safetynet
SOUTH ASIA FIELD EPIDEMIOLOGY AND TECHNOLOGY NETWORK, INC.

Australian National University

TEPHINET
Training Programs in Epidemiology and Public Health Interventions Network

1st SAFETYNET Scientific Conference

AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA, AUSTRALIA

SEPTEMBER 12-15, 2023

About the Conference

SAFETYNET is proud to partner with the Australian Field Epidemiology Training Program to host the 1st SAFETYNET Scientific Conference from 12-15 September 2023 at the ANU Campus in Canberra. The conference theme is "Connecting the dots: Advancing Human, Animal and Ecosystem Health."

This conference provides opportunities for trainees and graduates of field epidemiology training programs (FETPs) in the Asia Pacific region to present their work before an international audience of public health practitioners through oral and poster presentations. In addition, this SAFETYNET conference aims to provide participants with the latest information on human, animal and environmental health as well as field epidemiology methods through plenary sessions, brown bag lunch sessions and pre-conference workshops or interactive learning sessions.

The networking opportunities offered by this conference are invaluable in efforts to increase regional One Health collaboration and build the capacity of health systems in all countries and territories in the Asia Pacific region.

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Welcome Message – Dr Maria Consorcia Lim-Quizon

Dr. Maria Consorcia Lim-Quizon
Executive Director, SAFETYNET

Dear Colleagues,

We survived! With the survival came lessons and experiences learned, that hopefully, would prevent morbidities and mortalities should there be a next one. With this also, was the advent of communicating virtually, such that we kept in contact personally, socially, and professionally through the pandemic years. Though we realized that meeting and learning through the internet did not and could not replace interacting face-to-face, not by a long shot.

This 1st SAFETYNET Scientific Conference presents the opportunity to connect all the dots, that we have accumulated on a micro and macro level, to advance human, animal, and ecosystem health.

We are not alone. We can beat anything if we hold heads, hands, and hearts in the endeavour. Connect, communicate, coordinate, and collaborate.

Thank you so much to the Australian National University team led by Dr. Tony Stewart for making this happen. So too, our gratitude to TEPHINET, the USCDC, WHO, FAO, and other partners for their unqualified support. Lastly, thank you to the individual members and FETP Directors, who make up SAFETYNET, you are the parts that make the great whole.

We take another step towards our vision of “People working together toward a healthy and resilient Asia Pacific region.”

Welcome Message – Prof Tony Stewart

Prof Tony Stewart
Director Australian FETP,
Australian National University

It is an immense honour for Australia's FETP, the Master of Applied Epidemiology program at the Australian National University, to co-host the 1st SAFETYNET Scientific Conference in Canberra, our nation's capital.

Our theme, Connecting the Dots: Advancing Human, Animal, and Ecosystem Health, recognises the interconnectedness between human, animal, and ecosystem health and the importance of a One Health approach in FETP to ensure health security and human flourishing.

The COVID-19 pandemic highlighted the crucial role that epidemiologists and public health experts play in safeguarding human health. Likewise, the emergence of Japanese Encephalitis in Australia has underscored the importance of recognising the interconnections between human, animal and environmental health and the need for coordinated efforts to address emerging challenges.

The Conference is a tremendous opportunity to share expertise and explore strategies for enhancing collaboration across sectors and disciplines to strengthen field epidemiology and pandemic preparedness. We look forward to welcoming you to our beautiful country and your participation in these crucial discussions.

Welcome Message – Dr Carl Reddy

Dr Carl Reddy
Director, TEPHINET

TEPHINET has witnessed important recent developments in the Indo-Pacific region including the Regional FETP Landscape Analysis and SAFETYNET strategic planning and it is with great anticipation that we look forward to the 1st SAFETYNET Scientific Conference (formerly the Bi-Regional Conference) in September this year.

TEPHINET salutes the sterling work being done by FETPs, FETP networks and partners in the region to strengthen field epidemiology capacity thus contributing to health system strengthening and ensuring health security. In light of the lessons learned during the COVID pandemic, the importance of collaboration and partnerships in these endeavours cannot be overstated.

TEPHINET extends its best wishes and support to key partners in the run up to the bi-regional conference and it is our fervent hope that the conference will reinforce the strong foundation for pandemic preparedness and response that is being built in the region.

1st SAFETYNET Scientific Conference Committees

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Abstract Reviewers

We thank the following public health specialists for reviewing the abstracts submitted for this conference.

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The organizers of this 1st SAFETYNET Scientific Conference would like to acknowledge the valuable contributions of committee members, abstract reviewers, photo review panel members, authors, presenters, moderators, judges and contributors from the National Centre for Epidemiology and Population Health-Master of Applied Epidemiology (Australian FETP) of the Australian National University, SAFETYNET, TEPHINET, USCDC, WHO, FAO, SPC, Applied/Field Epidemiology Training Programs and affiliated institutions in the Asia Pacific region. Without collaborative efforts of government and international agencies, institutions, programs and individuals dedicated to applied epidemiology and public health practice, this conference would not be possible.

Our special thanks go to the following dedicated staff:

NCEPH-MAE, ANU
Dr. Tony Stewart
Dr. Emma Field
Ms. Laura Vitler
Mr. Calo Huang
Mr. Tobias James

TEPHINET
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Ms. Valerie Young
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Pre-conference Interactive Learning Sessions and Brown Bag Lunch Session Sponsors

Australian National University
EPIWATCH, Kirby Institute, UNSW
Field Epidemiology in Action
Indian Ocean Commission
Resolve to Save Lives
Singapore FETP
US CDC
Vital Strategies
WHO SEARO
WHO WPRO/WPSAR Journal

Partner Booths

HAYAT Technologies
International FETP-Thailand
MAE (Australian FETP)
SPC (The Pacific Community)
TEPHINET
WHO WPRO/WPSAR Journal

Conference Agenda

Date/Time	11 September Monday	12 September Tuesday	13 September Wednesday	14 September Thursday	15 September Friday
8:00-8:20 AM		*Assemble at foyer of Kambri Cultural Centre*			
8:30-9:00 AM	Interactive Learning Sessions *(Marie Reay)*	**Opening Ceremony** *(Amphitheatre or Manning Clark Hall - depending on the weather)*			
9:00-10:30 AM		**Plenary session: Mobilizing One Health - interconnecting Human, Animal, and Environmental health sectors** *(Manning Clark Hall)*	**Plenary Session: Conducting field epidemiology in different contexts** *(Manning Clark Hall)*	**Plenary Session: Incorporating diversity, equity, and inclusion into field epidemiology** *(Manning Clark Hall)*	**Plenary Session: The art of mass gathering surveillance – risk assessments, managing the risks, and undertaking a response** *(Manning Clark Hall)*
10:30-11:00 AM	Morning tea				
11:00-12:30 PM	Interactive Learning Sessions *(Marie Reay)*	**OP:** SARS-CoV-2-Transmission (MCH)	**OP:** Vaccines (MCH)	**OP:** Vector-borne Diseases 3 (MCH)	**Closing and Awarding Ceremony** *(Manning Clark Hall)*
		OP: Vector-borne Diseases 1 (DT)	**OP:** Outbreak Investigations 2 (DT)	**OP:** Waterborne Diseases (DT)	
		OP: Foodborne Outbreaks (MR 5.02)	**OP:** Surveillance (MR 5.02)	**OP:** Toxicology (MR 5.02)	
		OP: Antimicrobial Resistance (MR 5.03/04)	**OP:** Vector-borne Diseases 2 (MR 5.03/04)	**OP:** NCDs (MR 5.03/04)	Lunch (12:00-13:00)
12:30 - 1:30 PM	Lunch	BBLS: **Learning by doing: is there more to it?** *(Ambush Gallery)*; BBLS: **Effective and practical approaches to working across sectors: One Health Approach to Nipah virus In Bangladesh and Japanese Encephalitis in Australia** *(Drama Theatre)*	BBLS: **Developing a One Health FETP Community of Practice** *(Ambush Gallery)*; BBLS: **Multisource Collaborative Surveillance Approach (WHO)** *(Drama Theatre)*	BBLS: **Climate change and Public Health Impacts** *(Ambush Gallery)*; BBLS: **Population Connectivity Across Borders (USCDC)** *(Drama Theatre)*	
1:30 - 3:00 PM	Interactive Learning Sessions *(Marie Reay)*	**Poster Session** *(Kambri Cultural Centre)*	Field trips	**OP:** COVID-19 Aftermath (MCH)	
				OP: Zoonoses (DT)	
				OP: Gastroenteritis Outbreaks (MR 5.02)	
				OP: Leprosy and Tuberculosis (MR 5.03/04)	
3:00-3:30 PM	Afternoon tea			Afternoon tea	
3:30 - 5:00 PM	Interactive Learning Sessions *(Marie Reay)*	**OP:** COVID-19 Pandemic Response (MCH)		**OP:** Infection Prevention and Control (MCH)	
		OP: Vaccine Preventable Diseases (DT)		**OP:** Miscellaneous Studies (DT)	
		OP: Infectious Diseases (MR 5.02)		**OP:** Reproductive Health (MR 5.02)	
		OP: Outbreak Investigations 1 (MR 5.03/04)		**OP:** Children's Health (MR 5.03/04)	
		OP: Transboundary and Emerging Animal Diseases (MR 5.05/06)			
5:00-5:30 PM					
5:30-9:00 PM				**International Night** *(Village Centre, National Arboretum - depart ANU at 5:30 PM)*	

Note: *OP: Oral presentations* *MCH: Manning Clark Hall* *DT: Drama Theatre* *MR: Marie Reay* *BBLS:* Brown Bag Lunch Session

Interactive Learning Sessions Agenda

Overview of Interactive Learning Sessions		
Morning	**Afternoon**	**Room No**
Scientific Writing Workshop (WHO WPRO/WPSAR)		5.04
Integrating data-driven policy development into FETP training (Vital Strategies)	Evaluating the Impact of a FETP (FEiA/US CDC)	4.03
7-1-7 Training Workshop (Resolve to Save Lives)	NCD COVID-19 Toolkit: Intermediate FETP Case Study (USCDC)	5.02
Urban Epidemiology for Emergent Environmental Threats (Singapore FETP and USCDC)	One Health One Team approach (SAFETYNET)	5.05
Diversity and Inclusion in FETPs (FEiA and ANU)	Integrating a One Health approach in FETPs (FEiA and Indian Ocean Commission)	5.06
AI for Epidemic Surveillance and Early Warnings (EPIWATCH)		4.02

Interactive Learning Sessions (ILS)

Full Day Sessions (8:30 AM – 17:30 PM)

ILS 1 - Scientific Writing Workshop

Organizer: WHO Regional Office for the Western Pacific/Western Pacific Surveillance and Response (WPSAR) Journal

Background and Context

This one-day workshop is a condensed version of the four-day scientific writing workshop, originally developed for the 2013 Bi-regional TEPHINET conference. It does not include individual work towards a complete manuscript on a specific project, but rather introduces the methods used in the full workshop as well as some issues to be considered in the drafting process.

This workshop is designed to introduce participants to the steps involved in writing up the results of operational and epidemiological investigations for publication in peer reviewed journals. The course introduces students to a structured approach to writing scientific papers, by breaking up the writing process into a series of smaller steps.

Workshop format

The workshop can be conducted by one facilitator and is classroom-based. The workshop is structured using a combination of presentations by the facilitator, group activities and individual work by participants. The presentations are organized in the order in which scientific journal articles are usually written and are built around practical exercises that apply the ideas presented.

Learning Objectives: After the training, participants should be able to:

1. Understand the components of a scientific journal article.
2. Use a manuscript outline to determine the contents of an article.
3. Learn some tips and tricks for writing successful articles.
4. Submit a manuscript to WPSAR or other peer-reviewed journals.

Facilitators

1. Ashley Arashiro is a Technical Officer at WPRO and has been coordinating editor of the WPSAR journal since November 2020. She holds an MPH from Johns Hopkins University and has been editing manuscripts in the health sciences since 2014.
2. Michelle McPherson is co-editor of the WPSAR journal and has edited for the journal periodically since 2012. She is Associate Professor of Public Health at the University of Tasmania. She is a graduate and previous staff member of the Australian FETP and has worked with many FETPs across the Western Pacific Region. She has also attended previous TEPHINET conferences both as a participant and a workshop facilitator. (Participation TBC)
3. Depending on availability, a member of the National Centre for Epidemiology and Population Health at ANU (WHO-CC for health security workforce training and research) may also join as a facilitator.

Morning Sessions (8:30 AM – 12:30 PM)

ILS 2 - Artificial Intelligence for Epidemic Surveillance and Early Warnings

Organizer: EPIWATCH, Biosecurity Program, The Kirby Institute, University of New South Wales

Background and Context

The use of artificial intelligence (AI) to generate automated early warnings in epidemic surveillance by harnessing vast open-source data with minimal human intervention has the potential to be both revolutionary and highly sustainable. AI can overcome the challenges faced by weak health systems by detecting epidemic signals much earlier than traditional surveillance. AI-based digital surveillance is not a replacement for traditional surveillance but an adjunct to trigger earlier investigation, diagnostics, and response to serious epidemics. The widespread adoption of digital open-source surveillance and AI technology is needed for the detection of early signals and prevention of serious epidemics. EPIWATCH is an AI epidemic surveillance system, which provides advanced warning of emerging disease outbreaks and disaster events and a range of interconnected capabilities to prepare, mitigate and respond to epidemics and pandemics.

Workshop format

The workshop will be interactive and will compromise a lecture, followed by two interactive disease scenarios where participants will be able to use open-source data to inform on an epidemic. Participants will write a watching brief on an outbreak of interest using open-source data, which may be publishable.

Follow up support will be provided by the EPIWATCH team for participants who are interested in drafting and submitting a Watching Brief manuscript for publication. Details of this will be provided during the workshop, session 4.

Learning Objectives: The key learning objectives are:

1. Hands on use of the EPIWATCH system.
2. To interpret and analyse EPIWATCH outbreak data.
3. To learn the principles of outbreak investigation using open-source data.

Facilitators

1. Professor Raina MacIntyre is a physician and epidemiologist, and Head of the Biosecurity Program at the Kirby Institute. She leads a research program in control and prevention of epidemics, pandemics, and bioterrorism. She has extensive field experience of outbreak investigation.
2. Dr. Abrar Chughtai is a medical epidemiologist with more than 20 years' experience in the health sector with governmental, non-governmental and international health organizations. Currently he is working as a Senior Lecturer in the School of Population Health, University of New South Wales Australia. He is also the director of the Master of Infectious Diseases Intelligence (MIDI) Program at School.
3. Ashley Quigley is a molecular epidemiologist and Senior Research Associate with the Kirby Institute's Biosecurity Program.

ILS 3 - Integrating data-driven policy development into FETP training

Organizer: Vital Strategies

Background and Context

The Data to Policy (D2P) program, developed by Vital Strategies and the U.S. Centers for Disease Control and Prevention under the Bloomberg Philanthropies Data for Health initiative, aims to bridge the data-policy gap through team-based training and mentoring of public health professionals. D2P participants develop data-driven policy briefs and recommendations that respond to government health priorities. The program imparts analytical skills – including root cause analysis and health and economic impact assessments, as well as techniques for communicating with stakeholders using data.

The Field Epidemiology Training Program trains field epidemiologists around the world, giving them the necessary skills to collect, analyse, and interpret data and contribute to evidence-based decisions. The D2P program complements the FETP curriculum to build skills of the fellows on translating the field data into effective policy briefs for advocacy of evidence-based action by decision makers.

Workshop format

The half-day workshop will be structured to share the process of development of a data-driven policy brief and provide hands on experience of using some key tools for policy brief development.

Learning Objectives: At the end of the workshop, participants will be able to:

1. Define “policy” and “policy brief”.
2. Explain relevance of policy briefs in the context of FETP and describe various models for D2P integration with FETP.
3. Describe basic methods relevant to policy brief development by field epidemiologists.
4. Outline D2P curriculum, teaching methods and use of tools for policy brief development – root cause analysis; stakeholder mapping; policy analysis matrix; Economic evaluation.

Facilitators

1. Nidhi Chaudhary, Principal Technical Advisor – Data Impact, Vital Strategies
2. Andrew Ancharski, CDC Foundation
3. Champika Wickramasinghe, MOH, Sri Lanka
4. Ric Mateo, Country Coordinator Philippines

ILS 4 - 7-1-7 Training Workshop

Organizer: Resolve to Save Lives

Background and Context

The 7-1-7 approach to strengthening health security uses timeliness metrics to assess how well early detection and response systems are performing in real-world situations, generating actionable data for both real-time and long-term improvement. The 7-1-7 target sets three performance standards: 7 days to detect a disease outbreak, 1 day to notify relevant public health authorities, and 7 days to complete early response actions.

Regional, national and local health authorities worldwide are adopting the 7-1-7 target because it offers a practical approach to rapidly and continuously improving disease detection and response systems. It identifies critical early bottlenecks and empowers authorities to quickly implement solutions for rapid and continuous improvement. 7-1-7's clear and simple metrics promote transparency and make it a powerful tool when advocating for resources and policies needed for long-term improvement.

Interest in adopting the 7-1-7 target is growing, with countries and organizations across the globe – including ones in Southeast Asia and the Western Pacific - requesting support for implementation. To respond to these needs, the 7-1-7 team at Resolve to Save Lives is 1) providing trainings and technical support to potential implementers, managers, and funders of preparedness, emergency response, and health security programs and 2) helping to launch regional Communities of Practice for those integrating 7-1-7 into their programs. This pre-conference workshop presents an excellent opportunity to bring together implementers and partners interested in 7-1-7 in the Southeast Asia and Western Pacific region.

Workshop format

The workshop will have a combination of lectures and interactive components. We will use brief didactic sessions to structure the program, but will focus on facilitated small-group discussions, simulations, and interactive brainstorming to enable participants to rapidly gain an understanding of 7-1-7, offer ideas and ask questions, and begin thinking about how 7-1-7 could be integrated into their programs.

Learning Objectives: Learning objectives for this workshop are

1. To understand the 7-1-7 framework and performance improvement methodology for outbreak detection and response.
2. To identify opportunities to enable effective and appropriate application of 7-1-7 and timeliness metrics within relevant programs, including field epidemiology projects.
3. To characterize resourcing needs and best practices for implementation of 7-1-7.

Facilitators

1. Amanda McClelland is the Senior Vice President of Prevent Epidemics at Resolve to Save Lives. Amanda is a notable expert in international public health management, especially in emergency health, epidemic control, mass casualty in low resource settings, disease prevention and response operations. Her achievements include coordinating frontline Ebola response during the 2014 Ebola epidemic, for which she received the 2015 Florence Nightingale Medal for exceptional courage, and publishing a landmark study on the impact of unsafe burial practices, which confirmed the live-saving benefits of a comprehensive approach to Ebola prevention. She brings this expertise to the Prevent Epidemics initiative, prioritizing and planning interventions and support in countries and regions at risk from future epidemics and strengthening action packages in prevention, detection and response to epidemics. In

addition to providing technical assistance, directly or through partners, Amanda's team mobilizes resources to support preparedness, and works to galvanize political will to address gaps in epidemic preparedness. Prior to joining Resolve to Save Lives, Amanda served as the Global Emergency Health Advisor for the International Federation of Red Cross Red Crescent (IFRC). Amanda earned her Master of Public Health and Tropical Medicine from James Cook University in Queensland, Australia and her Bachelor of Nursing from Queensland University of Technology.

2. Mohammed Lamorde is the Incoming Director of the 7-1-7 Alliance team at Resolve to Save Lives Dr. Mohammed Lamorde is an internal medicine physician trained in Nigeria, United Kingdom and the Republic of Ireland. He is a member of the Royal College of Physicians of the United Kingdom. He has helped lead the implementation of 7-1-7 in Uganda. At the Infectious Disease Institute at Makerere University, he has undertaken clinical research in the fields of HIV, tuberculosis and malaria; plus health economics evaluations for interventions relevant to public health in developing countries. Dr. Lamorde has also been a clinician facilitator for district-level training in management of medical emergencies and infection prevention and control for emerging infectious diseases. In 2012, he was awarded a PhD at Trinity College Dublin, Ireland in recognition of his work on the clinical pharmacokinetics of medicines used in the management of HIV-infected adults. He subsequently held post-doctoral positions at IDI including a Sewankambo Post-Doctoral Scholarship focusing on the effect of food on the pharmacokinetics of rilpivirine, and a Senior Fellowship awarded by the European and Developing Countries Clinical Trials Partnership to study drug-drug interactions between rifampicin-based antituberculosis and antimalarial drugs among Ugandan patients with tuberculosis. Dr. Lamorde is the President of the International Society for Pharmacoeconomics and Outcomes Research Uganda Chapter; and he is a member of the advisory panel of the leading international HIV drug-drug interactions website www.hiv-druginteractions.org and of the African Research Network for Neglected Tropical Diseases.

ILS 5 - Urban Epidemiology for Emergent Environmental Threats

Organizer: Singapore FETP in partnership with the US CDC Global Health Center

Background and Context

The COVID-19 experience has shown that cities and other urban areas can be very vulnerable to pandemics due to high population density, commerce, and connectivity. On May 27, 2022, the 75th World Health Assembly adopted a resolution on Strengthening Health Emergency Preparedness and Response in Cities and Urban Settings. Its adoption signals clear recognition of the critical role played by cities, being vulnerable to outbreaks and contributing to transmission of diseases but also having the capacity to deliver a strong response.

More than half of the world's population live in urban settings and by 2050, the proportion of population is expected to increase to two thirds. As cities become more complex, local communities are often not adequately consulted in health emergencies preparedness planning and policy formulation. Vulnerable groups also need to be better engaged, informed and involved. Strength then lies in knowing how to effectively advance a multisectoral whole-of-society approach in handling these public health events.

Workshop format will involve a combination of lectures, case studies, and groupwork. Activities include interactive questions and answers, small group discussion of participant experiences, and presentations.

Learning Objectives: To understand the challenges of urban epidemiology, why urban settings are unique, and the important roles played in:

1. Preparedness, prevention and control;
2. Surveillance and risk assessment, and
3. Rapid field response to outbreaks, including engaging stakeholders such as healthcare providers, national security organizations, and local community leaders.

Facilitators

1. Assoc Prof Steven Ooi is a senior consultant at the National Centre for Infectious Diseases, Singapore. He is also national FETP Director and international TEPHINET Advisory Board Member.
2. Dr Priscilla Gao Qi is a senior epidemiologist at the National Centre for Infectious Diseases, Singapore. She is an FETP Trainer to Singapore Food Agency and National Parks Board.
3. Dr Alden Henderson is an epidemiologist at the US CDC Global Health Center. He supports Field Epidemiology Training Programs in the South East Asia and Western Pacific regions.

ILS 6 - Diversity and inclusion in FETPs: understanding the experiences of women to create a pathway to equity for all

Organizer: Field Epidemiology in Action/Australian National University

Background and Context

Building on an Interactive Learning Session (ILS) facilitated at the 11th TEPHINET Global Scientific Conference in September 2022, the proposed ILS will engage participants from the field epidemiology community to consider gender intersections with field epidemiology training programs. Participants will be engaged to do this through group discussions focusing on how FETP experiences are gendered, including the barriers and enablers to participating in FETPs and unintended gendered consequences; how gender intersects with the design and delivery of FETPs; how a gender analysis of FETPs should be approached, including the kinds of questions to ask, and feedback on questions pre-drafted; and preliminary ideas to support gender sensitive FETPs. ILS participants will be able to reflect on the key points discussed under these headings at the Panama conference, comparing and contrasting experiences from the Southeast Asia and Western Pacific regions.

Workshop format

The ILS will engage participants through a discussion-based format. Approximately 75% of the session will see participants interacting through small-group discussions or sharing in a plenary discussion. These formats will support participants to be exposed to a variety of opinions, perspectives and experiences on gender inclusivity in FETPs, with feedback respectfully given by way of agreement or gentle challenging of ideas.

Learning Objectives: The key learning objectives are

1. To discuss current understandings of gender in global health.
2. To describe benefits and unintended consequences for different genders participating in FETPs.
3. To identify if and how gender is considered in the design of FETPs.
4. To identify if and how gender issues emerge in the delivery of FETPs.
5. To discuss and provide feedback on questions for an FETP gender analysis.
6. To identify how TEPHINET can support gender inclusivity in FETPs.
7. To compare experiences and perspectives from the Southeast Asia and Western Pacific regions with experiences gathered at the global TEPHINET conference.

Facilitator

Rachel Mather is an epidemiologist and Project Manager on the Field Epidemiology in Action (FEiA) at the University of Newcastle. As part of her doctoral studies at the Australian National University, she is researching how experiences of FETPs may be gendered in order to identify opportunities to maximize inclusivity and equity within FETPs, and more broadly support women's participation and leadership in public health. In her role with FEiA, she has worked with FETPs in Papua New Guinea and Solomon Islands since 2018, and prior to this for an NGO in Madagascar.

Afternoon Sessions (13:30 PM – 17:30 PM)

ILS 7 - Evaluating the Impact of a Field Epidemiology Training Program

Organizer: Field Epidemiology in Action (Hunter New England Health/University of Newcastle) and US Center for Disease Prevention and Control (US CDC)

Background and Context

There are very few published evaluations focusing on outcomes and impacts of Field Epidemiology Training Programs (FETPs). While easier to implement, process and output evaluations are limited in their capacity to assess FETPs against their overarching aim: to improve the health of populations by improving the ability to detect, investigate and respond to public health threats. Measuring impact is complex and challenging, however, it is necessary to ensure FETP programs remain relevant and are achieving their ultimate goal.

Throughout the COVID-19 pandemic there has been a desire to capture impact of FETP training on a country's pandemic preparedness and response. There has also been recognition of the need to reflect on core competencies and curricula to ensure we are equipping graduates with skills needed for future pandemics. This, in combination with a greater focus on quality assurance of FETP programs, has highlighted the need for programs to review monitoring and evaluation strategies to capture impact.

