

PROCEEDINGS OF THE SEAOHUN 2024 INTERNATIONAL CONFERENCE: ONE HEALTH IN ACTION

18-19 September 2024
Shangri-La Hotel,
Chiang Mai, Thailand

PROCEEDINGS OF THE SEAOHUN 2024 INTERNATIONAL CONFERENCE: ONE HEALTH IN ACTION

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Pundaree Boonkerd

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INTRODUCTION TO THE SEAOHUN 2024 INTERNATIONAL CONFERENCE

Established in 2011 with the support from the United States Agency for International Development (USAID), the Southeast Asia One Health University Network (SEAOHUN) has grown into a network of 112 universities across eight Southeast Asian countries – Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam. SEAOHUN's three focus areas are building interdisciplinary capacity, conducting research for evidence-based decision-making, and assisting governments in enhancing public health surge capacity. As we approach the SEAOHUN 2024 International Conference, the network stands at the forefront of advocating One Health education for all, acknowledging the interconnected nature of human, animal, and environmental health.

The SEAOHUN 2024 International Conference highlights the essential role of universities in addressing health challenges. Supported by USAID, the conference celebrates advancements in One Health in Southeast Asia and provides a platform for discussing emerging issues such as infectious diseases, antimicrobial resistance, and the pursuit of Sustainable Development Goals (SDGs).

This event emphasizes the critical role of the One Health workforce and aims to advance One Health practices through collective knowledge and innovation. It brings together academia, research, and policy to foster a healthier and more resilient future for One Health communities in Southeast Asia and beyond. For more information on SEAOHUN 2024 International Conference, please visit <https://www.seaohun.org/seaohun-2024-international-conference>

On this momentous occasion, we are expanding our network and strengthening our relationship with the International Society for Animal Hygiene (ISAH). The conference is being organized in conjunction with the ISAH International Conference, aiming to foster connections and enhance knowledge among researchers, academics, and interested parties from both networks. ISAH and SEAOHUN will provide different topics/tracks in parallel sessions. For more information on ISAH's topics, please visit <https://isah2024.vet.cmu.ac.th/isahcmu/src/program>

OBJECTIVES OF THE CONFERENCE

The SEAOHUN 2024 International Conference aims to:

- Provide a platform for exchanging knowledge, experiences, best practices, and lessons learned among participants.

- Emphasize workforces in the public health system and highlight the importance of continuous capacity building, especially during pandemics.
- Promote evidence-based decision-making through research initiatives that contribute to effective One Health policies.
- Discuss and chart the regional way forward to enhance collaboration among universities, researchers, and stakeholders in the field of One Health.

THEME AND KEY TRACKS OF THE CONFERENCE

THEME

The theme for the Conference 2024 is “**One Health in Action**”, emphasizing the achievement in applying One Health implementation to address global, regional, and local health challenges.

KEY TRACKS

- A. **One Health Education, Capacity Building and Institutionalization:** Exploring strategies, lesson learned, best practice and showcasing initiatives to enhance education, capacity building, and institutionalization. The focus is on preparing professionals to tackle multifaceted health challenges.
- B. **One Health Policy, Coordinating Mechanisms, Multisectoral Partnership:** Addressing One Health policy frameworks, coordinating mechanisms, network strengthening, multisectoral/multidisciplinary partnerships, and community engagement. Emphasis on effective implementation of integrated health strategies.
- C. **One Health Approach to Tackle Antimicrobial Resistance:** Discussing collaborative effort to address antimicrobial resistance, including situation updates, rational use policies, research on alternative treatments, and international, national cooperation aims is to mitigate the threat of resistant microorganisms.
- D. **Collaborative Approach to Emerging and Re-emerging Infectious diseases:** Exploring comprehensive approaches and implementation to prevent, detect, and control emerging and re-emerging infectious diseases. Emphasis on multisectoral/ multidisciplinary cooperation, effective surveillance systems, and rapid detection and response to manage and mitigate the impact of such diseases.
- E. **Laboratory capacity Strengthening:** Highlighting the importance of strengthening laboratory capacity for biosafety, biosecurity, and overall support to public health systems.
- F. **Achieving the Sustainable Development Goals through One Health approach:** Exploring the Sustainable Development Goals SDGs with interconnectedness among animal, human and environmental health.

SPECIAL SESSIONS

1. **Integrating Wildlife Health and Environmental Conservation in One Health: Surveillance, Zoonotic Diseases, and Action Strategies:** “One Health in Action” theme underscores the interconnectedness of human, animal, and environmental health. As part of this holistic approach, wildlife health and environmental conservation are crucial, given their significant impact on ecosystem stability and public health. The objectives of this session are to equip attendees with a comprehensive understanding of current issues and advancements in wildlife and environmental health within the One Health framework, promote interdisciplinary collaboration among practitioners, researchers, and policymakers, inspire practical actions and strategies to improve wildlife health and environmental sustainability within the One Health approach, ensure active participation and networking through interactive discussions.
2. **Strengthening One Health Education in Southeast Asia: Chevron’s Partnership with SEAOHUN:** This session will highlight Chevron’s partnership with SEAOHUN and their shared commitment to advancing health, education, and sustainability in Southeast Asia by supporting key project components: Promoting Sustainable Living, Expanding One Health Education at All Levels, and Strengthening SEAOHUN’s Organizational Capacity.
3. **One Health Workforce – Next Generation (OHW-NG):** This session includes two panel discussions on the topics: “One Health Leaders of Tomorrow: The Role of One Health University Networks in Preparing Students for Current and Emerging Threats” and “Global Health Security: The Role of University Networks in strengthening national capacities to prevent, detect, and respond to emerging diseases threats”. The purpose of this session is to highlight stories and achievements from OHW-NG countries in training the health workforce, empowering and inspiring One Health leaders for success, and strengthening global health security.

ACKNOWLEDGEMENTS TO SPONSORS, PARTNERS, AND CONTRIBUTORS

We extend our heartfelt appreciation to everyone who contributed to the success of the SEAOHUN 2024 International Conference.

Our sincere thanks go to our co-organizers, ISAH, and to our funding partners: the U.S. Agency for International Development (USAID) through the One Health Workforce – Next Generation (OHW – NG) project, and Chevron for their support in strengthening One Health education in Southeast Asia.

We are grateful to all contributors, including our keynote speakers, moderators, panelists, organizing committee, organizers, scientific committee members, and both oral and poster presenters.

We also acknowledge the valuable support and participation of our country networks: Cambodia One Health University Network (CAMBOHUN), Indonesia One Health University Network (INDOHUN), Lao One Health University Network (LAOHUN), Malaysia One Health University Network (MyOHUN), Myanmar One Health University Network (MMOHUN), Philippine One Health University Network (PhilOHUN), Thailand One Health University Network (THOHUN), and Vietnam One Health University Network (VOHUN).

Thank you all for your invaluable contributions and support.

WELCOME MESSAGE FROM OUR CHAIRPERSON



Dr. Michael L. Tee

Chair of the SEAOHUN
2024 International
Conference

Greetings from Southeast Asia One Health University Network!

I am delighted to chair and cordially invite you to join the SEAOHUN 2024 International Conference on 18-19 September 2024 in Chaing Mai, Thailand. The conference theme is “One Health in Action” aiming to generate actionable outcomes, including evidence-based policy recommendations, a roadmap for resilient health workforce development, and effective community engagement strategies.

SEAOHUN is delighted to partner with the International Society for Animal Hygiene (ISAH), a group of scientists and practitioners from universities, farming and industry contributing to efficient, sustainable animal farming with healthy animals, providing wholesome food in a sound environment, to organize joint opening, keynote and plenary sessions on Day 1. SEAOHUN and ISAH conference participants will learn, share knowledge and experience, and network with One Health professionals nationally, regionally, and internationally. Participants can join any of the conference sessions organized by SEAOHUN and ISAH over the two days with no additional costs. The last SEAOHUN joint conference in 2022 attracted over 300 health practitioners, educators, and researchers from 30 countries. We hope to attract even more participants in 2024 considering our partnership with ISAH.

We sincerely thank the generous support of the U.S. Agency for International Development and our sponsors for making the 2024 conference possible. We also thank University of California, Davis and its Global Consortium, our eight One Health University Networks, and One Health partners for your contribution to strengthening our scientific programs. On behalf of the regional network of over 113 universities across eight Southeast Asian countries, we look forward to welcoming you to Chiang Mai, the Rose of the North, in September 2024.

WELCOME MESSAGE FROM SEAOHUN EXECUTIVE DIRECTOR



Dr. Tongkorn Meeyam

Executive Director
SEAOHUN Secretariat

Greetings from Southeast Asia One Health University Network!

As the Executive Director of SEAOHUN, it is my great honor to welcome you to the SEAOHUN 2024 International Conference, with the theme “One Health in Action.” This conference marks an invaluable moment in our collective journey to address the interconnected challenges of human, animal, and environmental health. This year is particularly special as SEAOHUN is collaborating with the International Society for Animal Hygiene (ISAH), Chiang Mai University in Thailand to bring this event to life. The theme, “One Health in Action,” is more than a title: it is a call to engage, collaborate, and implement the multidisciplinary approaches essential for safeguarding One Health community.

We are privileged to have an exceptional assembly of professionals, researchers, and experts from Southeast Asia and around the world. Their insights and contributions over the coming days will be instrumental in driving the innovations and strategies our One Health community needs. At SEAOHUN, we believe that true progress is achieved when diverse voices unite in pursuit of common goals, and I am confident that the discussions, collaborations, and partnerships forged here will lead to actionable results that extend far beyond this conference.

I would like to extend my deepest gratitude to our sponsors, co-organizers ISAH, and our funding partners: the U.S. Agency for International Development (USAID) through the One Health Workforce – Next Generation (OHW-NG) project, and Chevron for their unwavering support in strengthening One Health education in Southeast Asia. My heartfelt thanks also go to all contributors, including our keynote speaker, moderators, panelists, session chairs, the organizing committee, scientific committee members, and presenters, for their dedication and hard work in making this conference a success.

I hope you find this conference productive and inspiring, and that you enjoy your time in Chiang Mai, Northern Thailand, this September 2024.

CONFERENCE PROGRAM

WEDNESDAY, 18 SEP 2024

Master of Ceremonies:

- Dr. Penkarn Kanjanarat (SEAOHUN Foundation Board member, Chiang Mai University)
- Dr. Mohammad Farhan Rusli (Deputy Coordinator, Malaysia One Health University Network)

09.00 - 09.45 Opening Ceremony and welcome remarks:

Lanna
Ballroom 2&3

- Ms. Marilyn Crane, Senior International Higher Education Advisor, U.S. Agency for International Development (USAID)
- Dr. Michael L.Tee, Chair of the SEAOHUN 2024 International Conference
- Prof. Dr. Uwe Rösler, President of the International Society for Animal Hygiene (ISAH)
- President of Chiang Mai University

09.45 - 10.30 Keynote: Enhancing Global Preparedness: Reforming the Future Workforce and Utilizing Technological Tools in Managing Pathogen Transmission

Lanna
Ballroom 2&3

Keynote Speaker: Prof. Dirk Pfeiffer, Director, Centre for Applied OH Research and Policy Advice (OHRP), City University of Hongkong

10.30- 11.00 Coffee Break and Posters Viewing (Foyer 2nd Floor)

11.00 - 12.30 Plenary Session: One Health in Action: Transforming Challenges into Opportunities in Southeast Asia

Lanna
Ballroom 2&3

Speaker: From Historical Hurdles to Future Horizons of One Health in Southeast Asia – Assoc. Prof. Dr. Pratap Singhasivanon, Secretary General/Coordinator of the SEAMEO TROPMED Network, Thailand

Moderators: Dr. Michael Wilkes (Director of Global Health, Professor of Medicine and Global Health, School of Medicine, University of California, Davis) and Prof. Dr. Latiffah Hassan (Coordinator, Malaysia One Health University Network)

Panelists:

- Dr. Asfri Rangkuti, ASEAN Regional Support Unit Coordinator, FAORAP
- Dr. John R. MacArthur, CAT, USPHS Regional Director Southeast Asia Regional Office US Centers for Disease Control and Prevention
- Dr. Ronello Abila, Sub-regional Representative of Southeast Asia, World Organization for Animal Health in Asia
- Dr. Katherine Bond, USAID Senior Global Health Security Advisor for the Regional Development Mission for Asia (RDMA)
- Prof. David Kabasa (Director of AFROHUN One Health Academy, AFROHUN Secretariat, Uganda)

12.30 - 13.30 Lunch (Kad Café Restaurant & Lanna Ballroom 1, 2nd floor) Posters Viewing (Foyer 2nd Floor)

**Lanna
Ballroom 3****Parallel Session 1: One Health Education, Capacity Building and Institutionalization**

Moderator: Assoc. Prof. Dr. Saengduen Moonsom (Coordinator, Thailand One Health University Network)

Speakers:

- Enhancing Antimicrobial Resistance and Stewardship Awareness of One Health Workforce in Cambodia – Dr. Bunna Chea, Royal University of Agriculture [OA-01]
- The Philippine Hero who Foreshadowed One Health: The Dr. Jose Rizal Leadership Principles as Applied to Public Health – Dr. Maria Kristina G. Almonte, West Visayas State University [OA-02]
- MyOHUN Biorisk Management Curriculum: Educating and Engaging for Enhanced Biosafety and Biosecurity – Prof. Zunita Zakaria, Universiti Putra Malaysia [OA-03]
- Empowering Mekong One Health Stakeholders: Advancing Capacity through the Mekong One Health Innovation Program (MOHIP) – Ramjee Ghimire (PhD), Michigan State University [OA-04]
- Addressing Antibiotic-related Education through Flipchart "KARINA" for Elementary Students in Bali – Dr. I Wayan Agus Gede Manik Saputra, Udayana University [OA-05]
- Collaborative Development of One Health Training Catalogue for Southeast Asia – Dr. Mark Jaypee C. Gonzales, Central Bicol State University of Agriculture [OA-06]

**Sukhothai
Room 1 & 2****Parallel Session 2: One Health Approach to Tackle Antimicrobial Resistance**

Moderator: Dr. Nur Indah Ahmad (Deputy Coordinator, Malaysia One Health University Network)

Speakers:

- Reducing Antibiotics use in Fish and Shrimp Farming: A Mixed Social Marketing Approach in Central Vietnam – Dr. Binh Thang Tran, Hue University of Medicine and Pharmacy [OC-01]
- A Case of Serratia Spp. Mastitis in a 2-Year-Old Lactating Holstein X Jersey Cattle – Dr. Flor Marie Immanuelle R. Pilapil-Amante, University of the Philippines [OC-02]
- Effect of Feeding a Saccharomyces Cerevisiae Fermentation Product on Immune Response to Vaccines Against Newcastle Disease Virus, Avian Influenza Virus, and the Prevalence of Chronic Respiratory Disease and Coccidiosis in Local Crossbred Broiler Chickens in Vietnam – Dr. Bui Thi Hien, Hue University [OC-03]
- Antimicrobial susceptibility and molecular detection of chloramphenicol and beta-lactam resistance among Salmonella isolates from poultry farms in Kelantan – Dr. Imran Ariff Bin Ismail, Universiti Malaysia Kelantan [OC-04]
- Antimicrobial resistance pathways between humans and animals: A GSCA-SEM analysis of knowledge, attitudes, and practices among Filipinos – Mr. Ryan Labana, Polytechnic University of the Philippines [OC-05]
- Complete genome of an antimicrobial resistant Acinetobacter baumannii isolated from a companion cat – Prof. Dr. Syafinaz Amin-Nordin, Universiti Putra Malaysia [OC-06]

Special Session: Integrating Wildlife Health and Environmental Conservation in One Health: Surveillance, Zoonotic Diseases, and Action Strategies

Chair: Dr. Ronello C. Abila, Sub-Regional Representative, WOAHS Sub-Regional Representation for South-East Asia (SRR SEA)

Speakers:

- Introduction to the session and its objectives – Dr. Kinley Choden, Animal Health Officer, WOAHS SRR SEA
- Integrating Wildlife Health and Environmental Conservation in One Health: Challenges and Opportunities – Dr. Arvin Diesmos on behalf of Dr. Theresa Mundita Lim, Executive Director, ASEAN Center for Biodiversity
- Disease Surveillance in Wildlife and the Environment: African Swine Fever Outbreak Detection and Response in Wild Boars in Singapore – Dr. Anna Wong, Group Director for Community Animal Management and Senior Director of Wildlife Trade, National Parks Board Singapore
- Biodiversity Conservation, One Health & Sustainable Development – Ms. Marie-yon Struecker, One Health Consultant for United Nations Environment Programme (UNEP), Regional Office for Asia and the Pacific
- Strengthening Veterinary Services and OH Workforce in Southeast Asia - education, curriculum and research - Asst. Prof. Dr. Warangkham Chaisowwong, Veterinary Public Health and Food Safety Centre for Asia Pacific, WOAHS CC VS capacity Building, Faculty of Veterinary medicine, Chiangmai University

15.00 - 15.30

Coffee Break and Posters Viewing (Foyer 2nd Floor)

15.30 - 17.00

Parallel Sessions 4-6

Lanna
Ballroom 3

Parallel Session 4: One Health Education, Capacity Building and Institutionalization

Moderator: Dr. Malavanh Chittavong (Coordinator, Lao One Health University Network)

Speakers:

- Building a Community of Practice: The ASEAN-Australia One Health Fellowship Programme – Dr. Nurshahidah Ali, Murdoch University, Australia [OA-07]
- One Health Defenders: Enhancing One Health Understanding Through Board Game Simulation – Dr. Pondpan Suwanthada, Hokkaido University, Japan [OA-08]
- The Journey So Far - Can machine learning predict future hotspots of zoonotic disease outbreaks? – Mr. Shaun Martin, WWF Hong Kong [OA-09]
- Rabies control and eradication in Iloilo Province, Philippines: Advocacy for One Health Collaboration towards a rabies-free Iloilo by 2030 – Dr. Yusuf A. Sucol, University of the Philippines Los Banos [OA-10]
- Embracing the Role of the Future Leaders in Overcoming Health Challenges Through One Health Young Leaders Internship Program – Ms. Farah Ramadhani Putri Wicaksana, Indonesia One Health University Network [OA-11]
- Building next-generation capacity for better preparedness and management of problems at the human-animal-environment interface in Senegal: processes, challenges and prospect – Dr. Sara Danièle Dieng, Africa One Health University Network [OA-12]

Parallel Session 5: One Health Approach to Tackle Antimicrobial Resistance

Moderator: Assoc. Prof. La Ngoc Quang (Vice-Rector of Hanoi University of Public Health, Vietnam One Health University Network)

Speakers:

- Prevalence of Staphylococcus aureus in food and non-food items, its antimicrobial resistance, and hygiene practices of food handlers from open markets in Yangon, Myanmar – Dr. May Soe Aung, University of Medicine (1), Yangon [OC-07]
- Molecular Detection and Antibigram of Escherichia coli Isolated from Malayan Porcupine (Hystrix brachyura) in Peninsular Malaysia – Dr. Mohd Faizal Ghazali, Universiti Sultan Zainal Abidin Malaysia [OC-08]
- Effect of Feeding a Saccharomyces Cerevisiae Fermentation Product on Pathogenic and Antibiotic Resistance Bacteria in Crossbred Broiler Chickens – Dr. Nguyen Van Chao, Hue University, Vietnam [OC-09]
- Molecular odyssey on unlocking local wisdom potential of green tea against zoonotic Escherichia coli O157:H7: An alternative antimicrobial therapy – Dr. Rian Ka Praja, Universitas Palangka Raya, Indonesia [OC-10]
- Draft Genomes of Antibiotic-Resistant Staphylococcus aureus and Staphylococcus pseudintermedius isolated from Canines in Viet Nam – Ms. Luu Thi Thanh Hang, Can Tho University, Vietnam [OC-11]
- 7 Years, 2 Phases, One Health: An update on One Health in AMR as the Fleming Fund enters Phase II (2023-2025) - Robert Rosenthal, Fleming Fund Management Agent [OC-12]
- The Fleming Fund Country Grant's One Health Approach to tackle AMR in Nepal – Dr. Ritu Amatya, FHI 360 [OC-13]

Parallel Session 6:

Special Session: Integrating Wildlife Health and Environmental Conservation in One Health: Surveillance, Zoonotic Diseases, and Action Strategies

- System-Wide Approach to Wildlife Health Capacity Enhancement in Southeast Asia - case study of Thailand – Dr. Jonathan Sleeman, Science Advisor, Wildlife Health and Ecology, USGS
- Mitigating Transboundary Emerging Infectious Diseases: Wildlife and One Health Sustainability – Dr. Anuwat Wiratsudakul, Associate Professor of Epidemiology, Faculty of Veterinary medicine, Mahidol University

Panel Discussion:

Moderator: Dr. Lesa Thompson, Deputy Regional Representative, WOAHP Regional Representation for Asia Pacific

Panelists:

- Dr. Anna Wong, Group Director for Community Animal Management and Senior Director of Wildlife Trade, National Parks Board Singapore
 - Dr. Warangkhan Chaisowwong, Veterinary Public Health and Food Safety Centre for Asia Pacific, WOAHP CC VS capacity Building, Faculty of Veterinary medicine, Chiangmai University
 - Dr. Anuwat Wiratsudakul, Associate Professor of Epidemiology, Faculty of Veterinary medicine, Mahidol University
 - Ms. Manon Mispiratcegy, Sustainable Wildlife Management (SWM) Programme, FAO
 - Ms. Mia Sign, Regional illegal wildlife trade program, WWF
-

09.00 - 10.30

Parallel Sessions 7 and 8

Lanna
Ballroom 3

Parallel Session 7: One Health Policy, Coordinating Mechanisms, Multisectoral Partnership

Moderator: Dr. drh. Joko Pamungkas (Deputy Coordinator, Indonesia One Health University Network)

Speakers:

- Toward Gender Equitable One Health Workforce in Southeast Asia
– Ms. Olesya Kochkina, SEAOHUN Gender Consultant [OB-01]
- Structuring a conceptual model for One Health integration in Leptospirosis intervention system in the Philippines: Leptospirosis Awareness, Warning, and Action (LAWA) model
– Ms. Khristine L. Sandoval, National University of Philippines [OB-02]
- Strengthening Primary Health Centers and Animal Health Centers for One Health Improvement through Integrated Surveillance and Multidisciplinary Partnership: A Case Study of Rabies in Buleleng Regency – Mrs. Luh Verra Sridyantari, WFAD Foundation/ PT Tirta Danesha Integra Utama [OB-03]
- Comprehensive Consolidation of The One Health System in Dengue Haemorrhagic Fever Control Through A Community-Based Approach – Dr. Martini Martini, Universitas Diponegoro, Semarang [OB-04]
- Mass Dog Vaccination and Animal Birth Control: A One Health Pilot Project in Karachi, Pakistan – Dr. Waqas Ahmad, University of Veterinary and Animal Sciences [OB-05]

Sukhothai Room 1 & 2	Parallel Session 8: Collaborative approach to Emerging and re-emerging Infectious diseases
	Moderator: Dr. Neil C. Tanquilut (Coordinator, Philippine One Health University Network)
	Speakers:
	• Development of Native Language Storybooks to Raise Awareness of Health Risks from Wildlife Trade Among Elementary School Students in Indonesia – Ni Komang Semara Yanti, Udayana One Health Collaborating Center [OD-01] • The Use of One Health Approach for Preparedness and Response to Avian Influenza Outbreaks in Cambodia: A Systematic Review – Mr. Chamnab Ngor, National Institute of Public Health [OD-02] • Knowledge, Attitude, and Practices (KAP) study toward Anthrax Disease in South Sulawesi and West Sulawesi Provinces, Indonesia – Dr. Heru Susetya, Gadjah Mada University [OD-03] • Schistosoma japonicum Infection Rate of Field Rats in Selected Barangays of Gonzaga, Cagayan, Philippines – Dr. Karina Marie Nicolas, Isabela State University [OD-04] • Bat Guano Farming and Zoonotic Disease Risk Reduction in Kang Meas District, Cambodia – Mr. Ratana Chhan, Tetra Tech ARD Inc., USAID STOP Spillover [OD-05] • One Health Approach to Case Investigation of Human Brucellosis and Q Fever Co-infection, Chai Nat, Thailand, 2022 – Dr. Nawarat Ninprapha, Department of Disease Control, Ministry of Public Health [OD-06]
10.30 - 11.00	Coffee Break and Posters Viewing (Foyer 2 nd Floor)
11.00 - 12.30	Parallel Sessions 9 and 10
Lanna Ballroom 3	Parallel Session 9: Special Session: Strengthening One Health Education in Southeast Asia: Chevron's Partnership with SEAHOHUN
	Moderator: Dr. Dee Bourbon (Senior Social Investment Advisor at Chevron Corporation)
	Panelists:
	• Prof. Dr. Ma Sandra B. Tempungko: Deputy Coordinator of SEAMEO* Tropical Medicine and Public Health Network (SEAMEO TROPMED Network) • Dr. Sirikachorn Tangkawattana: Faculty of Veterinary Medicine and Tropical Disease Research Center (TDRC), Khon Kaen University • Asst. Prof. Dr. Ouaypon Tungthongchai: Faculty of Education, Kasetsart University • Dr. Songheang Ai: Center Director of SEAMEO* Regional Center for Technical Education Development (SEAMEO TED) Cambodia • Ms. Duriya Amatavivat: Center Director of SEAMEO* Regional Centre for Sufficiency Economy Philosophy for Sustainability (SEAMEO SEPS) Thailand
	<i>SEAMEO*: Southeast Asian Ministers of Education Organization</i>

Sukhothai Room 1 & 2	Parallel Session 10: Collaborative approach to Emerging and re-emerging Infectious diseases
	Moderator: Dr. Khuon Dyna (Acting Coordinator, Cambodia One Health University Network)
	Speakers:
	- Mapping the Impact of Climate Variability on Leptospirosis Transmission in Semarang City: A Spatio-Temporal Analysis (2019-2023) – Mrs. Siti Rahayu, Universitas Diponegoro [OD-07] - Developing an Interactive Rabies Data Dashboard in Southeast Asia using Power BI as Platform – Dr. Mark Jaypee Gonzales, Central Bicol State University of Agriculture [OD-08] - Interdisciplinary perspective: Entomological Parameters, Remote Sensing, and Geographical information systems (GIS) for Dengue surveillance – Ms. Prathiksha Nayak, Manipal Institute of Technology [OD-09] - Zoonotic malaria, more than just monkeys- the need for a collaborative approach – Mr. Taufiq Afdhal, Universitas Andalas [OD-10] - Spatial Assessment of Nipah Virus Transmission in Bali Pig Farms using Multi-Criteria Decision Analysis – Ms. Erly Sintya, Warmadewa University [OD-11]
12.30 - 13.30	Lunch (Kad Café Restaurant & Lanna Ballroom 2, 2nd floor) Posters Viewing (Foyer 2nd Floor)
13.30 - 15.00	Parallel Sessions 11 and 12
Lanna Ballroom 3	Parallel Session 11: Achieving the Sustainable Development Goals through One Health approach
	Moderator: Prof. Oladele Ogunseitan (Co-leader of Training and Empowerment, One Health Workforce Academies, University of California, Irvine)
	Speakers:
	- Integrating Artificial Intelligence to Drive One Health Progress: A Comprehensive Review – Ms. Arada Subsiripaibool, Triam Udom Suksa School, Bangkok, Thailand [OF-01] - Place-Based, One Health Experiential Education: A Platform for Inspiring Action in Tackling Complex Global Challenges to Achieve the SDGs – Ms. Jennifer Lane, University of California, Davis [OF-02] - An Analysis Framework to Facilitate the Integration of One Health in Biodiversity-Related Projects – Ms. Madelon Rusman, Independent Consultant [OF-03] - Evaluation of Multi-sectoral Collaboration on Rabies Prevention and Control Measures in Pattaya City, Chonburi, Thailand 2022 – Dr. Nawarat Ninprapha, Ministry of Public Health [OF-04] - Community Engagement In One Health Action: Learning From Experience And Planning Forward – Mr. Shreehari Acharya, CSO platform [OF-05]

Sukhothai
Room 1 & 2

Parallel Session 12: Laboratory Capacity Strengthening

Moderator: Dr. Sudarat Damrongwatanapokin (Senior Technical Advisor, SEAOHUN)

Speakers:

- Regional Public Health Laboratory Network [RPHL Network]: A country-driven workplan on Capacity Building Development for Laboratory System in Asia Pacific [2023-2027] – Dr. Jintana Sriwongsa, Advisor, RPHL Network [OE-01]
- One Health Genomic Surveillance in the Post-COVID-19 Era: Opportunities and Challenges – Dr. Choo Yee Yu, Universiti Putra Malaysia [OE-02]
- Lessons Learned in Deploying Containerized Laboratories in the Philippines – Ms. Lucienne Solon Perfecto, SciLore LLC [OE-03]
- Tick Cell Biobank (TCB) Asia Outpost: Advancing Collaborative Solutions for Tick-Borne Disease Surveillance and Control in Southeast Asia – Dr. Norhidayu Sahimin, Universiti Malaya [OE-04]
- Avian Influenza A(H5N1) Human Infection, Cambodia February 22, 2023 – Dr. Samnang Um, National Institute of Public Health [OE-05]
- Established Rapid Laboratory Response to Risk Group 3 Bacterial Zoonotic Pathogens – Dr. Chattip Kurehong, Ministry of Public Health [OE-06]

15.00 - 15.30

Coffee Break and Posters Viewing (Foyer 2nd Floor)

15.30 - 17.00

Special Session: One Health Workforce – Next Generation and Closing Remarks

Lanna

Ballroom 3

Opening remarks and high-level OHW-NG achievements:

- Dr. MacDonald Farnham (SEAOHUN Global Liaison, OHW – NG Project, University of California, Davis)

Panel 1: One Health Leaders of Tomorrow: The Role of One Health University Networks in Preparing Students for Current and Emerging Threats

Moderator: Prof. Dr. Ndola Prata (Maternal, Child and Adolescent Health, University of California, Berkeley; Co-Director, University of California Global Health Institute (UCGHI))

Panelists:

- Dr. Dyna Khuon (Acting Coordinator, CAMBOHUN)
- Dr. Melbourne R. Talactac (Vice-Chairperson, PhilOHUN)
- Dr. Dinh Xuan Tung (Program Manager, VOHUN)
- Dr. Angkham Ounavong (Vice-coordinator, LAOHUN)

Panel 2: Global Health Security: The Role of University Networks in Strengthening National Capacities to Prevent, Detect, and Respond to Emerging Diseases Threats

Moderator: David J. Wolking (Senior Manager Global Programs, One Health Institute, OHW - NG Technical Director, University of California, Davis)

Panelists:

- Dr. Monique Cesse KOUASSI épse N'GUESSAN (Country Manager, AFROHUN Cote d'Ivoire)
- Dr. drh. Joko Pamungkas (Deputy Coordinator, INDOHUN)
- Prof. Dr. Latiffah Hassan (Coordinator, MyOHUN)
- Assoc. Prof. Dr. Saengduen Moonsom (Coordinator, THOHUN)
- Dr. Aristide Dionkounda (Regional Technical Manager, AFROHUN)

Student Presentation Awards/Certificates: Chairpersons of OHUNs

OHW-NG in Focus: Looking Towards the Future:

- Prof. William Bazeyo (Chief Executive – AFROHUN)
- Dr. Tongkorn Meeyam (Executive Director, SEAOHUN Secretariat)

Closing Remarks

- Ms. Marilyn Crane (Senior International Higher Education Advisor, USAID)
 - Dr. Walasinee Sakcamduang (Chairperson of SEAOHUN Foundation)
-

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**Professor
Dr. Oladele Ogunseitan**

University of California,
Irvine

KEYNOTE SPEAKER



PROFESSOR DIRK PFEIFFER

Director, Centre for Applied One Health Research and Policy Advice (OHRP)

City University of Hong Kong,
Hong Kong Professor of
Veterinary Epidemiology,
Royal Veterinary College,
London.

