adults.

Conclusion

This large retrospective cohort demonstrated that absence of any WS was unlikely to progress to severe illness. While the specificity of WS remained high in all age groups, the sensitivity diminished with age suggested careful interpretation of WS in older adults is needed.

057 Development of a molecular analysis framework for mosquito identification in Project *Wolbachia* – Singapore

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Background

Project *Wolbachia* – Singapore involves releasing low dose x-ray-treated male *Wolbachia*-infected *Aedes aegypti* mosquitoes to suppress wild populations. To maintain the effectiveness of this suppression strategy, regular surveillance at release sites is essential to detect any inadvertent release of female *Wolbachia*-infected Aedes due to limitations in sex sorting. The national Gravitrap surveillance system offers fortnightly collected mosquito samples for such detection but presents challenges, as field sample degradation often compromises accurate mosquito identification, underscoring the need for more robust molecular assay techniques.

Method

Six distinct mosquito sample types, comprising both wild-type and *Wolbachia*-infected *Ae. aegypti* of both sexes (including females – virgin or mated with *Wolbachia*-infected males), were exposed to field conditions in Gravitrap. The samples were collected at various time points and stored for two weeks to simulate typical field conditions. Using an in-house 4-plex qPCR assay, these parameters were validated, and the resulting cycle threshold (Ct) values were converted to ratios. These ratios served as indices for developing decision trees and establish analytical thresholds for precise molecular identification of different mosquito types.

Results

Our analysis identified several indices that accurately differentiate mosquito sample types, even in specimens showing degradation within a 14-day collection period. Scatter plot analysis revealed six distinct clusters, each corresponding to a specific mosquito type. The enhanced assay provided improved classification criteria and threshold values for distinguishing mosquito characteristics. However, the identification of degraded samples collected beyond 14 days continues to present challenges.

Conclusions

Using a simulation approach, our assay provides confidence on accurate detection of field samples. Our findings guide the frequency of Gravitrap deployment for current surveillance and future release programme.

060 Genomic diversity of dengue virus serotypes circulating in Bangladesh (2019–2023)

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Background

Bangladesh experiences annual dengue outbreaks dominated by dengue virus (DENV) serotypes 2 and 3, with severity fluctuating from year to year. Characterising the genomic landscape of these circulating serotypes is crucial for understanding shifts in disease burden and refining control strategies.

Methods

We retrospectively analysed laboratory records and stored sera from Bangladesh Shishu Hospital & Institute (Dhaka) and Kumudini Women's Medical College Hospital (Mirzapur, Tangail), covering Jan'19-Dec'23. NS1-positive samples were serotyped by real-time qPCR. Sera containing DENV-2 or DENV-3 with cycle-threshold<26 underwent unbiased RNA metagenomics and amplicon-based whole-genome sequencing. Consensus genomes were generated with CZ-ID Metagenomics and Viral-Consensus-Genome pipelines; genotypes were assigned using the Genome Detective Dengue Typing Tool. Phylogenies were constructed with MAFFT alignment and RAxML maximum-likelihood analysis, incorporating 4,056 global DENV-2 and 1,595 DENV-3 genomes, and visualised in iTOL.

Results

We aim to generate 100 high-quality DENV genomes and, after optimising laboratory and bioinformatic workflows, have sequenced 12 genomes to date. Four of our Bangladeshi DENV-2 genomes fell within genotype II: three (lineage F.1.1) isolates from 2023 formed a tight sub-clade with contemporary strains from the US, India, and China, whereas one 2017 isolate (lineage F.1.1.2) clustered near a Colombian clade. All eight Bangladeshi DENV-3 genomes from 2023 belonged to genotype I, lineage A.2, grouping only with 15 pre-2020 Chinese and Bangladeshi strains—evidence of limited yet persistent regional circulation.

Conclusion

Bangladeshi DENV-2 and DENV-3 strains display distinct lineage turnovers and international linkages, reflecting recent introductions and endemic persistence. Ongoing genome sequencing will clarify transmission routes and support timely public-health action.

061 Molecular epidemiology of dengue serotypes in Bangladesh (2019–2023)

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Background

Dengue fever, transmitted by *Aedes aegypti* and caused by four antigenically distinct dengue virus (DENV) serotypes (1 – 4), is a major public-health threat in Bangladesh. Although outbreaks have intensified since the first nationwide epidemic in 2000, recent data on serotype circulation, especially outside the capital city, Dhaka, are limited.

Methods

From January 2019 to December 2023 we conducted a retrospective study in two hospitals: Bangladesh Shishu Hospital & Institute (BSHI) in urban Dhaka and Kumudini Women's Medical College Hospital (KWMCH) in rural Mirzapur. Blood from clinically suspected cases was screened for NS1 antigen and DENV IgM/IgG; NS1-positive sera were serotyped by SYBR-Green RT-qPCR or serotype-specific PCR.

Results

Among 28,410 suspected cases (BSHI 17,573; KWMCH 10,837), 3,747 (13.2 %) were laboratory-confirmed (BSHI 58.4 %, KWMCH 41.6 %). Serotype was identified for 1,456 (38.9 %) positives (BSHI 1,165; KWMCH 291). At BSHI, DENV-3 dominated during 2019-2022 (69.0–100 % annually; 77.8 % overall) but was surpassed by DENV-2 in 2023 (48.9 %). At KWMCH, DENV-1 (41.5 %) and DENV-3 (43.4 %) co-circulated in 2019; DENV-3 dominated 2020-2022 (88.6–100 %), then DENV-2 rose to 77.9 % in 2023. This site-specific yet synchronous shift underscores heterogeneous dengue ecology across urban and rural Bangladesh.

Conclusions

Multiple serotypes co-circulate with dynamic, geography-dependent replacement patterns. The nationwide emergence of DENV-2 immediately preceded the record 2023 epidemic and may partly explain its severity. Continuous serotype surveillance beyond Dhaka is essential for timely clinical management, outbreak preparedness, and targeted vector control.

062 Clinical Profile and Impact on Quality of Life of Dengue Among Children in Indonesia

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Background

Dengue infections in children can lead to severe forms and life-threatening condition. This study aimed to characterize the clinical and serotype profiles of pediatric dengue cases in Indonesia and assess the impact on quality of life (QoL).