Demonstrating impact provides an important advocacy tool for national ministries and demonstrates accountability to funders. Whilst there is a recognized need and growing desire to evaluate the impact of FETPs, there is a paucity of methods and tools to support such evaluations.

The Field Epidemiology in Action (FEiA) team, in collaboration with the Impact Institute, have developed an impact evaluation framework for FETPs. The impact evaluation framework has provided the basis of developing impact evaluation implementation plans for the FETP programs in the Pacific.

Workshop format

This interactive learning session will examine the practical aspects of implementing an impact evaluation. We will discuss the process of developing the FEiA Impact Evaluation Framework and collectively assess its usefulness, utility and generalizability to FETPs globally. The framework covers the type of data that can be collected in order to assess the impact of FETPs.

Learning Objectives: At the end of the workshop, participants will be able to

1. Define impact evaluation and its relevance for FETPs.
2. Describe the process of developing an impact evaluation framework.
3. Review and critique a proposed FETP Impact Evaluation framework.
4. Understand the key methods and tools can be used to measure impact.

Facilitators

1. James Flint, Field Epidemiology in Action (FEiA) at the University of Newcastle. James Flint has worked in the international public health field for two decades; he has led and supported public health training programs in Africa, Asia, the Caribbean and the Pacific. James is currently undertaking a PhD focused on impact evaluation of FETPs.
2. Dr Tambri Housen, Field Epidemiology in Action (FEiA) at the University of Newcastle. Tambri Housen is a mixed-methods researcher with many years' experiences conducting and supervising field research; she has extensive experience as a FET program advisor, trainer and mentor and has led numerous emergency response activities around the world.

3. Rachel Mather, Field Epidemiology in Action (FEiA) at the University of Newcastle. Rachel Mather is an epidemiologist and monitoring and evaluation specialist with experience working for governmental and non-governmental organizations around the world; she has led several Theory of Change workshops, including for the Papua New Guinea and Solomon Islands FETPs.
4. Dr Reina Turcios-Ruiz, Evaluation, Policy, Innovation and Communications (EPIC) Team Lead Medical Epidemiologist, Workforce and Institute Development Branch, Division of Global Health Protection, Center for Global Health, U.S. Centers for Disease Control and Prevention. Reina is a medical epidemiologist, graduate of the U.S.' field epidemiology training program (EIS), former resident advisor of a multi-tier, multi-country FETP, and director of the CDC Central America Region office. She now leads the Evaluation, Policy, Innovations and Communications team that supports evaluation of CDC-supported programs around the world.

ILS 8 - FETP: NCD COVID-19 Toolkit, Intermediate Case Study: Investigating a Post-Pandemic Ischemic Stroke Surge at Capital City Hospital—Collecting, Reviewing, Interpreting, and Summarizing Data on Stroke and Associated CVD Risk Factors; Part B - Investigating Risk Factors

Organizer: US Center for Disease Control & Prevention

Background and Context

Noncommunicable diseases (NCDs), such as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes, account for more than 74% of deaths globally. The COVID-19 pandemic has shown that people living with NCDs have a higher risk of becoming seriously ill or dying from COVID-19. The field epidemiology training program (FETP): NCD COVID-19 Toolkit was developed in response to the call from FETPs requesting tools and training to strengthen epidemiology skills needed to address NCDs, especially during a public health emergency. The Toolkit will help FETP trainees develop the skills needed to integrate NCD investigation into COVID-19 response duties while reinforcing best practices for infectious disease control.

Case studies are a critical part of field epidemiology training. They are exercises that encourage participants to apply their problem-solving skills and knowledge of epidemiologic principles and practices in an interactive learning environment. The FETP: NCD COVID-19 Toolkit case studies are designed to provide real-life scenarios that illustrate the process of examining NCD comorbidities during the COVID-19 response. The exercises require participants to apply and extend their field investigation skills to the NCD context and build new competencies to address NCDs.

This workshop will entail conducting a case study to investigate a scenario in which an urban hospital system experiences an apparent surge in ischemic stroke cases following pandemic-related health service disruptions and interruptions. Participants will utilize core field epidemiology skills to think critically about collecting, interpreting, and summarizing data on ischemic stroke and cardiovascular disease (CVD) risk factors. The case study asks participants to consider the impacts that a public health crisis (such as a pandemic) has on NCD diagnosis, management, and treatment. Participants will describe and interpret public health data to identify the potential effect of pandemic-related healthcare service delivery interventions.

The case study is structured for field epidemiologists in low- and middle-income countries (LMICs). The tools are designed to expand the NCD capacity of epidemiologists conducting field investigations. The case studies present real-life scenarios in LMICs and enable participants to develop skills to effectively respond to COVID-19 and NCD comorbidities and conduct other investigations requiring a similar integrated response.

Workshop format

This workshop is an interactive, facilitator-led activity that uses a case study. It is designed to encourage learner interaction and engagement. Facilitators are prompted to ask participants to read the case study scenarios and questions aloud and to discuss answers and experiences as a group. During an in-person session, participants will break out into small groups to complete the questions, then return to the larger group to discuss answers.

The facilitator will use a PowerPoint Presentation that aligns with the participant guide to lead participants through the case study visually. Facilitators will require access to a presentation screen to show the PowerPoint slides, as well as an internet connection. Participants will be provided with a digital copy of the participant's guide, PowerPoint, and reference materials.

Learning Objectives

1. Describe and interpret public health surveillance and clinical data using core principles of descriptive epidemiology (for example, clinical time, place, person).
2. Identify the potential effects of pandemic-related healthcare service delivery interruptions on people living with NCDs and their associated risk factors.
3. Apply the essential outbreak investigation steps to explore a potential increase in stroke, including reviewing a clinical case definition against medical records to confirm a diagnosis.

Facilitators

1. Dr. Sharan Murali, Scientist B and Public Health Specialist, ICMR-National Institute of Epidemiology: Dr. Sharan Murali is a public health specialist with over four years of experience in research and program implementation. Dr. Murali is currently working as a Scientist B in the Indian Council of Medical Research – National Institute of Epidemiology, Chennai, India. He is a faculty and mentor in the India - Field Epidemiology Training Program (FETP). His fair understanding of epidemiology and research methods along with his skills in Information Technology (IT) has helped him establish data-driven dashboards. He played a key role in developing the Learning Management System (LMS) platform for India-FETP programs.
2. Dr. Kaylani Sailesh, FETP Consultant, South Asia Field Epidemiology and Technology Network (SAFETYNET) : Dr. Kalyani is a consultant with SAFETYNET for Field Epidemiology Training Program (FETP) at the Indian Council of Medical Research – National Institute of Epidemiology (ICMR-NIE), Chennai, India. Her primary role involves supporting the FETP-NCD training program which encompasses both Advanced (2 years) and Intermediate (one year) programs. Additionally, she has provided mentorship support to the trainees under Epidemic Intelligence Services – India (South Hub) located at ICMR-NIE in Chennai since the year 2021. Dr. Kalyani holds a Bachelor of Medicine and Bachelor of Surgery (MBBS) degree from the Dr MGR Medical University, Tamil Nadu, India. Her academic achievements also include a Doctor of Medicine (MD) degree and a Diploma of National Board (DNB) degree in Community Medicine. With a professional background exceeding two years, she has garnered expertise in strengthening the public health workforce, conducting epidemiological investigations, analyzing surveillance data, and evaluating both surveillance systems and programs. Her research interests revolve around non-communicable diseases and the evaluation of public health programs.

ILS 9 - One Health One Team approach using eLearning

Organizer: Regional One Health Team – SAFETYNET

Background and Context

We are now in a world where humans and animals are closely related and living in a shared environment. The health of humans is connected to the health of animals and the recent COVID-19 pandemic has reminded us of this intense relationship.

One Health recognizes the interdependencies between different sectors related to health and the integral concept of One Health is promoting communication and collaboration between human, animal and environmental health sectors in response to a public health event.

One Health FETP is an integrated approach aimed at increasing the competencies of the officers to recognize public health threats from different sources. To achieve this goal, the officers need to enhance communication and data sharing between different sectors.

Achieving full integration is not without challenges. Nonetheless, the benefits of adopting a One Health approach outweigh these challenges.

By promoting a "One Health One Team" approach, FETP training has the potential to provide a more effective and holistic approach thus providing a more comprehensive and sustainable and proactive strategy toward wellbeing of humans, animals, wild life and the environment.

Workshop format

This interactive session will include a combination of short presentation, interactive group work reflecting and embracing the One Health One Team concept. The hybrid eLearning approach is made adaptable and easy for group simulation and self-learning.

Learning Objectives: This workshop will examine the operational challenges when managing a One Health event. The Key learning objectives are:

1. Understand the concept of One Health One Team approach.
2. Appreciating and understanding the strength and gaps when managing an event involving multi-sectors.
3. Appreciate the use of e-Learning in One Health and discuss the possibility of the adoption of a One Health seamless surveillance system.

Facilitators

1. Dato Dr Fadzilah Kamaludin is a public health physician specializing in field epidemiology. She is the deputy director of SAFETYNET and Lead officer for Regional One Health One Team Approach under SAFETYNET.
2. Ms Ismeet Kaur is a PhD fellow currently with SAFETYNET. She is the coordinating officer for SAFETYNET One Health projects.
3. Dr Nik Mohd Hafiz Mohd Fuzi is a public health physician who specializes in field epidemiology. His interest and projects are in One Health.
4. Muttaqqin Eshamuddin has worked as an administrator and operations officer in international humanitarian organizations managing refugees, multiracial, war zone countries and Cox Bazaar. He specializes in digitalizing the concept from paper to paperless.
5. Aqashah Zainal Abidin is the backhand technical expert who digitalized the content for interactive visualization.

ILS-10 - Integrating a One Health approach in field epidemiology training programs

Organizer: Field Epidemiology in Action | Indian Ocean Commission

Background and Context

A One Health approach is gaining increasing importance as a mechanism to address disease and other health threats in human, domestic and wild animals, plants, and the wider environment. For Field Epidemiology Training Programs (FETPs), the incorporation of One Health takes various forms, reflecting differences in sector risks, priorities and capacity. This can range from incorporating One Health principles into sector-specific programs through to fully integrating sectors in a cohesive approach.

Incorporating a One Health approach in FETPs facilitates effective collaboration among sectors and disciplines to address complex health threats faced by communities. By embracing the One Health approach, FETPs facilitate and encourage professionals to work together, leveraging their expertise and perspectives to develop innovative strategies and interventions.

However, while a One Health approach in FETPs holds great promise, it is not without its challenges. Achieving full integration requires a significant commitment of resources, coordination among multiple stakeholders, and the development of governance structures that account for the needs of different sectors. Nonetheless, the benefits of adopting a One Health approach within FETPs outweigh these challenges. By promoting collaboration, fostering interdisciplinary understanding, and embracing a holistic perspective, the integration of One Health into FETPs has the potential to provide a more effectively managed approach to health threats and provide a more comprehensive, sustainable, and proactive strategy for protecting the well-being of humans, animals, plants, and the environment.

Workshop format

This interactive learning session will include a combination of short presentations and interactive groupwork. Activities include reflections from existing programs, small group discussions and a role play of the standardization process.

Participants will be invited to attend a One Health training Brown Bag session later in the week and join a One Health FETP community of practice on WhatsApp. At regular intervals, we will be checking in with the group to understand progress made with regards to One Health FETPs. We will also encourage the sharing of curriculum and experiences.

Learning Objectives: This workshop will examine the practical aspects of a One Health approach in FETPs. The key learning objectives are:

1. Discuss different models for developing or incorporating One Health into FETPs.
2. Discuss the curriculum framework and development of One Health FETPs.
3. Experience the process of cross-sectoral standardization of a One Health FETP curriculum through role play.
4. Discuss approaches for integrating One Health in program delivery including field work and mentorship.

Facilitator: Laura MacFarlane-Berry

Presenters

1. Kelitha Malio is a One Health epidemiologist and faculty with Field Epidemiology in Action. She currently works with World Vision as the National Program Lead for the One Health frontline FEPT of Papua New Guinea. Kelitha is a passionate advocate for One Health in Papua New Guinea.

2. Bethseba Peni is a public health epidemiologist and faculty with Field Epidemiology in Action. She is the program lead for the West New Britain province of the One Health frontline field epidemiology training program of Papua New Guinea. Beth is a graduate of the intermediate FETPNG and of the advanced FETP in Thailand. She currently works as the Disease Surveillance Officer with the provincial Department of Health.
3. Elaine Hevoho is an animal health epidemiologist and faculty with Field Epidemiology in Action, focusing on the One Health frontline field epidemiology training program of Papua New Guinea. She is a graduate of the intermediate FETPNG and has also completed fellowships with the Fleming Fund and APCOVE. Elaine currently works as an Animal Health Technical Officer with the PNG National Agriculture and Quarantine Inspection Authority (NAQIA).
4. Dr. Lovena Veerapa Mangroo is a physician and One Health epidemiologist with the Indian Ocean Commission. She is a graduate of the Indian Ocean FETP Advanced program. She currently works as the Coordinator of the Indian Ocean FETP One Health advanced program and is the deputy coordinator of the SEGA-One Health network which comprises more than 300 health professionals from health and livestock ministries from the five member-states.

Programme Schedule

12 September 2023

8:30 AM: Manning Clark Hall
Opening Ceremony

9:30 AM: Manning Clark Hall
Plenary Session

Mobilising One Health: interconnecting Human, Animal, and Environmental health sectors

Moderator: Dr Maria Consorcia Quizon

Speaker: Dr. Scott Newman

Scott Newman is a One Health practitioner, wildlife veterinarian and biologist with more than 30 years of international experience managing & implementing multidisciplinary One Health programs at the human-wildlife-livestock-ecosystem interfaces in Asia, Africa, Europe and North America.

Scott has worked in academia and for NGO's as a research scientist, and he has more than 16 years with the Food & Agriculture Organisation of the United Nations. His technical work has focused largely on zoonotic & transboundary animal diseases, antimicrobial resistance & food safety, bushmeat, wildlife farming & trade, sustainable & climate smart livestock production, and biodiversity conservation & natural resource management.

Currently, Scott is the Secretary for Animal Production and Health Commission for Asia and Pacific (APHCA), the One Health Regional Program Priority and Animal Health & Production Module Lead, and the FAO Focal Point for the Regional Quadripartite, Antimicrobial Resistance & the Global Framework for Transboundary Animal Diseases (GFTADs) in the Asia and Pacific Region. Scott holds a PhD in Integrative Pathology, a Doctorate in Veterinary Medicine (DVM), a Bachelor of Science in Biology, and he has published over 100 peer-reviewed research articles.

10:30 AM: Foyer or Lobby
Tea Break

11:00 AM: Manning Clark Hall
Long Oral: SARS-CoV-2 Transmission

1. A COVID-19 Outbreak Associated with Quarantined International Travelers - Sichuan Province, China, 2020
2. COVID-19 Outbreak at Civil Defense Forces Training Camp, Perlis, November 2021: What Went Wrong?
3. Super Spreading COVID-19 Traced to Fruit Stalls Activities in Singapore, 2021
4. Probable aerosol transmission of SARS-CoV-2 among a cluster of inpatient cases in a general hospital in X City, China, 2022

5. Perusal of COVID-19 Brought-In-Dead (BID) cases in Selangor, 2021-2022

11:00 AM: Drama Theatre

Long Oral: Vectorborne Diseases 1

1. Dengue Fever Outbreak-Taman Sri Rugading Tuaran, Sabah State, Malaysia, 2020. A case-control study
2. Construction and Application of a Schistosomiasis Risk Assessment System with Analytic Hierarchy Process in Wuhan City, China, in 2021
3. A novel colloidal gold immunochromatography assay strip for the diagnosis of Schistosomiasis japonica in human being
4. Imported Human Malaria Cluster in a Palm-Oil Plantation - Gua Musang, Kelantan, 16 June to 27 August 2022
5. Scrub Typhus Outbreak: Revelation from an epidemiological investigation – Asansol District, West Bengal, India, August 2022

11:00 AM: Marie Reay 5.02

Long Oral: Foodborne Outbreaks

1. Salmonella Agona Outbreak Linked to Consumption of Kebabs—Canberra, Australian Capital Territory, 2022
2. Food-borne outbreak in a male residential religious training school – Pandharpur, Maharashtra, India, 2022
3. Food poisoning at a wedding party in Nepal, December 2022
4. Speak Now or Forever Hold Your Peace: Unraveling the Foodborne Illness Among Wedding Attendees in Mankayan, Benguet, Philippines, November 9, 2022
5. Food poisoning outbreak among meeting attendees in Pattaya city, Thailand, 10-11 August 2022

11:00 AM: Marie Reay 5.03 and 5.04

Long Oral: Antimicrobial Resistance

1. Disease assessment and antimicrobial prescription patterns by analyzing web-based dataset in Sonali Chicken cases at Bogura, Bangladesh in 2020-2021
2. Multidrug Resistance Escherichia coli in fecal samples from Chickens Raised in Commercial Farms – Bangladesh, August 2020
3. Burden and Risk factors for Antimicrobial Resistance - An advanced Epidemiological Study from a South Indian District, 2022
4. Preliminary Data Analysis of Antimicrobial Resistance of Escherichia coli from healthy slaughter animals in selected regions in the Philippines

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Ambush Gallery

Learning by doing: Is there more to it?

Presenters:

- Matthew Griffith, Postdoctoral Scholar, National Centre for Epidemiology and Populations Health, College of Health and Medicine, ANU

Matthew Myers Griffith is a public health professional with more than fifteen years working in Asia, the Pacific, and the Americas, especially in infectious disease surveillance and surveillance evaluation, outbreak investigation and response, risk assessment, and training. He has worked at the World Health Organization, Japan's National Institute for Infectious Diseases (FETP Japan), and the US Centers for Disease Control and Prevention. He received his MPH from the University of North Carolina at Chapel Hill. Currently, Mr Griffith is a PhD candidate at the Australian National University, researching approaches to teaching and learning in field epidemiology training programs.

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Drama Theatre12

Effective and practical approaches to working across sectors: One Health Approach to Nipah virus In Bangladesh and Japanese Encephalitis in Australia

- Presenters:
  - Nipah Virus in Bangladesh - Prof. Dr. Tahmina Shirin (Director, IEDCR)

Professor Tahmina Shirin is the Director of the Institute of Epidemiology, Disease Control & Research (IEDCR), a mandated organization of the Bangladesh Government for disease surveillance, disease outbreak investigation and response, public health work force development and research. Dr. Shirin has an impressive academic background who received MBBS from Mymensingh Medical College, Bangladesh, PhD in immunology from Dhaka University in collaboration with Umea University in Sweden, and MPhil in virology from the Institute of Post-Graduate Medicine and Research, Dhaka, Bangladesh. She has expertise in the field of emerging and re-emerging infectious diseases and host innate immune responses against pathogens. Prof. Shirin is the course director, Field Epidemiology Training Program, Bangladesh and Chair of the Coordination Committee for One Health Secretariat in Bangladesh.

- Japanese Encephalitis in Australia - Dr. Rachel Iglesias - A/g Principal Veterinary Officer, One Health, Department of Agriculture, Fisheries and Forestry, Office of the Chief Veterinary Officer, Canberra, Australia

Rachel Iglesias a veterinarian and epidemiologist with over ten years' experience working in the Australian Government Department of Agriculture, Fisheries and Forestry. She has broad experience working across animal health, wildlife health and public health, and a passion for understanding different perspectives and bringing people together. In her current role leading the One Health team, she works closely with stakeholders and other experts to mitigate the threat of antimicrobial resistance through effective action in the animal health sector, strengthen Australia's systems for detection and management of emerging disease threats and build effective One Health collaborations and systems.

1:30 PM: Foyer or Lobby

Poster Presentation Session

1. Epidemiological profile of Tuberculosis - Sambalpur district of Odisha, India 2018 - 2020
2. Containment of a large cluster of malaria cases imported from Africa to Hong Kong among returning railway workers, July – August 2022
3. Understanding the clinical and environmental factors of a Japanese Encephalitis Outbreak in Paracelis, Mountain Province, Philippines
4. Cover unveiled: A Prolonged Dengue Outbreak in the Mountainous area of Northern Luzon, Philippines, May 2022
5. Investigating the Dengue Outbreak in Kalinga Province: Epidemiological Study Findings
6. The Bite Next Door: Living with Dengue Type 1 in a Neighborhood Community. A Case-Control Study, July 6-14, 2022
7. A source hunting investigation in One health approach on Nipah Outbreak in the Northern Region of Bangladesh: The first survivor case in 2023
8. Strengths and Opportunities of One Health Approach for Rabies Control in the Urban Setting - Pattaya City, Thailand, 2022
9. The impact of climate change on maternal and children's health under five years of age in Kiribati
10. Varicella vaccine coverage of children living in agricultural and pasture areas and factors influencing coverage, Qinghai Province, 2022
11. Evaluation of surveillance system for measles through Integrated health Information Platform (IHIP) in the state of Rajasthan, India: January - June 2022
12. Hospital Record Review of Acute Flaccid Paralysis in-Lhokseumawe City for Polio Outbreak Control, 2022
13. Patient Knowledge and Perception about Antibiotics in Community Pharmacy
14. Outbreak Investigation of Vancomycin-Resistant Enterococcus in a City Hospital — Shizuoka, Japan, 2022

15. An Epidemiological Study of Ventilator Associated Pneumonia in X Hospital in 2022, Ulaanbaatar, Mongolia
16. Investigations into a COVID-19 Cluster involving the Basement of a Hospital in Singapore, 2021
17. Race against time: Estimating the impact of Vietnam's COVID-19 vaccination program
18. Using 'infodemics' to understand public awareness and perception of SARS-CoV-2: A longitudinal analysis of online information about COVID-19 incidence and mortality during a major outbreak in Vietnam, July—September 2020
19. Depressed and stressed: working conditions and mental well-being among community health workers during the COVID-19 response in Vietnam, 2021
20. Long COVID Baseline Study - South Australia, 2023
21. Dysentery outbreak among logging workers, Toki Logging Camp - Nakanai District, West New Britain Province, 17-20 March 2022
22. Six Events, a Caterer and a Norovirus Outbreak – Canberra, November 2022
23. HIV-AIDS Key Populations Outreach in Magelang City, Central Java Province, 2022
24. Improving HIV reporting practices in East Sepik, Papua New Guinea, June to August 2022
25. Misclassification of Congenital Syphilis Report and Its Associated Factors – Health Region 9, Thailand, 2018-2021
26. Enhanced Community Disease Surveillance, Post-flooding (Typhoon Ulysses) in Cagayan Valley amidst COVID-19 Pandemic, Philippines, November 18-29, 2020
27. Mobilization of Rapid Response Team and Information Management during Yeti Airlines plane crash in Pokhara, Nepal

3:00 PM: Foyer or Lobby

Tea Break

3:30 PM: Manning Clark Hall

Long Oral: COVID-19 Pandemic Response

1. Impact of an early lockdown policy to decrease transmission during a COVID-19 outbreak — Bac Giang provincial industrial zone, Vietnam, 2021
2. A cross-sectional study of the barriers and enablers to COVID-19 case isolation, East Sepik Province, Papua New Guinea, July to August 2021
3. An assessment of public health human resources available to prevent and control COVID-19 in CDCs at county-level in Chongqing, China, 2022
4. Determinants of Vaccination Status among Mortality Patients with Omicron Variant COVID-19 in Riau Province, Indonesia: A Cross-sectional Study, February–April 2022

5. Performing Rapid Assessments of Transmissibility, Severity and Impact of Vaccination in Factory Based COVID-19 Outbreak in Malaysia, 2022

3:30 PM: Drama Theatre

Long Oral: Vaccine-Preventable Diseases

1. Evaluation of the Adverse Events Following Immunization Surveillance System, West Bengal, India, 2019-21
2. Measles outbreak in ethnic minorities in Lumbini Province, Nepal, January 2023
3. Measles Outbreak in Surkhet District, Karnali Province, 2023: A Descriptive Cross- Sectional Investigation
4. Eradicating polio: Leaving no stone unturned – Johor Bahru, Malaysia, 2022

3:30 PM: Marie Reay 5.02

Long Oral: Infectious Diseases

1. Need to simplify “Nikshay”, the surveillance tool of the Indian National Tuberculosis Elimination Program - a surveillance evaluation in Coimbatore, Tamil Nadu, India, 2022
2. Persistence of monkeypox virus in the environmental surfaces: Evidence from the outbreak investigation in Phuket, Thailand – 2022
3. Outbreak Investigation of Monkeypox Virus Disease in India, 1 July – 28 September 2022
4. Investigation of a community-acquired Legionnaires’ disease outbreak—Taoyuan, Taiwan, December 2022–January 2023

3:30 PM: Marie Reay 5.03 and 5.04

Long Oral: Outbreak Investigations 1

1. Investigation of a Multi-County Paratyphoid Fever Outbreak in Taiwan, October–November 2022
2. Investigation of typhoid fever outbreak in Veterinary College and Research Institute, Orathanadu, Thanjavur district, Tamil Nadu, India, 2021
3. Hepatitis-A in a residential school campus: An outbreak investigation, Karnataka, India, 2019-2020
4. Melioidosis Outbreak Investigation — Sham Shui Po District, Hong Kong Special Administrative Region, August to December 2022

3:30 PM: Marie Reay 5.05 and 5.06

Long Oral: Transboundary and Emerging Animal Diseases

1. Field and laboratory investigation of Highly Pathogenic Avian Influenza (HPAI) H5N6 and H5N8 outbreaks in Quang Ninh province, Vietnam, 2020 to 2021
2. Spatiotemporal and Risk Factors of African Swine Fever in the Mekong Delta Vietnam, 2019–2022

3. Spatiotemporal Distribution of African Swine Fever (ASF) in North Cotabato, Philippines from 2020-2022
4. Demonstrating Freedom from African Swine Fever in the Top three Swine Producing Municipalities of Batangas Province
5. A Survey of Potential Emerging Diseases in Imported Exotic Mammals and Reptiles during COVID-19 Outbreak in Thailand, 2021

13 September 2023

9:00 AM: Manning Clark Hall

Plenary Session

Undertaking Field Epidemiology in Different Contexts

Moderator: Dr Rosalina Sa'aga-Banuve

Speaker:

- Urban Setting: Dr Steven Ooi, Director of the Singapore Field Epidemiology Training Program, the National Centre for Infectious Diseases and National University of Singapore

Assoc Professor Steven Peng-Lim Ooi is a senior medical consultant seconded from the Singapore Ministry of Health to the National Centre for Infectious Diseases and to the National University of Singapore School of Public Health as the Singapore Field Epidemiology Training Program Director. A member of Delta Omega (US National Public Health Honor Society) and a fellow of the Singapore Academy of Medicine, his interests include emerging diseases, urban health security and outbreak management. He is active in regional FETP training, and currently serves as an International Advisory Board Member of TEPHINET.