Prof. Dirk Pfeiffer graduated in Veterinary Medicine at the Justus-Liebig University, Giessen, Germany in 1984. This was followed by postgraduate research towards a Dr.med.vet degree at the same university. After that, he obtained a PhD from Massey University, New Zealand, in 1994, and worked there as an academic for 9 years. Since 1999, he has held the Chair in Veterinary Epidemiology at the Royal Veterinary College (RVC), London, UK. Since September 2014, he has been Adjunct Professor at China Animal Health and Epidemiology Centre, Qingdao, China. From June 2015 to May 2017, Dirk held the role of Chief Epidemiologist at UK Government's Animal & Plant Health Agency, Weybridge, UK, as a 20% secondment from RVC. In 2016, Dirk joined City University of Hong Kong as Chow Tak Fung Chair Professor of One Health, while still maintaining a 20% appointment at RVC. Dirk has worked on the epidemiology of animal health and welfare problems in many low, medium and high-income countries around the world. In the last 20 years, he has been particularly active at the science-policy interface through advisory roles for the EU, the FAO, WOA and a wide range of national governments.

SUMMARY OF KEYNOTE

Enhancing Global Preparedness: Reforming the Future Workforce and Utilizing Technological Tools in Managing Pathogen Transmission

Climate change, biodiversity loss and pandemic risk present the global community with complex interconnected challenges which require innovative approaches to be able to respond, prevent, recover and become more resilient from an animal, human and ecosystem health perspective. They will need to be based on a much-improved understanding of the associated complex systems. This will require, in particular for scientists and policymakers, to be trained in complex systems thinking, critical thinking and reflexivity, as well as the ability to work using inter- and transdisciplinary approaches. To achieve the vision of “healthy living on a healthy planet” by transforming human and natural systems towards sustainability and enhanced resilience, an appropriate balance between reliance on technological innovation and system transformation will have to be found.

The required competencies of the One Health workforce will have to be obtained via appropriately designed training courses at under- and postgraduate level, as well as through courses aimed at non-academic field or other staff. It is essential for the delivery of such courses to be changed from the currently dominating teacher- to student-centred learning. That includes teachers who recognise that it must be about achieving competencies that effectively combine knowledge, skills and attitudes tailored to the needs associated with the different roles of the range of professions involved in One Health. Part of this will also have to be to enable the workforce to take advantage of the increasing digitalisation and new technologies, such as diagnostic tests, vaccines, etc in support of more effective risk assessment and management. This also includes that the workforce will have to learn how to use new developments in artificial intelligence (AI) effectively. One major benefit of AI will be that it will provide the opportunity for additional focus on systems thinking, critical thinking and reflexivity rather than being overwhelmed by the specifics and the choice between different technological tools.

PLENARY SESSION:

One Health in Action: Transforming Challenges into Opportunities in Southeast Asia



Speaker

Assoc. Prof. Dr. Pratap Singhasivanon

Secretary General/
Coordinator of the
SEAMEO TROPMED
Network, Thailand



Moderator

Dr. Michael Wilkes

Director of Global Health,
Professor of Medicine and
Global Health, School of
Medicine, University of
California, Davis



Moderator

Prof. Dr. Latiffah Hassan

Coordinator, Malaysia
One Health University
Network



Panelist

Dr. Asfri Rangkuti

ASEAN Regional Support
Unit Coordinator,
FAO ECTAD RAP,
Bangkok, Thailand



Panelist

Dr. John R. MacArthur

CAT, USPHS Regional
Director Southeast
Asia Regional Office
US Centers for Disease
Control and Prevention



Panelist

Dr. Ronello C. Abila

Sub-Regional
Representative for
South-East Asia of the
World Organisation for
Animal Health (WOAH)



Panelist

Dr. Katherine Bond

USAID Senior Global
Health Security Advisor,
Regional Development
Mission for Asia, USAID



Panelist

Prof. David Kabasa

Director of AFROHUN
One Health Academy,
AFROHUN Secretariat,
Uganda

SPECIAL SESSION:

Strengthening One Health Education in Southeast Asia: Chevron's Partnership with SEA OHUN



Moderator

Ms. Dee Bourbon

Senior Social
Investment Advisor at
Chevron Corporation



Speaker

Dr. Songheang Ai

Center Director of
SEAMEO Regional Center
for Technical Education
Development (SEAMEO
TED) Cambodia



Speaker

Ms. Duriya Amatavivat

Center Director of
SEAMEO Regional
Centre for Sufficiency
Economy Philosophy
for Sustainability
(SEAMEO SEPS)
Thailand



Speaker

**Prof. Dr. Ma Sandra B.
Tempongk**

Deputy Coordinator
of SEAMEO Tropical
Medicine and Public
Health Network
(SEAMEO TROPMED
Network)



Speaker

**Asst. Prof. Dr. Ouaypon
Tungthongchai**

Faculty of Education,
Kasetsart University,
Kasetsart University



Speaker

**Dr. Sirikachorn
Tangkawattana**

Faculty of Veterinary
Medicine and Tropical
Disease Research
Center (TDRC),
Khon Kaen University

SUMMARY OF PROJECT:

Since late 2020, Chevron has supported SEAOHUN's "Strengthening One Health Education in Southeast Asia" project, reflecting Chevron's mission to empower people through impactful education and training. Initially, the project focused on expanding One Health education beyond universities to include schools (kindergarten through Grade 9) and communities, in partnership with the Southeast Asian Ministers of Education Organization (SEAMEO) Tropical Medicine and Public Health Network (TROPMED), SEAMEO STEM-ED, and the Tropical Disease Research Center (TDRC) of Khon Kaen University. This expansion, made possible by Chevron's support, also helped fill funding gaps in SEAOHUN student engagement programs and facilitated the expansion of work in the Philippines. Building on the successes of Phase I, Phase II (January 2023 to December 2025) has broadened collaboration to include the Faculty of Education at Kasetsart University, SEAMEO SEPS, and SEAMEO TED, among others. This phase introduces several key components designed to advance One Health education across the region, ensuring the initiative continues to grow and reach new communities.

As a result of these efforts, SEAOHUN has made significant strides in becoming an affiliate member of SEAMEO. With the strong engagement of SEAMEO TROPMED and SEAMEO STEM-ED during Phase I, SEAOHUN submitted its application in November 2021 to advocate for One Health education at all levels through the SEAMEO ministerial platform.

SPECIAL SESSION:

One Health Leaders of Tomorrow: The Role of One Health University Networks in Preparing Students for Current and Emerging Threats

Moderator



Prof. Dr. Ndola Prata

Maternal, Child and Adolescent Health, University of California, Berkeley; Co-Director, University of California Global Health Institute (UCGHI)



Panelist

Dr. Dyna Khuon

Acting Coordinator, Cambodia One Health University Network (CAMBOHUN)



Panelist

Dr. Melbourne R. Talactac

Vice-Chairperson, Philippine One Health University Network (PhilOHUN)



Panelist

Dr. Dinh Xuan Tung

Program Manager, Vietnam One Health University Network (VOHUN)



Panelist

Dr. Angkham Ounavong

Vice-Coordinator, Lao One Health University Network (LAOHUN)

SPECIAL SESSION:

Global Health Security: The Role of University Networks in Strengthening National Capacities to Prevent, Detect, and Respond to Emerging Diseases Threats



Moderator

David J. Wolking

Senior Manager Global Programs, One Health Institute, University of California, Davis; OHW-NG Technical Director



Panelist

Dr. Monique Cesse Kouassi

Country Manager, AFROHUN Cote d'Ivoire



Panelist

Dr. drh. Joko Pamungkas

Deputy Coordinator, Indonesia One Health University Network (INDOHUN)



Panelist

Prof. Dr. Latiffah Hassan

Coordinator, Malaysia One Health University Network (MyOHUN)



Panelist

Assoc. Prof. Dr. Saengduen Moonsom

Coordinator, Thailand One Health University Network (THOHUN)



Panelist

Dr. Aristide Dionkounda

Regional Technical Manager, AFROHUN

SUMMARY OF PROJECT

One Health Workforce - Next Generation (OHW-NG): Empowering University Networks to strengthen national capacities to prevent, detect, and respond to emerging diseases and pandemic threats

OHW-NG is the largest globally connected university network that educates, trains and empowers human resources critical for global and national health security. Together with institutions and university partners committed to the Africa One Health University Network (AFROHUN) and Southeast Asia One Health University Network (SEAOHUN), OHW-NG trains the workforce we need to provide scalable and sustainable solutions to complex health threats in the most vulnerable areas for disease emergence.

OHW-NG is helping create the “next generation” health workforce that engages across disciplines to ensure human, animal, and environmental health professionals have the capacity to prevent, detect, and respond to our world’s greatest health threats. Using a variety of training formats, such as One Health student clubs, innovative online One Health Workforce Academies, and experiential learning platforms to reach students and workforce professionals, OHW-NG is driving the use of critical One Health competencies that ensure individuals have the knowledge and applied skills to work across disciplines and sectors on complex health challenges.

Over the past five years, the OHW-NG consortium with our partners AFROHUN and SEAOHUN, has awarded 121 scholarships, 24 fellowships, and 147 One Health research and training awards to further research in the health sciences along with training and development of One Health workforce professionals. Contributing to the workforce essential for strengthening health security, OHW-NG has trained over 56,700 participants using a variety of formats targeting faculty and students, healthcare workers, and other in-service professionals.

ABSTRACTS OF ORAL PRESENTATION





TRACK A:

ONE HEALTH EDUCATION,
CAPACITY BUILDING AND
INSTITUTIONALIZATION

OA-01: ENHANCING ANTIMICROBIAL RESISTANCE AND STEWARDSHIP AWARENESS OF ONE HEALTH WORKFORCE IN CAMBODIA

Authors: Bunna Chea¹, Sokom Kong¹, Sokheng Seang², Sokreaksa Lay³, Rathana Chan¹, Rortana Chea⁴

Institution: ¹Faculty of Veterinary Medicine, Royal University of Agriculture, ²University of Health Sciences, ³National Institute of Public Health, ⁴National Animal Health and Production Research Institute, General Directorate of Animal Health

Corresponding Author and E-mail: Bunna Chea¹, bunna_chea@rua.edu.kh

Keywords: Antimicrobial Resistance, Antimicrobial Stewardship, One Health Workforce

Abstract: The project aimed to design a suitable training model with various training materials and methodologies to increase the antimicrobial resistance (AMR) and antimicrobial stewardship (AMS) awareness for current and future animal and human health professionals and motivate them to apply good practices and spreading the awareness to the local communities and to their careers in Cambodia. The project was first i) designed the training materials and measure output tools (training module, posters, role play, pre-and post-training and reflection survey); ii) delivered the training in collaboration with governments using interactive learning as active learning; and c) activated the awareness at communities using community engagement. Results showed that the project team and students enhanced the One Health technical knowledge and core competencies. 28 (7 females) animal and human health professionals have directly increased significantly in knowledge after the training. ($P=0.000$). 302 (182 females) communities and 6 (all males) local authorities have directly aware of AMR and proper use of antimicrobials through community engagement activity. About 600 posters were distributed to provincial health hospitals, health centers, district veterinary departments, researcher institutions for further education and/or dissemination. Project motivates research universities to integrate the concept of One Health (AMR) into the curriculum and teaching programs, and also motivate the government to incorporate into the routine or subsequence on AMR awareness to relevant stakeholders across country. The project highlighted a great success for AMR training and campaigns at communities under the collaboration among governments, researchers, students, local authorities and communities to fight against AMR. The project could have impact for health professionals to continue apply good practices and spread the AMR awareness to communities and careers based on current and future activities that may contribute to achieve the AMR national actions in promoting and mitigating the AMR in Cambodia.

OA-02: THE PHILIPPINE HERO WHO FORESHADOWED ONE HEALTH: THE DR. JOSE RIZAL LEADERSHIP PRINCIPLES AS APPLIED TO PUBLIC HEALTH

Authors: Maria Kristina G. Almonte, Napoleon G. Almonte

Institution: West Visayas State University, Iloilo, Philippines

Corresponding Author and E-mail: Maria Kristina G. Almonte, mk.almonte@wvsu.edu.ph

Keywords: One Health, Public Health Leadership

Abstract: The pandemic brought the worldwide health-sector uncertain as to strategies in disease prevention and control of the disease. World leaders urgently sought to adapt to the changes caused by the virus' mutations. Consequently, there was a pressing need for public health leadership as highlighted by different health organizations. The main objective is to create a module on public health leadership based on the life and writings of Dr. Jose Rizal that can be incorporated into the curricula of the College of Medicine. Specifically, it discusses the relevance of Dr. Jose Rizal as a physician in the 21st century, the fundamentals of One Health, Public Health and Public Health Leadership, describes the leadership framework of Dr. Jose Rizal and its application to public health and to the Philippine One Health Network. The development process involved setting the objectives, literature review, and identification of learning teaching strategies. The module underwent technical review and evaluation before being piloted to 111 third year medical students, it revealed an increase in the mean average scores from the pretest to the posttest for both Awareness and Knowledge components. Paired T-test was done for Practice and Attitude components revealed statistically significant results for most of the questions asked. Overall evaluation is positive and forward looking. The module is relevant to current and future public health challenges, as it institutionalizes a crucial yet often overlooked subject. The integration into the curriculum of the College of Medicine is something to look forward to. Rizal as a public health leadership model for the Philippines and Asia holds a significant potential for broader applications.

OA-03: MYOHUN BIORISK MANAGEMENT CURRICULUM: EDUCATING AND ENGAGING FOR ENHANCED BIOSAFETY AND BIOSECURITY

Authors: Zunita Zakaria¹, Venugopal Balakrishnan², Faizatul Lela Jafar³, Nur Indah Ahmad⁴, NCO MyOHUN⁵

Institution: ¹Institute of Bioscience, Universiti Putra Malaysia, ²Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia, ³Faculty of Medicine, University of Malaya, ⁴Faculty of Veterinary Medicine, Universiti Putra Malaysia, ⁵National Coordinating Office, MyOHUN c/o Faculty of Veterinary Medicine, Universiti Putra Malaysia

Corresponding Author and E-mail: Zunita Zakaria¹, zunita@upm.edu.my

Keywords: Biorisk Management, Biosafety and Biosecurity, Education

Abstract: In 2022, a collaboration between MyOHUN and the Malaysian Biosafety and Biosecurity Association (MBBA), with the support from experts at Sandia National Laboratories, a comprehensive curriculum on Biorisk Management has been developed. This introductory curriculum is tailor made for early career professionals, individuals and students working in the biomedical fields. It covers 12 main topics ranging from foundational concepts such as Introductions to Biosafety and Biosecurity to practical aspects like Biological Waste Management, Good Laboratory Work Practices, Personal Protective Equipment, and Risk Assessment and Mitigation. The curriculum is freely available on a Massive Open Online Course (MOOC) platform, making it easily accessible. Moreover, to ensure comprehension and competency among trainees, an assessment exam is incorporated into the curriculum. The impact of this initiative has been substantial, with a series of engagement with important stakeholders as well as series of roadshows held across Malaysia. These roadshows, covering central, east and north Peninsular Malaysia as well as east Malaysia. With over 200 trained participants, they are comprised of members of the Institutional Biosafety and Biosecurity Committees (IBBC), lecturers, laboratory staff, and postgraduate students. The roadshows have successfully disseminated crucial basic fundamental knowledge on biosafety and biosecurity. These programs are essential for ensuring safer and more efficient laboratory environments across diverse biomedical research landscapes.

OA-04: EMPOWERING MEKONG ONE HEALTH STAKEHOLDERS: ADVANCING CAPACITY THROUGH THE MEKONG ONE HEALTH INNOVATION PROGRAM (MOHIP)

Authors: Ramjee Ghimire, Qing Xia, Furqan Irfan

Institution: Michigan State University, Michigan, USA.

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Keywords: Health Security, Research-Extension-Education, Transnational Network, Scaling up

Abstract: The Lower Mekong region, renowned for its rich biodiversity and cultural heritage, faces numerous challenges, with health security being one of the most pressing. Diseases anywhere are threats everywhere, making strong collaboration, coordination, and the sharing of information and resources among national, regional, and global stakeholders more critical than ever in addressing these challenges. The Mekong U.S. Partnership-funded Mekong One Health Innovation Program (MOHIP), in collaboration with the One Health University Networks of Laos, Thailand, and Vietnam, aims to empower One Health stakeholders in the Lower Mekong region through targeted education, research, and outreach, thereby enhancing regional health security. Since its inception in October 2022, MOHIP has trained over 300 professionals in “Health Security, One Health, and Zoonoses.” The program has also organized 14 webinars on diverse topics, attracting more than 500 participants globally, primarily from the Lower Mekong region. Notably, five of these webinars featured joint talks with speakers from the Mekong, the U.S., and beyond. In addition, MOHIP is funding six research projects addressing critical issues in the Lower Mekong region, thereby empowering local researchers. Stakeholders and participants have highly valued MOHIP’s three-pronged approach—education, research, and outreach. The program is dedicated to fostering a culture of innovation and collaboration to drive progress in health security, creating a transnational network to support these initiatives. By working with regional organizations and empowering national stakeholders, MOHIP enhances contributions to regional health security efforts. It is now timely to engage with regional and global stakeholders to discuss extending MOHIP beyond its current cycle and expanding its reach to new countries.

OA-05: ADDRESSING ANTIBIOTIC-RELATED EDUCATION THROUGH FLIPCHART "KARINA" FOR ELEMENTARY STUDENTS IN BALI

Authors: I Wayan Agus Gede Manik Saputra¹, Ni Nyoman Sri Budayanti², Ni Komang Semara Yanti², Gede Padmanabha², Ni Made Dian Kurniasari³, Ni Made Kurniati⁴, Ida Ayu Manik Partha Sutema⁵, I Gusti Ayu Rai Widowati⁵

Institution: ¹Doctoral Study Program, Faculty of Medicine, Udayana University, ²Microbiology Department, Faculty of Medicine, Udayana University / Udayana One Health Collaborating Center, ³School of Public Health, Faculty of Medicine, Udayana University, ⁴Public Health Program, Faculty of Health and Sciences, Dhyana Pura University, ⁵Department of Pharmacy, Faculty of Health Sciences, Bali International University

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Keywords: Flipchart, Antibiotic, Antimicrobial Resistance, Education, Elementary School

Abstract: The rise of antimicrobial resistance (AMR) across the globe shifts the priority to addressing the proper usage of antibiotics, including in Indonesia. One recommended preventive measure is filling knowledge gaps. Antibiotic-related educational interventions delivered among school students can empower young people as AMR guardians. This study aimed to raise antibiotic awareness among elementary school children in rural areas of Bali using the flipchart "KARINA" method. A pre-experimental study was conducted in two elementary schools in a rural area of Kediri District, Tabanan, Bali, Indonesia. The sample used was a total sampling from grades 3 to 6. A flipchart "KARINA" (in Bahasa: Kita Atasi ReslsteNsi antimikroba bersama Anak; in English: We Overcome Antimicrobial Resistance Together with Children) was developed to deliver some basic knowledge about antibiotics use and the risk of antibiotic resistance. The Wilcoxon Signed Ranks test was employed to compare the pre- and post-data. A total of 220 students were enrolled in this study (100% response rate). Participants in this study were mostly male (116 [52.73%]) and were predominantly in the 10 to 11-year age group. A Wilcoxon signed-rank test showed that the intervention using Flipchart "KARINA" resulted in a statistically significant change in antibiotic-related educational intervention among schoolchildren ($z=-9,6$; $p<0.05$). The most falsely answered questions among students in this study were about the kinds of antibiotics and how the antibiotic works to kill the bacteria. The level of knowledge based on Bloom's cutoff revealed a significant increase in the high level of knowledge between pre and post-study, pre-intervention (29 [13.18%]), and post-intervention (113 [51.36%]). Flipcharts "KARINA" is an effective teaching tool for a public engagement campaign to educate elementary school students about the appropriate use of antibiotics. The introduction of antimicrobial resistance is recommended as part of a campaign in elementary schools intended to raise public awareness.

OA-06: COLLABORATIVE DEVELOPMENT OF ONE HEALTH TRAINING CATALOGUE FOR SOUTHEAST ASIA

Authors: Mark Jaypee C. Gonzales^{1,2}, Suit-B Yong^{1,3}, André Furco¹, Tikiri Priyantha Wijayathilaka¹, Kinley Choden¹, Ronello C. Abila¹

Institution: ¹World Organisation for Animal Health, Sub-Regional Representation for Southeast Asia, Bangkok, Thailand, ²College of Veterinary Medicine, Central Bicol State University of Agriculture, Bicol, Philippines, ³Faculty of Veterinary Medicine, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

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Keywords: One Health, Southeast Asia, Trainings, Collaboration

Abstract: The One Health (OH) Approach is increasingly acknowledged in Southeast Asia (SEA) as paramount in addressing global health challenges. Thus, the natural turnover of professionals and paraprofessionals underscores the need for continuous training to sustain the progress. Leveraging the internet, training information can be made widely accessible for interested stakeholders, further enhancing the reach and impact of training initiatives. This paper presents the collaborative creation of a One Health Training Catalogue for SEA. The catalogue is being developed by the World Organisation for Animal Health sub-regional representation for SEA (WOAH SRR-SEA) together with the Southeast Asia One Health University Network (SEAOHUN) and the One Health Workforce Development Operational tool (WFDOT) of the tripartite. To account for fragmentation and duplication, WOAH SRR-SEA delineated into mapping trainings from international organisations, NGOs, and academia (including OH postgraduate programmes) while SEAOHUN focuses on USAID-funded trainings. While there are variations in parameters, the mappings closely align to facilitate integration into a unified database, while preserving the original goals of each organization. The datasets will then be merged with the WFDOT's Tripartite OH training mapping led by the World Health Organization (WHO). Initiated in February 2024, WOAH SRR-SEA has already mapped more than 30 trainings. As it advances, the three initiatives will be merged into an accessible catalogue for the region, potentially through the ASEAN OH Network (in development), the future "One Health Learning Coordination Platform" of the Global Quadripartite or SEAOHUN. This commitment to a collaborative, multidisciplinary, and multisectoral approach is in resonance with the global perspective on OH. The overarching goal of the OHTC is to provide an overview of the OH trainings and possibly enhance the accessibility of these resources, making them readily available to OH stakeholders in the region and contributing to the continuous capacity building of the OH workforce generations.

OA-07: BUILDING A COMMUNITY OF PRACTICE: THE ASEAN-AUSTRALIA ONE HEALTH FELLOWSHIP PROGRAMME

Authors: Nurshahidah Ali, Renata Fernandes Santos, Mieghan Bruce, Kirsty Bayliss

Institution: School of Veterinary Medicine, Murdoch University and Centre for Biosecurity and One Health, Harry Butler Institute, Murdoch University, Australia,

Corresponding Author and E-mail: Nurshahidah Ali, Shahidah.Ali@murdoch.edu.au

Keywords: One Health, capacity-building, education

Abstract: The ASEAN-Australia One Health Fellowship Programme, established in 2021 at Murdoch University amid the COVID-19 pandemic, is an initiative funded by the Australian Government. It partners with ASEAN to enhance regional public health and the health security of ASEAN member states. The programme's primary objective is to build capacity for preventing and responding to emerging infectious diseases using a One Health approach. This 2.5-year non-residential programme comprises several key components. First is the Murdoch University Graduate Certificate in One Health, an online four-unit postgraduate coursework degree covering core One Health competencies. Second, research training workshops equip fellows with essential methods and skills to examine and contextualise the One Health approach within their respective countries, holistically addressing regional and global challenges. Third, a community of practice, including a Mentoring Programme, connects fellows with Murdoch University academics who provide pastoral care and guidance in One Health principles and practices. Additionally, country-group research projects and annual in-person workshops are focal points for knowledge exchange and collaboration. Thirty-five fellowships were awarded to eligible ASEAN member state officials with diverse expertise in One Health. These fellows collaborate in country groups to assess the One Health landscape of their respective countries and identify areas for strengthening the implementation of One Health. Ten projects are underway, focusing on priority areas such as antimicrobial resistance, food security, and zoonoses management. These projects provide an additional platform for fellows to interact and share best practices, promoting a conducive environment for mutual learning. In summary, the ASEAN-Australia One Health Fellowship programme nurtures professionals to tackle diverse challenges in One Health by fostering meaningful relationships and promoting ongoing engagement beyond the structured components of the programme, paving the way for a healthier, more robust future.

OA-08: ONE HEALTH DEFENDERS: ENHANCING ONE HEALTH UNDERSTANDING THROUGH BOARD GAME SIMULATION

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Keywords: One Health, educational tool, board game, collaborative learning, public health education

Abstract: The One Health approach requires cross-disciplinary collaboration. Our project reflects this principle in both its development and execution. One Health Defenders is an educational team-based board game for 24 to 52 players designed to reflect the complexity and unpredictability of health crises. It challenges players to navigate scenarios that echo real-world pandemics. The game itself is the product of collaboration between a veterinarian, a medical doctor, a social scientist, and a computer scientist. Although designed to be engaging and fun, the game deliberately incorporates complexity and moments of frustration to mirror the real challenges faced by professionals in the field. Experts who have worked with the World Health Organization during the COVID-19 pandemic have praised this game's recreation of the uncertainty faced by policy makers at the beginning of a crisis. Thus, it is both a team-building exercise and an educational tool. Through engaging in role-play and strategic decision-making, participants, ranging from students to experienced professors, gain a profound understanding of the complexities in managing public health crises. This dynamic interaction encourages participants to appreciate the perspectives and contributions of other disciplines when facing multifaceted challenges. The positive feedback from both educational institutions and healthcare professionals highlights how well the game teaches the value of working together across different fields and the challenges of responding to crises. In this conference, we aim to share our successful contribution to the One Health initiative, demonstrating how an inventive, interdisciplinary approach can significantly enhance participants' understanding for addressing One Health approach.

OA-09: THE JOURNEY SO FAR - CAN MACHINE LEARNING PREDICT FUTURE HOTSPOTS OF ZOOBOTIC DISEASE OUTBREAKS?

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Keywords: Zoonotic, AI/ML, Illegal Wildlife Trade

Abstract: Zoonotic diseases pass from one species to another and can include human and animal hosts. They are not a new phenomenon as archaeological evidence suggests that they have been present in humans for over 10,000 years. Examples of zoonotic diseases include SARS, MERS, Ebola, and COVID-19. While systems are in place for monitoring and surveillance, historically there has been difficulty in prediction of new diseases. The goal of this project is to create a machine-learning system that predicts potential locations of disease emergence based on known factors such as deforestation, the illegal wildlife trade and demographic change. A predictive system might allow pre-emptive disease control measures to be put in place prior to large-scale outbreaks. The model ingests data in various formats from domains such as regional infrastructure, population density, deforestation, biodiversity and animal diseases. The pilot project is being developed with an initial focus on the Mekong Basin region and it is being developed on a cloud platform which may in future be scaled to include other parts of the world. The ML algorithms are tailored to extract features within defined geographical coordinates, utilizing spatial analytics to assess proximity to relevant geographical entities. The algorithm then seeks to identify the importance of geographic, demographic, environmental or other factors in predicting disease hotspots. Planned enhancement includes greater automation in data ingestion, ongoing training of the machine learning algorithm for more accurate predictions and developing a user interface for expert assessment of risk. The model's predictive capabilities extend to various applications, from scientific research to the provision of healthcare, offering an innovative tool for preemptively addressing zoonotic disease risks. This presentation encapsulates our journey so far, our learnings along the way and future intentions and applications.