Methods

A sentinel-based surveillance study was conducted across 24 hospitals in eight provinces, covering five regional areas of national health insurance (BPJS Kesehatan). Children aged 4–17 years hospitalized with dengue fever (ICD-10: A90) or dengue hemorrhagic fever (ICD-10: A91) were included. Clinical data were collected retrospectively (2020–2023) and prospectively (January–August 2024). For the prospective cohort, an NS-1 or serology positive test was required. Serotype analysis and QoL assessment using Indonesian EQ-5D-Y-3L questionnaire were performed and health utility score was calculated.

Results

Among 1,098 patients, 86.1% presented with warning signs, and 3.9% developed severe dengue. The mean length of stay was 3.9 days. Nausea/vomiting (67.4%) and abdominal pain/tenderness (42.1%) were the most common symptom and warning sign, respectively. In the prospective cohort, all four serotypes were identified. DENV-3 (32.2%) was the predominant serotype and mixed infections of multiple serotypes (16.1%) were observed. Pain/discomfort was the most affected QoL dimension (Level 2: 66.0%, Level 3: 21.9%) at inclusion. The overall EQ-5D utility during hospitalization was 0.8±0.2 with an EQ Visual Analog Scale (VAS) of 76.7±9.5.

Conclusion

The high prevalence of hospitalized dengue among Indonesian children and QoL impairment highlight the urgent need for effective dengue control strategies, including vaccine introduction into national immunization program.

Funding: Takeda

063 Direct and Indirect Costs of Dengue Hospitalization Among Children in Indonesia

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Background

Dengue imposes a significant public health burden in Indonesia, with 7.535 million cases recorded in 2017 resulting in an estimated economic cost of approximately US$681 million. This study provided updated estimates of direct and indirect costs of dengue-related hospitalization among children to inform future cost-effectiveness analyses for potential introduction of a dengue vaccine into the National Immunization Program (NIP).

Methods

A multisite, sentinel-based surveillance study was conducted from 2020 to 2024 across 24 hospitals in eight provinces, representing five regional areas under Indonesia's Healthcare and Social Security Agency (BPJS Kesehatan). Children aged 4–17 years diagnosed with dengue fever (DF; ICD-10: A90) or dengue hemorrhagic fever (DHF; ICD-10: A91) were included. Cost data were collected retrospectively (2020–2023) and prospectively (January–August 2024). NS-1 or serology positivity was required for prospective inclusion. Household surveys were administered to capture direct non-medical and indirect costs.

Results

Among 1,098 hospitalized children, the mean length of stay was 3.9 days. The average direct medical cost per hospitalization was US$283.50±68.50, with costs allocated to professional fees (35.8%), room charges (31.0%), medications (17.2%), and diagnostics (16.3%). Direct non-medical costs, including transportation and caregiver expenses, averaged US$52.43±36.42, while caregiver income loss contributed to an indirect cost of US$56.07±41.06 per case. Total treatment costs for dengue ranged from US$297.94 for cases without warning signs to US$669.35 for severe dengue cases.

Conclusion

Dengue-related hospitalization contributes to a significant financial burden on households and the healthcare system in Indonesia. These cost estimates are essential for evaluating the economic impact of dengue and supporting future cost-effectiveness analyses to inform dengue vaccine introduction within Indonesia's NIP.

Funding: Takeda

064 Household survey to evaluate the knowledge, attitude, practices, and accessibility of health services related to dengue fever among Asian migrant workers in the southern region of the Sultanate of Oman.

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Background

Dengue fever (DF) outbreaks remain public health concern in Oman, especially among Asian migrants who are more susceptible due to mosquito exposure and low health literacy. This study aims to assess DF knowledge, attitude, and practices (KAP) and identify healthcare access among the Asian migrant workers in Salalah city.

Method

From March to April 2025, house-to-house survey was conducted among Asian migrants in Hindi, Bangla, and Urdu languages using structured questionnaires. KAP responses for each participant were summed to obtain total scores and then categorized as higher or lower KAP based on the mean. Pearson's correlations were conducted between these scores. Chi-squared test was performed to identify factors associated with dengue KAP.

Result

666 immigrant males aged 18-66 years (mean 37.2) were surveyed, including 222 Bangladeshi, 222 Indian, and 222 Pakistani nationals. Most of them (79.3%) had heard about dengue before. The strongest correlation was between knowledge and practice (0.4), while the weakest was between attitude and practice (0.26). Around half of the respondents had higher dengue knowledge (41.9%), attitude (51.8%), and practice (55.4%). Most were not aware of free dengue treatment (72.1%) in government hospitals and did not have health insurance (90.2%). Academic qualification was significantly associated with higher knowledge (χ^2 =33.83,df=3,$p<0.001$) and preventive practice (χ^2=23.52,df=3,$p<0.001$). Nationality was associated with all three variables.

Conclusion

Average KAP regarding dengue, coupled with inadequate awareness of free dengue treatment, necessitates the implementation of effective community-based dengue control and preventive programs to mitigate DF.

065 Clinical Comparison of Survived and Fatal Severe Dengue Cases in Kaohsiung, 2023

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Abstract

Severe dengue represents a major clinical concern, particularly among elderly individuals with underlying comorbidities. This study compared clinical and epidemiological characteristics in severe dengue cases from Kaohsiung City in 2023 to identify factors associated with fatalities based on data

Clinical and demographic data from lab-confirmed cases were retrospectively analyzed, including 8 fatalities and 8 surviving severe dengue patients. Variables included age, sex, comorbidities (e.g., diabetes mellitus, hypertension), symptoms/signs (such as fever) and delay in case reporting. Statistical comparisons were performed using t- and chi-square tests.