- Small Islands: Dr Berlin Kafoa, Director for the Public Health Division, The Pacific Community (SPC)

Dr Berlin Kafoa has worked for over 25 years in the health sector at the national, regional, and international levels. He has worked in various capacities in nearly all the Pacific Islands. Previously headed the Clinical Services Programme at SPC and Associate Dean Regional at the Fiji School of Medicine. Dr Kafoa is a Postgraduate from the University of New South Wales, Australia, and a Public Health Fellow of the Royal College of Physicians (United Kingdom).

- Animal Health Sector: Dr Pawin Padungtod - Senior Technical Coordinator, Emergency Centre for Transboundary Animal Diseases (ECTAD), Food and Agriculture Organization of the United Nations (FAO) Representation in Viet Nam

Dr Pawin Padungtod is a Doctor of Veterinary Medicine and has a PhD in Veterinary Epidemiology from Michigan State University, East Lansing, USA. He was an associate professor in Veterinary Public Health Department and Director of the Animal Health Diagnostic Laboratory in Chiang Mai University and is the senior technical coordinator and team leader for the Emergency Center for Transboundary Animal Diseases (ECTAD), for the Food and Agriculture Organization of the United Nations country office for Viet Nam. Dr Padungtod has more than 15 years of experience on various technical and development issues including field epidemiology and laboratory investigation of diseases, antimicrobial resistance, animal health emergency response and animal health capacity development. He also has extensive experience on development project

management, multi-sectoral multilateral collaboration and coordination with the UN agencies, development partners, NGOs and government agencies across human, animal and ecosystem sectors. In Viet Nam, he leds the ECTAD programme to plan and deliver animal health emergency and development programme to prevent and mitigate the impact of antimicrobial resistance, zoonoses, transboundary animal diseases and preventing future pandemic using One Health approach.

10:30 AM: Foyer or Lobby

Tea Break

11:00 AM: Manning Clark Hall

Short Oral: Vaccines

1. Impact of the National Shingles Vaccination Program on Zoster epidemiology in Victoria, Australia
2. Measles outbreaks in the Sleman Regency, Indonesia 2022: A retrospective cohort study
3. HPV vaccine coverage and AEFI analysis prior to the introduction of government-financed HPV vaccination for 12-year-old girls, Jinan, China
4. Fewer self-reported adverse events following Australian adult pneumococcal National Immunisation Program change
5. Effectiveness of COVID-19 vaccines during a SARS-CoV-2 Delta variant outbreak in a large surgical hospital in Vietnam, September to October 2021
6. Evaluation of the Surveillance System of Adverse Events Following COVID-19 Vaccination, Chennai District, Tamil Nadu, May - June 2022
7. Adverse Event Following Immunization of COVID-19 Surveillance System Evaluation - Bantul District, Indonesia, 2021
8. Knowledge, Attitude, and Acceptance of Dog Oral Rabies Vaccination in Chiang Mai City

11:00 AM: Drama Theatre

Short Oral: Outbreak Investigations 2

1. Pertussis Outbreak Investigation – Transmission in Parihasi village, Madhya Pradesh, September 2022
2. An Outbreak of Scombroid Fish Poisoning Associated with Consumption of Mackerel (Scomber Japonicus) in Bantul, Yogyakarta, October 2022
3. Food Poisoning from Consumption of Wild Mushroom in Manang Distirct, Gandaki Province, Nepal: A Case Series
4. Cholera case concomitant with COVID-19 disease associated with “Raw fish” consumption in a Highly Urbanized City in Northern Luzon, Philippines, 2022
5. Outbreak of Covid-19 at PE Construction Site Kuala Lumpur, March 2020
6. Factors led to Influenza Outbreak in Semi-Boarding Sport School - Chiang Mai, Thailand, 2022

7. Post Outbreak Reporting of Acute Gastroenteritis in Lalitpur Municipality, Nepal, 2023

11:00 AM: Marie Reay 5.02

Short Oral: Surveillance

1. Antimicrobial Susceptibility Patterns of Burkholderia psuedomallei Isolates from Patients at Takeo Provincial Hospital, Takeo Province, Cambodia, January to August 2022
2. Antimicrobial Resistance Patterns of Escherichia coli Isolates from Blood cultures at Battambang Provincial Hospital, Cambodia, January-July 2022
3. Illegal fireworks, hospitalization, and amputation: National Fireworks-Related Injury Sentinel Surveillance during the Yuletide Season – Philippines, 2022
4. Formative Evaluation of Integrated Road Accident Database Surveillance System, North-Goa, India, 2021-2022
5. Assessment of the use and acceptability of electronic disease notification forms piloted during the COVID-19 response in Vanuatu, 2022
6. Analysis of CamEWARN Surveillance Quality Problems in Romeas Hek District, Svay Rieng Province, Cambodia, July -October 2022
7. Using Intermittent Enhanced Surveillance to Better Understand Varicella-Zoster Virus Epidemiology — Queensland, 2010–2021
8. Evaluation of the SARS-CoV-2 genomic surveillance system—Taiwan, 2020–2022

11:00 AM: Marie Reay 5.03 and 5.04

Short Oral: Vector borne Diseases 2

1. Rodent Diversity and Chigger Mite Infestation from Solid Waste Sites and Surrounding Landscapes near Dong Phayayen-KhaoYai Forest Complex in Thailand, 2021-2022
2. Machine learning models for micro-bubble image detection in insecticide sprayer quality control: addressing class and scale imbalance
3. Evaluation Control Measure of Dengue Fever Distribution Using Geographical Information System - Selangor, Malaysia 2015-2019
4. Analysis of Dengue Sentinel Surveillance Data in Kampung Speu Province, Cambodia, January to September 2022
5. West Nile Virus infection among suspected Japanese Encephalitis cases in Acute Encephalitis Syndrome surveillance in Bangladesh, 2022
6. Demographic and behavioural risk factors for Japanese encephalitis virus infection in Victoria, Australia
7. Serological evidence of Japanese encephalitis virus infection across northern Victoria, 2022

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Ambush Gallery

Developing a One Health FETP Community of Practice

Moderator: Dr Scott Newman

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Drama Theatre

Multisource Collaborative Surveillance Approach (WHO)

Agenda:

- Video message (5 mins)
- Presentation on Multi-Source Collaborative Surveillance (10 mins)
- Example of Country Implementation (5 mins)
- Group Discussion (12 Mins)
- Plenary Session (10 Mins)
- Wrap up.

Speaker/facilitator:

- Dr Masaya Kato, Programme Area Manager, Health Emergency Information and Risk Assessment, WHO Health Emergencies Programme, WHO Regional Office for South-East Asia

Dr Masaya Kato currently serves as the Programme Area Manager with WHO Health Emergencies Programme at WHO Regional Office for South-East Asia, and leads the Health Emergency Information and Risk Assessment unit. Over the past 20 years, he has been working with countries in Asia to strengthen surveillance and response to infectious diseases, and to advance implementation of the International Health Regulations (2005). He has stationed in Cambodia and Viet Nam, as well as WHO regional offices for the Western Pacific and South-East Asia. At present, he focuses his efforts in further enhancing surveillance, risk assessment and field epidemiology to better manage health security threats in WHO South-East Asia Region. He obtained Ph.D. from the University of Tokyo in Japan and MPH from Harvard School of Public Health.

- Matthew Griffith, Postdoctoral Scholar, National Centre for Epidemiology and Populations Health, College of Health and Medicine, ANU

Matthew Myers Griffith is a public health professional with more than fifteen years working in Asia, the Pacific, and the Americas, especially in infectious disease surveillance and surveillance evaluation, outbreak investigation and response, risk assessment, and training. He has worked at the World Health Organization, Japan's National Institute for Infectious Diseases (FETP Japan), and the US Centers for Disease Control and Prevention. He received his MPH from the University of North Carolina at Chapel Hill. Currently, Mr Griffith is a PhD candidate at the Australian National University, researching approaches to teaching and learning in field epidemiology training programs.

1:30pm: Canberra

Field Trips

14 September 2023

9:00 AM: Manning Clark Hall

Plenary Session

Incorporating diversity, equity, and inclusion into field epidemiology

Moderator: Dr Davoud Pourmarzi

Speaker:

- Dr Gina Samaan, Unit Manager/Pandemic Preparedness Global Platforms, Epidemic and Pandemic Preparedness and Prevention Department, World Health Organization

Dr. Gina Samaan is a field epidemiologist with a career focus on pandemic risk management. At the World Health Organization (WHO), she leads a global initiative to strengthen preparedness and resilience for future pandemic through a disease 'mode of transmission' lens. She also leads the global coordination on the Global Genomic Surveillance Strategy for Pathogens with Pandemic and Epidemic Potential. During the COVID-19 pandemic, Samaan established a response unit focusing on country support, technical monitoring and liaison with the United Nations (UN) country teams through the UN Development Coordination Office. Samaan has been working for WHO for over 10 years at the country, regional and headquarters levels. In recent years, Samaan managed the WHO Pandemic Influenza Preparedness (PIP) Framework Partnership Contribution for strengthening country capacities. In 2014-2021, the collective investments made by countries, partners and WHO have resulted in 68% of the world's 194 countries strengthening their participation in global influenza surveillance systems. Samaan previously worked and consulted for agencies including US-CDC, USAID, DFAT Australia, IOM, RTI International and the Australian Department of Health to design or implement disease control initiatives. She is fluent in three languages. Her research interests include the management of acute respiratory infections and mass gatherings.

- Ms Larissa Burke, Advisor (Gender Equality, Disability & Social Inclusion) Global Health Division, Indo-Pacific Health Security Centre, Australian Department of Foreign Affairs and Trade (DFAT)

Larissa Burke is the Gender Equality, Disability and Social Inclusion (GEDSI) Senior Advisor with DFAT's Global Health Division. As part of her role, she advises on the integration of gender equality and social inclusion into DFAT's health programming, supporting teams to address social inequities in health and facilitating improved outcomes on health equity in health policy and programming.

She has worked as an advisor to DFAT's Vaccine Access program, to support attention to social inequities within COVID-19 vaccination roll-out in the Pacific and Southeast Asia region, and as a Senior Inclusion Advisor within DFAT's Disability, Indigenous and Social Inclusion section. Previous to DFAT, Larissa worked with development NGOs in Australia. She has also spent time living and working in the Pacific supporting disability inclusion efforts and working with an allied health team. Larissa has a health background, with a Bachelor of Physiotherapy and experience in

various clinical settings. She holds a Masters of International Public Health and Masters of Public Health from UNSW, with a social research specialisation. She is a rights-based international development practitioner with intersectional experience in health and GEDSI.

- Ms Rachel Mather, PHD candidate, Australian National University's National Centre for Epidemiology and Public Health.

Rachel Mather is a PhD candidate at the Australian National University's National Centre for Epidemiology and Public Health. Her research focuses on understanding women's experiences participating in Field Epidemiology Training Programs (FETPs) and identifying strategies to ensure training minimises unintended consequences for women. She balances her PhD with her role as an epidemiologist on the Field Epidemiology in Action program, which collaborates with departments of health in Papua New Guinea and Solomon Islands to develop and strengthen regional field epidemiology capacity.

10:30 AM: Foyer or Lobby

Tea Break

11:00 AM: Manning Clark Hall

Long Oral: Vector borne Diseases 3

1. Malaria outbreak investigation during COVID-19 pandemic in Rokan Hilir District, Riau Province, Indonesia, 2020.
2. Malaria Foci Investigation in Titeam Village, Stung Treng Province, Cambodia, April 2022
3. Dengue outbreak near rubber plantation in a tribal village in South Garo Hills District, Meghalaya, India, October to December 2022
4. Dengue Outbreak Investigation in Three Adjacent Communes – Oraing Ov District, Tbong Khmum Province, Cambodia, 2022
5. Malaria Case Investigation in Nawalparasi East District of Nepal, 2023

11:00 AM: Drama Theatre

Long Oral: Waterborne Diseases

1. Locked down with Loose Bowels: Acute Watery Diarrhea (AWD) Outbreak among the Prisoners of Penal Colony in Mindanao, Philippines 2021
2. Investigation of two norovirus outbreaks linked to drinking water contaminated with multiple GII strains in a rural county—Chongqing, China, 2021
3. Investigation of an outbreak of Bacteriological Dysentery caused by contaminated well water, Sichuan Province, China, 2022

4. Cholera Outbreak in Chittapur Town, Kalaburagi District, Karnataka, India, May-June 2022
5. Shigella outbreak at a cultural event due to cross-contamination of damaged tap-water pipeline and sewage overflow, District Shivamogga, Karnataka, India, January 2023

11:00 AM: Marie Reay 5.02

Long Oral: Toxicology

1. Largest Acute Chemical Incident in Malaysia, March 2019: Opportunity to Assess the Preparedness and Response Capacity
2. Outbreak of Lead Poisoning in Cattle through Battery Recycling in Barashi village, Sadar, Magura district, Bangladesh 2020
3. Investigation of a family clustered pesticide poisoning caused by aluminum phosphide in Shanghe county, Jinan city, Shandong Province
4. Thyrotoxicosis Outbreak from Pork Consumption in a Prison - Lopburi, Thailand, November 2022

11:00 AM: Marie Reay 5.03 and 5.04

Long Oral: Non-communicable Diseases

1. Anemia among pregnant women, Goa, India: A cross-sectional analysis between 2018 and 2022
2. Facilitators and barriers to medication treatment adherence in patients with hypertension in primary health care in China: A qualitative study
3. Improving anti-hypertensive drug availability in public health facilities of Chikmagalur District, Karnataka, India, February to June 2022
4. Incentivizing urban Accredited Social Health Activists reduces missed visits among individuals with hypertension in Seoni district, Madhya Pradesh, India 2022
5. Risk Factors of Hypertension in Gunungkidul District: Secondary Data Analysis of Sehat Indonesiaku Database from October-December 2022

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Ambush Gallery

Climate change and Public Health Impacts

Panel discussion:

- Professor Hilary Bambrick, Director of the National Centre for Epidemiology and Populations Health, College of Health and Medicine, ANU

Professor Hilary Bambrick is an environmental epidemiologist and anthropologist with a distinguished career in research, teaching and supervision, and academic leadership over 25 years at three distinct institutions. She is currently the Director of the National Centre for Epidemiology and Population Health at the Australian National University College of Health and Medicine. Professor Bambrick is nationally and internationally recognised for her work on climate change and health, in particular in adaptation strategies for building resilience, from small community-led interventions to multi-nation cross-sectoral plans. She regularly consults and provides expert advice for governments in Australia and overseas on climate and health risk assessment and adaptation, and has worked as an international consultant to develop regional strategies for national health systems resilience and adaptation for the World Health Organization (WHO) and the United Nations Development Programme (UNDP).

- Dr George Carter- Research Fellow at the Department of Pacific Affairs at the Australian National University (ANU), and the Director for the ANU Pacific Institute

Dr George Carter is a Research Fellow at the Department of Pacific Affairs at the Australian National University (ANU), and the Director for the ANU Pacific Institute a network hub of over 200 scholars connecting and promoting Pacific Studies research, teaching and training at the university. His research, teaching and policy work us interested focus on the interplay of international politics and climate change, with a particular focus Pacific states and peoples. His works takes a transdisciplinary approach of international relations, diplomatic, Pacific studies and Pasifika indigenous knowledge to understanding regionalism, geopolitics, Oceanic diplomacy and non-western international relations.

- Professor Sotoris Vardoulakis, Director, NHMRC Healthy Environments And Lives (HEAL) National Research Network, Professor of Global Environmental Health, National Centre for Epidemiology and Populations Health, College of Health and Medicine, ANU

Professor Sotiris Vardoulakis is Professor of Global Environmental Health at the Australian National University, National Centre for Epidemiology and Population Health. He is the Director of the Healthy Environments And Lives (HEAL) network, and co-leads the International Consortium for Urban Environmental Health and Sustainability (Healthy-Polis), and the Clean Environment and Planetary Health in Asia (CEPHA) network. Previously he was Director of Research at the Institute of Occupational Medicine in Edinburgh, and Head of the Environmental Change

Department at Public Health England. His work focuses on sustainable solutions to protect human health from climate change, air pollution, temperature extremes, and other environmental and occupational hazards.

12:30 PM – 1:30 PM: Brown Bag Lunch Session

Drama Theatre

Title: Population Connectivity Across Borders (USCDC)

Speakers:

- Dana Schneider, DrPH, MPH, Division of Global Migration and Quarantine, United States Centers for Disease Control & Prevention
- Barbara Knust, DVM, MPH, Division of Global Migration and Quarantine, United States Centers for Disease Control & Prevention

1:30 PM: Manning Clark Hall

Long Oral: COVID-19 Aftermath

1. Post COVID-19 Respiratory Symptoms and its effect in the Quality of Life among Recovered Patients in Makati City: A Nested Case-Control Study Philippines, September-November 2021
2. Long COVID in a vaccinated population exposed to Omicron - Australia, 2022
3. Assessing the effects of COVID-19 related work on depression among community health workers in Vietnam
4. Post COVID-19 Conditions and Patients Treated for Hypertension and Diabetes, Bangladesh 2021
5. Impact of COVID-19 pandemic on HIV tests and diagnosis in the Republic of Korea, 2016-2021

1:30 PM: Drama Theatre

Long Oral: Zoonoses

1. Epidemiological characteristics and spatio-temporal analysis of Brucellosis in Shandong province, China, 2015-2021
2. Outbreak investigation of cutaneous anthrax in Shandong Province, China, 2021
3. Seroprevalence and associated risk factors of Leptospira spp. in cattle in Ho Chi Minh city, Vietnam
4. Leptospirosis Outbreak in Boyolali Regency, Central Java Province, 2022
5. From a way of life to taking away lives: An Outbreak of Leptospirosis among Fishermen – Northern Luzon, Philippines, 2022

1:30 PM: Marie Reay 5.02

Long Oral: Gastroenteritis Outbreaks

1. An Investigation of Dysentery Outbreak in Tum Hamlet, Telefomin District, West Sepik Province, Papua New Guinea, January 2019
2. Investigation of an Acute Gastroenteritis Outbreak Following a Religious Ceremony-Bangladesh, 2022
3. Outbreak of Norovirus Gastroenteritis during orientation week in a college - Port Dickson City, 2022
4. A Large Gastroenteritis Outbreak of Rotavirus Genotype G3P[8] in a Secondary School - Pathum Thani Province, Thailand, 2022
5. An acute gastroenteritis outbreak following a wedding feast in a rural area of western Nepal, December 2022

1:30 PM: Marie Reay 5.03 and 5.04

Long Oral: Leprosy and Tuberculosis

1. Fluctuating new case detection & poor detection through contact survey over five years in Tiruvallur district, Southern India, April 2017-March 2022: Need to revisit case search strategies of leprosy programme
2. Investigation of leprosy cases in Lumbini Province, Nepal, 2022
3. Epidemiology and outcomes of Drug-resistant Tuberculosis cases notified in a low resource district in Kerala, India 2017-2021
4. Evaluation of the Drug-Resistant Tuberculosis (DR-TB) management component under the National Tuberculosis Elimination Programme (NTEP) in Kasaragod district, Kerala, India 2021-2022
5. Predictive Factors for Drug Resistant Tuberculosis (DR-TB) - A Rising Concern in Kuala Lumpur, Malaysia

3:00 PM: Foyer or Lobby

Tea Break

3:30 PM: Manning Clark Hall

Long Oral: Infection Prevention and Control

1. Knowledge, attitude, practices of face mask usage among the residents of Kannur District, Kerala, India, 2021-22
2. Factors associated with prevention of COVID-19 outbreaks in Nursing care facilities: South Korea in 2022
3. Infection Control Practice in Companion Animal Clinics in Japan
4. Assessment and Strengthening of Biosecurity Practices of Swine Farms in Bais City, Negros Oriental

3:30 PM: Drama Theatre

Long Oral: Miscellaneous Studies

1. Mothers receiving adequate postnatal care and associated factors in rural Virudhunagar district, Tamil Nadu, India 2019 - A community-based analytical cross-sectional study
2. Vulnerability to heat: a case-crossover study using emergency department presentations and hospital admissions – Victoria, Australia, 2014–2021
3. Verification of a Suspected COVID-19 Outbreak at Tokyo 2020 Olympic and Paralympic Games Through Intelligence Activities
4. Ambient Air Quality and Acute Respiratory Emergencies in Context of Air Pollution, Chennai, India, 2021-2022
5. Analysis of Mental Emotional Disorders based on SRQ after the Earthquake Disaster in Health Workers at the Nagrak Health Center, Cianjur Regency, December 2022

3:30 PM: Marie Reay 5.02

Long Oral: Reproductive Health

1. Survival analysis of people living with HIV between 1996 and 2021 in Jingzhou city, China
2. Knowledge, Attitude and Practice of Commercial Sex Workers Regarding Cervical Cancer and its Screening, Daulatdia Brothel, Rajbari District, Bangladesh, 2020-2021
3. Is Genital Chlamydia Disease Truly Increasing in Japan? — Results of a Surveillance Evaluation
4. Trends in late adolescent pregnancy: A retrospective analysis of routinely collected data during April 2016-March 2021 in Thanjavur district, Tamil Nadu, India
5. Profile and determinants of adolescent pregnancy in a South Indian district: A cross sectional analysis of program data between 2017 and 2022

3:30 PM: Marie Reay 5.03 and 5.04

Long Oral: Children's Health

1. Prevalence and patterns of Low-Birth-Weight babies born in Theni district, Tamil Nadu, India from 2018-2022 - A Descriptive Cross-sectional study
2. Profile and outcome of newborns seeking care at “Special Newborn Care Unit” - District Hospital, Kalahandi, Odisha, 2020-2021
3. Acute Respiratory Infection symptoms among Under-five children in Cambodia: Analysis of 2000 to 2014 Cambodia Demographic and Health Surveys
4. Magnitude of undernutrition among children of 5-10 years residing in North region of Chennai, Tamil Nadu, India, 2022

15th September 2023

9:00 AM: Manning Clark Hall

Plenary Session

The art of mass gathering surveillance – risk assessments, managing the risks, and undertaking a response

A mass gathering (MG) is a planned or spontaneous event where the number of people attending could strain the planning and response resources of the community or country hosting the event. While MGs may strain public health systems, these events also present opportunities to build long-lasting legacy, such as a stronger public health surveillance, or residents and visitors that are better informed about how they can protect themselves from certain diseases. In the context of the ongoing COVID-19 pandemic, and the clear, global need to improve the public health capacity to prepare for the next potential pandemic, we aim to 1) share experience on public health preparedness and response for various sort of MGs in different contexts; 2) discuss the public health challenges and strategies inherent to MGs with the audience; 3) inspire presenters and the audience to conduct better preparation and response for the next MG in their countries

Moderator: Dr Stephanie Davis

Speaker:

- Dr. Sushma Choudhary (EIS Alumni & Faculty, NCDC)

As a seasoned public health professional, my career spans various roles and responsibilities, starting as a Medical Officer with the Health and Family Welfare Department in Rajasthan from 2006 to 2015. During my tenure, I honed my clinical and public health skills. Subsequently, I served as an India Epidemic Intelligence Service Officer from 2015 to 2017, specializing in outbreak investigations and disease surveillance. From 2018 to 2020, I worked as a Technical Officer at the South Asia Field Epidemiology and Technology Network, contributing to epidemiological studies and research. I have held the position of Program Adviser at the same organization since 2020, where I provide strategic guidance and technical expertise to enhance Field Epidemiology Training programs. My versatile skill set encompasses epidemiological research, program management, clinical expertise, and a dedication to public health excellence.

- Onofre Edwin Merilles Jr. (Jojo). Epidemiologist - Project Coordinator, Pacific Community, Noumea, New Caledonia

Dr Jojo Merilles is an epidemiologist by profession and holds a Public Health Specialist in Applied Epidemiology (PHSAE) certification. He brings over 25 years of experience in public health, surveillance, outbreak and emergency response, health system strengthening, research, monitoring and evaluation – working at national and international levels. Jojo joined the Pacific Community (SPC) in 2014 to work with the

Surveillance, Preparedness and Response Programme of the Public Health Division and support sustainable development of Pacific Island countries and territories.

Jojo has particular interest in the capacity strengthening of the public health workforce in epidemiology, surveillance, and research. He has provided expert advice and technical support to assist Pacific island countries enhance existing national surveillance systems for mass gathering events. His work has included risk assessments to guide development of plans and updating of tools and SOPs for enhanced surveillance in a mass gathering event - during the 10th Pacific Mini Games in Vanuatu (2017), the 9th Micronesia Games in Yap State, Federated States of Micronesia (2018), and during the 16th Pacific Games in Apia, Samoa (2019).

Jojo is currently leading a team helping prepare the Solomon Islands Ministry of Health and Medical Services for implementation of an enhanced surveillance system for the 17th Pacific Games to be held this coming November to December 2023.

- Dr Munehisa Fukusumi – Coordinator of the Japan Field Epidemiology Training Program

Dr Munehisa Fukusumi is a medical epidemiologist, alumnus of the Japan FETP and has been the FETP Japan coordinator since 2016. His primary areas of expertise lie in infectious disease surveillance, evaluation of surveillance systems, risk assessment, and outbreak investigation. He has provided technical support in preparedness, enhanced surveillance, and response efforts for various mass gatherings. Additionally, he took a leading role at the Tokyo 2020 Emergency Operations Center, located at the National Institute of Infectious Diseases.