OA-10: RABIES CONTROL AND ERADICATION IN ILOILO PROVINCE, PHILIPPINES: ADVOCACY FOR ONE HEALTH COLLABORATION TOWARDS A RABIES-FREE ILOILO BY 2030

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Keywords: Rabies, Eradication, One Health, Iloilo, Philippines

Abstract: Rabies is one of the deadliest and horrifying viral zoonoses known to humans, constituting both a major public health concern and a significant economic burden. Through animal bites and scratches, rabies spreads and infects humans and other animals. Dog bites are the cause of about 99 percent of human cases of rabies. Rabies is endemic in the Philippines, which is among the top countries globally. The Philippines' Department of Health has recorded 89 total cases of rabies from January to March of 2024. Iloilo province of the Western Visayas region has shown an outbreak of rabies with six confirmed cases just during the first quarter of 2024. Controlling and eradicating rabies in dogs is essential for long-term prevention between dogs and humans as outlined in the global strategic plan against the elimination of rabies (Zero by 30 and One Health). As part of the One Health Joint Plan of Action, which urges all nations to take the required actions to guarantee a coordinated One Health response to this deadly zoonosis, the elimination of human deaths from dog-mediated rabies is one of the priorities listed. In this study, anti-rabies programs and policies of Iloilo provincial government unit have been evaluated according to the One Health theory of change described by WHO focusing on the three global priority strategic objectives for the elimination of rabies. With the World Organization for Animal Health's (WOAH) 88th General Session in May 2021 endorsing and recognizing the Philippines, the country will have ample grounds to push for more government support aimed at gradually reducing and ultimately ending the disease's spread. While rabies can still be fatal, it is also highly preventable, and all it takes is a concerted and unifying effort where a localized One Health approach is a potential framework of action in rural communities.

OA-11: EMBRACING THE ROLE OF THE FUTURE LEADERS IN OVERCOMING HEALTH CHALLENGES THROUGH ONE HEALTH YOUNG LEADERS INTERNSHIP PROGRAM

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Keywords: One Health, Health Challenges, Internship

Abstract: INDOHUN has successfully conducted the second batch of One Health Young Leaders (OHYL) internship program to prepare students to become leaders with an adequate understanding of One Health and One Health skills, while the students could also earn official credential recognition. Compared to the first batch, OHYL batch 2 was partially funded by the MoECRT, and it was incorporated as a partner of the Independent Campus Certified Internship. Through this 4-month program, which was conducted offline, 29 students from various majors (health, sciences, social and humanities) from 18 universities across Indonesia participated in 3 stages of the program. Stage 1 aims to deepen the concept of One Health through a series of lectures and assignments divided into several main topics that focus on multisectoral collaboration, education and training, and working in an international scope. At stage 2, students carried out their job duties to get hands-on experience within the designated division. There was one division that was not in the previous batch, making five divisions in total: Education & Training, OHCC, MEL, Communication, and OHLN. At stage 3, all students were given full authority to plan, implement, and evaluate their own project. The students successfully organized the 'One Health Visit' project, which aims to educate breeders on the importance of biosecurity and One Health in preventing infectious diseases in livestock in Nagrak Village. Its implementation was highly complex and challenging because it was conducted offline, involved several events, and the students also collaborated with various stakeholders, including government institutions in Bogor District. Together with volunteers, students also developed the policy brief for this project, which has been delivered to the relevant parties. The students found that the program gave them knowledge and hands-on experience with One Health, preparing them to become future leaders who can help address future health challenges.

OA-12: BUILDING NEXT-GENERATION CAPACITY FOR BETTER PREPAREDNESS AND MANAGEMENT OF PROBLEMS AT THE HUMAN-ANIMAL-ENVIRONMENT INTERFACE IN SENEGAL: PROCESSES, CHALLENGES AND PROSPECT

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Keywords: One Health, Competencies, SOHIC, experiential learning, Senegal

Abstract: The world continues to be confronted with intricate challenges at the human-animal-environment interface, particularly with emerging and re-emerging diseases. The One Health (OH) approach provides a comprehensive and sustainable solution to the problems. Its successful implementation necessitates technical and interpersonal skills. Establishment of Students OH Innovations Club (SOHIC) and capacity building of their members is an impactful manner to address these challenges. This communication analyzes the process of setting up SOHICs, the stages and challenges involved in implementing the experience-based learning model. It also analyzes the collaborative efforts initiated to ensure the sustainability of this training model. In Senegal, following the creation of SOHICs, bringing together students from several sectors and disciplines, various field activities were conducted to enhance students' OH core competencies. The logical outcome of these training activities is to put the students in real-life scenarios. Consequently, in 2022, the identification of sites for applied learning began, and by 2023, the initial cohort of students from different universities, disciplines, and academic levels went through training focused on avian flu management. As a result, since 2016, seven SOHICs have been created and mentored in Senegal in collaboration with Global Health Security implementing partners. Students benefitted from training on leadership, communication, management of infectious zoonotic disease, and gender issues, and gained practical experience in risk communication and field epidemiology on the prioritized zoonotic diseases (PZD). The Saint-Louis region was selected as an experiential learning site for its high importance in biodiversity and because there is a strong human-animal-environment interface that plays a key role in outbreaks occurrence. These multidisciplinary training activities, uniting students from several universities, are crucial in preparing a skilled workforce to address complex health issues, like PZDs, through a One Health approach.

TRACK B:

ONE HEALTH POLICY,
COORDINATING MECHANISMS,
MULTISECTORAL PARTNERSHIP

OB-01: TOWARD GENDER EQUITABLE ONE HEALTH WORKFORCE IN SOUTHEAST ASIA

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Keywords: One Health Workforce, gender equality, occupational equality

Abstract: Even though One Health Workforce (OHW) feminizes in Southeast Asia (SEA), an increase in numbers does not translate into occupational equality for women. SEAOHUN executed an exploratory, mixed-method research aiming to understand how gender affects the experiences of young One Health (OH) professionals in the sub-region. A survey (n=228) and qualitative interviews (n=27) were conducted with students and early-career professionals who study or work in OH-related fields. The research found that women may be facing barriers to entering some OH-related careers, for example, within animal husbandry, wildlife conservation, and environmental science. These barriers may be “channelling” women who can afford postgraduate education into academia which is believed to provide more equal opportunities for men and women. However, this limits women’s occupational choices within the OHW. Universities and employers need to address gender-specific barriers, for example by providing training in communication and professional mentorship opportunities, which were found to be empowering factors for young women OHW members. The limitations of this study are related to the diverse nature of the study participants. Some countries, disciplines or industries may be under-represented. Further research can provide a deeper understanding of the challenges that women face at the onset of specific OH-related careers.

OB-02: STRUCTURING A CONCEPTUAL MODEL FOR ONE HEALTH INTEGRATION IN LEPTOSPIROSIS INTERVENTION SYSTEM IN THE PHILIPPINES: LEPTOSPIROSIS AWARENESS, WARNING, AND ACTION (LAWA) MODEL

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Keywords: Weil's disease, Leptospira, Zoonotic infectious disease, Public health intervention, One Health

Abstract: Health authorities in the Philippines have reported a significant increase in cases of Leptospirosis since an outbreak in 2020. This paper introduces the Leptospirosis Awareness, Warning, and Action (LAWA) Model, which presents a conceptual framework for integrating One Health principles into the Leptospirosis intervention system in the Philippines. The model was developed through a three-phase process, which involved defining the decision problem and objectives, conceptualizing the model based on literature review and qualitative research with communities and stakeholders, and evaluating the model's utility and practicality. The decision problem at the heart of this model focuses on the feasibility of integrating One Health principles into the Leptospirosis intervention system in the Philippines. The literature review identified 15 actual and potential interventions against Leptospirosis worldwide. These interventions were categorized according to their relevance to human, animal, and environmental interfaces. In the human interface, six interventions were identified, including disease diagnosis, treatment and vaccination, diagnosis based on social determinants, public health governance, strengthening of knowledge, attitudes, and practices, and water, sanitation, and hygiene (WASH) practices and self-protection. In the animal interface, four interventions were observed, including disease diagnosis among animals, disease management guidelines for veterinarians, rodent control, and treatment and vaccination. In the environmental interface, interventions included environmental surveillance, contamination assessment, urban planning, and wastewater treatment. A thematic analysis identified four themes related to One Health integration in the Leptospirosis intervention system: (1) Diagnostic-detection Approach, (2) Treatment, Vaccine, and Environmental Prophylaxis, (3) Stakeholder Empowerment through Education, and (4) Public Health Governance and Infrastructure. The creation of the LAWA Model was guided by the Millennium Ecosystem Assessment and anchored in the Leptospirosis intervention context in the Philippines through a Grounded Theory approach. This model aims to assist stakeholders in effectively planning and implementing inter-agency programs against Leptospirosis in the Philippines by integrating One Health.

OB-03: STRENGTHENING PRIMARY HEALTH CENTERS AND ANIMAL HEALTH CENTERS FOR ONE HEALTH IMPROVEMENT THROUGH INTEGRATED SURVEILLANCE AND MULTIDISCIPLINARY PARTNERSHIP: A CASE STUDY OF RABIES IN BULELENG REGENCY

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Keywords: Puskesmas, Puskesmas, Rabies, Buleleng, Integrated Surveillance

Abstract: In 2022, Bali reported 22 deaths due to rabies, with 13 cases occurring in the Buleleng district, totaling 8,016 bite cases. Most deaths were due to lack of awareness and insufficient reporting by the bitten individuals. To address this, an integrated reporting system involving primary health centers (Puskesmas), animal health centers (Puskesmas), sub-districts, villages, and the Rabies Alert Team (TISIRA) is necessary. This research focuses on detailing the process of creating a one health system mechanism between Puskesmas, Puskesmas, villages, TISIRA, and the community. In October 2023, the Australia Indonesia Health Security Partnership (AIHSP) and the Buleleng Regent organized a Focus Group Discussion (FGD) with Puskesmas, Puskesmas, sub-district heads, village heads, and TISIRA to adopt a one health approach. Post-FGD, Puskesmas and Puskesmas implemented a systematic reporting process from the village level with integrated coordination. Communication standard operating procedures (SOPs) were established between Puskesmas, Puskesmas, sub-districts, villages, and TISIRA to manage dog bites effectively. An evaluation of Banjar sub-district as a pilot project in June 2023 showed significant success in reporting bite cases, monitoring dogs, and administering the VAR (vaccine, anti-rabies). Bite reporting started at the village level through TISIRA and continued with follow-ups by Puskesmas and Puskesmas. These institutions collaborated on dog monitoring and VAR administration. TISIRA also educated individuals who were bitten. During the trial, bite cases decreased from 293 in July, to 223 in August, and 141 in September, with improved coordination. Data integration between Puskesmas, Puskesmas, sub-districts, and villages helped combat dog bites. Due to this success, the system expanded to 8 more sub-districts, resulting in no rabies-related deaths reported from October 2023 to April 2024. Furthermore, SOPs for communication between Puskesmas and Puskesmas were established, and mini workshops at the sub-district level further enhanced the system's effectiveness.

OB-04: COMPREHENSIVE CONSOLIDATION OF THE ONE HEALTH SYSTEM IN DENGUE HAEMORRHAGIC FEVER CONTROL THROUGH A COMMUNITY-BASED APPROACH

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Keywords: One Health, Dengue Haemorrhagic Fever, vector control,

Abstract: Dengue fever is an infectious disease caused by the dengue virus, transmitted by *Aedes aegypti* and *Aedes albopictus* mosquitoes. Semarang City is an endemic area for dengue fever, with the second-highest number of cases and deaths in Indonesia. Based on the One Health approach, the success of dengue fever control is highly influenced by the interrelatedness of relevant parties. However, there is no collaborative networking in dengue fever control that operates in the community, even though these places can potentially be vector breeding sites and places of dengue fever infection. This One Health action consists of surveys and training for cross-sectoral stakeholders in dengue vector control. Surveys are conducted to determine the presence of mosquito larvae and breeding places in public areas. Training is conducted to improve knowledge and practices for responsible parties in public places in dengue vector control. The survey results show that more than 50% of public places are positive for mosquito larvae and breeding places. 90% of training participants increased their knowledge. Evaluation results show that dengue fever cases decreased after the program implementation compared to the previous year in the same month. A community-based approach in the One Health system is the most effective step in handling dengue fever. This process can also be applied in the management of other zoonotic diseases.

OB-05: MASS DOG VACCINATION AND ANIMAL BIRTH CONTROL: A ONE HEALTH PILOT PROJECT IN KARACHI, PAKISTAN

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Keywords: dog-bite injuries, rabies, animal birth control, Southern Pakistan

Abstract: The Sindh province in Southern Pakistan reported staggering numbers of dog bite injuries. In response to these escalating dog-bite incidents, especially in Karachi and other regions of Sindh province of Pakistan, the Indus Hospital Research Center (IHRC) introduced a pilot program of One Health to prevent dog-bite injuries and associated risks of rabies. A further aim was to raise awareness about dog-mediated rabies in a fishing village in Karachi through mass dog vaccination (MDV) and sterilization of free-roaming dogs. The program was named 'Rabies Free Pakistan' (RFP). The IHRC launched a true picture of the concept, One Health. The pilot project RFP consisted of the performance of MDV and animal birth control (ABC) in a fishing village near the hospital in Karachi, Pakistan. The initial team included a medical physician, an epidemiologist, an animal behaviorist, veterinary graduates, and some research assistants, but it soon expanded to trained veterinarians, members of the civil society, and the city municipality, and received support from the World Health Organization (WHO). The local community became aware of rabies and postexposure prophylaxis, while the RFP team vaccinated 36,997 dogs and sterilized 11,397 between 2018 and 2022. Cases of dog-bite outbreaks in the field reduced considerably, and the local people reported fewer puppies in 2022. This project, in which MDV and ABC were performed programmatically for the first time in the history of Pakistan, demonstrated that MDV and ABC are technically feasible if the political will and collaborative linkages are secured. RFP is now sharing the lessons learned with decision-makers in other Pakistani provinces to ensure the scaling up of this approach.



TRACK C:

ONE HEALTH APPROACH
TO TACKLE ANTIMICROBIAL
RESISTANCE

OC-01: REDUCING ANTIBIOTICS USE IN FISH AND SHRIMP FARMING: A MIXED SOCIAL MARKETING APPROACH IN CENTRAL VIETNAM

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Keywords: Antibiotics use; Fish/Shrimp; 4Ps; One Health

Abstract: Antibiotics are widely used in aquaculture to prevent and treat fish and shrimp diseases. However, overuse fosters antibiotic-resistant bacteria, threatening human health and the environment. This study aimed to assess the impact of social marketing interventions on antibiotic use knowledge, attitudes, and practices (KAP) among fish and shrimp farmers in central Vietnam. A baseline survey will be conducted to assess farmers' knowledge, attitudes, and practices regarding antibiotics use in aquaculture. Based on the survey findings, social marketing interventions was implemented to encourage the adoption of alternative products and best practices for antibiotics use. The interventions were designed using the 4Ps framework (Product, Price, Place, and Promotion) and targeted aquaculture farmers (150 engaged in fish and shrimp farming) in 2 local areas of central Vietnam. In result, at baseline, roughly half the participants used antibiotics for both prevention and treatment in the previous year. Most used 1-2 types of antibiotics (65.8%) at the correct dosage (87.3%). Penicillin (37.5%) and Tetracyclines (35.0%) were most common. The average antibiotic use per ton of fish/shrimp was 641±378.9 kg. Food distributors were the primary source (93.7%). The baseline study identified low KAP. Compared to pre-intervention, the proportion of participants with good KAP scores increased significantly: knowledge (58.7% vs. 45.3%), attitude (51.3% vs. 23.0%), and practice (72.2% vs. 43.0%). This study suggests that social marketing interventions using the 4P framework with a One Health approach can effectively address antibiotic use and promote better practices in local aquaculture.

OC-02: A CASE OF SERRATIA SPP. MASTITIS IN A 2-YEAR OLD LACTATING HOLSTEIN X JERSEY CATTLE

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Keywords: Antibiotics, Bovine Mastitis, Ciprofloxacin, Gentamicin, *Serratia* spp.

Abstract: Bovine mastitis is a widespread and significant inflammatory disease of the mammary gland in dairy cattle typically brought by a bacterial infection and is distinguished by inflammation of the udder tissue. For dairy farmers, mastitis can result in financial losses due to the decreased milk production and quality of infected cows. A semi-commercial farm was dealing with a single lactating 350kg primiparous Holstein-Jersey cattle that presented clinical signs of mastitis such as reduced milk yield, hot and swollen udder, and an open wound on the left hind teat, which started days after its parturition last October 15, 2023. Initial medication was with an intramammary infusion of kanamycin sulphate + procaine benzylpenicillin given every 12 hours which lasted until November 4, 2023 and was discontinued due to inadequate response indicated by the purplish discoloration of the teat. A week after, blood and milk sample from the affected quarter were collected and subjected to complete blood count, bacterial isolation, and antibiotic sensitivity test via the Kirby-Bauer disk diffusion, respectively. The blood count resulted in leukocytosis, neutrophilia, and slightly low hemoglobin. The isolate was *Serratia* spp. and was subjected to antibiotic sensitivity which resulted in susceptibility to ciprofloxacin and gentamicin, and resistance to amoxicillin, cefachlor, doxycycline, fosfomycin, sulfamethoxazole, and trimethoprim. On November 12, the affected udder ruptured and due to economical reasons, only wound management was done using hydrogen peroxide, povidone-iodine, and dichlofenthion wound spray every 12 hours until full recovery 21 days after. This goes to show that conventional antibiotic therapy may not be necessary in treating bovine mastitis and that alternative methods can be employed, thus lessening on-farm use of antimicrobials.

OC-03: EFFECT OF FEEDING A *SACCHAROMYCES CEREVISIAE* FERMENTATION PRODUCT ON IMMUNE RESPONSE TO VACCINES AGAINST NEWCASTLE DISEASE VIRUS, AVIAN INFLUENZA VIRUS, AND THE PREVALENCE OF CHRONIC RESPIRATORY DISEASE AND COCCIDIOSIS IN LOCAL CROSSBRED BROILER CHICKENS IN VIETNAM

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Keywords: coccidiosis, immunity, postbiotic

Abstract: This study was carried out in a small scale poultry production system with low biosecurity in Vietnam to explore the effects of a *Saccharomyces cerevisiae* fermentation product (SCFP) on prevalence of common diseases in chickens including chronic respiratory disease (CRD) and coccidiosis and immune responses to vaccination against Newcastle disease virus (NDV) and Avian influenza (H5N1). One hundred and ninety-two 1-day-old F₁ (Luong Phuong x Local breed) chickens were assigned to 2 treatments groups. Dietary treatments included a standard basal diet (Control) and a control containing 1.25 kg/MT of Diamond V XPC™ – a *Saccharomyces cerevisiae* fermentation product (Treatment). Chickens were randomly assigned to 16 replicate pens per treatment. Blood samples were collected at 3 weeks and 10 weeks post vaccination for H5N1 titer evaluation and at 1 week and 6 weeks post vaccination for NDV titer evaluation. The antibody titers against NDV and H5N1 were measured by the Enzyme-linked immunosorbent assay (ELISA) and Hemagglutination inhibition (HI) assays, respectively. Blood samples were collected to test for CRD at 5 weeks of age by ELISA. The incidence and intensity of coccidiosis infection was evaluated by weekly oocyst counting starting from 2 weeks of age. Results showed that supplementation of SCFP did not affect the immune response to vaccination with NDV and H5N1 vaccines ($P > 0.05$). Effects of SCFP on two common diseases in chickens showed that the sero-prevalence of CRD infection was similar between treatment groups fed diets with and without SCFP supplementation, while the intensity of coccidiosis infection tended to be higher in the SCFP supplementation than the Control. Overall, supplementation of the SCFP in the diet did not affect immune response to NDV and H5N1 post vaccination, and the prevalence of CRD. However, supplementation of SCFP in the diet seemed to increase the intensity of coccidiosis.

OC-04: ANTIMICROBIAL SUSCEPTIBILITY AND MOLECULAR DETECTION OF CHLORAMPHENICOL AND BETA-LACTAM RESISTANCE AMONG SALMONELLA ISOLATES FROM POULTRY FARMS IN KELANTAN

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Keywords: AMR, Malaysia, Poultry, *Salmonella*

Abstract: Antimicrobial Resistance (AMR) is listed among the top 10 threats to global health by the World Health Organization (WHO). The emergence of AMR in *Salmonella* among poultry contributes significantly to the epidemiology of *Salmonella* infections and the challenges of antibiotic treatment. This study specifically investigates the resistance of *Salmonella* isolates to chloramphenicol and beta-lactam antibiotics. 26 isolates were collected from poultry farms in Kelantan, Malaysia, between August and December 2023. Antimicrobial susceptibility testing was performed using the Kirby Bauer Disc Diffusion method, and resistance genes *cat-1*, *cat-2*, and *blaTEM* were detected using conventional PCR. Out of twenty-six isolates tested, 19.2% (n=5/26) were resistant to Amoxicillin/Clavulanic acid, 80.8% (n=21/26) to ampicillin, and 38.5% (n=10/26) to cephalothin. Additionally, 88.5% (n=23/26) exhibited resistance to chloramphenicol. The beta-lactam resistance gene *blaTEM* was found in 61.5% (n=21/26) of samples. Furthermore, 26.9% (n=7/26) of *Salmonella* isolates possessed the chloramphenicol-resistant genes *Cat-1* and *Cat-2*. The coexistence of resistance to beta-lactam and chloramphenicol, along with the presence of their respective resistance genes, raises significant public health concerns and poses economic challenges.

OC-05: ANTIMICROBIAL RESISTANCE PATHWAYS BETWEEN HUMANS AND ANIMALS: A GSCA-SEM ANALYSIS OF KNOWLEDGE, ATTITUDES, AND PRACTICES AMONG FILIPINOS

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Keywords: Antibiotic resistance, GSCA-SEM, health science, one health

Abstract: Antimicrobial resistance (AMR) is closely monitored in the Philippines in humans, animals, and the environment. One crucial aspect of combating AMR is public awareness and education. Existing knowledge, attitudes, and practices (KAP) studies on AMR in the country provide limited information on the pathway of antimicrobial resistance between humans and animals. Our study utilized Generalized Structured Component Analysis (GSCA) to analyze the relationships among socio-demographics, knowledge, attitude, practices-environmental factors, and practices-human-animal interactions. A KAP survey completed by 1,445 Filipinos included sociodemographic profiles and KAP measures. The respondents had a mean age of 28.13 (± 13.68) and consisted mostly of females ($n=865$; 59.86%). The majority were aged 18-24 years old ($n=898$; 62.15%), single ($n=1091$; 75.50%), students ($n=805$; 55.71%), and had an annual household income of $\leq$ PHP132,000.00 ($n=918$; 63.53%). We adopted the GSCA-SEM approach to analyze the KAP responses by examining the interactions between constructs. Our model showed moderate fit, with some indices indicating excellent fit and efficiency, especially in the saturated model. The results revealed the following variables with significant positive effects: age on knowledge (Estimate=0.09267; SE=0.04333; 95%CI=0.01042,0.17461), household income on knowledge (Estimate=0.10534; SE=0.02608; 95%CI=0.05352,0.16043), knowledge on practices-environmental factors (Estimate=0.08029; SE=0.02717; 95%CI=0.02748,0.13751), and knowledge on practices-human-animal interactions (Estimate=0.23131; SE=0.02796; 95%CI=0.18292,0.28851). Conversely, the following variables had significant negative effects: age on attitude (Estimate=-0.09979; SE=0.04411; 95%CI=-0.17342,0.02316), attitude on practices-environmental factors (Estimate=-0.11116; SE=0.02871; 95%CI=-0.16327, -0.05266), and attitude on practices-human-animal interactions (Estimate=-0.0713; SE=0.02865; 95%CI=-0.13494,-0.01862). The model provides insights into the pathways of antimicrobials from the knowledge and attitudes of Filipinos in using antimicrobials to the potential development of AMR in animals through human-animal interactions and environmental contamination with antibiotics.

OC-06: COMPLETE GENOME OF AN ANTIMICROBIAL RESISTANT *ACINETOBACTER BAUMANNII* ISOLATED FROM A COMPANION CAT

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Keywords: Genome, animal, human, One Health, antimicrobial resistance

Abstract: *Acinetobacter baumannii* is a nosocomial pathogen of concern due to its ability to acquire antimicrobial resistance which complicates the treatment regime. In this study, the complete genome of a multidrug resistant *A. baumannii* was sequenced by using long-read sequencing technology (Oxford Nanopore Technologies). The *A. baumannii* UPM_AbCat1 was isolated from a companion cat in 2010. The complete genome of UPM_AbCat1 consists of a single chromosome and three plasmids. The isolate was found to encode antimicrobial genes against the four classes of antimicrobial agent: aminoglycoside (streptomycin), beta lactam (amoxicillin, ampicillin, piperacillin), folate pathway antagonist (sulfamethoxazole) and tetracycline (tetracycline and doxycycline). The Multilocus sequence typing analysis show that UPM_AbCat1 belongs to the ST2450 (Oxford scheme). Interestingly, the *A. baumannii* ST2450 has only been reported from human clinical isolates in Nigeria. The genome of UPM_AbCat1 shows that the *A. baumannii* from the companion cat is highly related to the human clinical isolates and could potentially spread from human to animal and vice versa.

OC-07: PREVALENCE OF STAPHYLOCOCCUS AUREUS IN FOOD AND NON-FOOD ITEMS, ITS ANTIMICROBIAL RESISTANCE, AND HYGIENE PRACTICES OF FOOD HANDLERS FROM OPEN MARKETS IN YANGON, MYANMAR

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Keywords: Antimicrobial resistance, Food Hygiene, Open markets, *Staphylococcus aureus*

Abstract: *Staphylococcus aureus* (*S.aureus*) is the common cause of food poisoning, gastrointestinal illness, and its antibiotic resistance (AMR) poses a severe threat to public health. This study aims to find *S.aureus* prevalence and AMR patterns in food and non-food samples taken from food shops of open markets and assess the hygienic practices of the food handlers. A cross-sectional study was conducted at sixteen open markets from Yangon in 2022. The study included 75 food handlers and a total of 150 samples consisting of one food and one non-food sample (dish) from each shop. *S. aureus* colonies were identified by Gram's stain and Vitek2-GP-ID card, and antibiotic susceptibility was done by Vitek2-AST-GP-67 card. STATA vs 15.1 was used for data analysis and Chi-square test with $p < 0.05$ was applied. *S.aureus* was found in 4% of food samples and 5.3% of non-food samples. Regarding bacterial contamination, 60% of food samples were unsatisfactory and 73.3% of non-food samples were very contaminated. In food samples, drug resistance to azithromycin, erythromycin, clindamycin, and lincomycin was found. Meanwhile, there was resistance to benzylpenicillin and tetracycline in both food and non-food samples. Food hygiene practices were good in 57.3% of food handlers. Although there was no significant association between *S.aureus* prevalence and food handler hygiene practices, positive isolates were found more in food and non-food samples taken from the shops of food handlers with poor food hygiene practices. In conclusion, the findings pointed out the need for continuous monitoring of bacterial contamination in ready-to-eat foods sold in open markets to prevent unanticipated food-related illnesses. In addition to food handlers' hygiene, water used for cleaning and cooking purposes, and touch surfaces like tables and chairs close to the food that may cause bacterial contamination in food and non-food items should be analyzed in further studies.

OC-08: MOLECULAR DETECTION AND ANTIBIOGRAM OF ESCHERICHIA COLI ISOLATED FROM MALAYAN PORCUPINE (HYSTRIX BRACHYURA) IN PENINSULAR MALAYSIA

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Keywords: Antimicrobial resistance, carbapenem-resistant *E. coli*, extended-spectrum β -lactamase producing *E. coli*, multidrug-resistant *E. coli* and porcupine

Abstract: The recent emergence of antimicrobial-resistant bacteria, such as *Escherichia coli* (*E. coli*) in wildlife animals poses a significant concern. In Malaysia, there is a growing interest in breeding porcupines for both meat production and recreational purposes. However, there is limited data on the prevalence and antimicrobial resistance (AMR) status of *E. coli* in porcupines in Malaysia. This study aims to determine the prevalence, antibiogram, and antimicrobial resistance gene profiles of *E. coli* isolated from Malayan porcupines in Terengganu. A total of 69 fecal swab samples were collected from 64 Malayan porcupines and 5 brush-tail porcupines from selected porcupine farms in Peninsular Malaysia. After bacterial isolation and incubation, genotypic identification of *E. coli* was performed using PCR targeting the 16S rRNA gene. The antibiogram of *E. coli* isolates was determined using the Kirby-Bauer disc diffusion method. *E. coli* isolates resistant to three or more antibiotics groups were classified as multidrug-resistant *E. coli* (MDREC). In addition, the prevalence of *bla*CTX-M1, *bla*NDM, and *bla*OXA genes among *E. coli* isolates was also assessed. In this study, approximately 64% of the sampled Malayan porcupines were found to carry *E. coli* isolates, while 40% of brush-tail porcupines tested positive for *E. coli*. More than one-third of the *E. coli* isolates showed resistance to ertapenem (48.8%), ceftiofur (39%), and tetracycline (39%). MDREC was observed in 39% of *E. coli* isolates. Screening for the *bla*CTX-M1 gene revealed the presence of extended-spectrum β -lactamase (ESBL)-producing *E. coli* in 2% of the isolates. Additionally, 10% of *E. coli* isolates carried the *bla*NDM gene, indicating the presence of carbapenem-resistant *E. coli* (CREC). This study highlights the presence of antimicrobial-resistant *E. coli* strains, including ESBL-producing *E. coli*, CREC, and MDREC among Malayan porcupines in reared in Peninsular Malaysia.