Ten of the 16 (62.5%) severe cases (5 DENV-2, 4 DENV-1, 1 unknown serotype) in 2023 clustered in November 2023 (middle of the epidemic). Fatal cases involved patients with more advanced age (mean±SD: 80.3±3.73 vs. 73.4±14.57 years, p=0.2170) and more comorbidities (median 3.0 vs. 2.0, p=0.2688). Survivors experienced significantly longer delays in case reporting (3.75 ± 2.05 vs. 1.50±1.07 days; p = 0.0157). A higher percentage of fatal cases involved fever [87.5% (7/8) vs 50% (4/8); p=0.2821] and hypertension (87.5% vs. 62.5%; p=0.5692), whereas diabetes mellitus was more prevalent among survivors (75% vs. 50%; p=0.6084)

Variables associated with severe dengue fatality included more advanced age, greater comorbidity burden, and shorter notification intervals from dengue onset to reporting time. Therefore, elderly Kaohsiung residents with comorbidities should be educated on cleaning mosquito breeding sites and taking personal protection measures against dengue. Outbreak-prone areas should additionally prioritize timely detection and clinical management of potentially high-risk groups.

067 Integrated Surveillance and Immediate Prevention/Control Measures Avoid Taiwan Becoming Dengue-endemic

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Abstract

Early detection of dengue cases and dengue virus (DENV) activity, as well as vector indices above thresholds can support efficient, effective dengue prevention and control. Taiwan has achieved this through **digital surveillance**, integrating clinical, virological, serological, entomological, and environmental data at local levels.

For **clinical surveillance**, reporting on mild and severe dengue cases is mandatory, unlike in most dengue-endemic countries in Southeast Asia, which only require reporting on severe dengue. Since rises in mild cases usually precede sharp increases in severe cases in southern Taiwan, **semi-active surveillance** involving contact tracing plus blood collections for DENV-Ig M testing through serological surveillance helps find asymptomatic cases to detect DENV activity earlier. Recently, applications of machine learning prediction models to syndromic surveillance have minimized severe/fatal dengue cases.

Virological surveillance has shown that DENV-1 in Taiwan sparked the most frequent and wide-spread dengue epidemics, while DENV-2 caused most severe dengue epidemics, in line with global epidemiology patterns. Most outbreaks were attributable to a single predominant serotype, except when DENV-1 + DENV-2 were present in Tainan and Kaohsiung in 2023, whereas multiple serotypes typically co-circulate in dengue-endemic countries.

Entomological surveillance revealed that more dengue clusters and severe cases in southern Taiwan occur where *Aedes aegypti* mosquitoes reside, whereas mild cases are more commonly associated with island-wide *Aedes albopictus* mosquitoes. Ovi-trap and environmental surveillance on mosquito breeding sites and meteorological data have enhanced the effectiveness of public health initiatives.

Taiwan's experience can help other Asian countries minimize dengue endemicity, severity, and fatalities.

068 Value of platelet counts in determining the clinical phase of dengue

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Background

Dengue is a dynamic disease and peripheral platelet count measurement is often used to monitor disease severity and progression. In this study, we assessed the value of platelet count on the day of fever defervesce (DOD) generally used to denote the start of critical phase, comparing between patients with and without Dengue Haemorrhagic Fever (DHF).

Methods

We studied a retrospective cohort of hospitalized patients who were >18 years old in Singapore with confirmed dengue by polymerase chain reaction or clinical criteria plus positive dengue serology. DHF was defined according to the World Health Organization 1997 guideline that included platelet count < 100x109/L as a criterion. Bayesian hierarchical Markov model was used to compare the daily mean platelet counts between different subgroups.

Results

Among the 5,517 patients included in the study, 1,492 (27%) had DHF. On DOD, DHF patients had mean platelet counts 53.8x109/L while non-DHF patients had mean platelet nadir 62.7x109/L. Of note, 8.6% of DHF had platelet counts above 100x109/L on DOD and had mean platelet nadir (51.2x109/L) 1 day before DOD. DHF patients consistently showed lower platelet counts compared to non-DHF patients until 3 days after DOD.

Conclusion

Defervescence commonly used to denote the beginning of the critical phase which lasts 24–48 hours. Our study showed that most DHF had platelet < 100x109/L one day earlier than DOD in non-DHF patients.

069 Progress on the post-approval effectiveness study of TAK-003 against hospitalized virologically confirmed dengue in the pediatric and adolescent population (DEN-401)

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Background

TAK-003 is a tetravalent dengue vaccine that has been studied extensively and is approved in >40 countries. DEN-401 (NCT06843226), a post-approval study, aims to provide TAK-003 effectiveness data by dengue serotype and baseline serostatus. The study is a nested case-control design within a cohort of 70,000 participants (6–12 years old). Vaccination will take place through vaccination programs, and hospital-based active surveillance will be conducted to identify hospitalized dengue, including severe cases.

Methods

The study is implemented in collaboration with health authorities/academic institutions from Southeast Asian countries with high dengue transmission. A feasibility assessment was performed for each country to identify institutional partners, study catchment areas, age groups, and laboratories for serology at baseline and viremia testing by RT-PCR.

Results

The cohort enrollment in Thailand began in March 2025 and will start by June 2025 in Indonesia. Malaysia is under preparation. The vaccination program is community-based in Thailand, with support from the Ministry of Public Health and the National Vaccine Institute and will be school-based in Indonesia with provincial health offices. In all participating countries, the vaccination program will be started according to WHO/SAGE recommendations from May 2024. All cohort participants will be followed for 3 years from cohort enrollment, with final findings reported by 2029 after data collection ends.

Conclusion

The DEN-401 study will help the recommending bodies, such as National Immunization Technical Advisory Groups and the Divisions Directorates of Immunization of the Ministries of Health, to better inform-decisions for future national/subnational public dengue immunization programs.

Funding: Takeda

070 Co-Persistence of Chikungunya Virus and *Wolbachia* Supergroup B in *Aedes albopictus*: Field Evidence from Cebu City

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Background

Understanding natural patterns of *Wolbachia* and arboviruses in mosquito vectors is vital for disease ecology and control strategies. This study investigated the interaction between *Wolbachia* supergroup B (*WolbB*) and chikungunya virus (CHIKV) in *Aedes albopictus* collected from lowland (Bacayan) and highland (Babag I) sites in Cebu city, Philippines in March to June 2022.