10:30 AM: Foyer or Lobby

Tea Break

11:00 AM: Manning Clark Hall

Closing and Awarding Ceremony

Emcee: Dr. Maria Consorcia Quizon

11:00 AM	Strengthening One Health Partnerships in the Asia Pacific Region	DFAT representative
11:15 AM	Awarding of Winners (Oral and poster presentations, Photo contest, Outbreak Escape Room Game)	Scientific Committee
11:30 AM	SAFETYNET Presentation	Dr Maria Consorcia Quizon
11:40 AM	Announcements from TEPHINET	Dr Carl Reddy
11:50 AM	Announcement of Next Host for 2025 SAFETYNET Conference	SAFETYNET & Host country representative
11:55 AM	Closing Remarks	Prof Tony Stewart

12:00 PM: Foyer or Lobby

Lunch

Abstracts

Long Oral Presentations: SARS-CoV-2 Transmission

A COVID-19 Outbreak Associated with Quarantined International Travelers - Sichuan Province, China, 2020

Tuesday, 12th September: Long Oral: SARS-CoV-2 Transmission (Manning Clark Hall) - Long Oral

Ms. Yudan Song [1], ***Mr. Lunguang Liu*** [2], ***Dr. Yingxin Pei*** [1], ***Mr. Canjun Zheng*** [3]

1. *China FETP, China CDC,* ***2.*** *Sichuan Provincial Center for Disease Control and Prevention,* ***3.*** *China CDC*

Background

After no local COVID-19 cases were seen for nine consecutive months, a villager was diagnosed with COVID-19 at a hospital visit and was reported to Sichuan CDC on December 7, 2020. We conducted an investigation to explore the source of infection and identify risk factors for transmission.

Methods

Case definitions were from the National Protocol for Prevention and Control of COVID-19 (Edition 7). From November 14 through December 31, we visited the patient's village and searched for other cases through medical records and interviews with the patient and their close contacts. We tested nasopharyngeal swabs and blood specimens from cases and close contacts and environmental samples from living and working locations for SARS-COV-2. We sequenced isolated viruses and conducted a retrospective cohort study to explore transmission risk factors.

Results

We identified 14 persons with SARS-COV-2 infection. The index case's house was 30 meters from a designated quarantine facility for international travelers where 5 travelers from Nepal tested positive for SARS-COV-2 between November 16 and 28. No villagers had a history of travel or contact with quarantined cases or contaminated arti- cles. Playing Mahjong at a Mahjong house was a significant risk factor for infection (RR=12.1, 95%CI: 1.62-90.27). Quarantined facility sewage tested positive for SARS-COV-2 on December 9. Viral genome sequencing of local cases, SARS-CoV-2 positive travelers and sewage viral isolates showed that all viruses belonged to L-lineage European branch II.3/lineage B.1.36, and were highly homologous.

Conclusions

The outbreak was triggered by a quarantine facility and playing in Mahjong house increased infection risk. Quarantine sites should be set far from residential areas and facility waste should be disinfected thoroughly before discharged to the sewage system. Given the ongoing global COVID-19 pandemic, we should continue to be vigilant for possible outbreaks in public gathering places such as Mahjong houses.

COVID-19 Outbreak at Civil Defense Forces Training Camp, Perlis, November 2021: What Went Wrong?

Tuesday, 12th September: Long Oral: SARS-CoV-2 Transmission (Manning Clark Hall) - Long Oral

Dr. Che Muzaini Che' Muda [1], ***Dr. Dr. Hasrina Binti Hassan*** [1], ***Dr. Siti Halimah Syed Shaikh*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

The Malaysian Government has given flexibility for conducting physical training after Malaysian adults achieved 90% vaccination coverage in October 2021. On 30 November 2021, Perlis State Health Department received noti- fication of COVID-19 cases among the civil defense forces who attended an outdoor training camp at Sungai Batu Pahat, Perlis. An investigation was conducted to verify the outbreak, identify risk factors and recommend control measures.

Methods

A case-control study was conducted. An environmental assessment was carried out and clinical samples were taken for laboratory testing. Cases were attendees positive for rapid test antigen testing (RTK-Ag), and controls were attendees who tested negative. This outbreak was defined as two or more positive COVID-19 cases among attendees. Sociodemographic data and practice toward COVID-19 were collected using a structured questionnaire. Multivariate analyses were performed to identify risk factors.

Results

The outbreak involved 31 (20.1%) of 149 attendees. All were Malays, completed two-doses vaccination, ages ranged from 21 to 44 years and a male to female ratio of 2:1. Among cases, 80.6% had fever, loss of smell (77.4%) and runny nose (67.7%). Three cases received hospital treatment while others were isolated at a hostel/home. There was lack of physical distancing, wearing masks and hand hygiene practice among cases [mean(SD) score of 2.43(1.41); 2.37(1.45) and 2.83(1.34)] compared to the controls [3.14(1.41); 2.83(1.49) and 3.28(1.29)] respectively. Attendees with history of close contact with positive cases showed significantly increased chances of being infected (adjusted Odds Ratio(aOR)=18.4,95% Confidence Interval (CI)=5.64, 60.29). Attendees who practiced physical distancing during training were protectived from COVID-19 (aOR=0.42, 95% CI=0.18, 0.97).

Conclusions

There was an outbreak of COVID-19 amongst civil defense forces in Sungai Batu Pahat training camp, Perlis. Physical training involving close contact with other positive cases contributed to the outbreak. Pre-training testing can identify cases earlier and enforcing precautionary practices of physical distancing has proven to be effective in preventing COVID-19 transmission.

Super Spreading COVID-19 Traced to Fruit Stalls Activities in Singapore, 2021

Tuesday, 12th September: Long Oral: SARS-CoV-2 Transmission (Manning Clark Hall) - Long Oral

Dr. Qi Gao [1], ***Prof. Steven Ooi*** [1]

1. *Singapore FETP*

Background

At the request of Singapore Ministry of Health, we investigated into a COVID-19 megacluster from 2-12 June 2021 involving at least 110 confirmed cases in a local market and residential estate to elucidate the source of infection and mode of transmission.

Methods

Clinical and epidemiologic details were obtained on 93 laboratory confirmed cases through standardized phone interviews. We conducted site visits to observe the hygiene and sanitary conditions of weekday and weekend activities, and also a case-control study to compare risk factors in 46 cases and 114 controls. Multiple logistic regression modeling was performed to adjust for potentially confounding covariates.

Results

The 93 cases comprised 22 market stallholders, 28 market patrons, and 43 household contacts. In multivariable modeling, visiting or working at the fruit stalls (adjusted odds ratio [aOR] 5.5, 95% CI 1.6-18.0, p=0.005), using the car park (aOR 5.0, 95% CI 1.0-25.0,p=0.049) and wearing cloth masks as compared to surgical masks (aOR 7.2, 95% CI 2.1-24.2, p=0.01) were independent risk factors of COVID-19 infection at the market. Interviewees reported non-compliance to permitted group sizes, improper mask wearing, a lack of social distancing (crowds of more than five people) near the fruit stalls, and poor hygiene in common areas.

Conclusions

In urban epidemiology, outbreaks are biocultural phenomena and we identified activities at the fruit stalls as of major significance contributing to this COVID-19 superspreading event. The common high-touch habit of patrons choosing each fruit is conducive for fomite transmission as the coronavirus can remain viable on contaminated surfaces for long durations. To prevent future outbreaks, we recommended pre-packing of fruits, provision of hand sanitizers for patrons at fruit stalls, posters on hand hygiene with directional signs to handwash areas. Longer term measures include implementation of a workable queue management system and review on the physical set-up of fruit stalls for better crowd control.

Probable aerosol transmission of SARS-CoV-2 among a cluster of inpatient cases in a general hospital in X City, China, 2022

Tuesday, 12th September: Long Oral: SARS-CoV-2 Transmission (Manning Clark Hall) - Long Oral

Mr. Chenlin Duan [1], ***Mr. Chao Li*** [2], ***Prof. Zhou Lei*** [2]

1. *China FETP, China CDC,* ***2.*** *China CDC*

Background

WHO has acknowledged that aerosol transmission might be another transmission route for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). An outbreak of coronavirus disease 2019 (COVID-19) among inpatients was reported in a general hospital in X City in November 2022. To determine whether there had been aerosol transmission or not in the hospital, we examined the temporal and spatial distributions of cases and investigated the environment.

Methods

Epidemiological investigation was conducted, and big data were used to reveal the exposure history of the cases. Throat swabs of the cases and environmental samples were collected for test of SARS-CoV-2 nucleic acid, and the positive samples were further analyzed by gene sequencing.

Results

Ten cases were identified from five rooms in a vertical line of the building, which were connected by toilet ventilation duct. The index case had illness onset on November 7 and was confirmed on November 9 in Room 13 on the eighth floor, who had contact with a prior confirmed case. On November 9, another two cases were confirmed in the same room of the index case. Seven more cases were confirmed during November 9 to 12 from other rooms on the ninth, tenth and 11th floors vertically. The cases in the rooms on the vertical line had no possible contact other than the environmental connection through the toilet ventilation duct with the cases on the eighth floor. The genome sequences of the viruses of the cases were highly homologous and belonged to the Omicron variant (BA.5.2). The environmental sample collected from the toilet ventilation duct of the Room 13 on the ninth floor tested positive for Omicron variant (BA.5.2).

Conclusions

The findings suggested aerosol transmission may have occurred during this outbreak of COVID-19 in the inpatient building. Close attention needs to be paid to virus transmission through ventilation duct system in wards.

Perusal of COVID-19 Brought-In-Dead (BID) cases in Selangor, 2021-2022

Tuesday, 12th September: Long Oral: SARS-CoV-2 Transmission (Manning Clark Hall) - Long Oral

Dr. Muhammad Haikal Ghazali [1], ***Dr. Harishah Talib*** [1], ***Dr. Abdullah Husam A. Shukor*** [1], ***Dr. Ummi Kalthom Shamsudin*** [2]

1. *Epidemic Intelligence Program (EIP) Malaysia,* **2.** *Ministry of Health Malaysia*

Background

COVID-19 brought-in-dead (BID) cases could signify weaknesses in public health system during pandemic particularly pertaining to health service accessibility. Selangor recorded the highest number of COVID-19 deaths in Malaysia with 21.7% were BIDs (2341 cases). This study aimed to determine the characteristics of BID cases in Selangor with its contributing factors as compared to in-hospital deaths and recommend preventive measures spe- cific to health-service delivery factors.

Methods

This was a cross-sectional study using the official national COVID-19 death registry from January 2021 until August 2022. Cases of BID and in-hospital deaths which fulfilled the set criteria were conveniently selected for analysis. Both groups were compared in terms of the socio-demographic, patient-health, and health-service delivery factors.

Results

A total of 338 deaths with 187 BIDs were analysed in the study. The analysis found significant differences between BIDs and in-hospital deaths group for factors such as age group (age above 60: 61.5% in BID, 84.1% in in-hospital death), nationality (Malaysian: 90.9% in BID, 97.4% in in-hospital death), smoking status (smokers: 65.7% in BID, 23.7% in in-hospital death) and ambulance response time (less than 60 minutes response time: 57.9% in BID, 81.4% in in-hospital death). There were no significant differences between the two groups found for gender, ethnicity, vaccination status and comorbidities factors. The odds of COVID-19 BID in Selangor were found significantly higher among those aged less than 60 years old (OR 2.68), smoker (OR 5.67) and one-hour delay of ambulance response (OR 2.62).

Conclusions

Younger age and smoking were found to have higher risk of BID for COVID-19, thus a targeted advocacy programme would benefit improvement in their health seeking behaviour. Restructuring of current ambulance system should be explored further to address the issue of delayed ambulance response during pandemic.

Long Oral Presentations: Vectorborne

Dengue Fever Outbreak-Taman Sri Rugading Tuaran, Sabah State, Malaysia, 2020. A case-control study

Tuesday, 12th September - 11:00: (Drama Theatre) - Long Oral

Mr. Adrian Adrin [1], ***Dr. Noraziah Bakri*** [1], ***Dr. Muhammad Amir Kamaluddin*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

Dengue fever (DF) is endemic in Malaysia with sporadic outbreak in the state of Sabah. Among components in on-going preventive program include health education campaigns. On 15th December 2019, an increased number of dengue fever cases was reported from Taman Sri Rugading in Tuaran city. A team from the field epidemiology training program was dispatched immediately to confirm and investigate the outbreak. This study aims to describe the epidemiological characteristics, determine risk factors and recommend control measures.

Methods

Dengue cases were described by epidemiology. We conducted a case-control (1:2 ratio) study. Cases were defined as persons meeting definition of Dengue Fever according to the Malaysian Case Definition for Infectious Disease Handbook 2017. Controls were individuals from same residential area and laboratory tested negative for dengue. Environmental survey within corresponding area conducted to identify *Aedes* breeding sites. Attack rate, odds ratios (OR) and 95% confidence intervals (95%CI) were calculated.

Results

A total of 22 dengue cases were identified with an attack rate of 12.2 per 10,000 population. 54.5% (12/22) were female. Among age group categories, 31-40 years old predominates with 36.4% (8/22), followed by 21-30 years and 11-20 years each with 22.7% (5/22) respectively. Private sector workers and students accounted for 31.8% (7/22) and 22.7% (5/22) respectively. Aedes larva surveillance calculated Aedes Index and Breteau Index of 4.9% (97/1991) and 6.2% (125/1991) respectively. Risk of getting dengue if not using bed nets and, not using screened doors and windows showed (OR:4.93, 95% CI:1.43-16.94) and (OR: 3.72, 95% CI:1.17-11.87) respectively.

Conclusions

In this dengue fever outbreak in Taman Sri Rugading, Aedes mosquito breeding sites was identified. Current regular health education campaigns should target working adults and students to emphasize use of bed-nets as well as screened windows.

Construction and Application of a Schistosomiasis Risk Assessment System with Analytic Hierarchy Process in Wuhan City, China

Tuesday, 12th September - 11:15: (Drama Theatre) - Long Oral

Ms. Yuting Zuo [1], ***Dr. Zhijun Li*** [2], ***Mr. Mingxing Xu*** [3], ***Mr. Shuai Wang*** [3], ***Mr. Yang Li*** [3], ***Mr. Shuimao Zhou*** [3], ***Mr. Huatang Luo*** [3]

1. *China FETP, China CDC,* ***2.*** *U.S. CDC China Office,* ***3.*** *Wuhan Center for Disease Prevention and Control*

Background

The risk for schistosomiasis varies geographically in Wuhan City, Hunan Province, China. A risk assessment and decision-making tool could help health officials prioritize and better target interventions to interrupt transmission

Methods

In 2021, we constructed an analytical hierarchy process (AHP), a multi-criteria, decision-making tool. The tool was developed with the following steps: 1) generating criterion and sub-criterion indicators by combining data collected in 2020 from schistosomiasis surveillance sources (including human cases, snail population, sentinel mice, human behaviors, and climate and ecological factors), published literature, and expert consultation through the Delphi method; 2) assigning scores to indicators and establishing priorities from a pairwise comparison reciprocal matrix using AHP; and 3) applying the eigenvalue method to determine relative weights and decision elements. Final indicator values (including combined weights) were calculated, ranked, and applied to the 12 surveillance sites in Wuhan City.

Results

A three-level indicators risk assessment system was constructed with AHP, including one transmission risk target, five criterion indicators and 22 sub-criterion indicators. At criteria level, the weight of transmission route (0.433) was the highest, followed by infectious source (0.294). At sub-criterion level, the infection rates of snails (0.125) and sentinel mice (0.125) had the highest combination weight, while human and livestock infection status (0.091and 0.053), molluscicides application (0.049), inquiry examination positive rate (0.048) and personnel allocation (0.045) accounted for significant percentage of combination weights. Their consistency ratios (CR) were all less than 0.10, implying acceptable consistency. We applied the model to 12 national surveillance sites in Wuhan in 2020. The comprehensive risk scores were greater than 0.8 at five sites, between 0.6 and 0.8 at four sites, and three sites were less than 0.6. Based on risk priorities, hierarchical and classified interventions were developed and implemented. As a result, there were neither snail transmitted outbreak nor further outbreak caused by imported cases in the past three years.

Conclusions

An AHP-Delphi method-based quantitative tool to assess schistosomiasis transmission risk was successfully developed. Based on the comprehensive risk scores in Wuhan City, Hunan Province, interventions were developed and implemented.

A novel colloidal gold immunochromatography assay strip for the diagnosis of Schistosomiasis japonica in human being

Tuesday, 12th September - 11:30: (Drama Theatre) - Long Oral

Mr. Chuangang Zhu [1], ***Ms. Yuanxi Shen*** [2], ***Ms. Rongyi Ji*** [2]

1. *Shanghai Institute of veterinary medicine Chinese Academy of Agricultural Sciences,* ***2.*** *Shanghai Institute of Veterinary Medicine Chinese Academy of Agricultural Sciences*

Background

Schistosomiasis can be detected by parasitological methods and immunological methods. However, the sensitivity of the traditional tests are compromised because of the low-intensity infections and the low prevalence. To meet the needs of the grassroots screening, the colloidal gold immunechromatography (GICA) assay strip is suitable because it is simple, rapid, sensitive, specific, and no special equipment is required. This study aims to develop GICA strip methods for schistosomiasis diagnosis.

Methods

A novel colloidal gold immunochromatography assay (GICA) strip was developed for detecting *Schistosoma japonicum* in human beings. The colloidal gold was conjugated with recombinant streptococcal protein G (rSPG). As the test and control lines, the schistosome soluble egg antigen (SEA) and rSPG were blotted on nitrocellulose membrane, respectively. 178 human serum samples were used to compared the difference of the two method, indirect haemagglutination assay (IHA) and the GICA strip. And 152 clinical human serum collected from epidemic area were used to evaluate the GICA-strip.

Results

The best concentration for the SEA and rSPG used in the GICA strip was 1mg/ml and 0.5 mg/ml respectively. The best detectable serum dilution was 1:20. When taken the stool examination results as the Gold standard test, the strips showed high sensitivity (87%) and specificity (100.00%) in detecting *S. japonicum* in contrast with that of IHA method. 152 clinical human sera were detected, 54 positive was detected by GICA strip while 41 positive was detected by IHA.P > 0.05.

Conclusions

The GICA strip using gold–rSPG conjugate for the diagnosing of schistosomiasis in human being was developed. Preliminary results showed that the strip is suitable for large-scale screening of schistosomiasis in endemic areas.

Imported Human Malaria Cluster in a Palm-Oil Plantation - Gua Musang, Kelantan, 16 June to 27 August 2022

Tuesday, 12th September - 11:45: (Drama Theatre) - Long Oral

Dr. Nik Mohd Hafiz Mohd Fuzi [1], ***Dr. Noorfariza Nordin*** [1], ***Dr. Suhaiza Sulaiman*** [1], ***Dr. Noorhaida Ujang*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

Malaysia is in pre-elimination phase of malaria. Imported cases from immigrant workers raise the potential of reintroduction of malaria transmission in receptive areas making the Malaria Elimination target difficult to achieve. This study aimed to describe the epidemiologic characteristics of imported human malaria cluster that occurred in a palm-oil plantation and recommend control measures.

Methods

We conducted a descriptive study. Cases were individuals with positive Blood Film Malaria Parasite (BFMP) or Polymerase Chain Reaction (PCR) from 31/5/22 and living/working in the palm-oil plantation or those epidemiologically linked. Case detection among plantation workers and nearby areas within 2km radius were done. Interviews, record reviews, observations, laboratory, environmental and entomological investigation were conducted. Mass Blood Survey with BFMP and PCR were carried out among all contacts.

Results

There were 15 confirmed cases reported with attack rate of 27.8% (15/54). All cases were Burmese, male with median age 22(IQR 11.5). None developed complication. Two (13.3%) cases reported malaria symptoms before arrival in Malaysia and 13 (86.7%) cases were asymptomatic and detected five days after arrival in Malaysia. for 5 days. No cases among locals were detected. Laboratory results showed that most of the cases were positive for P.vivax (53.3%) followed by P. falciparum (26.7%), P. malariae (13.3%) and 6.7% mixed P. vivax and P. falciparum infection. P. falciparum gametes were detected in two cases. The presence of Anopheles mosquitoes, along with vulnerability and receptivity risk assessments, indicated high risk of malaria reintroduction at the locality.

Conclusions

This is a cluster of imported human malaria among foreigners. Although rapid control and preventive measures successfully halted the spread, the locality is at high risk of malaria reintroduction. Continuous collaboration with private sectors to screen arriving foreign workers, appointing Malaria ambassadors to inform the presence of new immigrants, scheduled vector control activities (indoor residual spray, larval source management, long-lasting insecticidal nets), and multilingual health education material are recommended.

Scrub Typhus Outbreak: Revelation from an epidemiological investigation – Asansol District, West Bengal, India, August 2022

Tuesday, 12th September - 12:00: (Drama Theatre) - Long Oral

Dr. Subhadip Bhunia [1], ***Dr. Dr Pranay Dutta*** [1], ***Dr. Sarmah Nagen*** [1], ***Dr. Subhajit Bhattacharjee*** [1], ***Dr. Khyati Aroskar*** [1], ***Dr. Kevisetuo Anthony Dzeyie*** [1]

1. *World Health Organization*

Background

Scrub typhus is a neglected tropical disease caused by *Orientia tsutsugamushi.* On 20 August 2022, a scrub typhus outbreak was flagged by Integrated Disease Surveillance Programme (IDSP) at Asansol district, West Bengal. We joined the investigation to describe epidemiology and provide evidence-based recommendations.

Methods

We defined a suspect case as fever ≥5 days in a person from Asansol district between 1–31 August 2022 and considered IgM positive for scrub typhus by enzyme linked immunoassay as confirmed. We reviewed the IDSP line-list and visited health facilities to search for cases. We interviewed confirmed cases using a pretested semi-structured questionnaire for demography, clinical, and environmental exposures during two weeks before fever onset. The modified Kuppuswamy scale was used for socio-economic status classification. We analyzed data for frequencies and proportions using Epi Info 7.2.5.

Results

We identified 131 suspects; 31 confirmed scrub typhus cases from three government and two private hospitals in the district. Among them, 21/31 (68%) confirmed cases consented for interview. Of 21, 14 (67%) were female, median age 7 years (range: 3–48); 17 cases (80%) ≤19 years and 10 (47%) belonged to upper lower socio-economic status. All 21 were hospitalized with median days hospitalization 3 (range:1–7), given prophylactic medication in age-appropriate dosage. Headache was present in 13/21 (62%) and eschar in 5/21 (24%) cases. While 18/21 (86%) spotted rodents outside house daily, mud/grassy approach road to house was in 15/21 (71%) and 16/21 (76%) had house near grassland/vegetable field. Of the 17 cases in teenage, 14 (82%) played around house.

Conclusions

We report a confirmed scrub typhus outbreak mostly among female children of upper lower socio-economic status residing close to grassland with rodents around. Good recovery reported with timely management. We recommended strengthening fever surveillance during monsoons, targeted risk communication, clearing vegetation, miticide application and rodent control around residential areas.

Long Oral Presentations: Foodborne Outbreaks

Salmonella Agona Outbreak Linked to Consumption of Kebabs—Canberra, Australian Capital Territory, 2022

Tuesday, 12th September - 11:00: (Marie Reay 5.02) - Long Oral

Dr. Jill Padrotta [1], ***Ms. Jenny Post*** [2], ***Ms. Alexandra Marmor*** [3], ***Dr. Nevada Pingault*** [2], ***Dr. Davoud Pourmarzi*** [1]

1. *The Australian National University,* ***2.*** *ACT Health,* ***3.*** *ACT Health Department*

Background

Salmonella infection is associated with significant morbidity and mortality in Australia, mostly through consump- tion of contaminated foods. In April 2022, routine surveillance detected an increase in *Salmonella enterica* serovar Agona (*S.* Agona) cases in the Australian Capital Territory (ACT) with 10 cases notified between February and April 2022. This study presents the public health investigation into the outbreak.

Methods

Cases were identified from *S.* Agona notifications made to ACT Health through passive surveillance. Interviews were undertaken using standard questionnaires. Outbreak case definitions were established, and a case-series study conducted to generate hypotheses regarding potential sources of infection. A descriptive epidemiological investigation was undertaken to describe the outbreak and associated public health investigation.

Results

Twelve outbreak cases were identified with onset dates between September 2021 and April 2022. Of the 11 cases interviewed, nine reported having eaten at the same kebab shop in the seven days before becoming unwell. Rotisserie chicken was the only food eaten by all cases. Environmental investigations identified food safety concerns including improper cleaning of kebab shaving equipment, meat being kept at inadequate temperatures, and cut rotisserie meat served to customers without further cooking, as recommended. Laboratory investigations identified *S.* Agona in multiple food and environmental samples, including those taken from the inside and outside of two kebab shaving blades. Phylogenetic analysis of whole genome sequencing showed all human samples to be highly related to one another, and to environmental samples taken from the business.

Conclusions

The outbreak's protracted nature and investigation findings suggest repeated contamination of rotisserie meat from inadequately cleaned kebab shaving equipment as the likely outbreak mechanism. Targeted education on cleaning and sanitising of kebab shaving equipment and review of the need for a second kill step prior to serving rotisserie meat, may reduce the risk of salmonellosis from kebab shops.

Food-borne outbreak in a male residential religious training school – Pandharpur, Maharashtra, India, 2022

Tuesday, 12th September - 11:15: (Marie Reay 5.02) - Long Oral

Dr. Amol Vijaykumar Gaikwad [1], ***Dr. Varun Dharun*** [1], ***Dr. Vipin Mishra*** [1], ***Dr. Khyati Aroskar*** [1], ***Dr. Rahul Shimpi*** [1], ***Dr. Kevisetuo Anthony Dzeyie*** [1]

1. *World Health Organization*

Background

On 17 July 2022, male residential religious training school students at Pandharpur in Maharashtra were hospitalized after ceremonial lunch. We investigated to describe the epidemiology and identify risk factors.