OC-09: EFFECT OF FEEDING A SACCHAROMYCES CEREVISIAE FERMENTATION PRODUCT ON PATHOGENIC AND ANTIBIOTIC RESISTANCE BACTERIA IN CROSSBRED BROILER CHICKENS

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Keywords: antimicrobial resistance, *Saccharomyces cerevisiae*

Abstract: The purpose of this study was to explore effects of dietary inclusion of a *Saccharomyces cerevisiae* fermentation product (SCFP) on bacterial pathogens (*E. coli* and *Salmonella*) and associated antimicrobial resistance (AMR) in chickens raised in a sector 3 production system in Vietnam. One hundred ninety-two 1-day-old F1 (Luong Phuong x Local breed) chickens were assigned to 2 treatment groups. The treatments were: 1) a standard basal diet (Control) and 2) a standard basal diet containing 1.25 kg/MT of SCFP (treatment). Chickens were randomly assigned to 16 replicate pens/treatment, 6 chickens per pen. Fecal samples were collected individually 3 times; at 1, 42, 85 days of age for enumeration of *E. coli* and isolation *Salmonella*. The *E. coli* and *Salmonella* strains were tested for AMR against 15 antibacterial agents using the disk diffusion method and for the presence of antimicrobial resistance genes (ARGs) using polymerase chain reaction (PCR) method. Chickens supplemented with SCFP showed significantly lower *E. coli* counts (log CFU/g) compared to chickens in the control group at 85 days of age ($P = 0.04$). Meanwhile, the frequency of *Salmonella* colonization was similar between the two treatments. There were no differences in the level of AMR of *E. coli* and *Salmonella* in the chicken's fed diets with or without SCFP supplementation ($P > 0.05$). Overall, dietary supplementation of the SCFP did not affect to the frequency of *Salmonella* colonization, and level of AMR of *E. coli* and *Salmonella*. However, dietary supplementation of the SCFP reduced the *E. coli* counts at 85 days of age.

OC-10: MOLECULAR ODYSSEY ON UNLOCKING LOCAL WISDOM POTENTIAL OF GREEN TEA AGAINST ZOONOTIC ESCHERICHIA COLI O157:H7: AN ALTERNATIVE ANTIMICROBIAL THERAPY

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Keywords: Green tea, Epigallocatechin-3-gallate (EGCG), *E. coli* O157:H7, Virulence factors

Abstract: *Escherichia coli* O157:H7, a zoonotic pathogen, poses significant public health concerns worldwide due to its association with foodborne illnesses. In this study, we investigate the local wisdom potential of green tea as a natural remedy against *E. coli* O157:H7 infections. Green tea, known for its diverse bioactive compounds and traditional medicinal uses, presents an intriguing avenue for combating zoonotic pathogens resistant to antibiotics. This study aimed to explore the untapped potential of local wisdom surrounding green tea especially its major bioactive compound, epigallocatechin-3-gallate (EGCG), in combating *E. coli* O157:H7. Using a range of bioinformatics tools including STITCH v.5.0, VICMPred, and VirulentPred, we identified key protein targets, elucidated their functional roles, and characterized their virulence properties in *E. coli* O157:H7. Furthermore, BepiPred v.2 software was utilized to predict peptide epitopes of virulence factors, while PSORTb v.3 was employed to analyze their subcellular localization. The findings revealed that EGCG interacts with several crucial virulence factors of *E. coli* O157:H7, including DNA cytosine methyltransferase (ECs1953), serine/threonine-protein kinase (Z1444), and hydroxyisourate hydrolase (hiuH), which play important roles in bacterial cell survival and metabolic processes. In conclusion, this bioinformatics analysis provides substantial insights into the antipathogenic mechanisms of green tea against *E. coli* O157:H7. However, further experimental validation using *in vitro* and *in vivo* approaches is necessary to confirm the predicted pathways and their effectiveness.

OC-11: DRAFT GENOMES OF ANTIBIOTIC-RESISTANT STAPHYLOCOCCUS AUREUS AND STAPHYLOCOCCUS PSEUDINTERMEDIUS ISOLATED FROM CANINES IN VIETNAM

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Keywords: genome, antibiotic resistance, *Staphylococcus*, dog, Viet Nam

Abstract: Staphylococci are commensal and opportunistic pathogens in humans and dogs. Superbug staphylococci are threatening both human and animal health globally. Investigating the genetic properties of *staphylococci* is important for monitoring antibiotic resistance. This study is the first to investigate the genomes of staphylococci isolated from dogs with diseased skins and sores in Vietnam and assess their genetic aspects related to antibiotic resistance profiles, virulence factors, plasmids, and their relatedness to other strains of *Staphylococcus* worldwide using bioinformatic approaches. *S. aureus* SB2.2, *S. pseudintermedius* RB10.2 and SB24 were selected for whole-genome sequencing (WGS) using MGI sequencing platform. An analysis using PubMLST typing database found that SB2.2 belonged to sequence type (ST) 188, clonal complex (CC) 1, RB10.2 belonged to ST733, and SB24 was assigned a novel ST2738 by PubMLST. Over 15 antibiotic resistance genes were detected in each genome. Among those, 7, 5, and 4 genes are plasmid-mediated in the SB2.2, RB10.2, and SB24 genomes, respectively. Both strains contain AAC(6')-Ie-APH(2'')-Ia, *ErmB*, *mecA*, *blaZ*, *sdrM*, *sepA*, and *tet(45)* that allow them to resist common antibiotics such as aminoglycosides, macrolides, lincosamides, streptogramins, beta-lactams, fluoroquinolone, and tetracycline. 55, 18, and 20 virulence genes were also detected in the genomes of SB2.2, RB10.2, and SB24, respectively. The most common virulence genes are associated with the virulence factors autolysin, fibronectin-binding proteins, intercellular adhesin, lipase, thermolysin, *adsA*, capsular polysaccharide synthesis, and leukotoxin D. Phylogenetic tree analysis involving 791 genes from 180 *Staphylococcus* genomes demonstrated that SB2.2 was genetically related to human *S. aureus* SA86 from Vietnam and FORC59 from South Korea, and RB10.2 was clustered with canine *S. pseudintermedius* strains worldwide and human *S. pseudintermedius* AP20 from Thailand. These findings highlighted the emergence of complicated multi-drug-resistant and zoonotic *Staphylococci* in Viet Nam, underlining the importance of the One Health approach to tackle antimicrobial resistance and zoonotic transmission.

OC-12: 7 YEARS, 2 PHASES, ONE HEALTH: AN UPDATE ON ONE HEALTH IN AMR AS THE FLEMING FUND ENTERS PHASE II (2023-2025)

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Keywords: Fleming Fund, antimicrobial resistance, One Health approach

Abstract: The Fleming Fund, launched in 2016, is the largest global initiative focused on tackling antimicrobial resistance (AMR) through a One Health approach, particularly in low- and middle-income countries (LMICs) in Asia. This presentation will provide a concise overview of the Fund's progress across its two phases, with a focus on the significant insights gained as Phase II (2023-2025) unfolds. We will explore what these investments reveal about AMR trends in One Health across Asia, identifying both the successes and challenges faced in Phase I (2017-2023), where over 200 human and animal health sites were supported, and more than 180 Fleming Fund fellows were developed. We will then discuss the new opportunities and limitations that governments, implementing organizations, and funders encounter as they navigate the complex landscape of AMR, now expanded to include critical sectors such as WASH, the environment, and aquaculture. Finally, the session will delve into how we can better anticipate and understand the future of AMR in this pivotal year, offering practical insights and strategies to inform ongoing and future efforts. This presentation aims to equip participants with the knowledge needed to address these pressing questions, ensuring that they are better prepared to contribute to the global fight against AMR.

OC-13: THE FLEMING FUND COUNTRY GRANT'S ONE HEALTH APPROACH TO TACKLE ANTIMICROBIAL RESISTANCE IN NEPAL

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Keywords: Antimicrobial Resistance, One Health, Fleming Fund Nepal

Abstract: Antimicrobial resistance (AMR) presents a significant global health challenge necessitating collaborative approaches. However, in Nepal, navigating a multisectoral governance framework presents hurdles. The Fleming Fund Country Grant for Nepal (FFCGN) adopts a One Health model, focusing on strengthening surveillance systems for AMR and antimicrobial use (AMU) across the environment, food, human, and animal health sectors. FFCGN supports the enhancement of the multisectoral governance structure crucial for containing AMR through intersectoral collaborations and coordination. The initiative strengthens interdisciplinary collaborations in all phases from initiation to dissemination of findings, involving stakeholders such as government agencies, healthcare institutions, veterinary services, pharmaceutical industries, and professional associations. Capacity building for laboratory strengthening mobilizes resources from established surveillance systems to support new sectors. The collaborative effort resulted to the development of the National Action Plan for AMR, with active participation from multisectoral stakeholders, facilitated the revitalization of AMR surveillance system in human health and establishment of AMR surveillance systems in animal, and food sectors, along with AMU and AMC surveillance in human and animal sectors. Cross-sectoral data sharing yielded recommendations and policy changes for AMR containment, with evidence from surveillance widely utilized for local and national policy recommendations, community engagement, and education on the importance of One Health cooperation in combating AMR. These experiences provide insights into effective One Health approaches for addressing the governance hurdles in AMR. Nepal's journey, achievements, and challenges contribute to shaping future directions in the global context of AMR containment.

TRACK D:

COLLABORATIVE APPROACH TO
EMERGING AND RE-EMERGING
INFECTIOUS DISEASES

OD-01: DEVELOPMENT OF NATIVE LANGUAGE STORYBOOKS TO RAISE AWARENESS OF HEALTH RISKS FROM WILDLIFE TRADE AMONG ELEMENTARY SCHOOL STUDENTS IN INDONESIA

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Keywords: Wildlife, Native Language, Storybooks

Abstract: Wildlife trade poses health and environmental risks, including zoonotic disease transmission. Limited public awareness, especially among elementary students, poses significant challenges in preventing this matter. To build knowledge and awareness in this demographic, it is crucial to create educational materials that are culturally and linguistically relevant. Additionally, integrating the One Health approach could enhance children's comprehension of the issue. From July to November 2023, five trilingual storybooks were crafted in Native, Indonesian, and English languages, targeting specific provinces: Bali, Aceh, Yogyakarta, East Java, and Papua. The activities carried out include the writing and illustrating phase, the storytelling phase, and the evaluation phase. Participants in the storytelling phase included students in grades 3 to 6, aged 8 to 12 years old, selected from designated schools in each province. During the writing phase, each region selected a local animal as the story's protagonist, with input from human, animal, and environmental health experts as writing consultants. Challenges arose during translation due to a shortage of certified regional language translators. The next phase was storytelling events, which were done as a way of conveying the message in the book to the beneficiaries. Each region was free to choose the storytelling style that was used to tell the story, such as using Wayang, Puppet Theatre, and Drama media. As an evaluation, pre and post-tests were conducted to gauge changes in students' knowledge following storybook reading and storytelling sessions. In conclusion, the application of native languages in developing kids-friendly education material can be one of the alternatives to raising awareness of the risks of wildlife trade. Carefully paying attention to the delivery of mother languages in the book can provide children with a better understanding of the issue and raise awareness around it.

OD-02: THE USE OF ONE HEALTH APPROACH FOR PREPAREDNESS AND RESPONSE TO AVIAN INFLUENZA OUTBREAKS IN CAMBODIA: A SYSTEMATIC REVIEW

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Keywords: Avian Influenza, One Health, Outbreak preparedness and response, Zoonosis, and Cambodia

Abstract: Avian Influenza remains a significant challenge for both human and animal health in the ASEAN. In Cambodia, sporadic virus cases have been reported in humans in contact with poultry. Notably, the highly pathogenic H5N1 virus was not detected for nearly a decade until 2023, when six confirmed human cases were reported, resulting in four fatalities. Despite recognizing the potential of the One Health approach to respond to the outbreak, the interagency collaboration among various government stakeholders in Cambodia remains a challenge. Our study aimed to review Cambodia's preparedness and response to avian influenza outbreaks, evaluate One Health activities, and identify the potential gaps to be addressed. The systematic review complied with the PRISMA guidelines. Published articles were searched in five electronic databases: PubMed, Scopus, Embase, Web of Science, and CINAHL. Additional searches of the reference lists of relevant papers and grey literature from other sources will also be conducted. The systematic search will include all Avian Influenza virus subtypes, both HPAI and LPAI, and all avian species. All studies related to Avian Influenza in Cambodia, except for clinical or laboratory research, descriptive reviews, commentaries, case reports, editorials, and letters, will be included in our study. Search results will be combined and deduplicated using EndNote X8. A Tripartite Guide to Addressing Zoonotic Diseases in Countries will be used as a template for data analysis. The primary expected outcome will be identifying gaps to be addressed to enhance preparedness and response to Avian Influenza outbreaks nationwide using the practical One Health approach. Results will be available in mid-2024. This study's findings hold significant potential for improving the use of the One Health Approach to address gaps in Avian Influenza outbreak preparedness and response in Cambodia, aiming to contain the cases and move towards eradication.

OD-03: KNOWLEDGE, ATTITUDE, AND PRACTICES (KAP) STUDY TOWARDS ANTHRAX DISEASE IN SOUTH SULAWESI AND WEST SULAWESI PROVINCES, INDONESIA

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Keywords: Anthrax, KAP study, Sulawesi

Abstract: Anthrax is categorized as a zoonotic and strategic disease in Indonesia. This disease is endemic in South Sulawesi and West Sulawesi Provinces. This study aims to determine the level of knowledge, attitude and practice of farmers towards anthrax disease in South Sulawesi and West Sulawesi Provinces. This study used a case-control approach, as many as 222 farms consisting of 81 case farms and 141 control farms from eight regencies were taken as samples. Data analysis used for risk factor study were univariate and bivariate (Chi-square). Measurement of the level of knowledge, attitude, and practice of farmers in South Sulawesi and West Sulawesi using bivariate analysis showed that attitude (OR = 1.9; 95%CI 1.026 – 3.770); practice (OR = 4.8; 95%CI 2.667 – 8.683) ;and the combination of low to moderate all KAP values (OR = 5.145; 95%CI 2.683 – 9.266) had a significant relationship with the incidence of anthrax in South Sulawesi and West Sulawesi Provinces. Significance association shown between low formal education to the poor of anthrax knowledge based on bivariate analysis (OR = 1.9; 95%CI 0.993 – 3.783). The study findings suggested that intervention such as public awareness based on each local wisdom should be conducted to improve the gap among farmer regarding to anthrax disease in South Sulawesi and West Sulawesi provinces that could lead into other positive impact of other infectious disease control program in the region.

OD-04: SCHISTOSOMA JAPONICUM INFECTION RATE OF FIELD RATS IN SELECTED BARANGAYS OF GONZAGA, CAGAYAN, PHILIPPINES

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Keywords: *Schistosoma japonicum*, Field rats, Histopathologic lesions

Abstract: The study investigated the extent of *Schistosoma japonicum* infection in field rats in Gonzaga, Cagayan. It aimed to determine the schistosome infection rate of the field rats, categorize them to sex, identify the barangays with infected rats, determine the schistosome load and describe the microscopic features of the mesenteric veins of the infected rats. Rat traps with coconut as bait were set in 10 barangays of Gonzaga, Cagayan with 4 sites 15-20 meters apart from each other per barangay. The traps were set near small and shallow bodies of water with identified *Oncomelania quadrasi* snails and rat burrows. The dorsal aorta was slowly injected with NSS to facilitate perfusion. The mesenteries were massaged while pumping NSS to the dorsal aorta and blood exiting the vein was placed in a sieve to check for schistosomes. Three representative sections of the mesenteric veins were collected from each positive captured field rat. Samples were processed using the routine paraffin technique and stained with H&E stain to examine the different tunics. Twenty-five percent (25%) of the captured field rats were found to be infected with adult *S. japonicum*, all of which were females. Rats were infected with single sex adult male schistosomes. Barangays Magrafil, Santa Maria, and Tapel recorded positive rats wherein highest *S. japonicum* load per field rat was observed in Santa Maria with three (3) adult worms. Microscopic evaluation of the 25 mesenteric veins revealed that 19% of the veins have sloughed off tunica intima, 48% have thickened tunica media and 24% have tunica adventitia infiltrated by mononuclear cells. These findings prove that field rats in Gonzaga, Cagayan are infected with *S. japonicum* and can serve as multiplier hosts of schistosomiasis among humans and animals in the municipality and the parasite causes histopathologic lesions in their mesenteric veins.

OD-05: BAT GUANO FARMING AND ZOO NOTIC DISEASE RISK REDUCTION IN KANG MEAS DISTRICT, CAMBODIA

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Keywords: Bat guano farming communities, Zoonotic diseases, Community-driven risk reduction, Social behavioral change, Spillover risk

Abstract: Bat guano, a valuable fertilizer, can transmit zoonotic diseases to animals and humans. In Cambodia, bat guano farming is a long-standing practice and alphacoronaviruses have been found in bat waste and on household surfaces. This may pose a health risk for bat guano producers (BGPs) and their neighbors (non-bat guano producers, or NBGPs). Women are particularly vulnerable because they do most of the guano collection with limited use of safety measures. The objective of this research was to explore ways that BGPs and NBGPs can protect themselves with feasible and acceptable practices that minimize bat-human contact and safeguard against zoonotic disease transmission. In August 2023, 13 BGPs and 10 NBGPs participated in a three-week “Trials of Improved Practices” (TIPs) implementation. These TIPs introduced and monitored seven community-chosen risk reduction behaviors, during three visits. The first visit assessed existing practices and introduced modifications. Subsequent visits tracked progress and assessed participant experiences, changes implemented, support needed, and family intentions to continue the practices. The BGP and NBGP households demonstrated that with their own resources they can make important changes in biosafety and hygiene practices. The motivating factors were reduced bat waste odor, minimized dust inhalation, and improved family wellbeing. The challenges, however, remained due to limited access to personal protective equipment and some discomfort associated with its use. Participants also expressed commitment to continue these practices due to health benefits and reduced risk of viral transmission. Behavioral change is fundamental to reducing spillover of zoonotic disease from animals to humans. This study highlights the effectiveness of community-driven and tested solutions in mitigating risks related to bat guano farming. By promoting socially, economically, and culturally acceptable risk reduction behaviors, the trials yielded promising results, empowering the bat guano communities to protect themselves from zoonotic disease spillover risks.

OD-06: ONE HEALTH APPROACH TO CASE INVESTIGATION OF HUMAN BRUCELLOSIS AND Q FEVER CO-INFECTION, CHAI NAT, THAILAND, 2022

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Keywords: brucellosis, Q fever, One Health Approach, case investigation, Thailand

Abstract: The Division of Epidemiology received notification on September 22, 2022, of a confirmed case of brucellosis and Q fever co-infection in a 64-year-old male goat farmer. Employing the One Health approach, this investigation aimed to confirm the outbreak, characterize the index case, estimate the outbreak's magnitude, identify contributing factors, and provide recommendations. Medical reviews and interviews were conducted among index case, households, and index case's farm. Tracing the goat contact chain and interviews with the owners were conducted. Active case findings among humans and animals were performed within a 3-kilometer radius of the index case's farm and the goat contact chain. Human sera and goat specimens were collected for testing brucellosis and Q fever testing. Environmental observations in farm and village areas assessed infection risks. The index case reported low back pain since June 2021, with an MRI in September 2022 revealing spondylodiscitis and bilateral psoas abscesses. Blood hemoculture was detected *Brucella* spp. during surgical admission, while bone cartilage tested positive for *Coxiella burnetii*. Risk factors included goat secretions exposure during delivery without adequate protection before onset. Active case findings identified 8 suspected and 7 probable cases of human brucellosis, 5 probable cases of human Q fever, and 1 suspected human co-infection. Moreover, the index case's farm exhibited 23 cases of goat brucellosis and 5 cases of Q fever, with one contact farm testing positive for brucellosis in 5 goats. Free-ranging goat farming and shared pastures without biosecurity standards were observed. Moreover, Q fever is not listed under the human and animals' national surveillance. This is the confirmed brucellosis and Q fever co-infection outbreak linked to animal illnesses on goat farms, surveillance for Q fever in humans and animals should be established. Encouraging goat farms to adhere to biosecurity standards, implement proper farm management, and raise awareness about self-prevention measures should be promoted.

OD-07: MAPPING THE IMPACT OF CLIMATE VARIABILITY ON LEPTOSPIROSIS TRANSMISSION IN SEMARANG CITY: A SPATIO-TEMPORAL ANALYSIS (2019-2023)

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Keywords: Leptospirosis, Spatio-Temporal, climate change

Abstract: Amidst the increasing global climate change, Semarang City faces new challenges in controlling leptospirosis, which is vulnerable to changes in rainfall patterns and temperature. Limited knowledge of how climate change affects the spatio-temporal patterns of leptospirosis transmission necessitates comprehensive analysis from 2019 to 2023 to identify the relationship between climate variability and case distribution. One hundred ninety-four cases (2019-2023) in Semarang City were mapped using GPS and ArcView and then interpreted with spatial analysis. The R program was employed to analyze temporal data with a 1–3-month time lag. The majority of cases were male (69.6%). Spatial analysis indicated that most cases were in low-lying areas (<47 masl, 85.1%), with poor wastewater disposal facilities (81.4%), densely populated housing (72.2%), high rainfall (>220 mm/month), the presence of rats around the house (100%), flood profile (85.05%), and poor waste conditions (67.5%). Minority cases were found in tidal water profile areas (22.2%) and the presence of vegetation (10.8%). Over the past five years, there has been a significant relationship and symmetry between temporal patterns and cases, wherein an increase in rainfall at lag 2, humidity at lag 1, and floods at lag 1 led to an increase in leptospirosis cases. Cross-sectoral cooperation is vital in concluding integrated prevention and control measures, including improving sanitation infrastructure, environmental monitoring, and rodent population management, to reduce the risk of leptospirosis transmission influenced by climate change.

OD-08: DEVELOPING AN INTERACTIVE RABIES DATA DASHBOARD IN SOUTHEAST ASIA USING POWER BI AS PLATFORM

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Keywords: Rabies, dashboard, Southeast Asia

Abstract: The importance of data in disease management is undeniable. Currently, there is an apparent inclination for structured datasets and visually appealing graphics, highlighting the importance of tools like Microsoft's Power Business Intelligence (BI) software. This paper showcases the development of an interactive Rabies dashboard utilizing datasets sourced from Southeast Asia, led by World Organisation for Animal Health (WOAH) Animal Health Officer and assisted by an intern (funded by SEAHOHUN) without prior exposure to PowerBI. Rabies dataset spanning from 2016 to 2023 from various sources, was compiled within a Microsoft Excel worksheet. Organized into variables, the dataset was processed into an interactive dashboard-style presentation using Power BI Desktop Version 2.124.2028.0 64-bit. Spot and heat maps were then generated within Power BI, utilizing a Mapbox with WOAHO access token and basemap links. Once validated, the Rabies situation in Southeast Asia dashboard will be shared with Member countries. The dashboard offers a comprehensive overview of Rabies outbreak information in the region, presented through spatial and temporal distribution, spot and heat maps, and affected species. Its user-friendly interface includes filters and an instruction sheet for seamless usability. Users can filter information by country, reporting year, location, and affected animal type. This initiative not only highlights the power of data visualization but also underscores the importance of collaboration between organizations like WOAHO, member countries, and SEAHOHUN. Microsoft Power BI offers a user-friendly platform for visualizing disease data, making it accessible even to those with limited experience, provided they have basic skills on Microsoft Excel. This facilitates the creation of interactive websites presenting Rabies information in a clear and easily understandable format, thereby offering valuable insights to member countries.

OD-09: INTERDISCIPLINARY PERSPECTIVE: ENTOMOLOGICAL PARAMETERS, REMOTE SENSING, AND GEOGRAPHICAL INFORMATION SYSTEMS (GIS) FOR DENGUE SURVEILLANCE

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Keywords: *Aedes*, Dengue, Mapping, GIS

Abstract: Dengue fever poses a significant public health challenge in Udupi taluk, Karnataka, India, due to favourable climatic conditions and urbanisation, leading the dengue virus to replicate and transmit through the vector *Aedes* mosquito. This study aimed to conduct dengue vector surveillance to understand the transmission dynamics and identify potential breeding sources of *Aedes* mosquitoes. A cross-sectional study using the grid sampling method (5X5 km), 28 locations (each location represents 20 house surveys) were marked and mosquito larval sampling was carried out (as per WHO guidelines) and geocoordinates were recorded during post-monsoon season. Environmental variables (Temperature, Humidity and rainfall) were recorded during larval survey. Remotely sensed satellite imagery for our study area was classified to determine the land use/land cover (LULC). Among all the 28 locations, i.e. 560 house surveys and mosquito collections, *Aedes aegypti* and *Aedes albopictus* accounted for 17.7% and 43.36%, respectively. Larval density mapping using GIS determined high densities of *Aedes* species around the boundaries of the study area due to water storage along the sea shoreline. Other locations had Pineapple cultivations and Rubber plantations assumed to be a potential breeding source. For each of 28 locations the larval indices i.e. House index (HI), Container index (CI) and Breteau index (BI) were determined. The study recorded an average temperature of 25.29°C, average humidity of 80.95%, and intermittent rainfall. The land use and land cover (LULC) classification revealed the presence of seven distinct classes, each with its corresponding area. Spatial Geographic Information System (GIS) analysis highlighted hotspots and cold spots of mosquito breeding, emphasising the need for targeted vector control measures. Multi-seasonal data collection and constant monitoring of climatic conditions are crucial for understanding dengue transmission dynamics and informing prevention strategies. This study underscores the importance of targeted surveillance and aids in predictive intervention efforts with an interdisciplinary approach to mitigate the burden of dengue fever in the region.

OD-10: ZOONOTIC MALARIA, MORE THAN JUST MONKEYS - THE NEED FOR A COLLABORATIVE APPROACH

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Keywords: *Plasmodium knowlesi*, Macaque, Zoonotic malaria, Landuse

Abstract: Monkey malaria, *Plasmodium knowlesi*, is a zoonotic form of malaria whose natural host is macaque monkeys (*Macaca fascicularis* and *Macaca nemestrina*). The infection of humans with *P.knowlesi* has been associated with changes in landuse. In order to understand how and where the parasite is transmitted a multi-disciplinary approach is required. The ZooMal project is a collaboration between Australian and Indonesian universities covering a range of disciplines including public health, parasitology, social science, entomology, geography and primate ecology. In order to determine how and where the parasite is transmitted in Indonesia the project is examining how landuse is changing and what impact that is having on how people, macaques and mosquitos use the environment. The project has used motion triggered cameras to map macaque and human occupancy across a variety of landscapes. Preliminary results show that Long-tail macaques occupy a sub section of Pig-tail macaque habitat, and that there is substantial overlap with human use of the landscape. This has allowed us to highlight high risk areas when humans and macaques overlap. This occupancy data will be combined with mosquito capture data to determine which landuses and parts of the landscape pose the highest risk for humans in respect to *Plasmodium knowlesi*.

OD-11: SPATIAL ASSESSMENT OF NIPAH VIRUS TRANSMISSION IN BALI PIG FARMS USING MULTI-CRITERIA DECISION ANALYSIS

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Keywords: Nipah Virus, pigs farm, MCDA

Abstract: Nipah virus (NiV) is a highly pathogenic virus with significant zoonotic potential, primarily transmitted from bats to pigs and subsequently to humans. Bali, with its dense pig farming communities and large bat habitats such as Goa Lawah and Gua Sri Jong, presents a high-risk area for NiV transmission. This research aims to spatially assess the transmission risk of NiV in Bali's pig farms using Multi-Criteria Decision Analysis (MCDA). From a One Health perspective, this research benefits human, animal, and environmental health by identifying high-risk areas and implementing integrated strategies to prevent NiV outbreaks. Experts have identified three main risks for NiV transmission in pigs. These include: i) the proximity of pig habitats to bat colonies; ii) intermediate host factors such as the health condition and pig population; and iii) environmental factors such as farming practices, type of pig enclosures, proximity to fruit trees, proximity to water bodies, proximity to human settlements, and human population density in the area. We used MCDA to rate these factors, giving them scores based on how much they contributed to the spread of NiV from bats. We collected data from the Bali Provincial Livestock Office and conducted direct field surveys, particularly in areas near bat habitats. After analyzing and evaluating all factors using MCDA, we used Geographic Information Systems (GIS) to demonstrate the interactions between them. The high-risk locations that emerged were primarily concentrated in three villages in the Dawan area, where bat colonies were present. The study area investigated the ease of NiV transmission in pig farms, revealing levels ranging from very low to high suitability. Using risk-based monitoring in high-priority areas can make it easier to find NiV and other bat-borne diseases, as well as allow for optimal allocation of financial resources towards disease surveillance.