Methods

Field-collected Aedes eggs and sub-adults were sampled twice monthly and were reared in the insectary. Pooled adult *Ae. albopictus* were processed by PCR for detection of CHIKV and *Wolbachia* (wsp and 16S rDNA) and was further examined phylogenetically. Genomic densities were estimated through UV-visible spectrophotometry.

Results

CHIKV was found in 43.75% (14/32 pools). CHIKV's minimum infection rates (MIRs) peaked in March – April (i.e., 47.62 to 58.10 per 1,000 mosquitoes) and declined in May – June (i.e., 8.13 to 29.00 per 1,000 mosquitoes). *WolbB*'s MIRs and genomic densities showed similar trends. No significant differences were observed by sex or site elevation ($p > 0.05$). Correlational analysis revealed strong positive relationships between *WolbB*'s MIR and CHIKV's genomic density ($r = 0.96$, $p = 0.04$) and between MIRs of both ($r = 0.82$, $p = 0.03$).

Conclusion

Although *Wolbachia* is known for its potential arboviral blocking effects, results indicate its absence of interference with CHIKV replication in naturally-infected *Ae. albopictus* suggesting complexity of their interactions and combination of temporal and cellular factors. The need to account for local vector-pathogen interactions is crucial when developing *Wolbachia*-based vector control programs.

071 Osteopontin Disrupts Surface VE-Cadherin Expression in Endothelial Cells During Dengue Virus Infection

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Background

Severe dengue is characterized by plasma leakage resulting from increased vascular permeability. Elevated plasma levels of osteopontin (OPN) during the critical phase of dengue virus (DENV) infection have been associated with increased hematocrit and decreased platelet counts, suggesting its potential as an indicator of plasma leakage and thrombocytopenia. This study examined the role of OPN in modulating vascular permeability in endothelial cells during DENV infection.

Methods

Human microvascular endothelial cells (HMEC-1) were infected with DENV 1–4, and the levels of released OPN were measured. HMEC-1 was treated with either DENV or DENV-induced OPN. The effects of these treatments on endothelial barrier function were evaluated using vascular permeability assay. VE-cadherin cell surface expression was analyzed by flow cytometry, and the phosphorylation status of VE-cadherin and key signaling proteins involved in endothelial barrier regulation were also assessed by Western blot.

Results

DENV infection induced the release of OPN from HMEC-1 cells. DENV infection led to a significant increase in endothelial permeability and loss of VE-cadherin on cell surface. The DENV-induced OPN accounted for 26.88±4.16% of the increase in permeability, 57.30±7.70% decrease in VE-cadherin cell surface expression, 44.04±14.01% increase in VE-cadherin (Y658) phosphorylation and 70.07±9.73% increase in FAK (Y397) phosphorylation during DENV infection.

Conclusion

These findings suggest that OPN contributes significantly to increased vascular permeability during DENV infection by promoting VE-cadherin loss and phosphorylation.

072 Indoor residual spray with different products has limited residual efficacy against Singapore's *Aedes aegypti* – implications for vector control

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Background

Indoor residual spraying (IRS) has been primarily used for malaria control, but recent studies have shown its potential use against Aedes vectors. Guidelines from Pan American Health Organization and the World Health Organization (WHO) recommend IRS for controlling urban *Aedes aegypti*.

Methods

This study assessed the efficacy of various IRS formulations against the *Aedes aegypti* field strain from Singapore and insecticide-susceptible Bora-Bora strain using WHO cone bioassay. Surfaces tested were ceramic tiles and metal boards (non-porous), wooden doors and partitions and cement walls and boards (porous). Twenty four-hour mortality was recorded one-day post-treatment then weekly or bi-weekly until it fell below 80%.

Results

Actellic® 300CS (pirimiphos-methyl, capsule suspension (CS)) demonstrated significant efficacy on non-porous surfaces, with residual activity lasting up to 170 days. Actellic® 50EC (pirimiphos-methyl, emulsifiable concentrate) showed variable results depending on substrate. Vic 80SC (bifenthrin, suspension concentrate (SC)), Temprid® SC (beta-cyfluthrin and imidacloprid, SC), and Demand Duo (lambda-cyhalothrin and thiamethoxam, mix formulation of SC and CS) showed limited effectiveness on all surfaces, with mortality dropping sharply after one day or less. The limited residual activity of non-organophosphate insecticide is likely due to underlying factors: pyrethroid resistance in local *Aedes aegypti* populations and the inherently shorter persistence of SC formulations versus CS products.

Conclusion

Based on our findings, IRS is not recommended for use in Singapore against *Ae. aegypti*. Programmes considering IRS implementation should thoroughly assess local mosquito populations' susceptibility to the chosen insecticides and establish routine resistance and residual efficacy monitoring to ensure the intervention remains relevant and effective over time.

073 Enablers and Barriers to Engaging Community in National Dengue Control Program in Lalitpur Metropolitan City of Lalitpur District

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Background

Dengue fever has been an epidemic in Nepal with increasing severity over the last decade. The associated mortality and morbidity have established dengue as a serious emerging public health issue in the country. The government of Nepal has significantly focused on search and destroy of mosquitoes breeding site as one of the dengue prevention and control activities. The main objective of this study was to explore the barriers, enablers, and lessons learned to engage the community in the national dengue control program.

Methods

This study used qualitative research methodology to conduct twelve in-depth interviews and four focus group discussions in four high-dengue-prevalence wards. The data saturation was maintained. The ethical approval (150_2024) was taken from the ethical board of the Nepal Health Research Council. Data analysis followed reflexive thematic analysis (RTA), which included phases ranging from data familiarization to topic definition and coding. The findings emphasized cultural, social, geographic, and policy-related elements that influence engagement, providing critical insights for improving program efficacy and community involvement in disease prevention initiatives.

Results

The major findings related to the barriers were inadequate knowledge of dengue among community people, negative perception towards dengue preventive measures, limited readiness from community, limited budget and resources constraints, and perceived risk of perception of community people. Similarly, enablers were community-based awareness programs, training and capacity building of mobilizers, adequate budget and resources, pre-planning of the dengue control program, and reward and punishment mechanisms to implement effective community engagement in a dengue control program. The lessons learned were a shift in perception regarding the severity of dengue among the community, need of proactive measures during outbreak, and the importance of preventive measures.