Methods

We defined a case as nausea/vomiting/lose motions/abdominal pain among residents of the school at Pandharpur on July 17, 2022. We reviewed records from a health facility and conducted a retrospective cohort study. We inter- viewed all residents from July 23-28, 2022 using a semi-structured questionnaire for information on food consumed after written consent/assent. Stool samples were collected at a health facility. We interviewed the host of the cere- mony for food safety, processes, and hygiene practices. We listed all items consumed during lunch and calculated food specific attack rates (AR), proportions, and relative risk (RR) with 95% Confidence Intervals (CI) using Epi-Info 7.2.5.

Results

We identified 38 cases [AR=43% (38/88)]; 36 (95%) were students, 37 (97%) hospitalized, all recovered in a day. The median age was 20 years (range=14–67 years), 36 (95%) had nausea, 33 (87%) vomiting and 30 (79%) abdominal pain. Median incubation period was 6.5 hours (range=2.5-19 hours). Food AR for basundi (perishable-milk-preparation) was 43% (37/86), for oil-fried-papad was 42% (32/77), chappati (indian bread) was 42% (36/85) and rice was 42% (32/77). Analysis of food items consumed showed, >1 serving of basundi had RR=1.5 (95% CI=0.9-2.4), papad RR=1.1 (95% CI=0.7-1.8) and pakoda (fried-gram-flour-oil-snack) RR=1.02 (95% CI=0.6-1.7). Early onset cases had RR=3.41 (1.68 – 6.91) for >1 serving of basundi. Basundi was non-refrigerated, raw-material expiry unknown, hired food handlers did not use gloves. Stool sample results and leftover food were unavailable.

Conclusions

We report a point source food-borne outbreak at a residential training school probably by bacteria. However, exact source of infection could not be identified. We recommended food-handlers to follow food safety guidelines and district health authorities to strengthen surveillance and laboratory support during outbreaks.

Food poisoning at a wedding party in Nepal, December 2022

Tuesday, 12th September - 11:30: (Marie Reay 5.02) - Long Oral

Mr. Durga Datta Chapagain [1]***, Dr. Mallick Masum Billah*** [2]***, Mr. Ramesh Prasad Adhikary*** [3]***, Dr. Yadu Chandra Ghimire*** [4]

1. *Senior Public Health Officer, Health Office, Chitwan, Bagmati Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *General Secretary, Public Health Promotion Center, Kathmandu,* ***4.*** *Director, National Health Training Center, Teku, Kathmandu and Course Director, FETP Nepal*

Background

Investigation of every food poisoning event is important to prevent future outbreaks. However, very few food poisoning events were investigated in Nepal. On December 11, 2022, an online media reported a food poisoning event with increased hospitalization following a wedding party at Bharatpur, Chitwan district, 150 km southwest of the capital. We investigated the event to identify the possible source of the food poisoning.

Methods

We performed a case-control study from December 11-17, 2022, among attendees of the wedding party. We defined cases as any person who developed diarrhoea or vomiting, or abdominal pain between December 9-12, 2022, following taking a meal at the wedding party on December 9, 2022. Attendees of that wedding party without the above symptoms were considered as controls. We conducted face-to-face interviews and reviewed hospital records. We calculated Odds Ratio (OR) and 95% confidence interval (CI). Stool samples from the cases were tested. We performed an environmental investigation and tested water samples.

Results

The wedding party was organized in a resort where 70/500 (14%) developed symptoms. Of them, 49/70 (70%) cases were available for interviews. Among them, 53% were males, and 63% were 20-40 years old. The median incu- bation period was 16 hours (3-52 hours). Common symptoms were fever (88%), diarrhoea (74%), abdominal pain (70%), vomiting (59%) and headache (49%). We interviewed 34 controls. Bivariate analysis showed pickle (OR:4.3, 95%CI:0.6-31.7) made of raw green vegetables, legumes, and spices were associated with food poisoning. *Escherichia coli* was found in 4/4 (100%) stool samples. *Coliform* bacteria were isolated in stored water used for washing the raw vegetables.

Conclusions

Although the association was not statistically significant, probable source of the food poisoning event was the consumption of pickle prepared from raw vegetables washed in contaminated water. We recommended resorts to use safe water and maintain food hygiene while preparing pickles from raw vegetables.

Speak Now or Forever Hold Your Peace: Unraveling the Foodborne Illness Among Wedding Attendees in Mankayan, Benguet, Philippines, November 9, 2022

Tuesday, 12th September - 11:45: (Marie Reay 5.02) - Long Oral

Mr. Rey Percival De Jesus [1], ***Ms. Dianne Aurora Delizo*** [2], ***Ms. Ivy Mae Calumpit*** [2], ***Mr. Alireza Faiyaz, M.F.*** [2], ***Ms. Mariz Zheila Blanco*** [2], ***Ms. Karen Lonogan*** [3], ***Dr. Rosario Pamintuan*** [3], ***Dr. Janice Bugtong*** [3], ***Dr. Rio Magpantay*** [3]

1. *FETP – Intermediate Course, Northern Luzon, Philippines,* ***2.*** *FETP - Intermediate Course, Northern Luzon, Philippines,* ***3.*** *Department of Health - Philippines*

Background

The Regional Epidemiology and Surveillance Unit of the Center for Health and Development Cordillera Administrative Region, Philippines received an Event-based Surveillance and Response report of a suspected foodborne illness that occurred during a church wedding in Mankayan, Benguet. We investigated to determine the existence of an outbreak, identify the possible source, and provide evidence-based recommendations.

Methods

We conducted a descriptive study. We did active case finding of attendees of church wedding held at a village in Mankayan, Benguet, who developed loose stools or abdominal pain within 24 hours after the wedding. We interviewed cases and other attendees on food consumption at the wedding. We also interviewed the event host, food handlers, and health and village officials on food preparation, food traceback, and food safety protocol. We also collected specimens from cases including food samples for culture.

Results

We identified 48 cases (71% females [34/48]); the median age was 36 years (range: 5-70). Cases experienced loose stools (100%), abdominal pain (100%), and vomiting (54%; [24/48]). The median incubation period was 14 hours (range: 9-19). Most (27%; [13/48]) were hospitalized and none died. The mixed seafood (mussels, shrimp, and fish) had the highest difference in attack rate (86%). The mussels tested positive for *Vibrio alginolyticus.*

Conclusions

There was an outbreak of foodborne illness among wedding attendees. The incubation period and clinical symp- toms were consistent with vibriosis infection. The risk estimates on food consumption of attendees suggest that the mussels served at the wedding have caused the outbreak and have acted as the vehicle for transmission of Vibrio *al- ginolyticus*. We recommended raising the awareness of the community about safe food handling and preparations and the inclusion of food safety reminders during wedding seminars.

Food poisoning outbreak among meeting attendees in Pattaya city, Thailand, 10-11 August 2022

Tuesday, 12th September - 12:00: (Marie Reay 5.02) - Long Oral

Dr. Sutham Jirapanakorn [1], ***Dr. Phanthanee Thitichai*** [2]

1. *Thailand FETP,* ***2.*** *FETP Thailand*

Background

On August 9, 2022, there were 15 meeting attendees in Hotel B, Pattaya, Thailand, who developed gastrointestinal symptoms. We investigated to describe, identify the possible source and risk factors, and provide recommendations to prevent future outbreaks.

Methods

All meeting attendees were sent a self-administered questionnaire and some cases were interviewed in-depth. A case was defined as any meeting attendee who experienced at least one of the following symptoms during 8 - 10 August 2022: diarrhea, nausea, vomiting, abdominal pain, and fever. The hotel environment was surveyed, includ- ing food preparation and processing. We swabbed the surfaces of kitchenware, food handlers' hands and collected water samples for bacterial culture. We conducted a retrospective cohort study to identify significant risk factors and multiple logistic regression was used.

Results

The attack rate was 34% (15/44). Common symptoms were diarrhea (100%), abdominal pain (80%), and nausea (7%). The incubation period was 7-13 hours. Most cases (67%) reported stewed pork leg with kale was cold, had a weird smell and taste. The food had the highest adjusted relative risk (aRR 4.11; 95% CI = 0.83-7.59), while green curry with chicken was also potentially associated (aRR 3.96; 95% CI = 1.68-5.86). Since all cases had recovered before we could collect their samples, we could not identify the pathogen. However, we found *Bacillus cereus*, *Aeromonas hydrophila, Aeromonas coviae,* and *Aeromonas spp.* from the knife, cutting board, food handler's hand, and filtered water.

Conclusions

A food poisoning outbreak occurred among meeting attendees in Pattaya, Thailand.

The incubation period, symptoms, and laboratory results suggested that Bacillus cereus was the most likely pathogen. Stewed pork leg with kale and green curry with chicken were suspected as the vehicles for transmis- sion. The knife and cutting board might have caused cross contamination during food preparation. Cleaning up the kitchen area and tools, also replacing the water supply system's filters should be done.

Long Oral Presentations: Antimicrobial Resistance

Disease assessment and antimicrobial prescription patterns by analyzing web-based dataset in Sonali Chicken cases at Bogura, Bangladesh in 2020-2021

Tuesday, 12th September - 11:00: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Ibrahim Khalil [1], ***Dr. Md. Ahasanul Hoque*** [2]

1. *Department of Livestock Services (DLS),* ***2.*** *Chattogram Veterinary and Animal Sciences University*

Background

Sonali chicken production increased substantially during the last two decades in Bangladesh. However, different prevalent diseases hampered its normal growth. Irrational and inappropriate use of antimicrobials is commonly occurring and contributes to the development of antimicrobial resistance (AMR). The current study was therefore an attempt to assess the burden of diseases along with antimicrobial prescription patterns.

Methods

A total of 1690 drug prescriptions for infectious diseases in Sonali chickens in Bogura during 2020–2021 were extracted from the e-prescription database of 3769 poultry cases for assessing the disease status and antimicrobial prescription patterns. Data extracts were entered into MS Excel and cleaned and sorted before exporting to STATA/SE-13 for epidemiological analysis.

Results

The proportion of cases was dominated by mixed diseases of viral, bacterial and other infectious cases (28%, n=474), followed by viral diseases (17.5%, 296), bacterial diseases (4.5%, 76), and protozoan diseases (4%, 67). Antibiotics were widely prescribed regardless of case type (84.4–97% cases). The highest proportion of antimicrobials was used in protozoan cases (97%, 65), followed by viral alone (92%, 273), mixed (91.7%, 435) and bacterial alone (90.8%, 69). Single antibiotics (61.3%, 980) were prescribed widely, followed by combined (14%, 224) and double (2.4%, 39). Tylvalosin (42%, 669) was more commonly prescribed for almost all disease types. Different fluoroquinolones and florfenicol were predominantly prescribed for undiagnosed (11.8%, 70) and bacterial cases (16%, 11), respectively. Colistin combined (3.4%, 55) was prescribed highly followed by aminoglycosides (2.4%, 38). Moreover, antiviral drugs were prescribed for 33.5% viral, 33% bacterial, and 30% protozoan cases. Immuno-stimulant was prescribed for 18% viral and bacterial cases.

Conclusions

Considering the results, it is practical to include this e-prescription system in the existing web-based surveillance system to know the disease rank and antimicrobial use pattern timely, thus supporting the preventive program and antimicrobial stewardship approach.

Multidrug Resistance Escherichia coli in fecal samples from Chickens Raised in Commercial Farms – Bangladesh, August 2020

Tuesday, 12th September - 11:20: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Mohammad Gazi Shah Alam [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Quazi Ahmed Zaki*** [1], ***Dr. Md Samun Sarker*** [3], ***Dr. Mohammed Abdus Samad*** [3], ***Dr. Alden Henderson*** [4], ***Prof. K. B. M. Saiful Islam*** [5]

1. *Institute of Epidemiology, Disease control and Research, Dhaka, Bangladesh,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Antimicrobial Resistance Action Center (ARAC), Bangladesh Livestock Research Institute (BLRI),* ***4.*** *U.S. Centers for Disease Control and Prevention (CDC),* ***5.*** *Department of Medicine and Public Health, Sher-e-Bangla Agricultural University*

Background

Antimicrobials in animals may increase antimicrobial resistance (AMR) bacteria. These bacteria can spread from poultry to humans and cause disease and complicate treatment. This study describes antimicrobial use (AMU) practices and estimates the proportion of AMR and multidrug-resistance (MDR) *E. coli* in broiler chicken farms in Narsingdi, a large chicken-producing district in Bangladesh.

Methods

A cross-sectional study conveniently selected 22 broiler chicken commercial farms from August to December 2020. We collected socio-demographic and AMU data by interviewing farmers and observing farm activities once a week for four weeks. We collected two to four pooled fecal samples per farm and isolated one *E. coli* strain per sample. The antibiotic susceptibility test (AST) contained WHO-listed critically important antibiotics for humans (CIAH) and commonly used antibiotics for animals. We followed Clinical Laboratory Standards Institute guidelines for AST. MDR resistance is when a bacterium is resistant to more than two antibiotics.

Results

Most farmers were male (95%), had a second occupation (59%), completed primary education (95%) and had 8.5 years' experience farming. Farms had 1044 chickens on average. Out of 133 AMU events, farmers reported 82% were therapeutic, and 18% prophylactic. All antibiotics were administered through water. Top five antibiotics used were tetracycline (73%), amoxicillin (55%), metronidazole (46%), enrofloxacin (41%), and sulfonamides (23%). Farms used CIAH (ampicillin, ciprofloxacin, azithromycin, gentamycin, and colistin). *E. coli* was isolated from 80% sam- ples. The top five resistance antibiotics were ampicillin 100%, ciprofloxacin 85%, tetracycline 75%, azithromycin 70%, norfloxacin 70%. The median number of antibiotics that was resistant to *E. coli* was 5 (range 3-8).

Conclusions

All study farms used antibiotics to prevent and treat diseases among chickens. Some of the antibiotics were WHO-listed CIAH. All *E. coli* from fecal samples were MDR. We recommend reducing prophylactic antibiotic use and stopping CIAH use in chicken to reduce MDR development in chickens.

Burden and Risk factors for Antimicrobial Resistance - An advanced Epidemiological Study from a South Indian District, 2022

Tuesday, 12th September - 11:40: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Nikilesh Menon [1], ***Dr. Mohankumar Raju*** [2], ***Dr. Shyla Sam*** [1], ***Dr. Harisree Sudersanan*** [3]

1. *Department of Health Services, Government of Kerala,* ***2.*** *Senior Technical Officer, SAFETYNET,* ***3.*** *Department of Medical Education, Government of Kerala*

Background

Antimicrobial resistance (AMR) is a significant threat to human health, with indiscriminate empirical antibiotic therapy accelerating the burden. Globally 32.6 million cases of antimicrobial resistance are reported annually, with 5 million (4.8%) deaths. An increasing trend of AMR is reported in India, with a 35% rise in the last three years. Ernakulam, a south-Indian district of Kerala, established an Antimicrobial Resistance Surveillance with urinary tract infections (UTI). We estimated the burden and drug-resistant pattern of UTI and determined the risk factors associated with the same.

Methods

Suspected UTI is defined as symptoms of dysuria, increased urinary frequency, or urinary urgency within the last seven days. Confirmed UTI as suspected UTI with isolation of bacteria from urine. A Cross-sectional study was done between April and September 2022 on suspected UTIs attending the outpatient department in one selected primary health centre and one tertiary care hospital in Ernakulam. We collected data using a questionnaire and urine specimens' culture and sensitivity.

Results

Among 826 suspected UTI, 51% (422/826) were confirmed UTI. Among confirmed UTI, 79% were females, 48% (201/422) were multi-drug resistant (MDR), and 380/422 (90%) were due to Enterobacteriaceae. Among the suspected UTI, using antibiotics prior to testing had lesser chance of UTI (PR-0.7, 95% CI 0.5-0.8). Among confirmed UTI, prior antibiotic use for current illness had higher chance of MDR (PR-2.1,95 % CI-1.3-3.4). Antibiogram for the district for UTI showed high resistance rates to the empirically prescribed antibiotics.

Conclusions

Half of the Confirmed UTI are Multi Drug Resistant. Prior antibiotic use had higher chance of MDR. Enterobacteriaceae shows high resistance levels to third and fourth generation Cepahalosporins.

Preliminary Data Analysis of Antimicrobial Resistance of Escherichia coli from healthy slaughter animals in selected regions in the Philippines

Tuesday, 12th September - 12:00: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. January Nones [1]***, Dr. Flor Marie Immanuelle Pilapil-Amante*** [2]

1. *Chief Meat Control Officer, National Meat Inspection Service, Department of Agriculture,* ***2.*** *Dept. of Veterinary Clinical Sciences, College of Veterinary Medicine, University of the Philippines Los Baños*

Background

The food chain, from farm to plate, can be an important contributor to the development, persistence, and dissemination of antimicrobial-resistant bacteria, such as commensal bacteria *Escherichia coli*. This preliminary data analysis utilized the generated data of the National Meat Inspection Service (NMIS) central meat laboratory for the testing activities it conducted for the period 2018-2020 that will be integral to the agency's annual report on the AMR surveillance program.

Methods

A total of four hundred seventy-seven (477) data entries were subjected to different data analysis parameters to determine the susceptibility of *E. coli* isolated from three animal species. Data analysis was done through the use of Excel with Data Analysis Toolpak for the descriptive statistics. The study generated comparative percentages of resistance, the frequency distribution of Minimum Inhibitory Concentration (MIC), the resistance patterns, and consequent multidrug resistance in the bacterial isolates from the three animal species.

Results

Overall, the most common type of resistance was observed from Streptomycin (99.6%) and Azithromycin (98.7%). The highest resistance of 99.58% to the antibiotic class of Macrolides and Aminoglycosides was observed. The lowest resistance percentage was Colistin at 1.9%. All *E. coli* isolates were susceptible to Meropenem. The highest percentage resistance for seven classes of antimicrobials was computed at 35.85%, accounting for 171 isolates out of 477. One hundred ten resistance patterns were observed, with the AMP-AZM-CAZ-CHL-NAL-STR-SMX-TCY-TMP-(13.63%, 65 out of 477) as the most common combination pattern.

Conclusions

The results suggest that the high percentage of resistance and diverse resistance patterns of the bacterial isolates from healthy slaughtered animals may pose a potential risk or health hazard of the introduction of antimicrobial-resistant *E. coli* into the food chain and may contribute to the spread of resistant bacteria or resistance genes to humans.

Long Oral Presentations: COVID-19 Pandemic Response

Impact of an early lockdown policy to decrease transmission during a COVID-19 outbreak — Bac Giang provincial industrial zone, Vietnam, 2021

Tuesday, 12th September - 15:30: (Manning Clark Hall) - Long Oral

Mrs. Nhan Tran Thi Thanh [1], ***Dr. Cuong Le Tien*** [2], ***Dr. Minh Giap Van*** [2], ***Dr. Hien Duong Thi*** [2], ***Dr. Nguyen Ha Van*** [2], ***Dr. Hoai Bui Thi Vu*** [1], ***Dr. Trang Nguyen Thi Doan*** [2], ***Dr. Tien Tran Van*** [2], ***Dr. Van Tran Thi*** [3], ***Dr. Tan Tran Thi*** [2], ***Dr. Men Hoang Thi*** [2]

1. *Bac Giang Provincial Centers for Disease Control, Vietnam; Vietnam Field Epidemiology Training Program,* ***2.*** *Bac Giang Provincial Centers for Disease Control, Vietnam,* ***3.*** *1. Bac Giang Provincial Centers for Disease Control, Vietnam*

Background

A COVID-19 outbreak was detected on May 8, 2021, in the large industrial zone (IZ) of Bac Giang, a northern moun- tainous province, where 163,677 workers are employed by 369 factories. We assessed the impact of an early lock- down in the containment of the outbreak during May and June 2021.

Methods

Using provincial surveillance data and reports from the provincial government, we described the COVID-19 case distribution and the impact of an IZ lockdown policy (i.e., partial or complete closing of factories and requesting employees to stay home/hostel or in their companies' quarantine sites, defined as day 0 of the outbreak) on incidence of COVID-19 cases. We used a two-proportion test (z-test) to compare the incidence of cases during the initial period of IZ lockdown policy (day 0–23 of outbreak) and the period after the policy was lifted (day 24–53 of outbreak).

Results

The COVID-19 outbreak infected 4,422 workers (2.7%) with one death. Twenty-two of 369 factories (6.0%) were isolated from day 0 to day 9, and all 369 factories were locked down from day 10 to day 23. Approximately 1.26 million COVID-19 tests were used, and if a positive case was detected, then immediate contact tracing was conducted. Eight percent (13,605/163,677) of workers were quarantined. The COVID-19 incidence was 1.92% (3,147 cases/163,677) during the lockdown policy (day 0-23 of the outbreak). The lockdown policy ended on day 24 of the outbreak when the daily number of cases started to decrease. The incidence of cases decreased significantly to 0.79% (1,275 cases/160,530, excluding 3,147 cases occurring during the lockdown period) (day 24-53 of the outbreak) ($p<0.001$).

Conclusions

The COVID-19 outbreak in Bac Giang IZ in 2021 was contained within 53 days. Early implementation of a lockdown policy contributed to the mitigation of this outbreak and likely prevented additional cases.

A cross-sectional study of the barriers and enablers to COVID-19 case isolation, East Sepik Province, Papua New Guinea, July to August 2021

Tuesday, 12th September - 15:45: (Manning Clark Hall) - Long Oral

Ms. Maggie William [1], ***Ms. Rachel Mather*** [2]

1. *East Sepik Provincial Health Authority,* ***2.*** *University of Newcastle*

Background

Case testing and isolation are commonly deployed public health strategies to reduce the spread of COVID-19. Particularly in the early stages of the pandemic, enhanced case isolation strategies were employed, including isolating cases in hotels. However, for many countries, including Papua New Guinea (PNG), these resource-intensive recommendations were challenging to implement for a range of social, cultural and economic reasons. Appropriate and effective isolation methods need to be identified for low-resource settings.

Methods

A cross-sectional study was undertaken in East Sepik Province, PNG, to identify barriers and enablers to COVID-19 isolation. Participants were adults with a previous confirmed COVID-19 diagnosis. Participants were randomly selected from the Provincial COVID-19-line list using an online random number generator. 50 cases were selected, representing 18% of the total confirmed cases in East Sepik on 21st July, 2021. Data were collected from a questionnaire administered through an interview and analyzed using descriptive methods.

Results

We approached 46 cases; 41 (89%) were recruited while five (11%) declined. Almost half of the cases (44%) underwent home isolation, 22% were isolated in isolation facility and 34% did not isolate. The most common challenges experienced by isolated cases were boredom (56%), lack of food and water (48%) and lack of support (48%). Only two cases (5%) were fully compliant with isolation practices; 95% did not adhere to instructions. 100% of participants described personal needs including food, water, phone credit, and moral support by family as important for compliance. A further 83% described the imperative of medical team visits and care for cases and their families.

Conclusions

In East Sepik, effective isolation of COVID-19 cases required essential care and support from family and health authorities. Public health recommendations need tailoring to the country's context. Further research is required to develop effective case management and infection mitigation strategies for low- and middle-income countries like PNG.

An assessment of public health human resources available to prevent and control COVID-19 in CDCs at county-level in Chongqing, China, 2022

Tuesday, 12th September - 16:00: (Manning Clark Hall) - Long Oral

Ms. Chunhua Zhang [1], ***Dr. Huihui Liu*** [1], ***Dr. Lijie Zhang*** [1], ***Mr. Jiang Long*** [2]

1. *China FETP, China CDC,* ***2.*** *Chongqing Municipality Center for Disease Control and Prevention*

Background

County level CDCs are the most basic level of the four-level public health prevention and control system in China, which includes national, provincial, city and county levels. The workforce capacity of the team plays a key role in determining the success of COVID-19 prevention and control. We aimed to understand the current workforce capacity status of county level CDCs in Chongqing and to further strengthening the team.

Methods

The health resource agglomeration degree ($HRAD_i$) model was used to evaluate the equity in human resources allocation according to population and geographical area. The weight coefficient of communicable disease prevention and control posts (the percentage of employees among the total number of staff at county CDCs) was used to eval- uate the adequacy of the team. The overall score of human resources was used to evaluate the quality of the team combating communicable diseases by $W=\alpha*E+\beta*T$, the weight coefficient of education (α) and professional title (β) was assigned 0.71 and 0.29, respectively. Academic qualifications (E) and professional titles (T) were taken from years of education and years of work experience respectively.

Results

Our evaluation found that there were 0.83 public health personnel employed at the county level CDCs per 10,000 permanent residents in Chongqing (the national average was 1.00 in 2018). The HRAD index was 0.91 (the absolute fairness standard is 1.00). The weight coefficient of communicable disease control posts was 11.7% (the national requirement is 12%). The overall score of the team for preventing and controlling communicable diseases was 8.8 points (the national requirement is 4.93).

Conclusions

The public health human resources available at the county level CDCs is insufficient. The number of communicable disease prevention and control staff is below the national requirements. We recommend training and introduction of new skills through multiple channels to optimize workforce capacity.

Determinants of Vaccination Status among Mortality Patients with Omicron Variant COVID-19 in Riau Province, Indonesia: A Cross-sectional Study, February–April 2022

Tuesday, 12th September - 16:15: (Manning Clark Hall) - Long Oral

Mr. Rajunitrigo Rajunitrigo [1], ***Dr. Irwan Muryanto*** [2], ***Mrs. Renti Mahkota*** [2], ***Mr. Fajri Marindra*** [3], ***Mrs. Nina Elvita*** [4], ***Mrs. Eka Malfasari*** [5], ***Ms. Mega Utami Basra*** [6], ***Ms. Marwanty Marwanty*** [1]

1. *FETP Universitas Indonesia,* ***2.*** *Department of Epidemiology, Faculty of Public Health, Universitas Indonesia,* ***3.*** *Faculty of Medicine, Universitas Riau,* ***4.*** *State Islamic University of Sultan Syarif Kasim Riau,* ***5.*** *Faculty of Nursing, Universitas Indonesia,* ***6.*** *Faculty of Public Health, Andalas University*

Background

The increasing mortality rate due to COVID-19 is a high-priority public health issue in developing countries such as Indonesia. Since the Omicron variant of COVID-19 was first detected in Indonesia in mid-December 2021, this variant quickly spread to different provinces, one of which is Riau Province. This study aimed to identify the deter- minants of vaccination status among Omicron variant COVID-19 patient deaths in Riau Province, Indonesia, from February to April 2022.