TRACK E:

LABORATORY
CAPACITY
STRENGTHENING

OE-01: REGIONAL PUBLIC HEALTH LABORATORY NETWORK [RPHL NETWORK]: A COUNTRY-DRIVEN WORKPLAN ON CAPACITY BUILDING DEVELOPMENT FOR LABORATORY SYSTEM IN ASIA PACIFIC [2023-2027]

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Keywords: Regional Public Health Laboratory Network, lab capacity building, situational assessment

Abstract: Formulated under GHSA auspice, the Regional Public Health Laboratory Network (RPHLN), is a responsive laboratory network represented by national public health laboratories of 14 countries members [ASEAN Member States, Nepal, Timor-Leste, Papua New Guinea, Pakistan] for efficient and reliable health laboratory systems in Asia Pacific. **Action:** In addressing the two strategic objectives of the RPHL Network: 1) Facilitate capacity building and 2) Build knowledge management platform among members and others, a Situational Assessment for capacity building development was conducted in December 2022 with two objectives: to inform more targeted and tailored interventions; and to identify and leverage country capacity strengths and opportunities for interventions. This assessment was a joint collaboration of the RPHL Network with key development partners including CHAI, FIND, US CDC, WHO, and the Global Fund. **Impact:** A country-driven workplan on Capacity Building Development [2023-2027] promoting peer-to-peer and south-south cooperation within the Network. **Focus areas:** Laboratory workforce, Biosafety, Biosecurity and Waste Management, Laboratory Emergency Plan, Integrated/Optimized Network, Sample Transport and Point-of-Care Testing (POCT), and One Health, Surveillance and AMR including Sequencing and Bioinformatics. The report is available at RPHL Network (therphl.net). RPHL Network Secretariat is commissioned under the Department of Medical Sciences, Ministry of Public Health, Thailand, email: rphlnetwork@gmail.com

OE-02: ONE HEALTH GENOMIC SURVEILLANCE IN THE POST-COVID-19 ERA: OPPORTUNITIES AND CHALLENGES

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Keywords: Genomic epidemiology, sequencing, genome, infectious diseases, NGS

Abstract: During the COVID-19 pandemic, genomic surveillance of SARS-CoV-2 by using next-generation sequencing (NGS) becomes an integral component for studying the viral evolution and identification of new variants so that mitigation strategies can be carried out efficiently. Globally, all the countries have invested handsomely on the setting up the sequencing facilities which enable rapid tracking and monitoring of COVID-19 with more than 16 million of genomic sequences of SARS-CoV-2 have been deposited into Global Initiative on Sharing All Influenza Data (GISAID). This is the first time a large amount of a viral genome has been sequenced and made available in such a short duration of time (~4 years). The importance of genomic surveillance is undebatable, and the availability of sequencing facilities has offered an opportunity to conduct genomic surveillance for other pathogens including bacteria and parasites at One Health interfaces (animal, human and environment). However, the lack of resources and knowledge in expanding the applications of NGS especially for One Health genomic surveillance may hamper the sustainability of genomic surveillance after the COVID-19 pandemic. In this study, we provide an overview of One Health genomic surveillance with an emphasis on utilizing existing sequencing facility and provides guidance on how to successfully adopt and implement One Health genomic surveillance. With proper planning, the adoption of One Health genomic surveillance for tracking various infectious diseases is realizable.

OE-03: LESSONS LEARNED IN DEPLOYING CONTAINERIZED LABORATORIES IN THE PHILIPPINES

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Keywords: One Health, Lessons Learned, Containerized Laboratories, Philippines

Abstract: Containerized laboratories have emerged as innovative solutions to address healthcare infrastructure challenges, particularly in resource-constrained settings like the Philippines. SciLore LLC, ENDEC Inc., and Global Medical Technologies in a joint venture (SEG-JV) offered a flexible, adaptable solution by providing a BSL-2 laboratory fabricated from a standard 40-foot ISO shipping container as part of the COVID-19 response effort. These self-contained facilities were equipped with a generator set, water tank, essential diagnostic equipment with a preventive maintenance contract, and an initial inventory of consumables. To ensure rapid utilization of the laboratories, SEG, in partnership with the UP Manila National Institutes of Health - National Training Center for Biosafety and Biosecurity (NTCBB), conducted online BS&S and PCR trainings, as well as a three-day hands-on training in RT-PCR technique and safe laboratory operations. Effective stakeholder engagement emerged as pivotal. Establishing strong partnerships with local government agencies, NGOs, and community leaders fostered buy-in and facilitated smooth deployment processes. Secondly, adaptability proved essential in navigating logistical hurdles. The logistical operation seamlessly integrated terrestrial conveyance and maritime transportation to transport the containerized laboratories, linking islands from Manila to various provinces within four to five days. From navigating bureaucratic procedures to addressing infrastructural limitations, the installation and commissioning of the laboratories were accomplished within a timeframe of nineteen hours. Modular design features allowed for customization to suit diverse needs, ensuring scalability and versatility in different environments. Sustainability emerged as a central theme. Compliance with local regulatory requirements and international standards ensured the credibility and reliability of the containerized laboratories. Continuous monitoring and evaluation were fundamental for assessing the impact and effectiveness of these laboratories in guiding iterative improvements. Deploying containerized laboratories in the Philippines requires a holistic approach that integrates infrastructure development, partnerships, capacity building, regulatory compliance, and proper sustainability planning.

OE-04: TICK CELL BIOBANK (TCB) ASIA OUTPOST: ADVANCING COLLABORATIVE SOLUTIONS FOR TICK-BORNE DISEASE SURVEILLANCE AND CONTROL IN SOUTHEAST ASIA

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Keywords: Tick-borne diseases, Vector-borne diseases, Zoonotic diseases, Southeast Asia, Universiti Malaya.

Abstract: The Tick Cell Biobank (TCB) Asia Outpost stands as a cornerstone in the collective effort to strengthen laboratory capacities within Southeast Asia. The TCB Asia Outpost, established in the Tropical Infectious Diseases Research & Education Centre (TIDREC) at Universiti Malaya, is one of three Outposts in the world that offer tick and other arthropod cell lines for research and education, in addition to the main TCB situated at the University of Liverpool. The TCB Asia Outpost currently houses and maintains a collection of 18 ixodid tick-derived cell lines and aims to generate Asian tick and insect cell lines for *in vitro* research purposes. The Biobank provides access to tick cell lines and training, especially for researchers from lower- and middle-income countries. These cell lines are an invaluable resource that supports numerous research projects, allowing for the investigation of tick biology, pathogen transmission dynamics, and host-vector interactions. In addition to its repository function, the TCB Asia Outpost is a hub for networking and knowledge dissemination. The Biobank effectively empowers researchers, public health practitioners, and policymakers to address the challenges posed by ticks and tick-borne diseases (TBDs) through training programs and collaborative projects. Furthermore, the Biobank's strategic location within Southeast Asia positions it as a focal point for regional capacity-strengthening initiatives within the One Health framework. In summary, the TCB Asia Outpost represents the spirit of collaboration and innovation inherent in the Southeast Asia One Health University Network (SEAOHUN).

OE-05: AVIAN INFLUENZA A(H5N1) HUMAN INFECTION, CAMBODIA FEBRUARY 22, 2023

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Keywords: Avian influenza(H5N1), Outbreak, Cambodia

Abstract: On February 22, 2023, an 11-year-old girl living in Roleang Village, Romleach commune, Sithor Kandal district, Prey Veng province, Cambodia, onset of symptoms on February 14, 2023. The patient was admitted to the National Pediatric Hospital on February 21, 2023. Samples were collected the same day through the Severe Acute Respiratory Infection (SARI) sentinel surveillance team and tested positive for avian influenza A(H5N1) virus by Real-Time Reverse Transcriptase-polymerase chain reaction (rRT-PCR) at the National Institute of Public Health. The patient passed away at the hospital on February 22, 2023. From 22 to February 26, 2023, an epidemiological investigation was conducted with all samples taken from 53 contacts of the index case. Her father tested positive for the avian influenza A(H5N1) virus with reported symptoms. While tested negative among 26 close contacts (8 had symptoms) and 27 did not contact (8 had asymptomatic). Complete genome analysis from the index case indicated hemagglutinin gene clade 2.3.2.1c, which is the viral clade circulating in poultry in Cambodia since 2014.

OE-06: ESTABLISHED RAPID LABORATORY RESPONSE TO RISK GROUP 3 BACTERIAL ZOOONOTIC PATHOGENS

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Keywords: Zoonosis, Rapid response, Anthrax, Plaque

Abstract: Diagnosis and outbreak investigation of the risk group 3 bacterial zoonotic diseases require rapid detection and adequate control measures in the One Health approach. The National Institute of Health (NIH), Department of Medical Sciences, Ministry of Public Health is the national reference laboratory of Thailand that action in response and preparedness for pathogen identification and infectious disease outbreaks. The microbiology laboratory at NIH of Thailand is responsible for culturing and identification of pathogens including the risk group 3 zoonotic bacteria i.e. *Bacillus anthracis* (causing anthrax disease) and *Yersinia pestis* (causing plague disease) that require well-trained lab personnel to work in the level 3 biosafety laboratory (BSL-3). The NIH laboratory facility, protocol, and personnel have been established and frequently trained to respond to these infections. From October 2023 to June 2024, the NIH laboratory received a total of 31 environmental and clinical samples related to anthrax and plague suspected patients. Following the established protocol, immediately after receiving the samples, the laboratory personnel unpacked the samples in the BSL-3 facility and performed the standard methods including bacteria culture and biochemical testing. Additionally, DNA was extracted from each sample for real-time PCR and next-generation sequencing (NGS) testing. The DNA extraction and real-time PCR took approximately 6 hours, then the turn-around time to rule out anthrax/plague as the causative pathogen and send the preliminary reports to the hospital and/or the Center of Disease Control was within 12 hours. Furthermore, the NGS was implemented for sequencing full-length 16S rRNA gene of bacteria to identify the causative pathogens, currently turn-around time for NGS reporting was 24 - 48 hours. This early detection system could help control the disease and dramatically affect adequate control measures. Also, this supports the collaboration between relevant stakeholders that improve the prevention and control of zoonotic disease outbreaks by integrating the One Health prevention and control system.



TRACK F:

ACHIEVING THE SUSTAINABLE
DEVELOPMENT GOALS THROUGH
ONE HEALTH APPROACH

OF-01: INTEGRATING ARTIFICIAL INTELLIGENCE TO DRIVE ONE HEALTH PROGRESS: A COMPREHENSIVE REVIEW

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Keywords: AI; One Health; Disease tracking

Abstract: This paper explores the incorporation of Artificial intelligence, also known as AI, into One Health initiatives to deal with the various health challenges affecting humans, animals, and the environment. It aims to clarify the purpose, methods, results, and impacts by examining literature, which can offer valuable insights for stakeholders in various fields. The research methods involve inspections of disease monitoring, predictive modeling combating resistance, and environmental monitoring using advanced AI tools like machine learning algorithms and computer vision techniques. This analysis provides examples demonstrating how AI effectively manages disease outbreaks by quickly detecting zoonotic pathogens and securing food supply chains within the comprehensive One Health framework in order to support its statements. Furthermore, it assesses the limitations and ethical considerations associated with AI implementation while advocating for ethical practices through efforts to maximize benefits while minimizing risks. The conclusions drawn from this study emphasize the need for further exploration of regulatory frameworks, policy implications, and socio-economic factors that influence the ethical and fair use of Artificial intelligence in different global contexts. In conclusion, this review stands out as a source of information providing insights that can help researchers, policymakers, and professionals leverage the revolutionary capabilities of AI for improving the well-being and sustainability of human populations, animal groups, and ecosystems under the One Health framework.

OF-02: PLACE-BASED, ONE HEALTH EXPERIENTIAL EDUCATION: A PLATFORM FOR INSPIRING ACTION IN TACKLING COMPLEX GLOBAL CHALLENGES TO ACHIEVE THE SDGS

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Keywords: Experiential Education, Sustainable Development Goals, Leadership

Abstract: Grounded in experiential, place-based One Health education, the Rx One Health Field Institute (RxOH) contributes to the development of future leaders working to address complex challenges facing our planet, such as those embodied in the Sustainable Development Goals. RxOH utilizes experiential education to teach One Health core competencies and encourages participants to leverage their own technical skill sets in new ways to work across disciplinary boundaries. In 2023, RxOH developed a teaching module that utilizes a One Health approach to address the SDGs. For the capstone project, small teams conducted independent research and developed a comprehensive One Health solution to address a missed SDG target within a defined geography. Each proposal was solutions oriented and incorporated at least two concepts covered during the preceding two weeks. On the final day, teams presented proposals related to eight separate SDGs to their cohort and an evaluation panel. Proposals included ideas such as “Improving early detection systems for novel pandemic prone pathogens in East Africa” (SDG 3); “Groundwater Sustainability for All in the Salinas Valley Water Basin” (SDG 6); and “Scraps to Table - An Innovative Cooking Competition Show Addressing Food Waste” (SDG 12). The connections made during RxOH will last the duration of the participants’ professional careers. A participant reflected afterwards: *“The best part of this course was the connections I made and the lessons learned. One Health is about people and being able to discuss challenging situations with them and work together to find solutions. That is exactly what this course had us do and it really developed my ability to work in a team setting and understand different perspectives.”* As a result of the relationships built during RxOH 2023, two participants received funding to pursue research related to their SDG project proposal.

OF-03: AN ANALYSIS FRAMEWORK TO FACILITATE THE INTEGRATION OF ONE HEALTH IN BIODIVERSITY-RELATED PROJECTS

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Keywords: biodiversity-health nexus, One Health operationalisation, analysis framework

Abstract: Environment is a fundamental pillar of One Health. However, this has been long neglected and its integration into One Health initiatives remains challenging. Exploring the biodiversity-health nexus in the Asia and Pacific region, the study aimed to develop an innovative tool to guide the integration of One Health into biodiversity conservation efforts. A literature review allowed understanding the impacts of biodiversity loss and ecosystem degradation on humans and animals' health in the region and revealed the value of multidisciplinary collaborations at the biodiversity-health nexus. Interviews with key informants from the research, development and conservation fields contributed to identifying thematic areas and entry points for the adoption of a more holistic approach. The process led to the development of an Analysis Framework to guide ongoing biodiversity projects to take a One Health approach. The framework consists of three consecutive steps: the assessment of One Health principles already adopted by the project, the identification of entry points to the biodiversity-health nexus to determine in which thematic areas the One Health approach can be applied, and the selection of measures which can enable the integration of One Health in a relevant and effective way. The analysis framework was tested on six biodiversity-related projects within the Biodiversity Working Group from GIZ's Sector Network Natural Resources and Rural Development Asia and the Pacific. Multidisciplinary review teams assessed the projects and recommended specific actions for One Health integration. The Analysis Framework is a simple and effective tool to support the integration of One Health into biodiversity conservation. This requires a radical shift in thinking from all stakeholders and the identification of manageable measures to initiate collaboration across disciplines. Small-scale actions are likely to increase trust in the process and pave the way for broader support to the One Health operationalisation.

OF-04: EVALUATION OF MULTI-SECTORAL COLLABORATION ON RABIES PREVENTION AND CONTROL MEASURES IN PATTAYA CITY, CHONBURI, THAILAND 2022

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Keywords: Rabies, Prevention and Control, One Health, Pattaya, Thailand

Abstract: Rabies prevention and control emphasizes the importance of multi-sectoral collaboration between human and animal health. Chonburi had confronted the highest incidence of positive rabies dogs in Thailand (78 cases) during January to October 2022. Twelve cases of them were from Pattaya City. Pattaya City is a special local administrative self-governing municipal area in Chonburi. This study aimed to describe and evaluate Pattaya's rabies prevention and control during routine activities and outbreak occurrence. Stakeholders in veterinary, human health, and local administrative sectors were interviewed to describe Pattaya's rabies prevention and control practices. Document reviews and observations on routine rabies prevention and control practices were also performed. Human health and veterinary sectors under Pattaya's authority provide rabies control programs, such as health literacy, vaccination campaign, sterilization of stray dogs, and shelter support. Private animal hospitals are strong partnerships. However, the active survey of dog populations was not done. Managing stray dogs is difficult due to the Non-Government Organizations' involvement and unavailable shelters. During positive rabies dog occurrences, both human health and veterinary sectors have collaborated. Contact tracing and vaccination among rabies animal bite patients were performed. Also, animal ring vaccination was done; however, only 200 meters of radius coverage area instead of five kilometers as a guideline. No regional or national assistance during the increasing rabies events. Pattaya city has the ability and facilities to support the One Health approach for rabies prevention and control. However, they still need aid and guidance from central government sectors. The health sector should promote health literacy among people in the rabies events area. Boost vaccination among susceptible rabies animals with assistance from the Department of Livestock Development should be considered. In addition, Pattaya City should do an active survey of the dog population to estimate the coverage of the rabies prevention program.

OF-05: COMMUNITY ENGAGEMENT IN ONE HEALTH ACTION: LEARNING FROM EXPERIENCE AND PLANNING FORWARD

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Keywords: One health, community surveillance, Infectious disease, Community resilient

Abstract: The CSO Platform for Health Equity and Inclusiveness and its 60+ members have been working with marginalised, ethnic, rural and remote communities in delivering malaria services and advocating for health equity for more than a decade. Working with and for the communities, it has become obvious that a) communities see their health and wellbeing is integrally linked to ecosystems and animals b) that there are strengths within communities that should be engaged in partnership with others in order to improve health equity and achieve SDGs; c) action in One health requires true transdisciplinary approaches. This paper aims to draw upon lessons learnt to date by platform members on some local One health actions being implemented (Laos, Nutrition and Water; Cambodia: Malaria, Community diagnosis and other local food security and animal and human health issues); challenges facing communities (Southern Thailand and Plasmodium knowlesi malaria and malaria elimination; land use, human mobility and infectious diseases in Cambodia). The paper will then conclude with a discussion of planned activities in community-based surveillance, community led monitoring and gendered analysis to assist both sustain community engagement in health including malaria elimination and improve abilities within communities to be resilient to threats such as climate change, land use changes and food insecurity using a One health Approach.

ABSTRACTS OF POSTER PRESENTATION





TRACK A:

ONE HEALTH EDUCATION,
CAPACITY BUILDING AND
INSTITUTIONALIZATION

PA-01: IMPROVEMENT OF KNOWLEDGE, ATTITUDES, AND PRACTICES ON OPISTHORCHIASIS OF ANIMAL OWNERS IS NECESSARY FOR THE PREVENTIVE STRATEGIES IN ENDEMIC AREAS

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Keywords: animal reservoirs, *Opisthorchis viverrini*, practices, prevention, veterinary intervention

Abstract: Control of *Opisthorchis viverrini* (OV) requires veterinary intervention to treat animal reservoirs, including cats and dogs, according to the latest 2021–2030 roadmap for Neglected Tropical Diseases. Understanding KAPs in OV endemic areas is crucial for tailoring effective intervention strategies. This study investigated OV prevalence and related KAPs in reservoir hosts across seven provinces in Northeast Thailand from April 2022 to December 2023, involving 522 households in a cross-sectional study. All household animals were examined for OV egg examination, with owners interviewed using a KAP questionnaire. The findings revealed that cats had a higher prevalence (22.15%) than dogs (3.52%). Most animal owners show moderate knowledge and practices regarding liver fluke infection in reservoir hosts, although their control practices are poor. Non-infected households (ni) had significantly higher practice scores than infected households(i) ($P_{ni} = 58.55$ vs. $P_i = 55.57$, $p = 0.05$). Moreover, the likelihood of a non-infected household improved by 3% for every increase in practice scores, with an odds ratio (OR) of 1.03 (95% confidence interval [CI] 1.00-1.05, $p = 0.04$). Dog and cat owners over 60 years old were considerably less likely to be knowledgeable (OR 0.46, 95% CI 0.27-0.78, $p < 0.01$) compared to owners under 60 years old. However, they were more likely to have better practices (OR 1.84, 95% CI 1.10-3.10, $p = 0.02$). Participants with previous experience of OV examination had good attitudes (OR 2.06, 95% CI 1.11-6.12, $p = 0.03$) and good practices (OR 1.46, 95% CI 1.00-2.14, $p = 0.05$) compared to those without prior experience. These results suggest the necessity for tailored educational programs designed for animal owners living in endemic areas. This would lead to an increase in their understanding as well as the promotion of more effective preventive activities in opisthorchiasis control.

PA-02: ASSESSMENT OF KNOWLEDGE AND NEEDS FOR STRENGTHENING ONE HEALTH CORE COMPETENCIES IN VIETNAM ONE HEALTH UNIVERSITY NETWORK (VOHUN) STUDENT CLUBS: A 21 ONE HEALTH STUDENT CLUB SURVEY

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Keywords: One Health Core Competencies, Students, One Health Club, Vietnam

Abstract: In the context of globalization and increasing intersectoral challenges, the concept of One Health has become a focal point in research and practical applications at higher education institutions. To assess knowledge of One Health Core Competencies; and to survey the needs for One Health among students in clubs affiliated with the Vietnam One Health University Network. A cross-sectional descriptive study was conducted on 400 students from October 2023 to April 2024. The results show that 60.75% of students have heard about One Health's core competencies. Among them, the majority became aware of One Health core competencies through various channels such as websites and fanpages, accounting for 71.19%. However, the understanding level of students remains limited, with only 48.56% demonstrating a strong understanding. Additionally, a significant 98.25% of students believe that enhancing One Health's core competencies through club activities is highly necessary. The majority of students perceive that participating in club activities can help them develop communication and information skills, as well as collaboration and partnership relationships. Knowledge of one health's core competencies among students remains limited, while the demand for enhancing these competencies is predominant. Therefore, there is a need for solutions to improve students' one health core competencies through club activities, courses, and internship programs. This will contribute to the development of a generation of students equipped to address future global health challenges. Track B: One Health Policy, Coordinating Mechanisms, Multisectoral Partnership

PA-03: PARTICIPATORY EPIDEMIOLOGY ASSESSMENT OF ANIMAL AND HUMAN HEALTH PRACTITIONERS ON ZOONOSIS IN PURSAT PROVINCE, CAMBODIA

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Keywords: Zoonosis, participatory epidemiology, health practitioners

Abstract: The study aimed to access the knowledge and practice of animal and human health practitioners (AHHPs) regarding zoonosis. Participatory epidemiology tools, including semi-structured interviews, raking tools, and transect walks, were used. A total of 34 AHHPs (87% female human health practitioners and 100% male animal health practitioners) participated from two districts of Pursat province during August 2023. All participants were divided into 4 key informants and 6 focus groups. Both the animal and human health focus groups were conducted. All AHHPs have heard about zoonoses. They could identify some specific animal species, including chickens, pets, pigs, cattle, and vectors (mosquito and fly), as the sources of the zoonosis. Almost all AHHPs were well aware of common zoonosis, including avian influenza (AI), rabies, and dengue, with knowledge of the potential transmission pathway and prevention from animals to humans, as well as their impacts on personal and family economics and other health challenges. All of the AHHPs have limited knowledge of zoonosis reporting and responses, as well as specific zoonosis regulations and guidelines. This study highlighted the need for a refresher training or awareness program for both animal and human health practitioners about the prevention and control of zoonotic diseases in Cambodia. The study also provides scientific data from health practitioners involving both animals and humans to inform future research and policy aiming to address zoonose threats in Cambodia.

PA-04: THE ONE HEALTH YOUNG LEADER AND COMMUNICATOR (OHYLC) PROJECT

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Keywords: One Health, future workforce, communication, leadership, MyOHUN

Abstract: The One Health (OH) concept promotes an integrated approach to public health by embracing the interconnectedness of today's world. The MyOHUN promoted OHYLC training program delivers OH knowledge on the core competencies using the SEAOHUN OH modules. Hence, the main objectives of this project are to enhance OH knowledge among the young leaders of the national OH Workforce and to establish sustainable networking among them. Multi-disciplinary early year students from various universities in Malaysia have participated in this program to strengthen their communication, leadership and partnership skills. This 5 days and 4 nights training program focused in preparing the future OH workforce to detect, prevent and respond to emerging diseases through knowledge sharing, networking, and collaboration across disciplines. Student leaders from multiple universities (including from the 8 OH Student Clubs in Malaysia) under multi-disciplinary programs have been identified and invited to participate this program. Modules and activities on Global Health, Advancing Network and Partnership, Interpersonal Skills and Becoming a True Leader have been delivered by invited experts. Additionally, activities on the areas of Culture, Belief, Values and Ethics have been delivered via experiential learning involving activities like team building, games and cultural night. An excellent project and good teamwork among committees, speakers & facilitators. All the pre-service participants were actively involved in the activities, and they provided input and sharing experiences among them and having very interactive discussion. This workshop has successfully inculcated the OH concept to participants to assure that those entrusted with concurrent protection of the health of humans, animals, and the environment are equipped with appropriate knowledge and skills. The same workshop will be expanded to other region in Malaysia to ensure the students from other universities with multiple disciplinary background will have the opportunity to be involved with this program.

PA-05: EMPOWERING FOOD SAFETY EDUCATION PROGRAM: MYOHUN'S INITIATIVE IN MALAYSIAN SECONDARY SCHOOLS

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Keywords: Food safety, secondary school students, knowledge, practices, foodborne illnesses

Abstract: Foodborne illness presents a widespread challenge to public health. Numerous studies have indicated that educating people about food safety is an effective method for preventing such illnesses. In Malaysia, the prevalence of foodborne diseases, particularly among school children, is concerning. Thus, the objective of this program is to enhance awareness and knowledge of food safety among secondary school students in Malaysia. A total of 67 secondary students, aged between 13 and 17 years old, participated in this one-day program alongside medical students from several universities, including Universiti Sains Islam Malaysia (USIM), Universiti Malaysia Kelantan (UMK), and Universiti Kuala Lumpur (UniKL), which was funded by the MyOHUN Booster Grant. The program was conducted based on the food prevention educational module called "See, Choose, Inform." Activities focused on high-risk food, cross-contamination, selecting hygienic food premises, and detecting spoiled food. The activities included video, demonstrations, health talks and interactive exercises such as games and quiz. The students were provided with a food safety questionnaire pre and post-program to assess their knowledge, as well as to evaluate the effectiveness of the implemented program. Comparing the pre-intervention and post-intervention results of the food safety knowledge assessment reveals notable improvements in understanding among the students. Prior to the intervention, there were varying levels of awareness regarding high-risk foods for causing food poisoning, symptoms of food poisoning, consequences of foodborne illnesses, and preventive measures. The food safety program intervention resulted in a considerable increase in correct responses across most categories, indicating its effectiveness in improving students' knowledge and awareness of food safety practices. As a conclusion, the food safety program implemented for secondary school students in Malaysia effectively improved their understanding of food safety practices, highlighting the importance of health education in enhancing awareness and knowledge in contributing to the prevention of foodborne illnesses.

PA-06: EMPOWERING INDONESIAN YOUTH THROUGH ONE HEALTH STUDENT CLUB AS A LEARNING AND COLLABORATION PLATFORM

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Keywords: One Health, Student, Youth, Empowerment

Abstract: Responding to Indonesia's country status as a hotspot for zoonotic diseases, INDOHUN has established 7 One Health Collaborating Centers (OHCC) at strategic universities nationwide, aiming to implement One Health approach at the regional level. Despite these efforts, there is no mandatory One Health curriculum at the university level. To address this gap, INDOHUN and OHCCs established One Health Student Clubs (OHSC). OHSC provides an informal learning platform for multidisciplinary students to enrich their One Health knowledge. Currently, there are 6 OHSCs located in Syiah Kuala University (201 students), IPB University (29 students), Gadjah Mada University (373 students), Airlangga University (186 students), Udayana University (235 students), and Cenderawasih University (181 students). Each OHSC conducts annual batch recruitment with class training, field visit, and student project focusing on One Health principles. Over the past five years, OHSCs have facilitated many impactful student projects to solve specific local One Health related issues in each region. Recognizing the importance of collaboration amongst the 6 OHSCs, a national OHSC Summit was organized in 2022 to facilitate knowledge sharing which resulted in a One Health Student Declaration. This served as a foundation for further Indonesian youth involvement in One Health implementation. INDOHUN also formed OHSC Indonesia, a national committee with 6 alumni representing 6 OHSCs, to support ongoing collaboration and networking among OHSC alumni. Social media activation and collaboration with OHSC from other countries have expanded networking opportunities, including the recent OHSC Indonesia and OHSC Cambodia International Webinar on AMR. As an effort to sustain OHSC, INDOHUN aims to seek acknowledgement for OHSC from their universities to secure full support and funding under the Ministry of Education, Research, and Technology. Formal agreements with universities are currently being pursued to institutionalize OHSC's permanent status to continuously promote One Health among future leaders in Indonesia.

PA-07: MYOHUN IN-SITU ONE HEALTH PROBLEM-BASED LEARNING ON ANIMAL, HUMAN AND ECOSYSTEM HEALTH

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Keywords: In-situ Problem Based Learning, One Health, Education

Abstract: As part of One Health education for students from various disciplines, the in-situ Problem Based Learning (PBL), an innovative teaching module provides an opportunity for participants to improve their One Health competencies through MyOHUN One Health-PBL cases adapted to be used outside the classroom. The objective of the activity is to polish the students' ability to apply theories learned in class to the investigation of a problem using One Health concept. This program used the developed "In-situ One Health Problem based Learning Guidelines Book" and "A Problem-Based Learning Approach to One Health Cases Book". During the program, students are exposed to management and environmental conservation situations that could influence the occurrence of a problem such as a disease outbreak. The students also applied One Health core competency for problem solving covering medical, biomedical, veterinary, animal and ecosystem health which applied teamwork and collaboration, leadership, communication and critical thinking skills. The activity provides knowledge of possible pathways for zoonoses arising from tropical forest ecosystem imbalances and emphasizes the importance of maintaining a healthy tropical ecosystem to prevent zoonosis transmission. Since the participants were divided into small groups with a trained facilitator, there were a lot of positive outcomes from the in-situ PBL sessions that were able to be identified. Participants actively engaged in discussion promoting good command of English, creative and critical thinking process whilst enhancing communication, leadership, teamwork, management and information-seeking skills. At the end of the session, the participants achieved an understanding of the concept of in-situ PBL especially on the objectives of in-situ PBL's, ways of running in-situ PBL's and expected outcome from in-situ PBL sessions. The participants also acquired the knowledge of One Health and were able to relate concepts of in-situ PBL in the field as compared to the knowledge they acquired in a classroom environment.