Conclusion

These findings highlighted the importance of focused interventions that address both barriers and facilitators to support long-term community engagement in dengue preventive and control activities in Lalitpur Metropolitan City and comparable contexts.

074 Singapore International Dengue Workshop: Fostering Learning and Partnerships for Dengue Control

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Background

The Environmental Health Institute (EHI) of Singapore's National Environment Agency has served as a World Health Organization (WHO) Collaborating Centre (CC) for Reference and Research of Arbovirus and their Associated Vectors since 2011. EHI develops evidence-based, cost-effective tools and strategies to safeguard public health. As a WHO CC, EHI organises training programmes, provides technical advice, and facilitates partnerships to support arbovirus prevention and control efforts of WHO Member States.

Methods

Since 2009, EHI has been co-organising the Singapore International Dengue Workshop (SIDW), which brings together key personnel involved in dengue programmes worldwide to share best practices and foster partnerships. Co-organised with WHO, the Singapore's Ministry of Foreign Affairs - Singapore Cooperation Programme, and the National Centre for Infectious Diseases, SDIW provides training across three integrated sectors: field surveillance and control, laboratory surveillance and clinical management, enabling participants to develop country-specific action plans.

Results

Through eight workshops (2009 to 2024), SIDW has trained over 500 public health practitioners from 55 countries across WHO regions, maintaining high satisfaction levels above 4.7/5 in 2023 and 2024. Notably in 2012, the workshop paved the way for the formation of UNITEDengue, (UNited In Tackling Epidemic Dengue), a regional surveillance network for cross-border sharing of dengue surveillance information and dengue control knowledge. Recognising the importance of a holistic approach in mosquito-proofing urban environments, the 2024 workshop, themed "Bridging Sectors for a Dengue-Free City", brought together city planners, municipal officials, and vector control officers to share strategies on dengue control through city planning, design, and maintenance.

Conclusion

EHI remains committed to support dengue control programmes through SIDW. The workshop promotes collaborative learning and partnerships among participants to strengthen their competencies in dengue surveillance, diagnosis, and clinical management. The 9th SIDW, scheduled for November 2025, will further advance this mission.

075 Spatiotemporal and Causal Analysis of Dengue Transmission by *Aedes albopictus* in Cebu Province, Philippines

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Background

Recurrent dengue outbreaks in Cebu Province, Philippines are intensified by urbanization and climate change, complicating public health. The interplay among climate, vector competence, and local epidemiology is not fully understood. This study analyzed spatiotemporal patterns and causal drivers of dengue transmission in Cebu Province in 2013-2023.

Methods

Daily suspected dengue cases, minimum infection rates (MIRs) of dengue virus serotypes (DENVs) in *Aedes albopictus* (secondary dengue mosquito vector) and climate variables (air temperature, relative humidity [RH], and rainfall) were analyzed. Continuous Wavelet Transform identified incidence periodicities. The Peter and Clark Momentary Conditional Independence algorithm assessed causal links at 1-month lag. Missing MIRs were interpolated by spline regression.

Results

Annual cycles dominated dengue incidences in Cebu and Lapu-Lapu cities and reduced during pandemic. Mandaue exhibited post-2020 dampened annual cycles and 2017 quarterly spikes. Causal analysis identified climate variables at lag t-1, namely, temperature difference, RH and rainfall shifts, and DENVs' MIRs as causal drivers of dengue. Mandaue's strongest effects stemmed from DENV-4's MIR in *Ae. albopictus*. DENV-2 dominated in Cebu city and DENV-1 in Lapu-Lapu.

Conclusion

Dengue transmission exhibits annual cycles with sub-annual surges and suppressed temporarily during pandemic. Climate variability and DENV serotype-specific MIRs drive case spikes with a 1-month lag, enabling targeted interventions. Location-specific strategies prioritize surveillance of dominant DENVs and real-time temperature monitoring. Future causal relationships for *Ae. albopictus* and *Ae. aegypti* at different time lags are crucial to refine early warning intervention strategies.

076 Longitudinal analysis of ferritin in dengue

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Background

Early identification of patients at risk for severe dengue remains challenging. This study evaluated serum ferritin as a biomarker for predicting severe dengue and specific organ complications.

Methods

In this multicenter, prospective observational study, we enrolled 370 hospitalized patients with laboratory-confirmed dengue in Thailand (2019-2020). Serum ferritin was measured longitudinally from admission through discharge. Disease severity was classified per WHO 2009 guidelines. Diagnostic performance was assessed using ROC analysis.

Results

Admission ferritin levels were significantly higher in severe dengue (median 3527.5 ng/mL) compared to non-severe cases (median 1531.0 ng/mL; $p<0.001$). Ferritin remained independently predictive of severe dengue after multivariate adjustment (adjusted OR 2.69; 95% CI 1.64–4.41; $p<0.001$). Ferritin showed excellent predictive value for mortality (AUC=0.91) and severe liver injury (AUC=0.88), with moderate performance for kidney injury, shock, and plasma leakage. Three clinically relevant cutoffs were identified: 1200 ng/mL (sensitivity 76.8%, specificity 45.2%, NPV 91.6%), 2000 ng/mL (sensitivity 66.1%, specificity 55.7%), and 3500 ng/mL (sensitivity 50.0%, specificity 71.3%). Longitudinally, ferritin levels remained consistently elevated in severe cases throughout hospitalization, with a modest peak at defervescence, while gradually declining in non-severe cases.

Conclusions

Elevated serum ferritin at admission independently predicts severe dengue and specific organ complications, particularly mortality and liver injury. A cutoff of 1200 ng/mL offers optimal sensitivity and NPV for screening, while higher thresholds improve specificity. Serial ferritin measurement may enhance risk stratification in dengue management.

077 Clinico-Socio Economic Profile of Pediatric Patients Admitted for Severe Dengue in Philippine Children's Medical Center From 2018-2023

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Background

The study determined the socio-economic and clinical profile of children with severe dengue admitted at the Philippine Children's Medical Center from 2018-2023.