Methods

This cross-sectional study used secondary data. Inclusion criteria were all patients who died with confirmed COVID-19, and Omicron variant by SGTF and or sequencing, and were treated in referral hospitals of Riau Province in two months (February 8 – April 4, 2022). We used 158 patients' data as the sample. The distribution of patient deaths was analysed by univariate and bivariate analyses.

Results

We found that 106 (67.1%) of cases were unvaccinated. The variable age group of ≤20 years (PR: 2.25, 95% CI: 0.98-5.15), age ≥61 years (PR: 1.92, 95% CI: 0.87-4.27), living on the mainland (PR: 3.04, 95% CI: 0.89-10.4), and coastal (PR: 3.35, 95% CI: 0.97-11.5) had a significant relationship with COVID-19 vaccination status among the death of Omicron variant patients. The highest time of death was on February 8-12, 2022 (40 cases). The highest comorbidity among dead patients are diabetes mellitus (35.9%) and cardiovascular disease (28.9%).

Conclusions

We found that the children under 20 years, the elderly, location of residences in coastal and mainland are the deter- minants of the death of Omicron variant COVID-19 patients. Accelerating full vaccination and increasing coverage by using any vaccine available, particularly among children and the elderly is an important strategy to optimize pro- tection of COVID-19. Improved comprehensive treatment of comorbidities in omicron patients is urgently needed.

Performing Rapid Assessments of Transmissibility, Severity and Impact of Vaccination in Factory Based COVID-19 Outbreak in Malaysia, 2022

Tuesday, 12th September - 16:30: (Manning Clark Hall) - Long Oral

Dr. Zulraini Jusof [1], ***Dr. Thilaka Chinnayah*** [2], ***Dr. Tamano Matsui*** [3], ***Dr. Koen Hulshof*** [3], ***Dr. Manilay Phengxay*** [3], ***Dr. Rusdi Abd Rahman*** [4], ***Dr. Anita Suleiman*** [4], ***Dr. Sha'ari Ngadiman*** [4]

1. *Epidemic Intelligence Program (EIP) Malaysia,* ***2.*** *Ministry of Health,* ***3.*** *Western Pacific Region Office (WPRO), Manila,* ***4.*** *Ministry of Health Malaysia*

Background

WPRO is supporting its member states using EMPaCT (Emerging Molecular Pathogen Characterization Technologies) to strengthen genomic surveillance, thus guide public health decision-making and ensure preparedness for current/future pandemics. Rapid assessments of transmissibility, severity and impact (TSI) of SARS-CoV-2 variants during unusual outbreaks are core components of genomic surveillance. WHO WPRO has developed methodology/training to build capacity to perform TSI assessments. A case study was conducted to compare TSI estimates during four successive COVID-19 outbreaks in a semi-conductor factory in Malacca, Malaysia.

Methods

Routinely-collected data of 2,785 COVID-19 cases from October2020 to April 2022 were retrospectively analyzed using EMPaCT TSI approach, secondary-attack-rate (SAR) was used to assess transmissibility. Hospitalization-rates, ICU-admission-rate and case-fatality-rates (CFR) were analyzed for disease severity. Vaccination status of cases was not fully recorded; therefore, Malacca vaccination coverages were used as proxy to describe the impact of vaccination.

Results

There were four successive outbreaks detected where Delta variant was found in the 3rd-episode and Omicron variant in the 4th-episode. The trend of reported cases and deaths showed increasing trend in Delta outbreak. However, there were high cases but low deaths in Omicron outbreak. SAR in four episodes were 19.5%, 26.0%, 28.3% and 36.2% respectively where Omicron showed the highest transmissibility. The hospitalization-rate dropped from 11.4% to 3.2% over 4 episodes. ICU-admission-rate and CFR were highest during Delta (3.2%, 1.1%). Vaccination- rates of 2-doses in Malacca increased from 42% to 78% during Delta and Omicron outbreaks. Increasing vaccination coverage over time was likely the substantial factor in explaining decreasing estimates for severity during Omicron, though the results may also imply lower innate pathogenicity of Omicron as shown by decoupling-effect on less disease severity despite increased number of reported cases.

Conclusions

Using the EMPaCT TSI approach to characterize SARS-CoV-2 variants, we found Omicron showed the highest transmissibility and Delta had the highest estimates for severity. High vaccination-rates likely offered protection against severe health-outcomes during later outbreaks. Our work showed basic TSI approach was both feasible and sufficiently-accurate to guide early decision-making and should be a core component of genomic surveillance activities.

Long Oral Presentations: Vaccine Preventable Diseases

Evaluation of the Adverse Events Following Immunization Surveillance System, West Bengal, India, 2019-21

Tuesday, 12th September - 15:30: (Drama Theatre) - Long Oral

Dr. Pritam Roy [1], ***Dr. Jayesh Mehta*** [1], ***Ms. Ismeet Kaur*** [1], ***Dr. Khyati Aroskar*** [1], ***Dr. Kevisetuo Anthony Dzeyie*** [1]

1. *World Health Organization*

Background

India, with >27 million birth cohort has one of the largest vaccination programs in the world. India launched the Adverse Events Following Immunization (AEFI) surveillance in 1986 to monitor vaccine safety. The Global Vac- cine Action Plan (GVAP) set a reporting target of 10 AEFI per 100,000 surviving infants per year for surveillance performance. We assessed the AEFI surveillance system of West Bengal for strengths and weaknesses.

Methods

We analyzed surveillance data for January 2019-December 2021 for descriptive epidemiology and surveillance performance indicators. We assessed the selected system attributes by record review and key informant interviews using a semi-structured questionnaire. We reviewed state office records, AEFI investigation reports, case investigation forms (CIF), meeting minutes and online SAFE-VAC portal data.

Results

West Bengal detected 673 AEFIs (57% male) including 84 (12%) deaths during 2019–2021. The median age was four months (range=<1-10 years) and 386 (57%) were hospitalized. Causality assessment was done for 474 cases (70%); 112 (24%) were due to vaccination error and 102 (22%) were coincidental. Of the 336 expected monthly reports from 28 districts, 296 (88%) were submitted, 24 (8%) final CIF were on time (<70 days), 16/28 districts achieved GVAP target for 2021. The positive predictive value (causality assessed) was 78% (372/474). Funds and logistics were available, 550/673 (83%) case reporting forms were complete, 635/ 673 (94%) correctly filled and cases represented age-sex- spatial distribution. The system adapted to new vaccine introduction and changing operating conditions during COVID-19 vaccination.

Conclusions

The AEFI surveillance system was well structured with standardized data collection tools and met its objectives to detect AEFIs. The system was acceptable, flexible, stable, with a representative and quality data, but needed improvement surveillance for sensitivity and timeliness. We recommended state to review reports and provide feedbacks for timely report submission and sensitize about case reporting.

Measles outbreak in ethnic minorities in Lumbini Province, Nepal, January 2023

Tuesday, 12th September - 15:50: (Drama Theatre) - Long Oral

Mr. Gourav Dhakal [1], ***Dr. Mallick Masum Billah*** [2], ***Mr. Ram Bahadur Chand*** [3], ***Mr. Ratna lal Sharma*** [4], ***Dr. Yadu Chandra Ghimire*** [5]

1. *Senior Public Health Officer, Health Office, Rupandehi, Lumbini Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Health Section Chief, Nepalgunj Submetropolitian Office,* ***4.*** *Malaria Inspector, Health Office Rupandehi, Lumbini Province,* ***5.*** *Director, National Health Training Center, Teku, Kathmandu and Course Director, FETP Nepal*

Background

Although Nepal is planning to eliminate measles by 2023, the measles and rubella (MR) vaccine coverage varies among different ethnic minorities. In 2022, the MR vaccine coverage in Banke District of Lumbini province (95%) was higher than the national coverage (93%). However, a measles outbreak was reported on December 27, 2022 in Banke district. We investigated the reported event to confirm the outbreak and determine the risk groups.

Methods

We conducted a cross-sectional investigation in Banke district from December 27, 2022 to January 22, 2023. A suspected measles case was defined as any person living in Banke district having fever and generalized maculopapular rash from December 4, 2022 to January 22, 2023. Any suspected case with measles-specific IgM antibodies was defined as a confirmed measles case. We conducted face-to-face interviews with the parents in cases <18 years and with cases themselves if age ≥18 years. Serum samples of suspected measles cases were tested for IgM antibodies. We analyzed the cases by time, place, person and vaccination status.

Results

A total of 287 suspected cases were found in 5/8 subdistricts (palikas), 283 (98%) were confirmed with one death (case fatality rate: 0.35%). Median age was 5 years (Range: 6 months-56 years), 58% were male, 83% of cases were reported from Nepalgunj sub-metropolitan city. Cases were found mostly from ethnic minorities like Muslim (77%), Madheshi (8%), Janjati (7%), Dalit (5%). About 79% Janjati, 75% Madeshi, 47% Dalit and 38% Muslim cases received first dose of MR vaccination. Similarly, 38% Janjati, 35% Madeshi, 25% Dalit, and 18% Muslim cases were vaccinated received second dose MR vaccination.

Conclusions

The investigation confirmed the measles outbreak in Banke district, mostly affected ethnic minorities. National immunization program should evaluate MR vaccination coverage, explore reasons of nonvaccination in ethnic mi- norities and also evaluate the quality of vaccination in Banke District.

Measles Outbreak in Surkhet District, Karnali Province, 2023: A Descriptive Cross- Sectional Investigation

Tuesday, 12th September - 16:10: (Drama Theatre) - Long Oral

Ms. Karuna Bhattarai [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Gambhir Shrestha*** [3], ***Dr. Yadu Chandra Ghimire*** [4]

1. *Senior Public Health Officer, Health Service Directorate, Karnali Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Assistant Professor, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu,* ***4.*** *National Health Training Center*

Background

Nepal is committed to eliminate measles by 2023. Nationally, Measles Rubella (MR) vaccine coverage was 93% in 2022. However, in Karnali Province, the MR vaccine coverage was 89%. On January 12, 2023, the vaccine pre- ventable disease surveillance notified a few measles cases at Surkhet district to the Health Service Directorate of Karnali Province. We investigated the reported event to confirm the existence of the outbreak.

Methods

We conducted a descriptive cross-sectional study in Surkhet district from January 12 to 25, 2023. A measles case was defined as any patient living in Surkhet, irrespective of age and gender, who developed fever and generalized maculopapular rash from December 1, 2022 to January 25, 2023. We interviewed the cases using a semi-structured questionnaire. We described the cases by time, place, and person. We calculated attack rate in three different local levels of Surkhet district. Samples were collected and tested for measles IgM antibodies.

Results

A total 40 measles cases were identified, 60% of them were female and 43% were from the age group 5-15 years. Out of nine municipalities, Gurbhakot Municipality (4/10,000 population), Chingad Rural Municipality (5/10,000 population) and Birendranagar Municipality (1/10,00 population) were affected. Among the collected samples 5/30 (17%) were measles IgM positive. Primary case was identified in Gurbhakot Municipality and developed symptoms on December 05, 2022. We found 65% of the cases were vaccinated with at least one dose of MR vaccine, 33% of the cases were not vaccinated. About 18% of the total cases had a history of travel to neighboring Banke district of Lumbini Province where a measles outbreak was ongoing (>290 cases).

Conclusions

Investigation confirmed the measles outbreak in Surkhet, possibly transmitted from traveling to the neighboring district. We recommended to the national immunization program to start outbreak response immunization in the affected areas and evaluate the quality of MR vaccination.

Eradicating polio: Leaving no stone unturned – Johor Bahru, Malaysia, 2022

Tuesday, 12th September - 16:30: (Drama Theatre) - Long Oral

Dr. Jeyanthini Sathasivam [1], ***Dr. Muhammad Alimin Mat Reffien*** [2], ***Dr. Mohd Anwar Shahrir Ahmad*** [2], ***Dr. Norli Rosli*** [2], ***Dr. Seok Hong Tan*** [1], ***Dr. Bala Murali Sundram*** [2], ***Dr. Shaharom Nor Azian Che Mat Din*** [1], ***Dr. Harishah Talib*** [1], ***Dr. Thilaka Chinnayah*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia,* ***2.*** *Ministry of Health Malaysia*

Background

Sustaining the polio-free status in Malaysia achieved since 2000 is becoming a great challenge with the reappearance of polio infection in many parts of the world. Johor Bahru District Health Office received notification of a polio-compatible case on 8 April 2022 involving a 4-year-old male child with residual paralysis during the 60-day follow-up. A detailed investigation was carried out to assess the risk of polio importation and transmission in Johor Bahru.

Methods

Case investigation included clinical, laboratory, and radiological assessment of the case. Extensive active case detection was carried out. District polio vaccination coverage were analysed. The environmental investigation included a locality survey and analyzing of wastewater samples. Stool samples were collected from ten healthy children in the same locality. A five-year risk assessment for evidence of poliovirus importation and transmission was done on three parameters namely population susceptibility, surveillance quality and threat assessment.

Results

Birth, developmental and medical history of the case was uneventful. No significant exposure history was found. Immunization was complete for age. 975 children from 1491 households visited had complete immunization. No clinic or hospital in the locality had missed AFP notifications. No other children with similar symptoms or missed notifications were noted through health facility survey. Polio vaccine third dose coverage was more than 98% over the last 5 years. Three-year waste water samples and samples from the targeted healthy children were negative. Risk assessment of poliovirus importation and transmission for Johor Bahru district was low.

Conclusions

Based on the available public health data and comprehensive field investigation, it was concluded that the likelihood of poliovirus as cause of paralysis in this case was unlikely. Ensuring a robust and effective surveillance system and sustaining high levels of vaccination coverage within the community plays a vital role in the efforts towards an eradication programme.

Long Oral Presentations: Infectious Diseases

Need to simplify "Nikshay", the surveillance tool of the Indian National Tuberculosis Elimination Program - a surveillance evaluation in Coimbatore, Tamil Nadu, India, 2022

Tuesday, 12th September - 15:30: (Marie Reay 5.02) - Long Oral

Dr. Shri Vijay Bala Yogendra Shivakumar [1], ***Dr. Asha Frederick*** [2], ***Dr. M Sakthivel*** [3], ***Dr. Joshua Chadwick*** [1], ***Dr. Vineet K Kamal*** [1], ***Dr. Tarun Bhatnagar*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai,* ***2.*** *State TB Cell, Government of Tamil Nadu,* ***3.*** *District TB Office, Government of Tamil Nadu, Coimbatore*

Background

"Nikshay" is a-case-based-web-based surveillance tool for tuberculosis (TB), launched in 2012, fully operationalized since 2017 by the Indian National TB Elimination Program (NTEP). The strategic-plan for TB-elimination, recommends real-time "Nikshay" use, data analysis and feedback. To support this objective, we evaluated "Nikshay" as a surveillance-tool for TB case-detection in Coimbatore, Tamil Nadu.

Methods

We evaluated "Nikshay" through key CDC-surveillance attributes by review of "Nikshay" system, its entries, and its corresponding source-registers for TB diagnosis, between April 2021 to March-2022. We interviewed 57 of 91 NTEP-staff from 53 of 117 public peripheral health institutions (PHIs), through a semi-structured questionnaire.

Results

A PHI-login is for individual institutional level enrollment/notification of TB patients by the general health system staff, and a tuberculosis-unit (TU) level-login is for the NTEP staff to monitor PHIs at a TU-level. First, of the two "Nikshay" login-types, only <0.01% used PHI-level login to enroll 27,349 presumptive TB patients or to notify 2038 TB patients entered in "Nikshay". Second, review of source registers revealed: 58% of 10,756 newly presumptive-TB patients examined for sputum AFB smear; 23% of 433 positive-GeneXpert tests; 97% of 144 positive-TB cultures and 85% of 599 positive line-probe-assay results were tested but not entered in "Nikshay". Third, only 21% of staff preferred real-time "Nikshay" entries, without physical registers. Lastly, 47% of 53 NTEP-staff felt data collection for "Nikshay" is not simple, with too much data to collect with duplication.

Conclusions

Very low "Nikshay" PHI-login use indicates inadequate support from the general health system staff, overburdening NTEP staff in the public sector. Complex requirement to duplicate TB test results, both in physical-registers and in "Nikshay", owes to poor data completeness in "Nikshay". We recommend simplifying "Nikshay", by minimizing data collection and reducing duplication. We recommend urgent need to decentralize "Nikshay" use at individual PHI level.

Persistence of monkeypox virus in the environmental surfaces: Evidence from the outbreak investigation in Phuket, Thailand – 2022

Tuesday, 12th September - 15:50: (Marie Reay 5.02) - Long Oral

Dr. Krittinan Boonrumpai [1], ***Dr. Panithee Thammawijaya*** [1], ***Dr. Pilailuk Aukapaiboon Okada*** [2], ***Ms. Varaporn Thienthong*** [3], ***Ms. Orathai Suwanchairob*** [4], ***Ms. Arriya Panchaiyaphum*** [5], ***Dr. Chakrarat Pittayawonganon*** [4]

1. *Thailand FETP,* ***2.*** *National Institute of Health, Department of Medical Sciences,* ***3.*** *Division of International Disease Control Ports and Quarantine, Department of Disease Control,* ***4.*** *Division of Epidemiology, Department of Disease Control,* ***5.*** *Phuket Provincial Public Health Office, Ministry of Public Health*

Background

An upsurge in monkeypox virus (MPXV) cases is a public health concern. One of the research priorities focuses on studying MPXV persistence in the environment. On July 18, 2022, we were notified about the first MPXV-confirmed case in Phuket, Thailand. We conduct environmental studies to describe the persistence of the monkeypox virus on surfaces of the patient's surroundings and describe the effect of disinfectants on the MPXV on the environment.

Methods

We swabbed surrounding objects in a room at the patient's residence, the patient's belongings obtained from the patient's room, and two hotels the patient had rented for MPXV detection using the PCR method and MPXV viability by viral isolation. We serial swabbed undisinfected patients' belongings within 56 day period. We disinfected surfaces with various disinfectant agents and followed up swabbed disinfected surfaces. We report the proportion of MPXV-detected specimens by PCR, MPXV-successfully cultivated specimens, and average viral DNA detection level.

Results

Around 92% (47/51) of specimens were detected for MPXV by PCR. Porous, soil, and undisinfected surface have higher MPXV detection levels and viable MPXV. None of the disinfected surface specimens were successfully cultivated for MPXV. MPXV could detect for at least eight weeks on unclean surfaces using PCR, while viral activity was undetected at 28 days. 5000 ppm sodium hypochlorite solution could convert MPXV-contaminated surface to negative PCR, but other disinfection only lower MPXV detection levels. No viral activity was detected on disinfected surfaces.

Conclusions

MPXV commonly persisted in patient surroundings and could persist for a long time without disinfection. Most disinfectants show the potential to inhibit MPXV activities but still preserve the positive result of MPXV detected using PCR. We should consider disinfection to prevent MPXV transmission and consider environmental surface swabs to aid future MPXV surveillance and investigation.

Outbreak Investigation of Monkeypox Virus Disease in India, 1 July – 28 September 2022

Tuesday, 12th September - 16:10: (Marie Reay 5.02) - Long Oral

Dr. Rajesh Kumar Gupta [1], ***Dr. Serin Kuriakose*** [1], ***Dr. Dr Anuj Kumar*** [1], ***Dr. Tanzin Dikid*** [2], ***Dr. Sukarma Tanwar*** [3], ***Dr. Jyoti Dr*** [1], ***Dr. Sanket Kulkarni*** [1], ***Dr. Himanshu Chauhan*** [4], ***Dr. Vineet Rehlan*** [5], ***Dr. Meenakshy V*** [6], ***Dr. Sujeet Kumar Singh*** [1]

1. *NCDC,* ***2.*** *tanzindikid@gmail.com,* ***3.*** *U.S. Centers for Disease Control and Prevention,* ***4.*** *National Centre for Disease Control, New Delhi,* ***5.*** *Lok Nayak Hospital, Delhi,* ***6.*** *Department of health services, Kerala, India*

Background

Before April 2022, human monkeypox (MPX) disease was seldom reported outside sub-Saharan Africa. As of 11 October 2022, 20,455 confirmed cases of MPX have been reported globally, with 94% of cases reported in men hav- ing sex with men (MSM). We described the clinical-epidemiological profile of initial MPX cases reported in India following enhanced surveillance initiated by the Government of India (GoI) in July 2022.

Methods

We identified MPX cases, defined as a positive result for MPX virus PCR assay in a specimen from any anatomical site, reported through the GoI surveillance network from 1 July – 28 September 2022. Cases and clinicians were interviewed, and data were abstracted from medical records. We collected data on socio-demographics, clinical findings, and behaviours and analysed data using R-studio 2022.

Results

Seventeen laboratory-confirmed cases (58% men) with a median age of 30 years (range 22-35) were identified from 1 July – 28 September 2022, including one death (case-fatality rate 5.9%). Five cases were from Kerala and 12 from Delhi. All cases presented with rash, and 16 (94%) had genital lesions. All cases were hospitalized and discharged after two negative RT-PCR tests. Among cases, 16 (94%) were economic migrants and all were living away from their families or regular partners. Economic migrants included Indians returning home from middle eastern countries and sub-Saharan Africa nationals residing in India. None were MSM, while 6 (33%) reported multiple sex partners. We did not find any epidemiologic linkage between cases, and of 51 identified close contacts, none presented with MPX.

Conclusions

MPX transmission in India is isolated, and in contrast to MPX cases reported globally, none of the initial MPX cases were among MSM. In a context where disclosure of sexual behaviors may be limited, outreach activities for MPX should include economic migrants and those presenting with symptoms of commonly reported sexually transmitted infections.

Investigation of a community-acquired Legionnaires' disease outbreak—Taoyuan, Taiwan, December 2022–January 2023

Tuesday, 12th September - 16:30: (Marie Reay 5.02) - Long Oral

Dr. Pei-Jiuan Chao [1], ***Dr. Wan Chin Chen*** [2], ***Dr. Chia-ping Su*** [1], ***Dr. Cha-Shien Yen*** [1], ***Dr. Angela Song-En Huang*** [1]

1. *Taiwan Centers for Disease Control,* ***2.*** *Taiwan Centers for DIsease Control*

Background

Legionnaires' disease (LD) results from inhaling aerosols from water systems containing *Legionella pneumophila*. In December 2022, Taoyuan reported six LD patients in one community; some mentioned exposure to a gravel plant's water spray truck. We investigated the cause.

Methods

Our case-control study used interviews to investigate health conditions, water source, and exposure. Cases were defined by LD symptom onset in December 1, 2022–January 9, 2023 in community residents or visitors. Controls were asymptomatic residents who had not taken analgesics. Analysis used chi-square or Fisher's exact test to calculate odds ratio (OR). We surveyed the community for aerosol-generating sources and cultured water from households and the spray truck for *L. pneumophila*.

Results

The outbreak comprised 13 cases, confirmed by urinary antigen test; one was sputum culture positive for *L. pneumophila* serogroup 1. Median age was 60 years (range: 38–87); 11 (85%) were male. Analysis showed no difference in sex or age between the 13 cases and 36 controls. Comorbidity was associated with higher odds of developing LD (OR: 12.7; 95% confidence interval [CI]: 1.5–108.6). Compared with controls, cases had higher odds (not statistically significant) of using groundwater or spring water at home (OR: 1.6; 95% CI: 0.4–7.1) and of exposure to the water spray truck (OR: 1.2; 95% CI: 0.3–5.5). The only aerosol-generating water system in the community was the spray truck. Of 356 water samples, five (1.4%) from households were positive for *L. pneumophila* serogroups 2–14. Water equipment in households and the spray truck were cleaned and disinfected. No new cases occurred after January 9, 2023.

Conclusions

Patients with comorbidities had higher risk of LD, but we were unable to identify infection sources. We recommended regular cleaning and disinfection of household water equipment and the spray truck.

Long Oral Presentations: Outbreak Investigations 1

Investigation of a Multi-County Paratyphoid Fever Outbreak in Taiwan, October–November 2022

Tuesday, 12th September - 15:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Tien-Hao Chang [1], ***Dr. Angela Song-En Huang*** [1], ***Mrs. Ying-Shu Liao*** [1], ***Dr. Wan Chin Chen*** [2]

1. *Taiwan Centers for Disease Control,* ***2.*** *Taiwan Centers for DIsease Control*

Background

Paratyphoid fever is a neglected tropical disease that occurs sporadically in Taiwan. In October 2022, Taiwan CDC was notified of six patients with paratyphoid fever in five different counties who had no apparent epidemiological linkages. We conducted an investigation to verify the outbreak and identify possible infection sources.

Methods

We conducted a case investigation to collect information on demographics, symptoms, food exposures, and close contacts within ten days of symptom onset. Cases were defined as patients with culture-confirmed *Salmonella* Paratyphi A infection whose onset were during October–November 2022. Close contacts were those who had lived or eaten with cases. For close contacts, we collected stools for culture and monitored their health conditions for ten days. We inquired food handlers in suspected restaurants about paratyphoid fever-associated symptoms and collected stools for culture. We performed pulse-field gel electrophoresis (PFGE) for *S.* Paratyphi A isolates and conducted whole-genome sequencing (WGS) for isolates with indistinguishable PFGE patterns.