PA-08: ASSESSING ONE HEALTH CORE COMPETENCIES OF THE WORKFORCE IN MALAYSIA ATTENDING MYOHUN PROGRAMME IN 2023

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Keywords: One Health; Core Competencies; in-service professional, Malaysia, MyOHUN

Abstract: The One Health Workforce (OHW) Competency Framework and Evaluation Toolkit, developed by the global OHW-Next Generation (OHW-NG) project team, is an important initiative to promote competency-based training and evaluation for the OHW. The One Health Core Competencies (OHCC) assessment aims to determine workforce competency levels and suggest future training. Stakeholders from the ministry and academicians from universities in Malaysia provided expert opinions to select six out of 19 OHW domains to be included in the survey. The assessment conducted during the 2023 MyOHUN Field Epidemiology Training Programme (FETP) and Tabletop Simulation Exercise for Postgraduate Students. Participants rated their proficiency levels in each domain as not relevant (not relevant to my role), none (had little knowledge), aware (had limited knowledge), knowledgeable (if they were comfortable with the skill), or proficient (if they were experts or could teach others). Out of 81 attendees at both programs, 71 responded to the survey (87.7% response rate). The majority of respondents were female (78.9%), aged 30-39 (63.4%), and had no prior OH experience (62.0%). Specializations included human health (50.7%), animal health (29.6%), environmental health (7.0%), and other areas (14.1%). The highest gaps in the OH competencies were in OH risk analysis (62.0%), infectious disease management (54.0%), and OH principles and concepts (53.4%). The domain with the most knowledgeable response is surveillance (37.3%). While the domain with the highest proficient response is outbreak investigation and response (13.4%). Respondents were most interested in learning OH risk analysis (91.5%). The most preferred learning format medium is face-to-face training, meetings, and workshops (80.3%). The OHCC assessment is important for identifying areas that need support, improving effectiveness in addressing health challenges, and tailoring training for OHWs. More data is needed to address potential disparities across OH areas and regions, ensuring readiness to tackle emerging health threats and advance OH principles.

PA-09: EVALUATION OF WORKSHOP ON EARLY DETECTION OF ANTHRAX CASES IN HUMANS AND ENVIRONMENTAL RISK FACTORS

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Keywords: Laboratory Capacity building, Anthrax Early detection, Workshop Evaluation

Abstract: At present, 14 provinces in Indonesia experience anthrax endemic. As a form of preparedness and early awareness of anthrax disease and rapid diagnostic, Indonesia One Health University Network in collaboration with the Ministry of Health and Ministry of Agriculture conducted a three-day workshop with 30 participants (15 laboratory technicians and 15 surveillance officers) was carried out. The workshop was conducted in a classroom with lecturing, video simulation, and discussion methods, added with the animal health laboratory observation visit. This study aims to assess the understanding of the participants' knowledge and abilities on anthrax rapid diagnostic and case management, and the effectiveness of the workshop provided. This study used pre- and post-workshop evaluation methods to determine the participants' current knowledge and abilities prior to the workshop and the knowledge and abilities acquired during the workshop. Data were collected from the participants using an online Google form. The impact of the workshop was assessed by comparing pre- and post-test responses by individuals. Participants demonstrated a significant improvement in their post-workshop scores. Of 30 participants, 28 participants (93%) showed improvement in score (range between 8% – 50% of score increase). 14 participants showed modest change (increase score between 20% – 35%), 1 participant showed no change in score, and 1 participant marked decrease (decrease of 20.8% score). The greatest improvements (% score increase between 30% – 50%) were seen in participants that played both roles, laboratory technician and surveillance officer. We conclude that this type of learning workshop method results in improved knowledge and skills in understanding anthrax rapid diagnostic and case management in humans as objectively assessed using a pre-and post-test format questionnaire.

PA-10: OH VISIT: “ONE HEALTH AND BIOSECURITY AWARENESS FOR FARMERS”

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Keywords: One Health, Biosecurity, Livestock, One Health Project

Abstract: Zoonosis and emerging infectious diseases (EIDs) are rising, with 70% of new infectious diseases being zoonotic, like orf, anthrax, and leptospirosis. Addressing these challenges requires educating and engaging stakeholders in the One Health paradigm. Therefore, One Health Young Leaders (OHYL) initiated a One Health project to raise awareness among farmers about the importance of the One Health approach. OHYL collaborated with USAID, the Ministry of Education and Culture Republic of Indonesia, OHCC IPB University, and the National Department of Fisheries and Livestock of Bogor to conduct this project. This project, part of the OHYL INDOHUN MBKM Internship Program, aims to raise awareness among farmers, livestock owners, and community leaders about One Health and biosecurity. It seeks to engage local authorities in supporting these practices within livestock health issues. The initiative involved 29 interns from various regions of Indonesia, conducting educational sessions and discussions. Volunteer educators and interns were recruited, trained, and developed curriculum and interventions, resulting in policy briefs delivered to local stakeholders. Some beneficiaries from this event are OHCC IPB University; 36 farmers and residents participated in discussion with Bogor Regency Fisheries and Livestock Service focusing on livestock health problems; and five students from School of Veterinary and Biomedicine, IPB University, have been trained as One Health educator. The project achieved a 23.33% increase in volunteer knowledge and an 8.33% increase in target group knowledge about zoonosis and its prevention. In conclusion, educating farmers, livestock owners, and stakeholders about One Health is crucial for preventing zoonosis. Multisectoral collaboration, local government involvement, and empowering students and volunteers were vital for success. The OHYL initiative successfully increased awareness and implementation of One Health and biosecurity practices, emphasizing the need for continued education and multi-sectoral collaboration to mitigate zoonotic diseases.

PA-11: ZERO-WILD MEAT: REGIONAL SOCIAL BEHAVIORAL CHANGE CAMPAIGN TO REDUCE THE DEMAND FOR HIGH-RISK WILD MEAT PRODUCTS IN CAMBODIA, LAOS AND VIET NAM

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Keywords: Wildlife, behavior change, demand reduction

Abstract: World Wild Fund (WWF) was curious if the public health risk posed by wild meat consumption in the Greater Mekong region would be enough of deterrent for current consumers to stop eating wild meat in the future. To test this idea, a Zero Wild Meat campaign launched by WWF between October and December 2022 in Viet Nam, Cambodia, and Lao PDR. The campaign spotlighted two serious threats posed by the consumption of wild meat in these three countries that are at the epicenter of the Asian snaring crisis —risks to public health and risks to nature—to reduce the consumption of wild meat and to see which approaches were the most effective in bringing about behavior change among confirmed wild meat consumers. The methodology was to conduct a consumer survey before and after the public facing campaign to see if we could demonstrate a reduction in the future intention to consume wild meat. The pre-campaign survey also looked at motivations for consumption, the types of wildlife consumed, and the setting in which consumption generally takes place. Campaign visuals were then developed and tested that targeted specific motivations, including perceived delicacy, health benefits, and representation of social standing, as well as potential disincentives including public health risks, illegality, and nature loss. The campaign was then launched in the three countries, both online and in locations frequented by urban consumers of wild meat, after which a post campaign survey was launched. The results of the post campaign survey found that among wild meat consumer that saw the campaign, the future intention to eat wild meat dropped by 8% in Viet Nam and 15% in Laos compared to the pre campaign survey. Learnings from the campaign also show that one health messaging is difficult to convey compared to nature conservation.

PA-12: MALAYSIA'S ONE HEALTH INITIATIVE: TACKLING ZONOTIC MALARIA WITH THE LAWA MODEL

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Keywords: Interdisciplinary; LAWA Model; Localized; One-Health; Zoonotic malaria

Abstract: Zoonotic malaria, a vector-borne disease affecting both humans and animals, poses a significant public health challenge, particularly in regions where human and wildlife habitats intersect. The One Health approach, which integrates human, animal, and environmental health, is essential for effective zoonotic malaria control and prevention. This abstract outlines the collaborative, interdisciplinary efforts employed in Malaysia, known as the MY LAWA initiative, titled “Zoonotic Malaria One-Health Combat: Foster Villages Approach.” This project adopts a localized strategy to enhance community awareness and improve preventive practices against zoonotic malaria. The initiative began by engaging the Ministry of Health to gather data on the prevalence of zoonotic malaria, identifying hotspots that warranted targeted intervention. Stakeholders from the selected village were invited to provide information regarding the disease’s status, demographic data, and insights into past interventions, including success stories and ongoing challenges. Understanding these needs was crucial for developing tailored awareness programs. A workshop was held to create customized educational materials, considering local demographics, cultural nuances, and language preferences. For example, in Village GM, which has a large population of foreign workers, communication barriers were addressed by creating flip charts with infographics. Conversely, in Village Kapit, home to indigenous people with a uniform cultural background, traditional beliefs posed a significant constraint in promoting zoonotic malaria prevention and treatment. To address this, we designed simple yet impactful posters and songs that respected their cultural values while effectively promoting preventive practices and treatment options. This experiential sharing initiative highlights the diverse challenges faced in different communities, providing valuable insights for future One Health efforts. By facilitating knowledge exchange and fostering collaboration among stakeholders, MY LAWA aims to reduce the burden of zoonotic malaria significantly.



TRACK B:

ONE HEALTH POLICY,
COORDINATING MECHANISMS,
MULTISECTORAL PARTNERSHIP

PB-01: THE SUCCESS OF THE ONE HEALTH APPROACH STRATEGY FOR THE PREVENTION AND MANAGEMENT OF DENGUE FEVER IN SEMARANG DURING THE EL NINO CLIMATE

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Keywords: El-Nino, Dengue fever, One Health

Abstract: El Nino poses a significant challenge to dengue-endemic areas in dealing with increased cases and fatalities. The rise in temperature caused by El Nino shortens the mosquito life cycle, increases blood- sucking frequency, and expands dengue transmission capabilities. To address these impacts, strengthening various dengue control effort is necessary. Our qualitative descriptive study explores the strategies and policies of the Semarang City Health Office in facing the El Nino in early 2024. We conducted an in-depth direct interview with the Sub-Coordinator of Vector-Borne and Zoonotic Diseases Control from the Semarang City Health Office, responsible for dengue fever control programs. The interview lasted for 145 minutes in Indonesian using a structured interview guide until data saturation was achieved. During the El Nino period (February-April), Semarang City successfully passed through it with a significant decrease in dengue cases compared to the previous 2 years (266 cases and 7 deaths in 2022, 190 cases and 5 deaths in 2023, 115 cases and 1 death in 2024), a stark contrast when compared to surrounding districts experiencing outbreaks. The One Health approach formed the basis of Semarang City's strategy in dealing with the El Nino outbreak, including: 1. Tightening fogging to prevent vector resistance. 2. Activation of cross-sectoral roles in dengue vector control. 3. Implementation of active reporting or real-time data reporting in the information system to support faster decision-making. 4. Preparation of Rapid Diagnostic Tests (RDTs) for early detection and prevention of deaths. 5. Online access to hospital beds for emergency case management, for patients from within and outside Semarang City. The One Health approach and the utilization of information technology in dengue management have proven effective in addressing dengue case surges during El Nino in Semarang City. Similar strategies need to be implemented in each area to uniformly reduce dengue cases comprehensively.

PB-02: A SITUATIONAL ANALYSIS ON ONE HEALTH COORDINATION FOR FOOD SAFETY IN DECENTRALIZED SETTINGS: PERSPECTIVES FROM THE PHILIPPINES

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Keywords: food safety, decentralization, One Health, Philippines

Abstract: Food safety issues pose a significant public health threat in the Philippines. The Food Safety Law emphasizes the need for coordinated efforts across sectors, but effective One Health coordination remains unrealized. Decentralization since the 1990s exacerbated obstacles to coordination, necessitating a comprehensive situational analysis to identify key gaps. A mixed-methods, multi-level country case-study was conducted to explore One Health coordination. Data collection included policy and document reviews, stakeholder mapping, rapid assessment surveys (n=47), and key informant interviews (n=15) from health (n=18), environment (n=13), and agricultural sectors (n=16) at various levels. The WHO One Health Multisectoral Coordination Operational framework guided analysis of horizontal and vertical coordination for Governance and Policy, Planning and Financing, Surveillance and Information Sharing, Investigation and Response, Joint Risk Assessment, Workforce Development, and Risk Communication. Survey results were analyzed descriptively, while qualitative and documentary data underwent thematic and content analysis. Facilitators and barriers to One Health Coordination were summarized through force-field analyses. Vertical, intra-agency coordination for food safety is well-established, but inter-agency and multisectoral (horizontal) coordination is lacking. The survey revealed weak coordination across and within sectors, at the local level and key areas such as Planning and Financing, Surveillance, Investigation, and Risk Assessment. Coordination levels varied across provinces and regions. Interviews highlighted factors undermining coordination, including rigid financial systems, poorly defined roles, fragmented information systems, and technical, resource, and political constraints. Policy recommendations for improved food safety include developing unified resource allocation frameworks, establishing local inter-agency committees, mainstreaming One Health laboratory networks, and institutionalizing formal coordination and accountability pathways. Detailed coordination mechanisms are needed for joint activities such as investigation, testing, information sharing, research, risk assessment, communication, and capacity building. This research provides a practical tool for rapidly assessing One Health coordination at various levels to support enhanced food safety policy and programming.

PB-03: REVIEWING CURRENT ZOO NOTIC DISEASES SURVEILLANCES AND RELATED DATABASES IN THAILAND, 2023: TOWARDS INTEGRATED ONE HEALTH DASHBOARD FOR OUTBREAK EARLY DETECTION

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Keywords: zoonotic diseases, integrated surveillance, one health approach

Abstract: Avian influenza, COVID-19, SARS, MERS, Nipah virus infection, rabies, and Ebola were listed as One Health priority diseases in Thailand due to their contribution to emerging zoonotic diseases in this era. Thailand has various databases from multiple sectors to monitor zoonotic diseases; however, data from each sector were unintegrated. Breaking down silos and enhancing coordination across disciplines were highlighted as key aspects of the One Health approach. This study aims to review existing zoonotic disease databases in Thailand in 2023 and explore the characteristics and possibilities for interoperability among these databases. Human, animal, and environmental databases related to zoonotic diseases in Thailand were systematically searched using electronic databases such as PubMed and ThaiJO. Data on variables, owners, types of data collection, accessibility, reporting channels, and data utility were collected. We clarified and concluded the characteristics of each database and the potential for interoperability. The study reviewed four human, nine animal, and two environmental databases under nine organizations, including the Ministry of Public Health and the Ministry of Natural Resources and Environment. There was no collaboration or integration between these databases. Three of the seven priority One Health diseases (rabies, avian influenza, Nipah virus) showed high potential for data integration into a visualized dashboard. All reviewed animal databases used manual data entry, while human and environmental databases used automated data entry with APIs. However, four databases—one human laboratory and three animal surveillance systems—were not open access. This study found that each discipline in Thailand had surveillance systems or databases to monitor zoonotic diseases. However, data integration between sectors was not established. Integrated data using the One Health approach would enhance the surveillance performance of One Health priority diseases in Thailand. Nonetheless, challenges related to data governance and infrastructure need to be addressed to prepare for unpredictable emerging infectious diseases.

PB-04: ENABLING AN ACTION PLAN TO BE IMPLEMENTED IN BOTH THE HEALTH AND NON-HEALTH SECTORS FOR THE PURPOSE OF PREPARING AND RESPONDING TO DISEASES EFFECTIVELY

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Keywords: Action plan, Health, Preparedness&Response, Intersectionality

Abstract: The International Cooperation Action Plan on Disease Prevention and Control Phase 2 (2023-2027) - ICAP 2 was endorsed in May 2023. A discussion with the health and non-health sectors led to the development of ICAP 2, which aims to effectively prevent and control diseases and health hazards. The main areas of ICAP 2 were leadership, strength, smart information, and competencies. After ten months, the outcome analysis was conducted during a stakeholder's meeting from both formal and informal sources to explore the evidence of achievements. The aim of this study was to demonstrate the best practices of preparedness and response under ICAP2. In the leadership area, there was strong coordination between the Ministry of Foreign Affairs and the Ministry of Public Health to nearly finalize an establishment agreement of ACPHEED which has been led by three host countries: Indonesia, Thailand, and Vietnam. Strength was demonstrated by timely notification within 3 hours to prepare for the surveillance system, i.e., the recent avian influenza outbreak in Cambodia and the anthrax outbreak in Laos, which resulted from the 'Capacity Building on Multi-Sectoral Cooperation for Public Health Emergency Detection and Response in Border Areas' project, which involved public health, livestock, local, and security sectors and was conducted by the Office of International Cooperation, DDC. To develop smart information, all official documents related to disease prevention and control were collected systematically with respect to data privacy. The training workshop had resulted in insignificant improvements for the officers, such as global health diplomacy, global health agendas, and IHR. These findings provide evidence of the transformation from the action plan to actual practices of preparedness and response. The best practices are driven by integration and multi-sectoral cooperation at all levels and can serve as good examples of how to improve health security through detection, prevention, and response sustainably.

PB-05: TABLETOP EXERCISE ON RESPONDING TO ZOO NOTIC DISEASE THREATS (RABIES)

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Keywords: One Health, Zoonotic, Framework

Abstract: In Brunei Darussalam, the One Health concept has only been recently emphasized, in 2018 the National Rabies Taskforce (currently known as the National Zoonotic Taskforce) as established comprising of Ministry of Health, Animal health (Ministry of Primary Resources & Tourism) and the Ministry of Home Affairs. The objectives of the tabletop exercise was to validate the operational feasibility of policies on the control of zoonotic diseases, assess preparedness capacity, test inter-agency response and communication pathways and to identify multisectoral collaboration gaps, strengths, and weaknesses when responding to a public health event. The tabletop exercise comprised of 4 made-up injects centering around suspected rabies among stray dogs in a local village near the land border with Limbang, which was experiencing an outbreak of rabies. There is already an established relationship between MOH, MPRT, and MOHA to respond to rabies with clear channels of communication with existing SOPs and regulations to respond to a Rabies outbreak. Among areas with room for improvement were a lack of public awareness on how to treat dog bites, lack of knowledge of each ministries SOPs, limited expertise and manpower available for managing dogs, no SOP on handling viral messages concerning stray dogs and rabies, overpopulation of dogs remains a big issue, no local testing capability for human rabies in Brunei, no out-of-hours emergency hotline for MPRT is available. With the risk of rabies crossing the border relatively high, all ministries involved are aware of the dangers and the need for an effective and prompt response. There is still a lack of inter-agency cohesion with noticeable logistical and procedural shortcomings. These gaps and challenges have been identified and addressed throughout the exercise. Efforts need to be streamlined with further exercises.

PB-06: SITUATION ANALYSIS OF ONE HEALTH IMPLEMENTATION IN MYANMAR

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Keywords: Challenges, Gaps, One Health, Joint Plan of Action, Myanmar

Abstract: The escalating environmental concerns, risks of zoonosis, water- and vector-borne diseases, food security, and surveillance systems challenges underscore the growing prominence of the One Health paradigm in Myanmar. Aligned with One Health Joint Plan of Action (JPA), Myanmar is working to improve One Health capacities, ensuring equity, inclusivity, and accessibility. This study aimed to evaluate Myanmar's progress in the implementation of the JPA across the six action tracks, identify gaps, and recommend areas for improvement. A scoping review was conducted according to the Joanna Briggs Institute guidelines by Population, Concept, and Context. This included peer-reviewed scientific publications from 2003 to 2023, book chapters, and grey literature. Systematic searches were conducted on PubMed, Scopus, ScienceDirect, and Google Scholar, with the literature screened via the Rayyan application. Quantitative analysis described the frequency distribution of study characteristics, while thematic analysis identified the gaps in the One Health implementation. In Myanmar, zoonotic diseases like rabies remain a priority One Health issue. Although its incidence has reduced since 2015, community awareness is limited due to poor data access and disconnected animal and human health databases. Moreover, emerging and re-emerging diseases such as HIV, dengue, and malaria are major concerns with disease control hindered by poor health service uptake and limited access to treatment and other socioeconomic and environmental factors like poverty, climate change, and flooding. Myanmar is also vulnerable to food insecurity due to the presence of informal food markets and weak biosecurity control practices. Antimicrobial resistance in tuberculosis, malaria, and foodborne diseases poses serious challenges with existing surveillance and antibiotic guidelines lacking effective community supervision and integration across health sectors. This scoping review provides valuable evidence for strengthening One Health collaboration and implementation, addressing complex multidimensional health risks, and creating a more resilient health system in Myanmar.

PB-07: DEVELOPMENT OF STRATEGIES TO IMPROVE THE IMPLEMENTATION OF ONE HEALTH POLICIES IN VIETNAM

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Keywords: Inter-sectoral coordination, communication, capacity building, resource allocation.

Abstract: Vietnam is facing serious public health problems, especially those caused by climate change and increasingly complex disease outbreaks. This study explored the challenges of applying and coordinating a One Health approach to health in Vietnam. We analysed peer-reviewed articles from reputable databases (PubMed, Scopus, and Web of Science) as well as legal documents, decrees and circulars of the Vietnamese government, and official reports from Ministries to determine how Vietnam can strengthen its One Health capacities to address emerging diseases, zoonotic threats, antimicrobial resistance, and environmental contamination. From this analysis, we make practical recommendations for policymakers, health professionals, veterinary experts, plant pathologists, environmentalists, and other stakeholders to enhance Vietnam's One Health system. The recommendations include strategies for (i) Strengthening inter-sectoral coordination and communication mechanisms, (ii) Enhancing capacity building and training in One Health principles and practices, and (iii) Allocating the necessary resources to support these initiatives. These recommendations indicate how Vietnam can best utilize One Health to reduce the risk of serious health problems in the future.

PB-08: BRUNEI DARUSSALAM'S ONE HEALTH APPROACH TO MANAGE ZONOSSES: A REVIEW OF CURRENT STRENGTHS, CHALLENGES AND OPPORTUNITIES FOR THE NATIONAL TASKFORCE

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Keywords: One Health, framework, Zoonosis

Abstract: In Brunei Darussalam, the One Health approach has been applied to the control of zoonosis and antimicrobial resistance. Similar to many countries, the One Health concept has only been recently emphasized and Brunei Darussalam took this approach in 2018, with the establishment of the Brunei Darussalam AMR Committee (BDAMRC) and the National Rabies Taskforce. Nevertheless, we acknowledge there are still several barriers to the implementation of the One Health approach. The purpose of this study is to conduct a scoping review of scientific and grey literatures to overview Brunei Darussalam's current One Health approach. The aim of this study is to undertake a scoping review of other countries' One Health approach to identify areas to strengthen Brunei's current One Health approach and identify opportunities to facilitate strategic interagency coordination. We conducted an electronic literature search for articles in English language published from 2016 to 2023 using various sources. Grey literature including meeting reports, policy documents and newspaper articles were also included. A list of keywords used in the 'title' and 'abstract' were used to identify articles that are eligible for inclusion. Articles were screened independently by two reviewers and abstracted data from the relevant studies, and discrepancies will be resolved through discussion. Application of the search strategy resulted in a hit total of 719 articles. 30 articles met inclusion criteria. The development of a national One Health framework will ensure that health policies and practices take into account the complex interactions between humans, animals, and the environment, and that they are coordinated and integrated to achieve the best possible health outcomes for everyone involved.

PB-09: A RAPID ASSESSMENT OF ONE HEALTH COORDINATION FOR FOOD SAFETY IN THE PROVINCE OF MISAMIS ORIENTAL, PHILIPPINES

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Keywords: Food safety, decentralization, Philippines, One Health coordination

Abstract: Food safety is a fundamental public health concern, and one health collaboration plays a crucial role in addressing this issue. However, the one health approach is still in its infancy, thus, integrating it into policy and planning processes in Philippine local government offices is a challenge. A comparative study was conducted among local government units (LGUs) classified between 1st to 6th (based on income) in Misamis Oriental Province using LGU survey questionnaires (LSQs). LSQs were designed for local officials and decision makers involved in planning and policy development. The respondents choose the option that best corresponds with how they feel about a statement on a 4-point Likert scale. We decided to exclude “Neither” in the choices to avoid undecidedness and give the respondent a “forced choice”. We administered 23 statements nested in 8 different themes to 29 respondents. Data derived from the Likert scale are ordinal data and standard procedures in calculating weighted means, mean squares and standard deviations were followed. Datasets were log-transformed to avoid violating assumptions on normal distribution prior to statistical tests. Of the 8 themes, respondents overall agreed to 6 themes (³62% strongly agree and agree combined) and overall disagreed to 2 themes (³51% strongly disagree and disagree combined). On average, respondents mainly chose the “Agree” category, followed by “Strongly Agree”. Interestingly, overall data interpretation using “value allocation” showed that “Disagree” (1.75-2.49) scored the highest, followed by “Agree” (2.50-3.24). ANOVA and Kruskal Wallis Tests showed significant differences in Likert responses between themes and LGU classification. Local leaders and decision-makers reported positive in overall one health coordination but the high proportion of respondents choosing the “Disagree” category is a concern. Development of one health coordination awareness materials, operation manuals, and monitoring protocols are key actions that can be injected into local governance exercises.

PB-10: ADDING RABIES POST-EXPOSURE PROPHYLAXIS IMMUNIZATION DATA TO ENHANCE CASE FINDING IN THE RABIES SURVEILLANCE SYSTEM: AN EVALUATION IN PHU THO PROVINCE, VIETNAM, 2022

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Keywords: Surveillance System, Evaluation, Completeness, Timeliness, Rabies

Abstract: Dog-mediated rabies causes around 70 deaths annually in Vietnam. Phu Tho province has implemented a rabies surveillance system (RSS) since 1996. In 2016, the province added rabies post-exposure prophylaxis (PEP) data from immunization clinics to ensure more complete human rabies exposed case (HREC)-finding than traditional case-finding in the RSS that uses reports of dog bites. We performed an evaluation of the RSS and proposed recommendations. We assessed the data completeness and timeliness, defined as reported within 24 hours, from immunization clinics into the RSS, and calculated the proportion of HRECs that led to veterinary outbreak investigations (OIs). Of thirty-six immunization clinics offering rabies PEP in Phu Tho in 2022, only 15 (42%) clinics reported HRECs to the RSS. Among 4,088 HRECs who presented at immunization clinics, 48% (n=1,948) were not reported in the RSS. Seventy-five percent (6/8) key variables were filled with >90% complete data; HRECs' median reporting time was 20 hours (min-max: 14–144 hours); and 102/426 (24%) HRECs were reported late (>24hrs). Of the 2,140 HRECs that were reported both in RSS and immunization clinics, 2,013 (94%) were followed by veterinary OIs. Even without full participation of all immunization clinics, adding rabies PEP data showed significant under-reporting of persons exposed to rabies when using the RSS alone. This under-reporting can lead to unnecessary continued transmission of rabies from dogs to humans. Vietnam should consider incorporating rabies PEP data into the national rabies surveillance system.

PB-11: ONE HEALTH APPROACH IN ANTHRAX PREVENTION AND CONTROL IN GUNUNGKIDUL REGENCY, SPECIAL REGION OF YOGYAKARTA IN 2023, INDONESIA

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Keywords: Anthrax, One Health, Cross-Sector, Collaboration, Legislative support

Abstract: Gunungkidul Regency is one of the areas with a high risk of anthrax disease and is an area of Zoonosis and Anthrax Endemic. The prevention and control measures for anthrax disease that have been carried out include the formation of the One Health task force. Therefore, this study aims to find out how to apply the one health approach in efforts to prevent and control anthrax in Gunungkidul Regency. This research method uses an exploratory qualitative study with informant selection using a purposive procedure involving 15 informants from the human health sector, seven informants from the animal health sector. Data was collected through in-depth interviews and analyzed qualitatively. The results of this study show that informants need cross-sectoral collaboration in disease prevention and control and strengthening the implementation of the One Health task force in the prevention and control of anthrax in Gunungkidul Regency including information sharing, joint socialization, cross-sectoral meetings, involvement of other sectors, and legislative support. It is necessary to strengthen the One Health task force network in the prevention and control of zoonotic diseases through cross-sector coordination and collaboration.

PB-12: ONE HEALTH IN SINGAPORE: INSIGHTS FROM THE PAST AND OPPORTUNITIES IN THE FUTURE

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Keywords: One Health, Singapore

Abstract: Singapore, as a global trade and travel hub, is continually exposed to emerging health threats that necessitate a multisectoral One-Health approach to bolster public health resilience. This study reviews the implementation of One-Health initiatives in Singapore, assessing past and current policies, identifying gaps, and formulating recommendations to enhance existing strategies. The scoping review employed Arksey and O'Malley's framework, searching PubMed, MEDLINE, EMBASE, Web of Science, grey literature and official government websites for articles in English, containing terms like "One Health" and "Singapore" in titles or abstracts until September 30, 2023. Duplicates were removed, and data were charted and analysed based on the following themes (1) One Health Policy, (2) Zoonoses and Vector-Borne Diseases, (3) Antimicrobial Resistance, (4) Food Safety and Security, and (5) Environmental Health. Our study revealed historical multisectoral efforts in Singapore predate the formal adoption of the One Health approach, including the 1977 master plan to clean polluted rivers, which improved environmental health and reduced vector-borne diseases. In 2012, Singapore established the One Health Coordinating Committee (OHCC), which developed a National Strategic Action Plan on Antimicrobial Resistance and launched a biosurveillance program integrating human, animal, vector, and environmental health data for risk mitigation. Singapore's One-Health framework is robust, yet there is potential to further harness networks for advanced integrated data analysis and modeling for refined risk assessments. Promoting public awareness, fostering public-private-people collaborations, and integrating One Health into academic curricula are vital for a forward-looking strategy to tackle emerging health challenges. This study highlights the importance of continuously refining One Health strategies to adapt to evolving global health landscapes.