Methods

A retrospective cross-sectional study was performed using eligible charts from infants and children aged >28 days to <19 years with a final diagnosis of Severe Dengue, Dengue Shock Syndrome or Dengue Hemorrhagic Shock from January 1, 2018, to December 31, 2023. Chart review was done and data collated.

Results

The study included 889 eligible patients. The most prevalent age group was 7 to 12 years old (55.5%), with a near-equal distribution of female (51.2%) and male patients. 75.9% come from households with a monthly income of only ₱2,748.43, and 67.3% were reliant on Philhealth insurance. The predominant chief complaint was fever (85.9%). The most common accompanying symptom other than fever was vomiting (63.4%) and abdominal pain (58.0%). Notably, the majority of patients (81.9%) presented with more than two symptoms. The average ER stay was 1 day, followed by an average ICU stay of 2.8 days and a subsequent ward stay of 2 days. The most frequently administered interventions were N-acetylcysteine (NAC) therapy (53.5%), antibiotics (49.7%), and vasopressors (39.1%). The overall mortality rate was 8%.

Conclusions

The findings in the study highlights the clinical profile of patients with Severe Dengue. Early detection and prompt medical intervention are crucial in preventing complications in severe dengue. The study also highlighted the need for improved efficiency in patient transfers between the ER and ICU, and ICU to general wards to enhance patient outcomes by decreasing delays in appropriate care transitions.

078 Risk Point Model for Dengue Fever Prevention in Ben Luc District, Long An Province

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Background

The current trend is to shift resource investment from passive, reactive disease control to proactive risk management. Accordingly, the implementation of dengue risk-point models focuses on controlling areas with high densities of water-holding containers that facilitate disease transmission.

Objective

The intervention model was implemented and successfully controlled larval indices, including the Breteau index (BI), House index (HI), and Container index (CI), at identified risk points.

Methods: The study was conducted in Ben Luc district, Long An province, from July to December 2020, comprising two groups: an intervention group (Tan Hoa and My Yen communes) and a control group (Thanh Hoa and Long Hiep communes) each group was paired to include one urban and one rural commune.

Results

The model identified 3,389 risk points, all of which were treated, with the number of risk points being higher in urban communes than in rural communes. The proportion of high-risk water-holding containers in the intervention group significantly decreased from 100% to 53% in Tan Hoa commune and to 50% in My Yen commune. Trends in the BI, HI, CI indices in the rural communes indicated that the intervention commune reduced these indices below the risk threshold during the intervention period and maintained lower levels compared to the control commune. In the urban communes, the BI, HI, CI indices fluctuated between the intervention and control communes.

Conclusion

The model itself showed initial effectiveness in controlling vector indices in rural communes, even when compared with the control group and past surveillance data.

Key words: Dengue prevention, Risk point.

079 Assessing Arboviral Exposure in Mozambique-Serological Survey of Febrile Patients Across Three Provinces in Mozambique

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Background

Arboviral infections such as Yellow Fever Virus (YFV), Chikungunya virus (CHIKV), and Dengue virus (DENV) pose significant public health challenges in many tropical and subtropical regions, including sub-Saharan Africa. Understanding the extent of population exposure is essential for guiding surveillance and effective control measures. This study investigated the YFV, CHIKV, and DENV serological profiles of febrile patients from Mozambique to better understand arboviral transmission dynamics in the region.

Methods

A total of 298 febrile samples were collected by hospitals from three provinces in Mozambique—Sofala, Maputo City, and Zambezia. Samples were tested for IgM and IgG antibodies against YFV, CHIKV, and DENV using commercially available ELISA or IFA kits.

Results

No recent exposure to YFV was detected, although 10.4% showed YFV IgG seropositivity suggesting past exposure or vaccination. For CHIKV, 9.7% tested positive for CHIKV IgM, suggesting recent infection, while 46.0% were CHIKV IgG seropositive overall. In the case of DENV, 16.1% were positive for DENV IgM, while 31.2% were DENV IgG seropositive. Six individuals were IgG positive for all three viruses. No statistically significant difference was found between genders in arboviral disease seroprevalence. IgG seroprevalence across age groups ranged from less than 5%-20% for YFV, 20-62% for CHIKV, and 10-40% for DENV. Approximately 20% of individuals under 20 years were YFV positive and individuals aged 41-50 had slightly higher exposure to CHIKV and DENV.

Conclusion

This study provided preliminary insights on the serology of arborviral diseases in Mozambique which could be confirmed with further neutralization tests.

080 Influence of altitude and population density on dengue incidence and force of infection: considerations for climate-adaptive surveillance

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Background

Climate change is already affecting vector-borne diseases such as dengue, as rising temperatures allow *Aedes aegypti* to inhabit new areas. However, little is known about how temperature and urbanisation influence dengue transmission. We assessed their impact on dengue incidence and force of infection (FOI) in the Philippines to inform targeted control and climate adaptation strategies.

Methods

We conducted a population-based, cross-sectional survey across the Philippines from 2013 to 2019 using national case data (N = 1,112,317) and blood samples from a representative sample (N = 22,270). We estimated incidence and FOI across altitude and population density strata using age-stratified IgG seroprevalence catalytic models and the ages of symptomatic cases. Linear regression was used to assess interactions between geographic factors and FOI.

Findings

Altitude and population density were associated with FOI but not reported incidence, which was spatially and temporally inconsistent. In low-lying areas (<200 m), 13.5% [95% CI: 12.5–14.5%] were exposed annually, increasing to 15.2% [95% CI: 13.5–17.1%] in dense urban highlands (>5000/km²). FOI was highest in low-lying urban barangays, a pattern consistent across regions and years. Including an interaction between altitude and density significantly improved model fit ($p < 0.0053$), suggesting their effects are interdependent.

Interpretation

Dengue burden is concentrated in low-lying urban areas, while regions above 1,200 m (8°C cooler annually) have lower FOI. Case reports underestimate true burden. These findings support climate- and geography-sensitive surveillance and vector control strategies in the Philippines and beyond.