Results

During October–November 2022, there were six paratyphoid fever cases. The median age was 22 years (range 10–46). Four were male. All had a fever. All were hospitalized; one required intensive care. No common food exposures were found. All 38 close contacts had negative stool cultures, although two were symptomatic. None of the 19 food handlers from three suspected restaurants reported symptoms; all 19 stool cultures were negative. Five out of six isolates had indistinguishable PFGE patterns. WGS of the five isolates had sequence differences within five nucleotides. A press release was issued to alert the public and healthcare workers regarding the outbreak.

Conclusions

Using PFGE and WGS, we confirmed a multi-county paratyphoid fever outbreak, although no epidemiologic linkages or infection sources were found. In countries with low paratyphoid fever endemicity, we recommend performing PFGE or WGS to aid in investigation when sporadic cases occur within a short time frame.

Investigation of typhoid fever outbreak in Veterinary College and Research Institute, Orathanadu, Thanjavur district, Tamil Nadu, India, 2021

Tuesday, 12th September - 15:50: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Elavarasan Mathivanan [1], ***Dr. Bhavani Shankara Bagepally*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai*

Background

On Nov 17, 2021, public health officials reported ten fever cases at VCRI Orathanadu in Thanjavur district, India. We investigated to identify the cause, source, and make recommendations.

Methods

We defined a suspected case of typhoid fever as fever for >= one week among students residing in the VCRI hostel, Orathanadu, during November 2021. We actively searched for cases through medical camps and collected samples. Stool samples were collected from food handlers. We described the outbreak using an epi curve, a spot map of the hostel, and an attack rate by sex. We defined the probable case as fever for >= one week and Widal positive (titre > 1:80) and did a case-control study (1 case: 2 controls). Controls were frequency matched on sex with the cases. We used a structured questionnaire to gather information on demographics, symptoms, food habits, drinking water usage, and sanitation practices. We assessed the environment and collected water specimens.

Results

Of 395 students, 174 participated in the survey, 79 were suspected cases (attack rate: 21% male, 21.2% female, no deaths). 23/29 sera were >1:80 Widal positive, 3/3 blood cultures and 9/9 stool cultures showed no growth. The outbreak lasted for a single incubation period with two peaks. Among 23 probable cases and 46 controls, drinking water from water dispenser (Adjusted OR: 9.6, 95% CI: 2.7-34.2; PAF-64.7%) was associated with the illness. 8/8 water specimens were non-chlorinated and showed the presence of E-coli & Enterobacteriaceae, and 2/8 water specimens showed the presence of Salmonella spp.

Conclusions

Typhoid fever outbreak might be waterborne, possibly due to contaminated drinking water supply with runoff rainwater mixed with sewage treatment plant's untreated effluent. We recommended daily chlorination of piped water, periodic maintenance of R.O. systems and water dispensers and maintaining sanitation around the sewage treatment plant.

Hepatitis-A in a residential school campus: An outbreak investigation, Karnataka, India, 2019-2020

Tuesday, 12th September - 16:10: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Prashant Bhat [1], ***Dr. Mohankumar Raju*** [2], ***Dr. Veenita Anand*** [3], ***Dr. Ravikumar R*** [4], ***Dr. Sudhirchandra Sooda*** [1], ***Dr. Premananda K*** [1], ***Dr. Jagadish H S*** [5], ***Dr. Prabhdeep Kaur*** [6]

1. *Department of Health and Family Welfare, Government of Karnataka, India,* ***2.*** *Senior Technical Officer, SAFETYNET,* ***3.*** *Ludwig Maximilian University, Munich,* ***4.*** *Regional Health Office Bangalore, Ministry of Health and Family Welfare, Government of India,* ***5.*** *State Institute of Health and Family Welfare, Government of Karnataka, India,* ***6.*** *ICMR - National Institute of Epidemiology, Chennai*

Background

Between 2011 and 2013, India reported 44,663 Hepatitis-A cases from 291 outbreaks, of whom 73% were school-going children. A residential school in Karnataka reported 157 cases of jaundice on December 28, 2019. We investigated this outbreak to identify the source and associated factors to help propose recommendations.

Methods

After confirming the Hepatitis-A outbreak, we defined the case-patients as an inmate of the school campus with jaundice or dark urine and one associated symptom (fever, vomiting, abdominal pain, itching, malaise, anorexia) from 01 August 2019 to 06 January 2020. We actively searched cases, conducted a descriptive analysis to formulate a hypothesis and tested it with a follow-through case-control study. We examined the water-supply pipelines, inspected other contributory factors and interacted with food handlers.

Results

We identified 484 (11%) case-patients among 4335 students and staff. The first case was reported on 17 August. Till December, the case occurrence was marginal (n=56). However, it started increasing later, peaking on 20th December (n=26) and then declining till 21 January 2020. Attack rates were higher among the 10-13 years age group (15%), followed by the 14-16 years age group (13%). Females had higher attack rates (15.3%). The median duration of illness was 17 (IQR 8-22) days, and hospitalisation was 11 (IQR 3-12) days. Of the multiple water sources, Sump-A supplying nine hostels, had higher attack rates (14% compared with 2% from other water sources). The analytical study showed that consuming Sump-A water was associated with the outbreak (OR: 6.7, 95% CI: 2.9-15.6). The garden surrounding sump-A was sprayed with the untreated sewage water. The Sump-A had multiple open manholes on inspection, the supply pipelines were leaking at numerous points, and the sump water was not chlorinated.

Conclusions

Unprotected water of Sump-A led to the outbreak. Securing the Sump-A, chlorinating water, and repairing the supply line were suggested as remedial measures.

Melioidosis Outbreak Investigation — Sham Shui Po District, Hong Kong Special Administrative Region, August to December 2022

Tuesday, 12th September - 16:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Ka Chun Chung [1], ***Dr. Hoi Kei Wong*** [1], ***Dr. Albert Au*** [1], ***Dr. Shuk Kwan Chuang*** [1]

1. *Centre for Health Protection, Department of Health, Hong Kong*

Background

A marked upsurge of 30 melioidosis cases in Sham Shui Po (SSP) District (population size: 424,000) was recorded during August –December 2022. We investigated the outbreak to identify the source and route of transmission, and to formulate control measures.

Methods

A confirmed case was defined as a clinically compatible illness that is either PCR or culture-positive for *Burkholderia pseudomallei* during 1 August to 31 December 2022, SSP. Cases were identified by enhanced surveillance in hospitals. Epidemiological and clinical information was collected through telephone interviews. Descriptive analysis was performed. Environmental investigation and whole genome sequencing (WGS) were conducted.

Results

34 cases were detected from August-December 2022 as compared with 3-17 cases annually from 2017-2021, with 30 of them residing in SSP. The 30 cases had an age range of 42-94 years (median: 71). 21 cases (70%) were male. All had chronic diseases with 18 cases (60%) having had diabetes mellitus. The main clinical presentation included pneumonia (20; 66.7%) and sepsis (10; 33.3%). Nine cases (30%) passed away due to melioidosis. Their residences clustered within a diameter of about one kilometer. A total of 827 environmental samples were collected with 126 tested positive by PCR for *B. pseudomallei*, including biofilm swabs from a household, soils from a nearby construction site and fresh water service reservoirs (FWSRs) supplying SSP, and surface swabs of air vents over the FWSRs. WGS revealed that 28 cases (93.3%) had the same sequence type (ST-1996) which was identical to the culture-positive soil samples collected from the FWSRs.

Conclusions

Contaminated soil in the vicinity of the FWSRs was suggested to be a potential source but the transmission mode could not be ascertained. Control measures implemented included increasing residual chlorine level in drinking water, installing HEPA filters at air vents over FWSRs and enhancing public education. Ongoing surveillance and water quality monitoring are recommended.

Long Oral Presentations: Transboundary and Emerging Animal Diseases

Field and laboratory investigation of Highly Pathogenic Avian Influenza (HPAI) H5N6 and H5N8 outbreaks in Quang Ninh province, Vietnam, 2020 to 2021

Tuesday, 12th September - 15:30: (Marie Reay 5.05 and 5.06) - Long Oral

Mr. Trong Tran [1], ***Prof. Suwicha Kasemsuwan*** [2], ***Prof. Manakorn Sukmak*** [2], ***Prof. Waraphon Phimpraphai*** [2], ***Dr. Tippawon Prarakamawongsa*** [3], ***Dr. Long Pham*** [4], ***Mrs. Tuyet Hoang*** [1], ***Mrs. Phuong Nguyen*** [5], ***Mr. Thang Nguyen*** [1], ***Mr. Minh Truong*** [1], ***Mr. Tuan Dao*** [1], ***Dr. Pawin padungtod*** [6]

1. *Regional Animal Health Office Number 2, Department of Animal Health, Vietnam,* ***2.*** *Faculty of Veterinary Medicine, Kasetsart University,Thailand,* ***3.*** *Bureau of Disease Control and Veterinary Service, Department of Livestock Development,Thailand,* ***4.*** *Department of Animal Health, Vietnam,* ***5.*** *. Regional Animal Health Office Number 2, Department of Animal Health,Vietnam,* ***6.*** *Food and Agriculture Organization of the United Nations (FAO) Country Office for Viet Nam*

Background

Avian influenza (AI) is a contagious disease that causes illness and death in both poultry and humans. Highly pathogenic avian influenza (HPAI) H5N6 outbreaks commonly occurred in Quang Ninh, bordering China. In June 2021, the first outbreak of HPAI H5N8 occurred at a chicken farm in Quang Ninh. This study determined risk factors associated with and described molecular characteristics of the HPAI H5N6 and H5N8 outbreaks in Quang Ninh.

Methods

A retrospective case-control study was conducted in Quang Ninh from Jan-2020 to Dec-2021. Cases were households that had susceptible poultry with two or more clinical signs of AI disease presented and tested positive by Real- time RT-PCR or showing clinical signs within two weeks of another household in the same village with Real-time RT-PCR confirmation. Controls were households in the same village that raised similar susceptible poultry as the corresponding case from two weeks before until two weeks after the outbreak but did not show clinical signs of disease. Logistic regression models were built to assess risk factors associated with HPAI outbreaks at a household level. The positive samples by Real-time RT-PCR were sequenced and characterized by comparing them to other viruses presented in Viet Nam and neighboring countries.

Results

Thirty-eight poultry farms were identified as cases. Of these, 35 HPAI outbreaks were caused by H5N6 clade 2.3.4.4h, and three outbreaks were caused by H5N8 clade 2.3.4.4b. Compared to 112 controls, three significant risk factors were identified: raising poultry in uncovered or partially covered ponds (OR =11.87, 95% CI:1.99–70.1); poultry traders visiting a poultry farm (OR=11.12, 95% CI:3.4–36.35); and poultry farms located less than 500 meters from a river (OR=4.05, 95% CI:1.32–12.37).

Conclusions

Combining biosecurity measures, both at the farm i.e. restricting visitor entry and provincial level (i.e. zoning) can enhance the control and prevention of HPAI in Quang Ninh.

Spatiotemporal and Risk Factors of African Swine Fever in the Mekong Delta Vietnam, 2019–2022

Tuesday, 12th September - 15:45: (Marie Reay 5.05 and 5.06) - Long Oral

Dr. Lam Thanh Nguyen [1], ***Dr. To My Quyen*** [1], ***Dr. Minh Tu Nguyen*** [1], ***Dr. Lu Thanh Hien*** [2]

1. *Faculty of Veterinary Medicine, College of Agriculture, Can Tho University,* ***2.*** *Faculty of Animal Science and Veterinary Medicine, Nong Lam University*

Background

Since 2019, African swine fever (ASF) has become endemic across Vietnam, causing major disruption to the pig industry. Objectives of this study were to: (1) describe the spatiotemporal epidemic characteristics of ASF in the Mekong delta (MD) of Vietnam during 2019 – 2022; and (2) identify risk factors for ASF in the area.

Methods

The analyses in this study are presented in two parts. The first provides a description of the ASF epidemic in the MD during 01 May 2019 to 31 December 2022. Details of ASF farm outbreaks were obtained from the Regional Animal Health Office No. 7 and provincial Sub-Departments of Animal Health. The second provides details of logistic regression analyses to identify risk factors for ASF in the area. The data is derived from survey of famers with and without ASF for their knowledge, attitude and practice.

Results

In 2019, 31,872 ASF outbreaks were reported across all 10 provinces in the MD. This was followed by decreasing outbreak numbers in 2020, 2021 and 2022 with 90, 699 and 706 outbreaks, respectively. Except for 2019, ASF outbreaks occurred throughout the year with greater numbers of outbreaks reported in the months close to the year-end during 2020 – 2022. Logistic regression analyses identified several risk factors associated with ASF outbreak reports such as type of pig farm by a factor of 1.93 (95% CI 1.20–3.31), number of veterinarians 0.77 (95% CI 0.60–0.96), number of middle-man sellers 0.86 (95% CI 0.73–0.98) and wet markets 4.48 (95% CI 2.08–10.79).

Conclusions

After triggering a large epidemic in 2019 in the MD, ASF remains endemic and was sporadically reported in the area over the time. Outcomes of this study provide better understanding of epidemiology of ASF and an impetus for targeted interventions in locations identified as at risk for ASF in the MD and Vietnam

Spatiotemporal Distribution of African Swine Fever (ASF) in North Cotabato, Philippines from 2020-2022

Tuesday, 12th September - 16:00: (Marie Reay 5.05 and 5.06) - Long Oral

Dr. Geraldson Navarra [1], ***Dr. Romeo Gundran*** [2]

1. *Bureau of Animal Industry Quezon City,* ***2.*** *College of Veterinary Science and Medicine, Central Luzon State University*

Background

ASF continues to be a major global problem in the pig industry. The first incursion in North Cotabato, Philippines was recorded on July 8, 2020, affecting four municipalities and one city. To prevent the spread of the disease, the "1-7-10" protocol of culling, movement control and strict surveillance were implemented. ASF cases were initially contained. However, it reoccurred in November 2021 affecting 17 Municipalities. We aimed to describe the exploratory spatial-temporal data analysis, visualization and spatial modeling of ASF spread in domestic pigs in North Cotabato, Philippines in order to understand how ASF behaves, identify the high-risk areas and determine the location of ASFv for better implementation of control and prevention measures.

Methods

We extracted data from the Bureau of Animal Industry and Veterinary Offices of North Cotabato, Philippines for the period July 2020-October 2022. Any farm with at least one collected sample yielding positive results to ASF laboratory testing was defined as a case. We used spatiotemporal scanning statistics to identify potential clusters of outbreaks and analyzed the spatial and temporal patterns of ASF.

Results

Overall positivity rate of 15.73% was observed in a total of 3,286 farms tested from July 2020 to October, 2022. Higher positivity rate of 57.76% was recorded in 2020. Records show that positivity rates in the months of July (46.20%), December (93.75%) and January (24.02%) were highest. Positivity rate in Pigcawayan (28.74%) and Magpet (27.78%) were highest. Two significant clustering were noticed with the primary cluster located in the eastern part of the province centered in the municipality of Magpet, North Cotabato.

Conclusions

There is a need to review the protocols on the control and prevention of ASF outbreaks in North Cotabato. Ca- pacity building is necessary to strengthen the epidemiological skills of LGUs in terms of disease investigation and surveillance in order to equip and empower them in effectively handling ASF outbreaks.

Demonstrating Freedom from African Swine Fever in the Top three Swine Producing Municipalities of Batangas Province

Tuesday, 12th September - 16:15: (Marie Reay 5.05 and 5.06) - Long Oral

Dr. Annierica Cascalla [1], ***Dr. Carolyn Benigno*** [2]

1. *Veterinarian IV, Office of the Provincial Veterinarian, Batangas,* ***2.*** *Fellow, Philippine College of Veterinary Epidemiologists President, PHILHEALTH SERVICES INC*

Background

The first cases of African Swine Fever (ASF) in the Philippines occurred in 2019. At that time, Batangas province was one of the top swine producing provinces in the Philippines, supplying about 350 tons of pork per year to nearby provinces including Metro Manila. However, in February 2020, an ASF outbreak in the province affected pigs in 21 out of its 34 cities and municipalities. The Municipalities of Rosario, Ibaan and Taysan were identified as the top 3 swine producing areas making up 44% of the total swine population of Batangas. This study aimed to demonstrate ASF freedom in these municipalities in order to reassure its trading partners and justify the current restrictions prohibiting movement of pigs into the province.

Methods

Multi-stage sampling was done per municipality where the hog raising barangays were listed. In each Barangay, inventory of farms with respective swine population were listed and using probability sampling proportional to size, samples were selected. Using the table of Cannon & Roe at 2% prevalence, the sample size computed were 149 pigs per municipality. Blood samples were collected from the randomly selected animals in the population and then submitted to the Regional Animal Disease Diagnostic Laboratory of the Department of Agriculture wherein the laboratory testing was conducted using the insulated isothermal/convective Polymerase Chain Reaction test to detect the presence/absence of ASF.

Results

Using the isothermal/convective PCR test kits available in the laboratory, the surveillance conducted on September to October 2022 at the top 3 swine producing municipalities of Batangas province, Rosario, Ibaan and Taysan, have NEGATIVE laboratory results yielded from the 447 blood samples collected.

Conclusions

In the Philippines, having these negative results would mean that these municipalities were indeed ASF-free areas which will warrant an unhampered animal movement within the country and ensure that no diseased animals are being served at the table.

A Survey of Potential Emerging Diseases in Imported Exotic Mammals and Reptiles during COVID-19 Outbreak in Thailand, 2021

Tuesday, 12th September - 16:30: (Marie Reay 5.05 and 5.06) - Long Oral

Ms. Amornrat Wongwai [1], Ms. Nattakan Suttanon [1], Mr. Chareornchai Tothaisong [2], Dr. Kirana Noradechanon [3], Ms. Utchareeya Chotpiwat [1], Mr. Phuchit Saekhong [2], Dr. Thanawadee Phaichana [3], Dr. Klairoong Poonpon [1], Mr. Paisin Lekcharoen [4]

__1.__ Division of Wild Fauna and Flora Protection, Department of National Parks, Wildlife and Plant Conservation, __2.__ Wildlife Conservation Office, Department of National Parks, Wildlife and Plant Conservation, __3.__ Department of National Parks, Wildlife and Plant conservation, __4.__ Chulalongkorn University

Background

Recent emerging infectious diseases (EIDs) like COVID-19 caused a devastating crisis on health and socio-economy worldwide. Anthropogenic activities associated with wildlife contact are a possible driver of disease emergence. Transboundary wildlife trade could play a significant role in pathogen introduction and spread to the recipient countries and initiates EIDs. In this study, we surveyed key pathogens in exotic mammals and reptiles imported into Thailand.

Methods

We collected oral and/or rectal/cloacal swabs from exotic mammals and reptiles during March – November 2021. The study population was the animal being imported from abroad and was classified into 1) recently imported, 2) kept in live market, 3) kept at facilities engaging wildlife importation, and 4) privately own that was brought to healthcare facility. History of animal introduction and health status were recorded. Samples were submitted and had laboratory testing for coronaviruses, herpesviruses, paramyxoviruses, monkeypox virus, adenoviruses, and rabies virus following the PREDICT protocol.

Results

A total of 110 samples from 54 mammals and 56 reptiles were collected. We detected herpesvirus in four samples (3.64%; 4/110), accounting for 7.41% (4/54) of mammalian samples. A gammaherpesvirus was found in 12.5% (1/8) of rodents while betaherpesviruses were detected in 12.5% (1/8) of rodents and 9.09% (2/22) of non-human primates. Three of positive animals were recently imported and another one was kept in proximity to recently imported animals in a local market. All positive animals were apparently healthy and were kept in a condition that allows them to have contact with external animals. Other pathogens underwent undetected.

Conclusions

Although other pathogens were not detected, this study demonstrated that some pathogen like herpesviruses were found despite a compulsory health certificate program. The potential of these pathogens to cause EIDs is unknown but needs close monitoring. Preventive measures including health examination and biosecurity should be implemented at the international ports, quarantine areas, and holding facilities.

Long Oral Presentations: Vectorborne Diseases 3

Malaria outbreak investigation during COVID-19 pandemic in Rokan Hilir District, Riau Province, Indonesia, 2020.

Thursday, 14th September - 11:00: (Manning Clark Hall) - Long Oral

Dr. Risalia Arisanti [1], ***Dr. Citra Indriani*** [2], ***Dr. Riris Andono Ahmad*** [2], ***Dr. Herdiana Basri*** [3]

1. *FETP Indonesia Alumni,* ***2.*** *Resident advisor FETP UGM,* ***3.*** *WHO Indonesia*

Background

Rokan Hilir district received a malaria elimination certificate in 2018 from the Minister of Health. However, the first malaria outbreak was reported in October 2019, with 12 indigenous cases from Pasir Limau Kapas (Palika) sub-district detected. The number of cases increased gradually to 222 cases in June 2020 during the first wave of the COVID-19 pandemic. An investigation was initiated to identify contributing factors for the outbreak and recommended control measures.

Methods

The investigation was conducted from August to November 2020, consisting of active case finding, receptivity mapping and community survey. Secondary data on malaria cases were obtained from malaria registries. Data were analysed descriptively based on time, place and person.

Results

There were 1,561 notified cases from January – November 2020, with 65 relapse cases. Cases were dominated by males (60%), 15-35 years old age group (45.5%) and students (28.3%). The index case was a fisherman with a travel history from an endemic area. The annual parasite incidence was 37.7 per mil, predominant with Plasmodium vivax. We found 29 foci with active transmission, and *An.sundaicus* was the potential vector. LLIN coverage was 62.8%, with utilization at 53%. We identified detection, treatment, reporting delays, and inadequate risk communi- cation.

Conclusions

Inadequate malaria control measures contributed to a resurgence of malaria in Palika. Strengthening surveillance, case management and engaging the community in prevention were highly recommended for controls.

Malaria Foci Investigation in Titeam Village, Stung Treng Province, Cambodia, April 2022

Thursday, 14th September - 11:15: (Manning Clark Hall) - Long Oral

Mr. Sophen Ko [1], ***Ms. Rina Hong*** [1], ***Mr. Panha Kimsean*** [2]

1. *Steng Treng Provincial Health Department,* ***2.*** *Mundulkiri Provincial Health Department*

Background

Cambodia is currently implementing a 2020-2025 malaria eradication strategy. In 2021, there were 4,279 malaria cases, a 54% decrease from the 9,234 cases in 2020. On 13 April 2022, a ten-year-old girl from Titeam Village in Stung Treng Province with locally-acquired *P. falciparum* malaria was reported. We conducted a foci investigation to assess the risk of malaria transmission, identify mosquito vectors and recommend control measures based on the risk classification of the area.

Methods

We visited the house where the case lived and did geographic reconnaissance of the area within a 1km radius of the house, conducted a house-to-house survey and interviewed residents about their travel, interviewed the village chief regarding visitors to the area and reviewed malaria records at the health center. For three nights, mosquitoes were captured using a cow trap and sent to the national malaria center for species identification. We computed malaria receptivity and vulnerability scores for the area.

Results

Over a 12-month period as of April 2022, no malaria cases were identified except for the ten-year-old girl. The house of the malaria case was 50 meters from the forest, and 100 meters from a river stream. Of 487 residents, 97% had a history of going into the forest; 70% had travelled out of the village. Of 320 mosquitoes captured, only one Anopheles species, *A. vagus*, was found. The receptivity score was 4/10 (low risk) while the vulnerability score was 8/10 (high risk).

Conclusions

Due to a high vulnerability score with residents frequently going to the forest and the presence of a vector, the risk of malaria transmission in the area is high. Bed and hammock nets impregnated with long-lasting insecticides were distributed to households. Artemisinin-based combination therapy was given to men aged 15-49 years for a month. Health education and weekly fever screening is being done.

Dengue outbreak near rubber plantation in a tribal village in South Garo Hills District, Meghalaya, India, October to December 2022

Thursday, 14th September - 11:30: (Manning Clark Hall) - Long Oral

Dr. Frontline Training India [1], Dr. Dr Shinne Arnebya Marak [2], Mr. Ha I Dahi Chyrmang [3], Mr. Sandy Tariang [2], Dr. Rafellia Allya [4], Dr. Shaileja Yadav [5], Dr. Sanket Kulkarni [1], Dr. Arti Bahl [1]

1. *National Centre for Disease Control, New Delhi,* ***2.*** *Integrated Disease Surveillance Program, South Garo Hills, Meghalaya, India,* ***3.*** *Integrated Disease Surveillance Program, Meghalaya, India,* ***4.*** *Department of Health and Family Welfare, Meghalaya, India,* ***5.*** *3x3 Frontline FETP, National Centre for Disease Control, Delhi, India*

Background

Dengue, earlier associated with urbanization, is now being reported from rural areas. Rubber plantations serves as breeding sites for Aedes vector. Clustering of suspected dengue cases was reported for the first time from a tribal village Bethagre, South Garo Hills district, on November 2 2022. We investigated to describe the epidemiology and provide recommendations.

Methods

We defined suspect as fever with any of the following: chills, headache, nausea, vomiting, loss of appetite, itching, rash, eye pain, or body-ache from October 18 – December 15 2022 in a resident of Bethagre and its neighboring villages. Suspect positive for anti-dengue IgM by ELISA was confirmed case. We searched for cases by house-to-house survey in Bethagre village and reviewed disease surveillance records in neighboring villages. Data was collected through interviews. Entomological surveillance was conducted in Bethagre village for breeding sites and vector indices.

Results

Out of identified 36 suspect cases (47% males), with median age 35 years (range: 2-71 years). 58% (21/36) were confirmed. Based on confirmed cases, attack rate in Bethagre village was 2.3% (12/529), 3.3% (7/211) in males and 3.2% (8/248) in age group 20-59 years. All cases reported fever, followed by headache in 58%(21/36), loss of appetite and vomiting in 42%(15/36). 76%(16/21) sought outpatient treatment, 48%(10/21) were hospitalized. 57.1%(12/21) cases were clustered in the Bethagre village near rubber plantation. Breeding was seen in 88%(7/8) tin drums/utensils and 58%(7/12) used tyres. 9% (highest proportion) breeding sites were detected near shelter for migrant construction workers. The Bretaeu Index was 40, Container Index was 11.8, and House Index was 15.