PB-13: THE EFFECTIVENESS OF TRACEABILITY SYSTEMS IN CONTROLLING FOOD-BORNE DISEASES IN INDONESIA

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Keywords: Traceability system, food-borne diseases, animal quarantine, agricultural commodities, One Health

Abstract: The primary goal of a traceability system in the food industry is to record the source and the location of the different products along the supply chain. This system is critical for guaranteeing food safety from farm to table. In Indonesia, the demand to integrate the system has increased in recent decades as food-borne diseases still exist and some infectious animal diseases have re-emerged, resulting in significant economic and health impacts. The Indonesian Quarantine Authority (IQA) initiated a program to lead and establish an integrated traceability system for agricultural commodities. Since IQA is the primary authority at the border responsible for managing the safety of import and export commodities, they need to initiate a collaborative assessment to identify the traceability capabilities implemented by other related stakeholders for better system implementation. Therefore, this study aims to investigate the effectiveness of the traceability systems implemented in Indonesia by conducting a literature review and survey. This review will first examine the current systems for traceability of food from animal origins, either fresh, processed, or ready-to-eat. A literature search and online survey targeting the current exporters and importers of animal-origin foods will also be done to collect the supporting data. The findings showed that the respondents understand the importance of implementing traceability of their commodities to prevent food-borne disease outbreaks starting from the country's borders. The current traceability systems have been regularly performed despite some internal technical challenges met by their organizations. However, integrating the One Health approach into these systems can enhance their effectiveness by addressing the root causes of food-borne and zoonotic diseases, promoting sustainable agricultural practices, and improving overall public health outcomes. Therefore, more regular improvements are necessary to meet the demands of Indonesia's agricultural industry.

TRACK C:

ONE HEALTH APPROACH
TO TACKLE ANTIMICROBIAL
RESISTANCE

PC-01: ANTIBACTERIAL ACTIVITY OF ANDROGRAPHIS PANICULATA AND PIPER BETLE AND THEIR INTERACTIVE EFFECTS WITH AMOXICILLIN AGAINST SELECTED RESPIRATORY PATHOGENS

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Keywords: Synergism, Plants, Antibacterial, Pathogens, Amoxicillin

Abstract: This study was undertaken to determine the antibacterial activity and interactive effects of the methanol, ethanol and aqueous extract of *Andrographis paniculata* and *Piper betle* leaves with amoxicillin against selected clinical isolates of respiratory pathogens: *Escherichia coli* USTCMS 1030, *Pseudomonas aeruginosa* USTCMS 10013, and *Staphylococcus aureus* USTCMS 1097. Preliminary screening of the antibacterial activity of the plant extracts using disk diffusion assay showed that only the methanol extract of *P. betle* exhibited inhibitory activity against all the test organisms, whereas the methanol and ethanol extracts of *A. paniculata* exhibited antibacterial activity to *S. aureus* USTCMS 1097 only. The antimicrobial properties of each plant extract were further evaluated using broth microdilution assay. Results showed that the methanol extract of *P. betle* had the second most potent antibacterial activity against all test bacteria with minimum inhibitory concentrations of 35.2 mg/mL, 7.33 mg/mL, and 4.4 mg/mL for *E. coli* USTCMS 1030, *P. aeruginosa* USTCMS 10013 and *S. aureus* USTCMS 1097, respectively. The interactive effects of plant extracts and amoxicillin were then evaluated first using disk diffusion, wherein it showed that the methanol and aqueous extracts of *P. betle* had promising synergistic effect with the antibiotic amoxicillin. These results was confirmed by checkerboard assay wherein the aqueous extract of *P. betle* showed an additive effect to amoxicillin against *E. coli* USTCMS 1030 (FICI = 0.66), while the methanol extract of *P. betle* exhibited true synergism with amoxicillin against *P. aeruginosa* USTCMS 10013 (FICI = 0.33). This synergistic interaction between the methanol extract of *P. betle* and amoxicillin was significantly high considering that the activity of amoxicillin was increased by 128-fold. This combination may have potential in treating respiratory and other clinical diseases associated with amoxicillin-resistant *P. aeruginosa*.

PC-02: ANTIBIOTIC KNOWLEDGE AND AWARENESS: A PRELIMINARY STUDY ON BUILDING AN ANTIBIOTIC-WISE VILLAGE IN BALI

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Keywords: Antibiotic, Knowledge, Awareness, Antibiotic-Wise Village, Bali

Abstract: Antimicrobial resistance (AMR) is a growing public health threat globally and in Indonesia. To address these issues, an Antibiotic-wise village model was created, and an antibiotic awareness and education campaign was employed within the model to change public perception. This study assessed the community's knowledge and awareness of AMR in Bali. This was a cross-sectional household (HH) survey and intervention study in primary healthcare workers (HCW) and poultry farmer groups (PFG) in Bengkel Village, Bali, Indonesia, conducted between June and August 2023. A sample of 72 households survey was gained consecutively; 14 HCW and 15 poultry farmer groups used a total sampling. Data were gained from each target group through interviews by trained enumerators. Interventions to primary health care workers and PFG were education-related and prudent use of antibiotics in humans and animals, respectively. The Wilcoxon Signed Ranks test was used to analyze between pre-and post-tests. According to the household survey, the average score of knowledge-related antibiotics was 65,8%. The majority of participants responded that antibiotics are used for viral infections (81%) and certain conditions such as fever (58%), cough and flu (64%), and sore throat (67%). The intervention study significantly improved knowledge among HCWs (pre-post-test, $p < 0.05$). In poultry farmer groups, participants were unwilling to consume meat with residual antibiotics after receiving the AMR information. Most poultry group farmers (80%) agreed to prohibit antibiotics from being added to their poultry animals' food and water, and 93% of participants agreed that bacterial resistance would be difficult to treat. Lack of knowledge throughout the survey presents an intriguing discovery that warrants more intervention. In accordance with the One Health concept, a community-based antibiotic education intervention is required in both the human and animal domains to increase awareness of the threat of antimicrobial resistance.

PC-03: COMMUNITY ENGAGEMENT APPROACH TO PREVENT ANTIMICROBIAL RESISTANCE AMONG SCHOOL CHILDREN

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Keywords: Community Engagement, School Children, Antimicrobial Resistance, One Health

Abstract: One objective of the global action plan on AMR is to improve awareness and understanding of antimicrobial resistance through effective communication, education, and training, which can then facilitate behavior change. Community engagement (CE) can achieve long-term and sustainable awareness and behavior change, especially in schoolchildren. There is little evidence about the effectiveness of AMR prevention using a community engagement approach among schoolchildren in the developing world. We searched the following sources: Pubmed, Scopus, and Web of Science. Through the identified reviews, we collated a database of primary studies that appeared to be relevant and screened the full-text documents of those primary studies against our inclusion criteria. We included studies that i) focused on AMR interventions, ii) school children, iii) LIC, LMIC, and UMIC, and iv) written in English. We categorized the CE approach based on the World Health Organization level of CE (inform, consult, involve, collaborate, empower). Outcome results were extracted quantitatively and synthesized narratively. Four (4) studies were found until 2023 that covered AMR intervention among school children in L/LM/UMIC. All studies use one group pre-post experimental design. The intervention included video-based education materials, storytelling and picture drawing-based education programs, and offline/face-to-face education sessions. The level of community engagement ranged from just informing school children during the intervention delivery; consultation to community members (such as pharmacists, schoolteachers, students, and parents) during the development of the intervention; until involving community member in the preparation and delivery of the intervention. Three studies found a significant increase in AMR knowledge among school children. CE interventions level varied from “inform” to “involve” level. CE may effectively prevent AMR among schoolchildren in L/LM/UMIC. Careful design and approach to CE interventions are vital. Long-term evaluation is needed to understand their full impact.

PC-04: ISOLATION AND IDENTIFICATION OF CARBAPENEM RESISTANT ENTEROBACTERIACEAE DUE TO ESCHERICHIA COLI AND KLEBSIELLA PNEUMONIAE FROM DAIRY CATTLE RAW MILK IN SELANGOR

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Keywords: Carbapenem Resistant *Enterobacteriaceae*, *E. coli*, *K. pneumoniae*, raw milk, dairy cattle

Abstract: Emergence of carbapenem resistance *Enterobacteriaceae* (CRE) alongside its widespread dissemination is a serious public health problem. This study was conducted to determine the prevalence of CRE *Escherichia coli* (*E. coli*) and *Klebsiella pneumoniae* (*K. pneumoniae*) in dairy cattle from selected farms in Selangor, Malaysia. For this presentation, we report the results from the isolation and identification of CRE *E. coli* and *K. pneumoniae* involving 684 milk samples collected aseptically from 171 dairy cattle from 22 farms from eight districts of Selangor. The milk samples were cultured on MacConkey agar and incubated at 37°C for 24hrs. *E. coli* and *K. pneumoniae* colonies were identified based on the appearance of dry red and pinkish mucoid appearance, respectively. The pure isolated colonies were sub-cultured on nutrient agar. The identification of *E. coli* and *K. pneumoniae* was done by oxidase test, triple sugar iron (TSI), citrate test, urease test and sulphur indole motility (SIM) test. The results from the bacteriological culture (n=684) revealed that 30 (4.39%) *E. coli* and 60 (8.77%) *K. pneumoniae* isolates were identified. Based on the antimicrobial susceptibility test (AST) by Kirby-Bauer disc diffusion method using 12 antibiotic discs, for *E. coli* isolates, one (3.3%) each showed intermediate resistance to ertapenem and meropenem, and 3.3% showed resistance to aztreonam. Of the 60 *K. pneumoniae* isolates, 1.66% showed intermediate resistance to ertapenem and meropenem; 3.33% were resistant to aztreonam and 1.66% were resistant to doripenem. The three isolates that were found resistant to carbapenems were subjected to phenotypic detection of carbapenemases using modified Hodge test and modified carbapenem inactivation method (mCIM). The results were all positive. Detection of CRE-*E. coli* and *K. pneumoniae* isolates from raw milk of clinically healthy dairy cattle depicts that a comprehensive 'One Health' approach is needed to control the spread of CRE in humans, animals and environment.

PC-05: EFFECT OF FEEDING A SACCHAROMYCES CEREVISIAE FERMENTATION PRODUCT ON GROWTH PERFORMANCE AND INTESTINAL HEALTH IN CROSSBRED BROILER CHICKENS RAISED IN A SECTOR 3 PRODUCTION SYSTEM IN VIETNAM

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Keywords: postbiotic, intestinal health

Abstract: This study aimed to explore the effects of a *Saccharomyces cerevisiae* fermentation product (SCFP) on growth performance and intestinal health of chickens raised in a sector 3 production system in Vietnam. One hundred ninety-two 1-day-old chickens were assigned to 2 treatments. Dietary treatments were: 1) a standard basal diet (control) and 2) a standard basal diet containing a *Saccharomyces cerevisiae* fermentation product (treatment). The broilers were individually weighed every week. Feed intake was measured daily per pen. At 84 days old, the small intestine was collected for intestinal morphology analyses by hematoxylin and eosin staining. Gut integrity was evaluated by checking the expression of tight junction genes using qRT-PCR. Results showed that supplementation of SCFP did not affect the average daily gain, feed intake, and feed conversion ratio ($P > 0.05$). Similarly, supplementation of SCFP did not change the villus height and crypt depth of intestinal tissues ($P > 0.05$). Besides, SCFP did not affect the expressions of Claudins, Occludin, ZO1, and JAM but down-regulated the E-cadherin expression. Overall, supplementation of SCFP did not affect chicken performance as well as the morphology and tight junction gene expression of intestinal tissues of chickens raised in sector 3 production system in Vietnam.

PC-06: EFFECT OF ANTIMICROBIAL ACTIVITY OF STARFRUIT LEAF EXTRACT (AVVERHOA BILIMBI L.) ON THE GROWTH OF STAPHYLOCOCCUS AUREUS BACTERIA DIFFUSION METHOD

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Keywords: Antimicrobial, *Staphylococcus aureus*, Avverhoa bilimbi L

Abstract: Avverhoa bilimbi L plants are plants that can grow in the tropics. Avverhoa bilimbi L leaves contain several compounds, including flavonoids, alkaloids, phenol, saponin, citric acid, formic acid, and potassium citrate. Avverhoa bilimbi L leaves have properties as a heat-lowering drug, goiter medicine, inflammation of suppurating skin and ulcers, and antibacterial. *Staphylococcus aureus* bacteria are gram-positive bacteria, usually arranged in groups like grapes. *Staphylococcus aureus* is one of the most common causes of skin infections. This study aims to determine the effect of the concentration of ethanol extract from starfruit leaves (Avverhoa bilimbi L) on the inhibitory zone of *Staphylococcus aureus* bacteria. This research method is quasi-experimental, using a purposive sampling technique. Ethanol extract of starfruit leaves (Avverhoa bilimbi L) was obtained by extraction of maceration method. The sample used was an ethanol extract of starfruit leaves (Avverhoa bilimbi L) with concentrations of 25%, 50%, and 75%. The results showed a minimum drag of 8.00 mm and a maximum of 11.00 mm with an average resistance zone of 8.89 mm. Based on statistical analysis using Spearman's Rho test, it was found that the value of $p = 0,000 < \alpha 0.05$ H¹ was accepted, meaning that there was an influence of ethanol extract of starfruit leaves (Avverhoa bilimbi L) on growth of *Staphylococcus aureus* bacteria. Starfruit leaves (Avverhoa bilimbi L) can be used as an alternative medicine to inhibit *Staphylococcus aureus* bacteria.

PC-07: ANTIMICROBIAL RESISTANCE: DOES THE PUBLIC HAVE THE ANTIBIOTIC AWARENESS?

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Keywords: Antimicrobial resistance, AMR, public awareness, knowledge

Abstract: Antimicrobial resistance (AMR) stands as a critical threat to global public health, designated by the WHO as one of the foremost challenges facing humanity. The misuse and overuse of antimicrobials in humans, animals, and plants accelerate the development of bacterial resistance, rendering many treatments ineffective. A comprehensive understanding of antimicrobial resistance can significantly influence antibiotic consumption patterns. Thus, this study aimed to assess the level of knowledge concerning antibiotic resistance among the general population in Malaysia. This cross-sectional study, conducted from March to September 2023, targeted the general population in Malaysia through an online platform. Participants completed a validated questionnaire distributed via Google Forms, comprising demographic inquiries and 11 questions related to antibiotics and resistance. Out of 357 participants, females slightly outnumbered males (55.7%), with the majority (59.9%) aged between 20 and 29 years, and nearly 30% identified as students. Surprisingly, 51.5% of respondents had not previously encountered information about AMR. Overall, knowledge levels were found to be poor, as indicated by scores below the mean. Nearly half of the participants agreed that antibiotics need not be completed once symptoms subside, and approximately 60% were unaware that frequent or prolonged antibiotic use contributes to antimicrobial resistance. Additionally, a significant portion was unaware that infections caused by resistant bacteria pose challenges in treatment. The study revealed a concerning lack of awareness about AMR among half of the respondents, highlighting the urgent need for education initiatives aimed at informing the general population about the repercussions of AMR and their pivotal role in minimizing its impact.

PC-08: PRELIMINARY INSIGHT ON ANTIMICROBIAL-RESISTANT ESCHERICHIA COLI FROM FAECAL SAMPLES OF SYNANTHROPIC BATS ON A UNIVERSITY CAMPUS AND SURROUNDING AREAS

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Keywords: antibiotic-resistant pattern, multi-drug resistance, One Health, synanthropic bats

Abstract: Antimicrobial resistance (AMR) continues to be on the top list of global health agenda across human, animal and environmental health sectors. Wild animals are often not accounted for in routine national AMR surveillance programs as the priority is mainly on food-producing animals, taking into consideration the financial and manpower constraints. Recent reports on climate change and forest fragmentation may influence AMR epidemiology from a One Health perspective. The level of anthropogenic presence may contribute to the presence of AMR in wild animals including bats. Therefore, this study aims to investigate AMR in synanthropic bats, using *Escherichia coli* as an indicator bacteria. Fresh guano (n = 51) were collected from insectivorous (*Scotophilus kuhlii* and *Hypsugo macrotis*) and frugivorous (*Cynopterus brachyotis*) bats in UPM Serdang Campus, Ayer Hitam Forest Reserve (AHFR), and Malaysia Agro Exposition Park Serdang (MAEPS), Selangor. *E. coli* was the predominant Enterobacteriaceae isolated (45%, 81/179). Antibiotic sensitivity testing (AST) was performed using Kirby Bauer's disk diffusion technique. *S. kuhlii* had the most pronounced resistant pattern as *E. coli* isolates depicted resistance to most antimicrobials, notably ampicillin, cephalexin, and streptomycin. *E. coli* from guano of *S. kuhlii* in a location with frequent human presence in the campus were 11.7 times more likely to exhibit multi-drug resistance compared to *E. coli* from guano of *C. brachyotis* in an area with less human presence (p-value < 0.05). AMR is a complex issue that can be mitigated by adopting the One Health approach and fine-tuning conservation strategies to suit the local context in preserving the natural habitats of bats in human-encroached space.

PC-09: EXPLORING THE RESISTOME AND MOBILOME OF HIPPOCAMPUS COMES AND ITS SURROUNDING ENVIRONMENT USING METAGENOMICS

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Keywords: Antibiotic resistance; antibiotic resistance genes (ARGs); mobile genetic elements (MGEs); metagenomics; bioinformatics; seahorses

Abstract: Antibiotic resistance is a growing global health concern that requires a comprehensive multidisciplinary and integrated approach to reduce its impact. Given that marine biota and their ecosystems are not exempt from the impact of this phenomenon, this study aimed to investigate the prevalence and diversity of antibiotic resistance genes (ARGs) and mobile genetic elements (MGEs) in tiger-tail seahorse (*Hippocampus comes*) and their surrounding environment (water and sediment). The combination of shotgun metagenomics and bioinformatics demonstrated that seahorse-associated microbiomes were enriched in ARGs, with the skin and gut microbiota exhibiting the highest abundance of ARGs (especially those conferring multidrug resistance) than water and sediment samples. Particularly concerning is the detection of clinically important ARGs conferring resistance to B-lactam and fluoroquinolone antibiotics (including penicillins, cephalosporins, and carbapenems). Moreover, seahorse-associated microbiomes were also enriched in markers of mobile genetic elements (MGEs), including transposases (indicators of transposons, insertion sequences, and ISCR elements), integrases (indicators of integrons), and MOB relaxases (indicators of conjugative and mobilizable plasmids), which highlight their potential role in facilitating the acquisition and spread of ARGs. The occurrence of ARGs and MGEs in seahorses and the surrounding environment raises concerns about their transmission to humans, either through direct contact or the consumption of contaminated seafood. To the best of our knowledge, this study represents the first comprehensive analysis of ARGs in seahorse-associated microbiomes, and its results emphasize the need for monitoring and controlling the spread of ARGs in environmental settings.

PC-10: ANTIMICROBIAL RESISTANCE PROFILE OF ESCHERICHIA COLI ISOLATES FROM PASIG RIVER

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Keywords: surface water, antimicrobial resistance, multi-drug resistance, one health, environmental health

Abstract: Environmental pathways such as surface waters play a significant role in the continued emergence and persistence of antimicrobial resistant (AMR) pathogens, which lead to challenges in treatment and worse patient outcomes. The transmission of AMR among coliforms in bodies of water poses a threat to public health and safety. Hence, this study aims to determine the prevalence, resistance patterns, and AMR classifications of drug-resistant *E. coli* among isolated strains from Pasig River, a major water body in Manila, Philippines. Three 1L water samples were collected from the Escolta River ferry station portion of the river and were subjected to pre-filtration, membrane filtration, initial culture, subculture, and biochemical testing. A total of 18 *E. coli* isolates were tested for antibiotic susceptibility to 11 antimicrobials from 9 classes using disk diffusion method. Out of the isolates, 10 (55.56%) were found to have resistance to at least one antimicrobial, with 4 being classified as multi-drug resistant (MDR). Resistance was observed for 6 antimicrobials—namely, ampicillin (44.44%), sulfamethoxazole-trimethoprim (27.78%), tetracycline (27.78%), cefazolin (22.22%), nalidixic acid (11.11%) and cefotaxime (5.56%). Half (50.00%) of the isolates exhibited intermediate sensitivity to cefazolin, while complete susceptibility was observed against gentamicin and imipenem. Four (40%) of the ten resistant isolates were classified as MDR and were all found to exhibit co-resistance to ampicillin, sulfamethoxazole-trimethoprim, and tetracycline. The results of the study provide preliminary data on the potential risk of drug-resistant infection to the immediate community and the need for strengthened environmental surveillance in local and global AMR strategies.

PC-11: DETECTION AND EVALUATION OF ANTIMICROBIAL RESISTANCE PROFILES ON VIBRIO SPP. AND AEROMONAS SPP. FROM PANGASIOUS FISH IN SIEM REAP PROVINCE

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Keywords: *Vibrio parahaemolyticus*, *Aeromonas hydrophila*, pangasius fish, antibiotics, antimicrobial resistance

Abstract: Pangasius fish carry various bacteria, notably *Vibrio* spp. and *Aeromonas* spp., which concern human health risks and fish production. Meanwhile, the more antibiotics used in production, the greater the risk of antibiotic-resistant bacteria dominating competition at the antimicrobial resistance level. The study aimed to detect and identify the presence of *Vibrio* spp. and *Aeromonas* spp. in pangasius fish from 3 targeted markets in Siem Reap province using 30 samples and analyze the susceptibility to 7 antibiotics and determine the resistance profiles. The experiments were performed at the Microbiology Laboratory at RUA. These two bacteria can be detected using selective mediums known as TCBS Agar and MacConkey Agar. The purified colonies were then identified and characterized by gram stain, biochemical tests including catalase, oxidase, TSI, and motility test, and then confirmed strains using API 20E Version 5.0 system. The antibiotic susceptibility test was conducted using the disk diffusion method with 7 different drugs. The result showed that the total presence of *Vibrio parahaemolyticus* (n=12) was 40% and *Aeromonas hydrophila* (n=14) was 46.67%. Consequently, both bacteria had strong resistance to Ampicillin and Colistin Sulphate but were highly sensitive to Florfenicol, Sulfamethoxazole/Trimethoprim, and Ciprofloxacin. In conclusion, the significant presence of these bacteria in pangasius fish poses health risks. The use of antibiotics often leads to bacterial immunity and antimicrobial resistance in which both bacteria show resistance to Ampicillin and Colistin Sulphate. This emphasizes the need for a cautious approach to antibiotic use to safeguard human health and maintain efficacy in pangasius fish.

PC-12: SENIOR MEDICAL STUDENTS' KNOWLEDGE, ATTITUDE, AND PERCEPTION CONCERNING ANTIBIOTIC USE AND RESISTANCE IN CAMBODIA

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Keywords: Antibiotic use, antimicrobial resistance, medical student, knowledge, and perception

Abstract: Emerging and increasing antimicrobial resistance (AMR) poses potential threats in Cambodia and worldwide. This study aimed to assess level of knowledge, attitude, and perception (KAP) about antibiotic use and resistance among sixth-year medical students before introducing the antimicrobial stewardship competency-based curriculum in medical science education in Cambodia. A study was conducted in Phnom Penh, Cambodia, where senior medical students from three health science universities were randomly selected to complete a self-reported questionnaire. KAP scores were calculated to determine the appropriation. Chi-squared and multivariable logistic regression and adjusted odd ratios (aOR) with a 95% confidence interval (CI) were used to assess the relationship between the demographic characteristics and KAP. In total, 137 (female = 51) participants completed the survey, of which 72.1% attended AMR training during their time at the university. About half of respondents reported being confident in selecting the best antibiotics for specific infections (59.6%), reading and interpreting antibiograms (55.5%), and knowing how to switch from intravenous to oral antibiotics (52.6%). Only 40.8% of students demonstrated an overall good knowledge of AMR. Nearly half (46%) students held positive attitudes and perceptions toward AMR. Furthermore, factors associated with poor knowledge were difficulty in interpreting antibiograms (aOR 2.3, 95% CI: 1.05 - 5.19), limited familiarity with AMR key terms (aOR: 2.75, 95% CI: 1.12 - 6.75), and using of antibiotics in the past month (aOR: 2.72, 95% CI: 1.12 - 6.63). Students who had insufficient knowledge of the basic mechanism of antibiotic resistance (aOR: 2.80, 95% CI: 1.21 - 6.49) and limited familiarity with AMR key terms (aOR: 3.68, 95% CI: 1.53 - 8.87) were more likely to exhibit negative attitudes and perceptions toward AMR. This evidence suggests that it is imperative to provide medical students with comprehensive AMR education through both university and in-service training programs.

PC-13: ONE HEALTH APPROACH TO COMBATTING ANTIMICROBIAL RESISTANCE: LEVERAGING DIGITAL PLATFORMS FOR WIDER AWARENESS AND ENGAGEMENT

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Keywords: antimicrobial resistance, antibiotic courses, INDOHUN

Abstract: Antimicrobial Resistance (AMR) presents a pressing concern wherein microorganisms, spanning bacteria, viruses, fungi, and parasites, evolve to resist previously effective drugs. This evolution renders infections stubbornly resistant to treatment, heightening the risk of transmission and exacerbating disease severity. Notably, AMR emerges as a formidable threat to public health, security, and economic stability, both domestically and globally. Beyond escalating healthcare expenditures, it catalyzes a plethora of multidimensional challenges. Regrettably, even though the accessibility of information is now widespread, many remain oblivious to the gravity of AMR. Behaviors such as purchasing antimicrobial medication without a prescription, incomplete antibiotic courses, and unsupervised recommendations exacerbate the issue. Enter One Health—an integrative paradigm acknowledging the interconnectedness of human, animal, and ecosystem health. Anchored on the pillars of prevention, detection, and response, One Health offers a holistic strategy. The Indonesia One Health University Network (INDOHUN) emerges as a pivotal player in championing prevention through educational endeavors. Leveraging social media as a conduit, INDOHUN disseminates educational and programmatic content related to One Health. An annual highlight is the observance of World Antibiotics Awareness Week in November, marked by an intensified AMR campaign. Employing versatile approaches—riding-the-wave and semi-scientific—INDOHUN optimizes content dissemination, capturing and engaging digital audiences effectively. Through strategic planning and innovative outreach, INDOHUN fosters heightened awareness and understanding of AMR, contributing significantly to the global effort against this burgeoning threat.

PC-14: ASSESSMENT OF ANTIBIOTIC RESISTANCE ON *VIBRIO* SPP. AND *AEROMONAS* SPP. ISOLATED FROM RED TILAPIA FISH IN SIEM REAP PROVINCE, CAMBODIA

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Keywords: Antimicrobial Resistance, Public Health, *Vibrio* spp., and *Aeromonas* spp.

Abstract: This study aims to investigate antibiotic-resistant bacteria, such as *Vibrio* spp. and *Aeromonas* spp., in red tilapia fish farming in Siem Reap province. Samples were collected from five different farms located in Siem Reap city, Sor Nikorm, Prasat Bakong, Banteay Srey, and Chi Krong District. *Aeromonas* spp. and *Vibrio* spp. were isolated using selective media such as TCBS agar and Aeromonas Selective Agar. Suspected colonies were subjected to biochemical tests and identified using the API 20E and API 20NE systems. Antimicrobial sensitivity testing was performed using seven different antibiotics. The temperature of water samples was between 27° to 30.7°, pH was between 6.66 to 9. A total of 25 Sample (N=25) such as 44% of presumptive *Aeromonas hydrophilia* (n=11) and 16% of presumptive *Vibrio* spp. (n=4) followed by *Vibrio cholerae* (n=2), *Vibrio alginolyticus* (n=1), and *Vibrio parahaemolyticus* (n=1) were isolated from fish sample. The result of Antibiotic resistance for *Aeromonas hydrophilia* (n=11) was 27.7% to Ciprofloxacin (CIP), Colistin Sulphate (CL), Oxytetracycline (OXT), 45.45% to Florfenicol (FFC), 54.54% to Sulfamethoxazole (SXT), 81.81% to Ampicillin (AMP), and 100% to Erythromycin (E). Moreover, the resistance of *Vibrio cholerae* (n=2) was 50% to OXT, 100% to AMP, CL, E, and FFC. For *Vibrio alginolyticus* (n=1) was 100% to AMP, CL, OT and *Vibrio parahaemolyticus* (n=1) was 100% to AMP, CL and E. The sample had a high percentage of *Aeromonas hydrophilia* and had high resistance to FFC, SXT, AMP and for *Vibrio* spp. had high percentage of AMP, CL, FFC, OT and E. Due to a high risk for processing that causes food safety. This study provides an implication toward the urgent management and control of the spread of AMR in aquaculture practice.

TRACK D:

COLLABORATIVE APPROACH TO
EMERGING AND RE-EMERGING
INFECTIOUS DISEASES

PD-01: RISK FACTOR STUDY OF BACILLUS ANTHRACIS IN SOUTH SULAWESI AND WEST SULAWESI PROVINCES, INDONESIA

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Keywords: *Bacillus anthracis*, risk factor, Sulawesi

Abstract: *Bacillus anthracis* is the etiology of anthrax, which is a zoonotic and strategic disease in the provinces of South Sulawesi and West Sulawesi. This disease is endemic and cannot be eradicated because naturally, *Bacillus anthracis* is capable survive for decades under a variety of conditions. This study aims to identify and investigate risk factors for anthrax disease in South Sulawesi and West Sulawesi Provinces. This study used a case-control approach, as many as 222 farms consisting of 81 case farms and 141 control farms from eight regencies were taken as samples. Data analysis used for risk factor study were univariate, bivariate (Chi-square) and multiple logistic regression statistic. The final model results of the logistic regression analysis of the risk factor investigation showed that free range system ($\beta = 1.69$; $p = 0.033$; $OR_{pop} = 5.15$, 95%CI 1.4 – 23.33); disposal system for death animal ($\beta = 1.64$; $p = 0.000$; $OR_{pop} = 5.16$, 95%CI 1.2 – 22.17); forced slaughter's animal product distribution ($\beta = 1.48$; $p = 0.010$; $OR_{pop} = 4.38$, 95%CI 1.4 – 13.59), inappropriate treatment of sick animal ($\beta = 1.43$; $p = 0.008$; $OR_{pop} = 4.20$, 95%CI 1.4 – 12.31); direct contact between farmer and animal trader/ market place ($\beta = 1.43$; $p = 0.009$; $OR_{pop} = 4.19$, 95%CI 1.4 – 12.44); close proximity between disposal place/ burial site to animal household ($\beta = 1.24$; $p = 0.009$; $OR_{pop} = 3.46$, 95%CI 0.81 – 14.71); had a strong influence and association with the incidence of anthrax in South Sulawesi and West Sulawesi. Risk factors above were related to transmission between animals/ or to humans; distribution of disease from suspected/ infected animal products; and spore contamination to the environment. Therefore more effective public awareness needed to minimize risk factors and mitigate future anthrax incidence in both provinces.