081 Preliminary study on the effect of Vitamin E supplementation on serum antioxidant capacity and nitrogen intermediates levels in children with dengue

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Background

Excessive reactive oxygen(ROS), superoxide anion(O2•-) and hydroxyl radical(•OH), lead to damage to lipids, proteins, and DNA and nitrogen species(RNS) may contribute to dengue pathology. This study aimed to determine the effect of vitamin E supplementation on clinical outcomes, in relation to oxidative stress parameters in 5–14-year-old children with dengue in Colombo, Sri Lanka.

Methods

Children with suspected dengue infection admitted within 84 hours of onset of fever, presenting to Lady Ridgeway Hospital were recruited. Patients received standard care. There were two arms, receiving vitamin E (test) and not receiving(control group). Trolox equivalent antioxidant capacity (TEAC) levels in patient sera were measured using ABTS assay in all patients until discharge (up to day 7). NOx levels of the two groups by conducting the Griess (for nitrite) and modified Griess assays (for nitrite and nitrate; NOx).

Results

TEAC levels in test group were consistently higher than that in the control group, however was significantly higher only on day 6 (758.11±2.80 μM; $p<0.001$) and day 7 (755.71±5.96 μM; $p=0.003$). By day 7, compared to control group, nitrate levels were lower in test group (3.2700±0.650 vs 4.636±1.459, $p=0.658$) and nitrite levels were higher (1.640±0.028 vs 1.106±0.360, $p=0.351$) but not significant. The trends suggest a potential role of vitamin E in regulating RNS and ROS production during dengue infection. The vitamin E-supplemented group also showed a lower occurrence of plasma leakage (25%) and significantly higher mean leukocyte and neutrophil counts on day 6.

Conclusion

Vitamin E-treated group, with higher TEAC levels and lower reactive RNS levels, showed better hematological and clinical outcomes compared to standard treatment group. These findings should be further evaluated by a larger study.

082 Dengue Prevention and Control in Bangladesh: Strategies, Challenges, and Achievements

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Abstract

Dengue fever poses a severe public health burden in Bangladesh, driven by favorable ecological conditions and rapid urbanization. This study analyzes epidemiological trends, vector control strategies, and systemic challenges in dengue management from 2000 to 2024. Surveillance data reveal an alarming escalation, with 321,179 cases and 1,705 deaths reported in 2023 alone, the highest recorded incidence. *Aedes aegypti* remains the dominant vector, with cases peaking during monsoon months (June–September). Demographic analysis indicates higher case rates among males (63.1%) but elevated female mortality (51.1%), while young adults (16–30 years) constitute the most affected age groups.

Current interventions include larvicides (Temephos 50 EC), adulticides (Malathion 5% & Deltamethrin 1.25% ULV). However, operational gaps persist due to fragmented surveillance, inadequate waste management, and limited public awareness. Structural challenges, such as insufficient healthcare capacity and weak inter-sectoral coordination, further impede progress.

The findings underscore the urgent need for integrated vector management (IVM), community engagement, and policy reforms to strengthen dengue control. Recommendations include scaling *Wolbachia*-based biocontrol, enhancing real-time monitoring with AI, and fostering multi-stakeholder partnerships. This study provides critical insights for shaping dengue mitigation strategies in Bangladesh and similar high-risk regions.

083 Dengue Seroprevalence in Children and Adolescents Before TAK-003 Vaccination in Dourados, Brazil.

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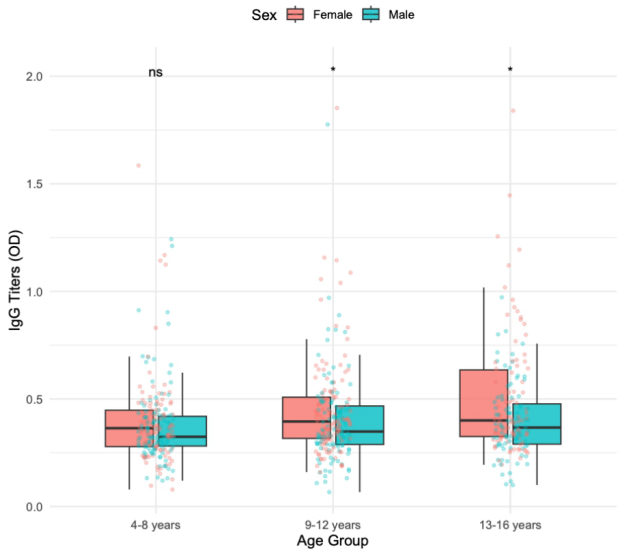
Abstract

Dengue remains a major global health concern, particularly in tropical regions like Brazil. Despite advancements in vector control and surveillance, recurring epidemics and multiple circulating serotypes pose ongoing challenges. Children and adolescents are especially vulnerable due to their susceptibility to severe illness and role in transmission. In 2024, Dourados, Mato Grosso do Sul, became one of the first Brazilian cities to integrate the tetravalent dengue vaccine TAK-003 into its public immunization program, offering free vaccination to individuals aged 4 to 60. To evaluate the baseline immunological status of the pediatric population and monitor vaccine impact, we conducted a cross-sectional seroepidemiological study of children aged 4 to 16 years. A total of 643 participants from 31 Basic Health Units provided dried blood spot samples, analyzed for dengue-specific IgG antibodies via ELISA. The overall seroprevalence was 20.5%, increasing with age: 13.4% (4-8 years), 21.0% (9-12 years), and 27.7% (13-16 years). Females exhibited higher seropositivity rates than males across all age groups. These findings suggest low prior exposure to dengue among children in Dourados, highlighting the importance of TAK-003, which does not rely on pre-existing immunity. The vaccine's implementation offers a key opportunity to enhance protection and reduce hospitalizations. Our study provides essential baseline data for evaluating long-term vaccine effectiveness and reinforces the need for continued immunological surveillance and public health education.

Figure 1. Association of sex and age group with median IgG levels.



Alt text: Box plot displaying median IgG levels by sex (female: 0.383, male: 0.344) and age group (4-8, 9-12, 13-16 years), with interquartile ranges and p-values from Wilcoxon rank-sum test.