PD-02: SURVEILLANCE SYSTEM EVALUATION OF SCRUB TYPHUS THROUGH INTEGRATED HEALTH INFORMATION PLATFORM PORTAL, UDAIPUR AND AJMER DISTRICT, RAJASTHAN, INDIA: APRIL TO JUNE 2023

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Keywords: Scrub typhus, attributes, surveillance system, Rajasthan, India

Abstract: Scrub typhus is a resurging life-threatening rickettsial infection. It is reported through the national-level surveillance system IHIP (Integrated Health Information Platform). The study aimed to evaluate the surveillance system for scrub typhus against the selected attributes to identify the gaps and provide evidence-based recommendations in the state of Rajasthan. A cross-sectional study was conducted from April to June 2023. Districts were selected based on the highest and lowest reporting status on the IHIP platform. Data was collected through stakeholder interviews using a semi-structured questionnaire and record reviews of health facilities. The data was entered into Microsoft Excel and graded using a Likert scale from poor to very good. CDC MMWR guidelines were used to evaluate simplicity, flexibility, data quality, representativeness, acceptability, usefulness, timeliness, and stability. The simplicity and stability of the system scored 66%. While stakeholders knew the reporting format, they lacked training for identifying scrub typhus, and 79% of facilities lacked diagnostic kits. Acceptability was 65%, with most Lab forms filled, but few probable forms. Data quality was poor, with only 13% of P forms matching L forms, and portal data being less than physical data. Timeliness was 48% because the lowest reporting district took over 24 hours to upload reports, testing scrub typhus weekly. Data sharing was flexible, with rights at both district and state levels. The representativeness of private hospitals under IHIP was non-existent. Among government facilities, only the medical college tested for scrub typhus, accounting for 21% of cases. The system's usefulness was 40%. While the system exhibited flexibility at the state level, with average scores for simplicity, acceptability, and stability, poor scoring for data quality, usefulness, and timeliness was evident. Representativeness was very poor, and a lack of awareness regarding diagnostic aspects underscored the system's limitations. Further improvements are imperative for effective surveillance of scrub typhus in the region..

PD-03: INTEGRATED ONE HEALTH PERSPECTIVE ON FACILITY RESPONSES IN HUE CITY'S FOOD SUPPLY CHAINS DURING THE COVID-19 CRISIS

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Keywords: One health, COVID-19, Food supply chain, workers

Abstract: The COVID-19 pandemic is a global crisis and can lead to an insecure food supply, particularly in vulnerable communities. This study explores the impacts of the COVID-19 pandemic and responses of food supply chains using One Health approach. The study utilized a rapid assessment tool to evaluate the coping strategies of 28 facilities and 300 employees who worked in the food supply chain for the markets in Hue city. The results indicated that the COVID-19 pandemic has disrupted the chain, with 12 out of 28 workplaces being closed and half of the sites experiencing infection cases. Despite the majority of participants understanding preventive measures for COVID-19, such as wearing a mask and hand washing, only 48.3% of participants understood that the virus causes COVID-19 disease. The study also found that physical distancing was difficult to meet the recommendation of World health organization (WHO) and Ministry of health (MOH) in the workplaces, particularly in the slaughterhouse markets. However, employees were found to be highly responsive to safety protocols, with 100% of workers wearing a mask and 88.7% of them supposing that their workplaces had regulations for wearing masks. The study revealed that the COVID-19 pandemic has had negative impacts on the mental health of 56.3% of participants and delayed health examination for 44% of them. In conclusion, this study highlights the urgent need to implement effective measures to prevent COVID-19 transmission within the food supply chain. An integrated One Health approach is crucial in mitigating the impacts of the disease and any potential future crises. Through coordinated efforts between public health authorities, agricultural stakeholders, and other relevant sectors, we can ensure food security.

PD-04: TAKING ACTION AGAINST PHILIPPINES' NEGLECTED VECTOR-BORNE ZOOSES: ADVOCACY FOR INFORMATION, EDUCATION AND COMMUNICATION OF JAPANESE ENCEPHALITIS USING ONE HEALTH APPROACH

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Keywords: Japanese encephalitis, Mosquito vectors, One Health, Advocacy, Philippines

Abstract: Japanese encephalitis (JE) is a viral zoonosis mainly spread via mosquito bites from infected animals like pigs and birds to humans in rural settings, particularly in flooded rice fields near human settlements. As the primary cause of crippling viral encephalitis in children with a case fatality rate exceeding 20%, JE is significant for both society and public health in the Asia-Pacific region. In fact, the Philippines belongs to the countries with the highest number of reported JE cases in 2022 based on the World Health Organization. India provided the highest number of cases that year, followed by China, Vietnam, Bangladesh, and Nepal. In this study, a systematic literature review has been done following the steps in conducting systematic search and analysis developed by Houston (2023). This study has adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines for reporting standards. Endemic throughout the Philippines, this study also presents an updated nationwide overview of the geographic and epidemiological range of JE, covering the three major islands of the Philippines. Through data requisitions, roundtable discussions, and organized meetings with relevant national government agencies and local government units, this study has identified varying socio-demographic characteristics and ecological factors contributing to JE. Moreover, it has evaluated One Health initiatives for hybrid collaboration and coordination to intensify awareness, information, education, and communication in JE-affected communities. The One Health Systems operationalization approach has been employed to initiate, facilitate, and scale up multi-partite joint participation and shared engagement at the human-animal-environment interface for targeted JE advocacy.

PD-05: SPATIAL ANALYSIS OF DENGUE HEMORRHAGIC FEVER DISEASE CONDITION AND ITS INFLUENCING FACTORS BASED ON THE HEALTH PROFILE OF THE REPUBLIC OF INDONESIA

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Keywords: DHF, Spatial, Risk Factor, Distribution

Abstract: Dengue fever remains a significant public health problem in Indonesia. This study aims to conduct a spatial analysis of DHF cases and deaths in Indonesia, with the objective of identifying spatial patterns and factors that influence the distribution of the disease. Data on DHF cases and deaths were obtained from official health reports from 2012 to 2022. Spatial analysis was conducted using Geographic Information System (GIS) techniques and spatial statistics, such as hotspot analysis and clustering. Risk factors affecting the distribution of DHF, such as population density, physical environment, and socio-economic factors, were also evaluated. The analysis showed significant spatial patterns in the distribution of dengue cases and deaths in Indonesia. Certain areas showed higher incidence rates compared to other areas. Hotspot analysis identified spatially significant clusters of DHF cases. Risk factors such as high population density, lack of access to health services, and environmental conditions that allow the development of *Aedes* mosquitoes as the vector of DHF, appear to play a role in the distribution pattern of the disease. In conclusion, spatial analysis can provide valuable insights into understanding the distribution pattern of DHF in Indonesia. This information can be used to direct more effective disease prevention and control efforts, including the proper allocation of resources and implementation of interventions appropriate to each region's geographic and socio-economic characteristics.

PD-06: STRENGTHENING INDONESIA'S OUTBREAK INVESTIGATION CAPACITY: THE INFECTIOUS DISEASE MANAGEMENT TRAINING

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Keywords: One Health Training; Infectious Disease Management Training; One Health Capacity Building.

Abstract: Decree No. 23/2014 mandates Indonesia to establish Minimum Service Standards (SPM) for handling zoonotic diseases via cross-sectoral collaboration. Government Decree No. 2/2018 further emphasizes health services during outbreaks as a basic SPM requirement. However, field officers struggle to obtain outbreak investigation training due to potential job loss risks, despite the high demand for skilled health officers at the provincial level. The training aims to enhance health officers' outbreak investigation skills using a One Health approach and promote cross-sectoral discussions. Goals include government adoption of the training, development of comprehensive modules, and capacity improvement of local officers to conduct joint outbreak investigations across districts in West Sumatera and Yogyakarta, Indonesia, 2018. Collaborating with Ciloto Health Training Center for Human Health (BBPK Ciloto) and Cinagara Health Training Center for Animal Health Officer (BBPKH Cinagara), the program focuses on developing health officers' capacity in managing zoonotic disease outbreaks. Supported by the Ministries of Health and Agriculture, the training employs a standardized format developed by BBPK Ciloto. The program conducted four batches of training, with BBPK Ciloto agreeing to its adoption and regular conduct. 123 government officers across various institutions received training, piloted in 10 districts with BBPK Ciloto and BBPKH Cinagara. Seven modules were developed, enhancing public knowledge through livestreamed lectures and improving knowledge, skills, and collaboration among field epidemiology officers. The In-Service One Health Education and Training program has successfully bolstered the technical skills of Indonesia's outbreak investigation workforce. Through alignment with government decrees and successful pilot sessions, the program demonstrates effectiveness in advancing public health initiatives. With BBPK Ciloto's adoption and module development, the program is poised for expansion and sustainability, pending continued advocacy and support from relevant government bodies.

PD-07: SCALING UP RABIES EDUCATION: INSIGHTS FROM A MASS OPEN ONLINE COURSE (MOOC) INTERVENTION FOR ADULT DOG OWNERS COMMUNITY IN NORTHEASTERN PENINSULA MALAYSIA

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Keywords: Rabies, Dog owners, MOOC, Malaysia, Intervention

Abstract: Rabies remains a significant public health concern globally. Dogs serve as the primary reservoir and vector for rabies transmission to humans, highlighting the importance of collaborative efforts across disciplines to combat this disease. Modern educational platforms like Massive Open Online Courses (MOOCs) offer scalable solutions for disseminating health education materials to diverse communities. This study aims to evaluate the effectiveness of the rabies MOOC module in enhancing knowledge and attitudes among dog owners. This study employed a randomized controlled trial design, recruiting 80 dog owners from Kelantan state, located in the northeastern region of Peninsular Malaysia. Participants were randomly assigned to either the intervention group, receiving the module, or the control group, receiving educational materials focusing on endoparasites. Validated closed-ended questionnaires were utilized to evaluate participants' knowledge of rabies and attitudes towards associated risk factors at both baseline and one-month post-intervention. Analytical methods included descriptive statistics and Welch's t-test to assess differential score changes between the intervention and control groups. Pre-intervention assessments include age, sex, educational status, knowledge, and attitude score revealed similar baseline characteristics between the groups. The study utilized Welch's t-test to accommodate unequal variances, revealing significant differences between groups in both knowledge scores ($t(62.9)=2.52, p\text{-value}=0.014$) and attitude score changes ($t(66.5)=4.16, p\text{-value}<0.001$). The intervention group demonstrated a higher mean change in knowledge score (1.15, 95%CI[0.24, 2.06]), while in attitude scores, the intervention group exhibited a substantially greater mean change (8.85, 95%CI[4.61, 13.09]) compared to controls. The effect size indicating a medium ($d=0.56$) and large ($d=0.93$) effect for knowledge and attitude score respectively. The study underscores leveraging MOOCs effectively enhances knowledge and attitudes, empowering communities to safeguard against transmission. The module could contribute to global public health discourse, advocating for scalable interventions combating rabies. The impacts of this module may extend beyond individual dog owners to broader outcomes, including reduced human rabies incidence and mortality.

PD-08: IDENTIFICATION OF RESPIRATORY VIRUSES IN WILDLIFE CONTACTS: A STUDY FROM OMKOI DISTRICT, THAILAND

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Keywords: zoonosis, spillover event, respiratory pathogens, Wildlife contact

Abstract: Zoonotic pathogens are more likely to emerge in regions with high biodiversity and intense human-wildlife interactions. In Chiangmai Province, Thailand, rich wildlife and cultural practices involving wildlife, create the conditions conducive to zoonotic spillover events. This study thus aimed to identify respiratory viruses in individuals in close contact with contact in Omkoi district, Chiangmai province, Thailand. This study was conducted in five subdistricts of Omkoi district. Individuals in close contact with wildlife, hunters, and forest guards, were recruited. Consenting individuals underwent a nasopharyngeal swab (NPS) and provided demographic and socio-economic data based on a questionnaire. NPS samples were also collected from wildlife. All NPS samples were tested for 21 respiratory pathogens using a respiratory virus panel multiplex RT-PCR (FTD Respiratory Pathogens 21 Kit). Professional face-to-face training on zoonosis prevention was also provided. Of all 26 villagers participated, 81% were male, aged between 30-40 years, and 69% of Karen ethnicity. Most participants (92.3%) reported previous contact with wildlife, with 53% having direct contact and 40% consuming wildlife products. Post-training evaluations showed that participants were knowledgeable regarding zoonotic diseases: understanding of the zoonosis definition was excellent (92%), knowledge of zoonosis pathogens was excellent (100%), awareness of zoonosis prevention was excellent (95%), and understanding of transmission routes was good (71%). Respiratory viruses detected in human samples included human adenovirus (4%), human parainfluenza virus 2 (4%), and human rhinovirus (4%). Notably, none of 21 viruses were detected in all 10 NPS samples collected from wildlife. In this small series, the detection of respiratory viruses in individuals in close contact with wildlife contact underlines the ongoing risk of zoonotic infections in the Omkoi district. Continued surveillance and educational initiatives are essential to reduce the risk of zoonotic spillover events and protect public health in this area.

PD-09: EARLY DETECTION OF LEPTOSPIROSIS IN CATTLE: ONE HEALTH APPROACH IN SOUTH SULAWESI, SOUTHEAST SULAWESI, AND MALUKU 2023

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Keywords: Leptospirosis, Cattle, Surveillance, Zoonosis, One Health

Abstract: Leptospirosis is a significant bacterial zoonotic disease prevalent in tropical regions like Indonesia, posing threats to both animal and human health. This study aimed to early detection of leptospirosis in cattle, based on surveillance for leptospirosis in humans by the Ministry of Health in 2022. Sampling was conducted across five regencies/cities in South Sulawesi, Southeast Sulawesi, and Maluku provinces, with sample sizes calculated based on disease surveillance detection rates. Serum samples from 600 cows underwent Microscopic Agglutination Test (MAT). Results revealed that 106 samples (17.67%) showed positive antibodies for leptospirosis. In Makassar City, South Sulawesi, 7 *Leptospira* serovars were identified from 36 positive samples, indicating a prevalence of 2.04%. Pangkajene and Islands Regency, South Sulawesi, showed a prevalence of 0.04%, with *L. tarassovi*, *L. bataviae*, *L. hardjo*, and *L. javanica* serovars detected. Similarly, Wajo Regency, South Sulawesi, showed a prevalence of 0.02%, with multiple serovars detected. In Kendari City, Southeast Sulawesi, 8 *Leptospira* serovars were found, with a prevalence of 0.38%. Ambon City, Maluku, showed a prevalence of 1.74%, with 7 *Leptospira* serovars identified. This study underscores the importance of integrating human and animal surveillance efforts to enhance early detection and management of leptospirosis outbreaks in endemic regions in Indonesia. Leptospirosis surveillance in cattle needs to be continuously improved through One Health-based surveillance involving all stakeholders related to the prevention and control of zoonotic diseases.

PD-10: INTEGRATED SURVEILLANCE USING THE ONE HEALTH APPROACH TOWARDS CONTROL AND ELIMINATION OF SCHISTOSOMIASIS IN SELECTED COMMUNITIES IN DAVAO DE ORO AND DAVAO DEL NORTE, THE PHILIPPINES

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Keywords: Schistosomiasis, One Health, Neglected Tropical Diseases

Abstract: Schistosomiasis (SCH) in the Philippines, caused by *Schistosoma japonicum*, remains a public health challenge. Because SCH is zoonotic in nature, the animal and environmental factors relating to its transmission must be addressed along with the human health factors, necessitating the use of the One Health approach in national programs to achieve control and elimination. This study aimed to determine the status of the human, animal, and environmental health factors in selected communities through an integrated surveillance approach as part of monitoring of the national control programs. Parasitologic assessment using the Kato-Katz technique was done to determine prevalence and intensity of SCH infections in school-aged children (SAC) and adults. Fecal sampling of carabaos was done using formalin-ethyl acetate sedimentation technique while crushing technique was done to observe cercaria in sampled snails. Water, sanitation, and hygiene (WASH) indicators were assessed in randomly selected households using a modified tool that combined national guidelines and global recommendations. Low schistosomiasis prevalence in school-aged children (0.8%) and adults (0.4%) were observed with no cases of heavy intensity infections which indicate a state of good morbidity control attributable to effective mass drug administration (MDA) efforts. Three carabaos (8.6%) in Davao de Oro were found to harbor *S. japonicum* ova while none were found in Davao del Norte. Half (5/10) of the sampled snail colonies harbored cercaria suggesting possible active transmission. Validated access to improved water source for drinking was below the targets in most villages (*barangays*), while validated sanitary toilet coverages in all *barangays* did not meet the targets. The integrated surveillance approach in this study showed relative SCH morbidity control and need for enhanced vector control. Improvement of WASH, along with sustained high MDA coverage and more sensitive diagnostics are needed to achieve interruption of SCH transmission.

PD-11: PARTICIPATORY EPIDEMIOLOGY ASSESSMENT OF ANIMAL AND HUMAN HEALTH PRACTITIONERS ON ZOONOSIS IN PURSAT PROVINCE, CAMBODIA

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Keywords: Zoonosis, participatory epidemiology, health practitioners

Abstract: The study aimed to access the knowledge and practice of animal and human health practitioners (AHHPs) regarding zoonosis. Participatory epidemiology tools, including semi-structured interviews, raking tools, and transect walks, were used. A total of 34 AHHPs (87% female human health practitioners and 100% male animal health practitioners) participated from two districts of Pursat province during August 2023. All participants were divided into 4 key informants and 6 focus groups. Both the animal and human health focus groups were conducted. All AHHPs have heard about zoonoses. They could identify some specific animal species, including chickens, pets, pigs, cattle, and vectors (mosquito and fly), as the sources of the zoonosis. Almost all AHHPs were well aware of common zoonosis, including avian influenza (AI), rabies, and dengue, with knowledge of the potential transmission pathway and prevention from animals to humans, as well as their impacts on personal and family economics and other health challenges. All of the AHHPs have limited knowledge of zoonosis reporting and responses, as well as specific zoonosis regulations and guidelines. This study highlighted the need for a refresher training or awareness program for both animal and human health practitioners about the prevention and control of zoonotic diseases in Cambodia. The study also provides scientific data from health practitioners involving both animals and humans to inform future research and policy aiming to address zoonoses threats in Cambodia.

PD-12: WILDLIFE HEALTH SYSTEMS OF SOUTHEAST ASIA

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Keywords: Wildlife Health Systems, national, Southeast Asia

Abstract: A robust wildlife health system is essential for conserving biodiversity, promoting sustainable ecosystems, and addressing emerging infectious diseases (EIDs) in the context of animal and human health. Understanding countries' wildlife health systems in Southeast Asia will be pivotal for strategizing wildlife management and enhancing existing partnerships in the region. A preliminary review of established frameworks, strategic plans, evaluation tools, or reports related to veterinary, wildlife, or health systems was conducted to establish a conceptual framework for a comprehensive mapping of the countries' wildlife health systems. Subsequently, the mapping process involved qualitative interviews with World Organisation for Animal Health's Wildlife Focal Points in SEA, extraction of information from previous presentations, and respondent validation. Through this multi-faceted approach, an extensive understanding of wildlife health governance, legislation, resource planning, stakeholders, collaborations, communication, and technical capacities including the assessment of challenges and needs of each country were gained. Notably, wildlife health is often overlooked due to competing national priorities and budget limitations. Specific guidelines or SOPs for wildlife health are still lacking with disease response or management often adapted from the livestock sector. However, integration of the One Health approach into national strategic plans enhanced visibility and amplified efforts for wildlife health in selected countries. Integrating wildlife health into national priorities and legislative frameworks will strengthen wildlife health protection and contribute to resilient health systems against EIDs. Collaborative efforts involving financial, technical, and capacity building support from local and international non-governmental stakeholders are crucial, particularly in countries with limited resources. Identifying gaps and leverage points enables targeted interventions to strengthen wildlife health systems and promote multisectoral collaboration. Insights gained from interviews and framework developed will facilitate a more holistic assessment of the wildlife health systems and contribute to the formulation of regional roadmaps and national strategies aimed at enhancing wildlife health across Southeast Asia.

PD-13: DEPRESSION, ANXIETY, AND STRESS AMONG HEALTHCARE WORKERS DURING THE COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY IN INDONESIA, NEPAL, AND VIETNAM

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Keywords: Depression, anxiety, stress, COVID-19, healthcare workers

Abstract: The outbreak of COVID-19 had significant effects on mental well-being, particularly for healthcare professionals. This study examined the prevalence of depression, anxiety, and stress, and identified the associated risk factors amongst healthcare workers during the COVID-19 outbreak across three countries (Vietnam, Indonesia, and Nepal). We conducted a cross-sectional study in 13 locations across a range of urban, rural, and remote settings in the three countries. The Depression Anxiety and Stress Scale 21 (DASS-21) questionnaire was administered through a web-based survey. We analyzed the determinant factors by employing multivariable logistic models. A total of 2313 participants were included in this study. The prevalence of depression, anxiety and stress ranged from 7.3-12.6%, 9.4-18.2%, and 4.8-5.3% respectively in the three countries. Lower levels of anxiety and stress were experienced in Vietnam compared to Nepal, which had the highest level. The need for healthy eating, maintaining social connections, getting enough sleep, having leisure time, and effective communication with co-workers increased coping with mental health problems during the pandemic. Experiencing COVID-19 symptoms in the last month significantly increased the risk of depression, anxiety, and stress. In addition, keeping social networks was found to reduce the risk of depression. Our findings suggest that coping strategies can help to mitigate the development of depression, anxiety and stress among health professionals. It is essential to improve the working conditions of healthcare workers and provide psychosocial support to improve resilience, to cope with workplace stress, particularly in the context of the pandemic.



TRACK E:

LABORATORY
CAPACITY
STRENGTHENING

PE-01: STRATEGIES TO ACHIEVE ISO15189 ACCREDITATION AT THE MEDICAL LABORATORY AT THE NATIONAL INSTITUTE OF PUBLIC HEALTH, CAMBODIA

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Keywords: ISO15189 accreditation, Strengthening Laboratory Management Toward Accreditation (SLMTA)

Abstract: BACKGROUND: Medical laboratories play an important role in patient care, and accreditation is one mechanism required to ensure an accurate and reliable test result. In 2015, medical laboratory at the National Public Health Laboratory (NIPH), Cambodia, planned to get ISO 15189 accreditation, which it successfully attained in February 2019 from the Accreditation's Canada. This study is aimed at documenting strategies implemented at NPHL to get ISO15189 accreditation. METHODS: Four focus group discussions (FGD), five key informant interviews, and a document review were conducted to identify strategies to be used at NPHL to prepare for ISO 15189 accreditation. The participants of FGD were quality management, biosafety, laboratory, and technical teams from US-CDC. In addition, key informant interviews were with the Chief of NPHL, the NIPH director, the US-CDC country director, the US-CDC lab advisor, and lab specialists. RESULTS: The study found that before receiving ISO accreditation, the NIPH Laboratory had significantly improved its quality management score from 73% in March 2018 to 98% in September 2018. Five strategies contributed to this achievement: (1) the implementation of a quality management system adapted from the SLMTA program; (2) the existence of a road map towards ISO15189 accreditation; (3) building effective teamwork, strong motivation, and support from ISO consultants and management level; (4) conduct regular management review meetings and internal audit; and (5) strictly follow up and monitoring. CONCLUSION: Five strategies facilitated medical laboratories' achievement of ISO 15189 accreditation, notably including active teamwork engagement from all relevant personnel, which expedited NIPH laboratory's attainment of this goal.

PE-02: LABORATORY CAPACITIES IN THE PHILIPPINES: LESSONS FROM FIVE YEARS OF TRAINING IMPLEMENTATION

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Keywords: One Health, Lessons Learned, Containerized Laboratories, Philippines

Abstract: The assessment of Philippine laboratories showed critical gaps in capacity building, particularly in disease surveillance and response. To bridge these gaps, a five-year training initiative from 2020 to 2024 was undertaken in the Philippines as part of the Biological Threat Reduction Program led by Black&Veatch/SciLore, LLC, funded by the U.S. Defense Threat Reduction Agency. The program's focus areas include biosafety, biosecurity, quality management systems, and biosurveillance. Insights gained from the implementation encompassed training assessment, stakeholder engagement, delivery methods, communication strategies, train-the-trainer (T3) approaches, resource management, the critical role of leadership support and training and monitoring evaluation strategy. Training assessments identified capacity gaps. Stakeholder engagement entailed collaborative planning with key Philippine agencies such as the Department of Agriculture, Department of Health, and the Department of the Interior and Local Government. This collaborative effort identified optimal training strategies and ensured alignment of training objectives with national policies and priorities. The mode of delivery, both in-person and online training, effectively reached a wider audience and ensured accessibility and time flexibility. Effective communication was also an important component throughout the training process; constant coordination and collaboration with stakeholders encouraged active participation. Resource management ensured a balance between resource allocation and stakeholder needs. Incorporating Train-the-Trainer (T3) was significant in producing local experts and knowledge dissemination, both significant to ensure sustainability and continuity of progress beyond the program duration. Strong leadership support at both the institution and agency levels is crucial to trainee participation, promoting institutional buy-in and sustainability. Finally, structured training evaluation refines strategies through trainee feedback, assessing knowledge change, skill execution, sustained behavior change, and overall impact on worksite networks. In summary, the insights from this five-year training initiative underscore the importance of an integrated approach to capacity building in the Philippine laboratory network.

PE-03: ESTABLISHING HIGH CONTAINMENT LABORATORY IN RESOURCE-LIMITED SETTING: THE BSL3 IN THE PHILIPPINES

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Keywords: Laboratories, Safety, Security, Containment

Abstract: High containment laboratories (HCL) provide space to enable organizations to perform research and service activities in a safe and secure environment. Different configurations of HCLs are placed in different institutions depending on the need to protect the worker working on an agent and the environment where the HCL will be located. The need for HCLs has increased through the years due to the threat of emerging and re-emerging infectious diseases. It plays a crucial role in research as an environment where further understanding of high-risk agents is made to develop diagnostics, vaccines and therapeutics. HCLs have become an integral part of many national surveillance programs as a facility that helps mitigate the biological risk associated with natural epidemics, intentional misuse, and accidental dissemination. The Biosafety level 3 of University of the Philippines Manila-National Institutes of Health (UPM-NIH) was initiated in 2014 and was completed and certified in 2017. Since then, the facility has served as a safe space in the handling of samples such SARS-CoV-2 during the start of the pandemic. Currently, the facility is being used to study African swine fever viral isolation. Establishing a high containment facility presented numerous challenges to the institution such as design, repairs and maintenance, sustainability, and its continuous upgrade. Though such problems were solved through collaborations with technical partners, there are still challenges in maintaining a complex facility. A facility with complex engineering controls also requires the development of accompanying mitigation controls to decrease disease transmission. The development of such controls gave members of the institution valuable insights into what really is needed to operate a high-containment laboratory. This paper lists the experience of building a biosafety level 3 in a resource-limited setting, this would serve as a marker for those who would take the same path in establishing a high-containment laboratory.



TRACK F:

ACHIEVING THE SUSTAINABLE
DEVELOPMENT GOALS THROUGH
ONE HEALTH APPROACH

PF-01: CHANGING OZONE (O₃) IN AMBIENT AIR TO HUMAN HEALTH: A LITERATURE REVIEW

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Keywords: Ozone, Ambient air, Human health

Abstract: The fluctuating ozone layers pose significant challenges to human health and the environment due to their complex interactions with pollutants and sunlight. Understanding the implications of changing ozone levels in ambient air is crucial for mitigating health risks associated with respiratory ailments and UV radiation exposure. This study aims to comprehensively review the multifaceted relationship between changing ozone levels in ambient air and their impact on human health. By synthesizing existing literature, we seek to elucidate the chemical composition and toxicity of ozone, explore the mechanisms driving changes in atmospheric ozone, and examine the diverse effects of ozone on human health. A thorough search across scholarly databases, including Science Direct, Springer, Google Scholar, NIH, and official sources of information, was conducted. The search encompassed diverse temporal periods and utilized carefully selected keywords such as 'Ozone,' 'health effects,' and 'Ambient air.' Additionally, reference lists and abstracts from international conferences on climate change and ozone dynamics were examined to ensure a comprehensive review of relevant literature. The review shed light on the dual nature of ozone, serving as a protective shield against UV radiation in the stratosphere while posing health risks at ground level. Factors driving changes in atmospheric ozone, including natural processes and human activities such as chlorofluorocarbon emissions and global warming, are discussed. The diverse effects of ozone on human health, ranging from increased risks of skin cancer and cataracts to impairments in lung function and exacerbation of respiratory conditions, are elucidated. Urgent action is needed to address human-induced factors contributing to ozone depletion and implement measures to safeguard both human health and the environment. Continued research into the mechanisms underlying ozone's impact on human health is essential for developing effective strategies to protect public health and mitigate the adverse effects of ozone pollution.



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