084 Adverse Events and Immunization Errors Following a Mass Immunization Campaign with TAK-003 in Dourados, Brazil: A Cross-sectional Study

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Abstract

This cross-sectional study evaluated adverse events following immunization (AEFI) and immunization errors associated with the TAK-003 (Qdenga®) dengue vaccine during a mass vaccination campaign in Dourados, Brazil, from January to November 2024. Secondary data were extracted from the Brazilian national e-SUS Notifica system, focusing on individuals vaccinated with TAK-003. Descriptive and inferential statistics, including incidence rates and confidence intervals, were computed using SPSS software. Among 124,483 administered doses, 88 AEFI were reported, corresponding to an incidence rate of 706.92 per million doses. Most events (490.02 per million doses) were mild and self-limiting—predominantly headache, fever, rash, and erythema. Serious AEFI (64.26 per million doses) were rare and included two cases of anaphylaxis in children and two cases of Guillain-Barré Syndrome (GBS), reported shortly after vaccination. Immunization errors accounted for 30.68% of AEFI, mainly due to vaccine administration in pregnant women or outside the recommended age group. The most affected demographic was women aged 30–39 years. Temporal analysis revealed the highest incidence during the early months of the campaign. The findings suggest that while TAK-003 has a favorable safety profile, enhanced training and surveillance systems are essential to ensure proper administration and early identification of rare adverse events. This study provides crucial real-world evidence to support the ongoing inclusion of TAK-003 in Brazil's National Immunization Program (PNI) and underscores the importance of strengthening health systems to minimize preventable errors in future mass vaccination initiatives.

Table 1 - Types of serious and non-serious AEFI (N = 61)

Events	N	%	CL95%	Incidence*	CL95%
Non-serious					
Erythema	7	11.47	5.67 - 21.84	56.23	27.24 - 116.10
Headache	6	9.83	4.58 - 19.84	48.19	22.09 - 105.20
Pruritus	6	9.83	4.58 - 19.84	48.19	22.09 - 105.20
Rash	4	6.55	2.58 - 15.68	32.13	12.50 - 82.62
Fever	4	6.55	2.58 - 15.68	32.13	12.50 - 82.62
Fatigue	3	4.92	1.68 - 13.49	24.09	8.19 - 70.86
Gait Disturbance	3	4.92	1.68 - 13.49	24.09	8.19 - 70.86
Urticaria	3	4.92	1.68 - 13.49	24.09	8.19 - 70.86
Abdominal Pain	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Dengue Fever	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Myalgia	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Nausea and Vomiting	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Diarrhea	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Syncope	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Facial Edema	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Skin Hardening	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Localized Edema	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Ecchymosis	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Warmth	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Papules	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Injection Site Pain	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Serious					
Grade 1 anaphylaxis	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Guillain-Barré Syndrome (GBS)	2	3.27	0.90–11.19	16.06	4.40 - 58.58
Systemic Arterial Hypertension	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Facial Edema	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50
Paresthesia	1	1.63	0.29 - 8.71	8.03	l1.41 - 45.50
Fever	1	1.63	0.29 - 8.71	8.03	1.41 - 45.50

*Incidence rate per one million administered doses.
Abbreviations: CL = confidence level.

085 Vertical Transmission of Dengue Infection: The First Putative Case Report in the Philippines

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Abstract

Dengue fever, a mosquito-borne viral infection, poses significant risks during pregnancy, including vertical transmission to neonates. Diagnosing neonatal dengue remains challenging due to symptom overlap with sepsis. We present the first reported case of vertical dengue transmission in the Philippines, highlighting diagnostic and management challenges.

A term neonate was delivered via cesarean section to a 29-year-old mother with confirmed dengue (NS1+, thrombocytopenia). Initial cord blood tests were unremarkable, but on day 3 of life, the neonate developed fever, maculopapular and petechial rashes, and thrombocytopenia. Repeat testing revealed Dengue NS1 positivity, IgM seroconversion by day 7, and PCR-confirmed DENV2—matching the maternal serotype. Serial CBCs showed progressive hemoconcentration and platelet decline (<20,000/μL), necessitating prophylactic transfusion. The infant improved with supportive care and was discharged without complications.

This case underscores key lessons: (1) Neonatal dengue may present with delayed onset, necessitating repeat testing despite negative initial results. (2) Thrombocytopenia and hemoconcentration are critical markers. (3) Maternal dengue history and matched serotyping strengthen diagnostic certainty. The absence of sepsis or other infections further supported the diagnosis.

Vertical transmission, though rare, requires high suspicion in endemic regions. We recommend systematic testing (NS1, serology, PCR, and serial CBCs) for neonates of dengue-positive mothers, especially with fever or rash. Early recognition and monitoring are vital to prevent severe outcomes. This case contributes to understanding perinatal dengue and informs clinical guidelines in resource-limited settings.

086 Advocating the Integration of Spatial Analysis in Local Dengue Surveillance to Focus Program Action: Opportunities, Challenges and Lessons Learned

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Background

Dengue, which is a Category II Disease that is reported weekly on an all-case in basis in the Philippines Integrated Disease Surveillance and Response (PIDSR) system, remains as a public health problem in the Philippines. Surveillance is one of the six component strategies in the National Dengue Prevention and Control Program to reduce dengue morbidity. There has been an opportunity to integrate geographic information system (GIS) technology and spatial analytical techniques in the current surveillance system, but it is not currently part of the standard process of gathering and analyzing dengue data.

Methods

Through advocacy, partnership was established between the academe and the local epidemiology and surveillance unit in Quezon City, the Philippines. It facilitated the transfer of skill and made capacity building possible in the Quezon City Epidemiology and Surveillance Division (QCESD).

Results

GIS training were provided to QCESD personnel. Proof-of-concept about the utility of GIS and spatial statistics in data analysis of dengue data were published to address the existing practical knowledge gap. Hot spot maps were also included in the weekly dengue morbidity report of Quezon City.

Conclusion

Shared vision with the leadership yielded an effective collaboration between the academe and the LGU that facilitated geo-enabling the current dengue surveillance infrastructure of Quezon City.