Conclusions

We confirmed a dengue outbreak in Bethagre village near a rubber plantation, mainly affecting the age group 20-59 years. We carried out health education cum health camp and source reduction with local leaders. Targeted preventive activities for identified high-risk groups is recommended.

Dengue Outbreak Investigation in Three Adjacent Communes – Oraing Ov District, Tbong Khmum Province, Cambodia, 2022

Thursday, 14th September - 11:45: (Manning Clark Hall) - Long Oral

Mrs. Rasmey Than [1], ***Mr. Khay Say*** [1], ***Mr. Sophanith Ung*** [2]

1. *Tbong Khmom Provincial Health Department,* **2.** *South Asia Field Epidemiology and Technology Network ,INC.*

Background

In August 2022, Tbong Khmum Provincial Health Department was notified of an ongoing outbreak of dengue in three communes in Oraing Ov District despite control measures having been implemented for a month. A team was deployed to describe the outbreak and assess the effectiveness of larvicide distribution activities.

Methods

A dengue case was defined as any resident who had onset of fever>38°C from 23 June–25 August 2022 with ≥2 of the following: nausea, vomiting, rash, headache, body aches, muscle aches, back pain, orbital pain, abdominal pain, positive tourniquet test, leukopenia, bleeding sign and clinically diagnosed with dengue illness and/or a positive NS1 antigen test. We reviewed medical records in four health centers, one public and one private hospital, and did phone interviews of patients who fit the case definition. We conducted a house-to-house survey in two affected villages using a checklist and checked their water containers and use of temefos larvicide. Larval indices were calculated.

Results

Forty-four people met the dengue case definition; 64% were female, and 77% were aged 5-15 years. Four cases had positive NS1 antigen test results. We identified risk factors as not having nets on windows/doors of houses (98%), not wearing long-sleeved clothes (80%), uncovered water tanks (70%), dirty household surroundings (70%), and travel history to a household with dengue cases (70%). Household members used larvicide incorrectly and at a lower coverage rate than reported by authorities. Among 43 houses, we identified a house index of 51%, a container index of 19%, and a Breteau index of 82%.

Conclusions

There was still a risk of dengue transmission in the three communes as we found high larval indices, with households not having received larvicide or using the larvicide incorrectly. These indicate insufficient dengue control measures in the areas. Larvae surveillance, community education, and larvicide distribution should continue.

Malaria Case Investigation in Nawalparasi East District of Nepal, 2023

Thursday, 14th September - 12:00: (Manning Clark Hall) - Long Oral

Mr. Keshab Prasad Chapagain [1]***, Dr. Mallick Masum Billah*** [2]***, Mr. Chudamani Bhandari*** [3]***, Dr. Yadu Chandra Ghimire*** [4]***, Mr. Ishan Chapagain*** [5]

1. *Senior Public Health Officer, Health Office, Nawalparasi East, Gandaki Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Nepal sajha Swasthya Sewa,* ***4.*** *Director, National Health Training Center, Teku, Kathmandu and Course Director, FETP Nepal,* ***5.*** *Shahid Suhrawardi Medical College*

Background

Investigation of every malaria case followed by the community search is essential as Nepal country is heading towards the elimination of malaria by 2025. Out of 491 malaria cases reported nationally in 2022, four cases of *Plasmodium vivax* malaria were reported from the Nawalparasi-East district of Gandaki province. We investigated the cases to identify possible sources and spread of malaria in the district.

Methods

We conducted a cross-sectional descriptive survey from January 1 to 14, 2023 in the Nawalparasi-East district. Along with interviewing the cases reported through surveillance, we searched the community for suspected cases. We defined malaria as any person living in the district having fever and chills from June to September 2022 without definite relation to other diseases. We listed the suspected cases and tested using rapid diagnostic tests (RDT) for malaria. We also observed the breeding sites, nets in houses, and water collection areas surrounding houses of malaria cases.

Results

The four malaria cases reported through surveillance were sporadically from July to September 2022. All (100%) were male with a travel history to Gujarat and Mumbai, known as malaria-endemic areas in India. While traveling, they did not use preventive methods such as chemoprophylaxis, bed nets, or repellants. All of them were diagnosed malaria positive within 7 to 15 days of returning. In the community assessment, 84 people met the case definition and were RDT negative for malaria. During case investigation, we found water accumulation areas in 100% households, 100% of houses had not netted in doors and windows, and only 25% of the cases used bed nets.

Conclusions

Our investigation revealed the surveillance reported malaria cases got infected outside the country. We recommended using chemoprophylaxis for malaria for people traveling to risk areas, conducting an awareness campaign in the community regarding cleaning the households, and use of malaria protective measures.

Long Oral Presentations: Waterborne Diseases

Locked down with Loose Bowels: Acute Watery Diarrhea (AWD) Outbreak among the Prisoners of Penal Colony in Mindanao, Philippines 2021

Thursday, 14th September - 11:00: (Drama Theatre) - Long Oral

Ms. Kathleen Gecosala [1], ***Mr. Patjayson Mohammad*** [1], ***Mr. Rammell Eric Martinez*** [1], ***Dr. Agnes Segarra*** [1], ***Dr. Gloria Nenita Velasco*** [2]

1. *PHILIPPINE FETP,* ***2.*** *Department of Health, Epidemiology Bureau*

Background

Diarrhea outbreaks are a public health concern in overcrowded jails with poor hygiene, sanitation, and resources. A field epidemiology training program fellow was deployed on November 22, 2021 to verify the outbreak and identify the source and mode of transmission, and risk factors after receiving report of 100 acute watery diarrhea cases at Davao Prison and Penal Farm (DPPF) with two deaths.

Methods

A descriptive study was conducted followed by a 1:1 unmatched case-control study. Cases were interviewed through active case finding. A case was any previously well person-deprived with liberty (PDL) of DPPF who had three or more watery stools per day from October 5 to November 23, 2021. Controls were any well PDL with a negative result on rectal swab. Records review was done at Davao Penal Colony Hospital. Samples were collected on water sources. Collected rectal swabs from PDLs. Specimens were sent to the national reference laboratory for bacteriol- ogy confirmation.

Results

A total of 146 cases were identified with six deaths, mostly (89%) from the medium-security compound. Case-control result reveals that, those medium-security PDLs who drunk from deep well was seen as risk factor (aOR=6; 95% CI=2- 17, p=0.00) and storing water from contaminated sources was eight times more likely to develop diarrhea (aOR=8; 95% CI=2-35, p=0.003). Two deep wells inside the dormitory yielded Aeromonas veronii and Aeromonas caviae. Rectal swabs revealed Aeromonas caviae (9%) and Vibrio cholerae (8%).

Conclusions

There was an AWD outbreak in DPPF caused by ingestion of contaminated water. Lockdown forced the PDL to drink from contaminated deep wells inside the compound. Aeromonas caviae and Vibrio cholerae were the potential pathogens of concern. Although V. cholerae was not identified in water sources, it could be present. We recommend extending water pipelines from potable water tanks to dormitories.

Investigation of two norovirus outbreaks linked to drinking water contaminated with multiple GII strains in a rural county—Chongqing, China, 2021

Thursday, 14th September - 11:15: (Drama Theatre) - Long Oral

Ms. Tingting Li [1], ***Mr. Jingyao Peng*** [2], ***Ms. Qin Li*** [2], ***Dr. Li Qi*** [2]

1. *China FETP, China CDC,* ***2.*** *Chongqing Municipal Center for Disease Control and Prevention, Chongqing, China*

Background

Two gastroenteritis outbreaks were reported by two rural villages, in county A, Chongqing City, China, early 2021. An investigation was conducted to identify the causes, examine possible associations between the outbreaks, and provide scientific information for preventing further transmission.

Methods

Cases were defined as persons experiencing diarrhea ≥ 3 times/24 hours, and/or vomiting ≥ 2 times/24 hours in the two villages, between January 28 and February 9, 2021. Cases were interviewed in-person to collect information on risk factors. A retrospective cohort study was conducted to examine the role of the spring water supply as the outbreak source. Residents in neighboring villages with different water sources served as the unexposed population. Fecal and vomit samples obtained from cases and water samples collected from sources of drinking water and tap water of cases' homes were tested using rt-qPCR and sequencing was performed on pathogen-positive specimens.

Results

The index cases showed symptoms on 31st January and 5th February, respectively. Village-specific attack rates were 23% (123/561) and 27% (88/326), respectively. The mean age: 42.7/40.3 years, male gender: 52.8%/51.1, and occupation as farmer: 85.4%/78.4%, were similar. Seventy-four household case clusters were identified in Outbreak #1 and thirty-nine in Outbreak #2. No cases were identified in unexposed villages; drinking spring water was statistically associated with the two outbreaks (RR=41.8 95%CI: 5.9–297.4 #1, RR=79.2 95%CI: 11.1–565.1 #2). Stool specimens, rectal swabs, and water samples were positive for norovirus in both outbreaks. GII.2[P16] and GII.17[P17] were identified in outbreak #1, and GII.4 Sydney[P16] and GII.1[P16] in outbreak #2.

Conclusions

The two gastroenteritis outbreaks in county A were very similar; both were linked to norovirus GII strains. The contaminated spring water was identified as the likely source and was closed immediately and disinfected. These findings reinforce the importance of good sanitation and environmental disinfection in rural areas, especially during the rainy seasons.

Investigation of an outbreak of Bacteriological Dysentery caused by contaminated well water, Sichuan Province, China, 2022

Thursday, 14th September - 11:30: (Drama Theatre) - Long Oral

Mr. Jie Li [1], ***Ms. Ying Wang*** [1], ***Ms. Yi-ru Zeng*** [1], ***Mr. Yu Zhang*** [1]

1. *Sichuan Field Epidemiology Training Program*

Background

Bacterial dysentery is a common acute intestinal infectious disease caused by *Shigella spp*. It is highly susceptible to outbreaks or epidemics in collective units such as schools through contaminated water or food, and is an important public health problem facing the world. On September 5, 2022, a hospital reported multiple patients with diarrhea, abdominal pain, fever, and post-rash, all of whom were students at Sichuan H High School. We conducted this investigation to determine the cause, the mode of transmission, and to prevent similar outbreaks.

Methods

We defined a possible case as having one of the symptoms of diarrhea (≥3 episodes/day) or fever (≥37.5the teachers, students and staff of H Middle School from August 20 to September 10, 2022. We conducted a case search, analyzed epidemic curve to find risk factors, conducted case-control study and environmental hygiene surveys on risk factors, and collect fecal, anal swab and well water samples for laboratory testing.

Results

A total of 376 cases were found, the attack rate was 8.84% (376/3583). The clinical manifestations were mainly diarrhea 97.61% (367), abdominal pain 94.14% (354), fever 91.22% (343), and tenesmus 80.32% (302). The epidemic curve showed a continuous homologous exposure pattern. The case-control results showed that drinking raw well water was a risk factor (OR=9.65, 95% CI=4.25-21.90). The dose of drinking well water and the risk of disease showed a dose-response relationship (X2=4.30, P=0.038). The results of the environmental hygiene survey showed that the well water was contaminated with sewage and was not completely disinfected. *Shigella flexneri* type VI was detected in well water, reservoir and case stool samples. PFGE results showed that the strains were homologous.

Conclusions

This outbreak of bacteriological dysentery was caused by students drinking well water contaminated by Shigella flexneri VI.It is necessary to improve school water supply facilities and strengthen school drinking water disinfec- tion and monitoring.

Cholera Outbreak in Chittapur Town, Kalaburagi District, Karnataka, India, May-June 2022

Thursday, 14th September - 11:45: (Drama Theatre) - Long Oral

Dr. Mishba Hani Qureshi [1], ***Dr. Shivani Gupta*** [1], ***Dr. Amardeep Pawar*** [2], ***Ms. Ismeet Kaur*** [1], ***Dr. Sudhir Nayak*** [1], ***Dr. Kevisetuo Anthony Dzeyie*** [1]

1. *World Health Organization,* ***2.*** *Government of Karnataka, India*

Background

Karnataka of India is endemic for cholera and reported 102 outbreaks (18% of India cholera outbreaks) between 2011-2020. On 15 May 2022, a government hospital in Chittapur town, Karnataka, reported increased acute gas- troenteritis cases. Cholera was confirmed on 19 May 2022 and outbreak flagged. We investigated to describe the epidemiology and identify risk factors.

Methods

We conducted 1:2 unmatched case-control study; a suspect case was defined as ≥3 loose stools <24 hours among Chittapur resident, age >1 year between 1 May-20 June 2022 and controls were residents with no history of loose stool. We selected one case per household with earlier onset date and controls by randomization of houses with no case. Cases and controls were interviewed for demographics and risk factors using semi-structured questionnaire. We calculated frequency, proportion, attack rate (AR) and odds ratio (OR) with 95% confidence interval (CI). Stool samples were tested for *Vibrio cholerae* and water samples for potability by hydrogen-sulphide test (H_2S).

Results

We identified 137 cases (56% female); median age=30 years (range=2-80 years). The attack rate was 0.4% (137/32,000), 65 cases (48%) were hospitalized and no deaths. We selected 105 cases {58% female, median age=33 years (range=2-80)} and 217 controls {50% female, median age=32 years (range=13-70)}. Drinking municipal water (OR=6; 95% CI: 3-10), not using any water purification methods (OR=3; 95% CI: 2-5), open defecation (OR=3; 95% CI: 2-6) and not washing hands after defecation (OR=7; 95% CI: 4-12) were associated with cholera infection. Also, 16% (11/67) stool samples tested positive for *Vibrio cholerae* and 16% (42/260) water samples were non-potable.

Conclusions

This was a confirmed cholera outbreak likely due to drinking contaminated and unpurified municipal water in urban area with open defecation and poor hand hygiene practices. We recommended municipal to provide potable water, community to boil drinking water, practice hand hygiene and use toilets.

Shigella outbreak at a cultural event due to cross-contamination of damaged tap-water pipeline and sewage overflow, District Shivamogga, Karnataka, India, January 2023

Thursday, 14th September - 12:00: (Drama Theatre) - Long Oral

Dr. Shri Vijay Bala Yogendra Shivakumar [1], ***Dr. Arshi Chawla*** [2], ***Dr. Shakti Singhaal*** [2], ***Dr. Gudadappa Kasabi*** [3], ***Dr. Jeromie Thangaraj*** [1], ***Dr. Girish Kumar CP*** [1], ***Dr. Tarun Bhatnagar*** [1], ***Dr. Manoj Murhekar*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai,* ***2.*** *Postgraduate Institute of Medical Education and Research, Chandigarh,* ***3.*** *Taluk Health Officer, Shivamogga, Government of Karnataka*

Background

Shigella infection transmits by contaminated food, water or direct contact. After a cultural event in Shivamogga on 15 January 2023, several students residing in 34 hostels reported vomiting, abdominal pain, and diarrhea. On 17 January, district surveillance unit initiated investigations to describe the outbreak and determine its source.

Methods

We defined a case as occurrence of ≥3 episodes of loose-stools or vomiting or stomach pain within 24 hours among those who consumed breakfast at the event. We collected information on demographics, clinical-symptoms and food-items consumed from student/staff of 10 hostels/resident-schools, and 41 households surrounding the catering place. We tested stool and water samples for culture. We drew epidemic curve and calculated attack rates. We did a case control analysis by food-items consumed at the event.

Results

Of 720 attendees interviewed, 430 met the case definition (attack rate:60%), of which 111 (26%) were hospitalized. Case-patients were reported from 15 January (12:00 hours), peaked on 16 January and declined gradually with the last case on 24 January, indicating a point-source outbreak. Median incubation period was 34 hours (IQR 26 - 52). Those who consumed uncooked-coconut chutney had higher odds [OR 5.0, 95% CI 2.9-8.6] of being a case-patient; 76% population attributable fraction. Two of nine stool cultures confirmed Shigella species. Sewage overflow on 13 January cross-contaminated a broken drinking water pipeline near the catering place. Of 41 households, 16 reported case-patients since 15 January, clustering around the broken pipeline. Five of eight water samples, including the catering place, tested positive for fecal coliforms.

Conclusions

An outbreak of Shigella-associated acute gastroenteritis occurred among students who attended the cultural event. It was related to the consumption of uncooked coconut chutney prepared using contaminated water. We recommended immediate repair of the pipeline and setting-up effective notification system to the local health-inspector and the urban water-supply department.

Long Oral Presentations: Toxicology

Largest Acute Chemical Incident in Malaysia, March 2019: Opportunity to Assess the Preparedness and Response Capacity

Thursday, 14th September - 11:00: (Marie Reay 5.02) - Long Oral

Dr. Jeyanthini Sathasivam [1], ***Dr. Shaharom Nor Azian Che Mat Din*** [1], ***Dr. Norasikin Mahdan*** [2], ***Dr. Thilaka Chinnayah*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia,* **2.** *Ministry of Health Malaysia*

Background

Johor State reported Malaysia's largest chemical emergency from 7 to 20 March 2019, following illegal dumping of industrial toxic waste into a river. A total of 5,039 students and residents in the area were affected.1,228 were hospitalized and 26 were treated in intensive care units with an incidence rate of 10.8%. No deaths were reported. Following the incident stand down, an After-Action Review (AAR) was conducted to assess the chemical incident preparedness & response and identify strategies for improvement.

Methods

Facilitated focus group discussions among key responders (n=50) undertaken by Ministry of Health to qualitatively review selected actions in response to this significant incident. The aim was to identify and capture response activities, determine strengths and weaknesses, and document lessons learned. The elements reviewed were coordination and communication, emergency response, laboratory functions, risk communication and case management.

Results

The Incident Management System established to coordinate the response, functioned in-line with the general guideline on disaster management. Major successes were the effective multisector coordination, rapid emergency response and efficient patient management. Major challenges included: the chemicals were initially unknown hence the initial lack of knowledge of the hazards and risks involved; inadequate use of PPE and decontamination procedures; and limited laboratory capacities for testing chemicals. Risk communication was challenging as this was the first major mass toxic industrial chemical release in Malaysia. As such, information sharing on health risks was not timely and may have created the potential for panic among the affected communities.

Conclusions

The AAR identified strengths and areas that require improvement for better preparedness and response to a chemical emergency. An incident management protocol was developed specifically for handling acute chemical incidents. This addresses the key areas such as mechanism for information sharing, risk and crisis communication, enhanced laboratory capacities for testing chemicals and building human capacities through training and exercises.

Outbreak of Lead Poisoning in Cattle through Battery Recycling in Barashi village, Sadar, Magura district, Bangladesh 2020

Thursday, 14th September - 11:20: (Marie Reay 5.02) - Long Oral

Dr. Faisol Talukdar [1], ***Dr. TABM Mozaffar Goni Osmani*** [1], ***Dr. Md. Hadiujjaman*** [1], ***Dr. Golam Azam Chowdhury*** [1]

1. *Department of Livestock Services (DLS)*

Background

Lead is the cause of cattle poisoning after accidentally ingesting lead contaminated feed. Battery recycling is a major source of lead contamination in Bangladesh. On December 4, 2020 the Upazilla Livestock Officer Magura sadar, reported sick cattle died of unknown cause and did not respond to any treatment. We investigated to determine cause of outbreak, describe the epidemiologic features of cases and to control the outbreak.

Methods

We selected cases among the cattle who presented with loss of appetite, salivation, convulsion, twisted neck living in Barashi village, Sadar Upazilla, Magura from 4 November to 6 December 2020. Suspected cases were identified feeding nearby battery recycling field. We used general physical examination technique for getting clinical symptoms of cattle and interviewed the farmers for types of exposure. We collected soil, straw, grass and paddy and tested these samples by atomic absorption spectroscopy (ASS) for measure of concentration of lead.

Results

We found 87 cattle of 25 houses in the village. Of them 47 suspected cases of cattle were identified. Attack rate was 54% and case fatality rate was 51%. Death of cow (67%) was higher than calf, heifer and bull. The cattle became sick after feeding straw or grazing from a nearby battery recycling factory of that area. Symptoms developed within 1 to 10 days. Seven cattle recovered after being administered antibiotic, atropine sulphate and vitamin B1. All tested samples showed high concentration of lead above the normal value, of the samples grass and straw had the most concentration.

Conclusions

This was the first reported lead outbreak in the Magura district. To control this outbreak, we recommended to stop feeding cattle with straw and avoid grazing near the battery recycling field. Calcium disodium edetate (Ca-EDTA) and vitamin B1 should be used for the treatment of sick cattle. To prevent future outbreaks, battery recycling factory should be banned and investigations conducted using a one health approach.

Investigation of a family clustered pesticide poisoning caused by aluminum phosphide in Shanghe county, Jinan city, Shandong Province

Thursday, 14th September - 11:40: (Marie Reay 5.02) - Long Oral

Ms. Xiaoxue Liu [1], ***Ms. Li Yang*** [2], ***Mr. Xingyi Geng*** [2], ***Dr. Lijie Zhang*** [1], ***Mr. Jun Zhang*** [2], ***Mr. Zhong Liu*** [2], ***Mr. Pengfei Qu*** [2], ***Mr. Xinwei Li*** [2], ***Mr. Shang Gao*** [2], ***Ms. Meng Cao*** [2], ***Ms. Huiyu Jiang*** [2], ***Mr. Jishan Zhang*** [3]

1. *China FETP, China CDC,* ***2.*** *Jinan Center for Disease Control and Prevention,* ***3.*** *Shanghe Center for Disease Control and Prevention*

Background

Aluminum phosphide (ALP) is a fumigant. Human poisonings occur in rural areas of China by improper usage and low awareness of symptoms and toxicity. On July 24, 2021, Shanghe County hospital reported five patients from one household with gastrointestinal symptoms. An investigation was initiated to identify the cause of illness and implement prevention measures.

Methods

Descriptive epidemiological analyses and laboratory tests were conducted. Cases were defined as patients with two or more gastrointestinal symptoms in villages of Longsangsi Township during July 22-24. Information on suspicious food and environmental exposures were collected through face-to-face interviews and site observations. Samples from cases, leftover food, and environmental air were collected from the cases' household on July 24 for biological and biochemical tests.

Results

Seven cases were identified from one household, including one 13-year-old girl who died on July 24. Symptom onset for 6 of 7 cases occurred on July 23, and included vomiting, abdominal pain, nausea, and diarrhea. No suspicious food exposure was found; a pungent smell was noted in the household corridor. The family reported using 130 to 150 ALP tablets (>10 times exceeding recommended dose) in the grain storage room for killing pests from July 17 to 24. The grain storage room with broken window adjoined to the living room, sharing corridor and suspended ceiling with all other rooms. There was humid weather during July. Phosphine gas (released from ALP tablets under moist environment) was detected in air samples from living room ($0.66mg/m^3$>MAC$0.3mg/m^3$), and in the blood sample of the deceased household member.

Conclusions

This household cluster of ALP poisoning was linked to inhaling phosphine gas generated from improper use of ALP in a moist environment. Highlighting the toxicity of ALP to people, especially to children and increasing information on proper use and storage of ALP, particularly in rural communities were recommended.

Thyrotoxicosis Outbreak from Pork Consumption in a Prison - Lopburi, Thailand, November 2022

Thursday, 14th September - 12:00: (Marie Reay 5.02) - Long Oral

Mr. Kunakorn Takachat [1], ***Dr. Saruttaya Wongsuwanphon*** [1], ***Dr. Sirorat Khiewbanyang*** [1], ***Dr. Chokanan Sueapuk*** [1], ***Ms. Wanich Rungram*** [1], ***Ms. Sudarat Taechama*** [1], ***Dr. Rapeepong Suphanchaimat*** [1], ***Dr. Phanthanee Thitichai*** [1]

1. *Thailand FETP*

Background

Thyroid-contaminated food has been a major cause of thyrotoxicosis outbreaks worldwide. On November 10, 2022, a cluster of 14 prisoners with muscle weakness in Prison A was reported; they were diagnosed with thyrotoxicosis and hypokalemia. We investigated to describe characteristics, identify source and risk factors, and provide recommendations.

Methods

We conducted a descriptive study including active case finding. Suspected cases were individuals who had at least one of these findings: proximal muscle weakness, limb numbness, dyspnea, or pulse rate > 100/minute. Confirmed cases were suspected cases with low TSH (< 0.27 μIU/mL). Blood samples were sent for thyroid function tests, thyroglobulin, and potassium level. Food samples, with external controls, were tested for thyroid hormone levels. Food inspection and cooking practice were observed. A case-control study was conducted to identify illness's risk factors.

Results

84 confirmed cases were identified during August – November 2022 (attack rate = 4.53%). Four cases were hospitalized; none died. Attack rates among males and females were 4.67% and 3.11%, respectively. The median age was 38 (IQR = 32-42). Around 98.82% ate meals from prison central kitchen. Thyroglobulin level was within normal limits. 31 (36.90%) cases had hypokalemia, seven of which had severe hypokalemia (<2.5 mEq/L). Pork sausage, minced pork, and pork had T4 levels higher than control pork samples 3.25, 1.72-2.30, and 1.50 times, respectively. Pork, chicken, and fish were a component in 47.31, 37.63%, and 17.20% of all menus, respectively. Incoming meat pack- ages were inspected every day. The adjusted odds ratio (95% CI) of pork, chicken, and sausage was 2.74 (0.76-9.80), 1.15 (0.35-3.71), 0.61 (0.35-1.85), respectively.

Conclusions

The consumption of pork and pork sausage was the most likely cause of this outbreak. After the food agency changed the meat source and pork quality were strictly inspected, the outbreak completely subsided.

Long Oral Presentations: Non-communicable Diseases

Anemia among pregnant women, Goa, India: A cross-sectional analysis between 2018 and 2022

Thursday, 14th September - 11:00: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Utkarsh Betodkar [1], ***Dr. Vineet K Kamal*** [1], ***Dr. Rajananda Desai*** [2], ***Dr. Joshua Chadwick*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai,* ***2.*** *Office of the Minister for Health, Goa*

Background

Anemia poses a significant threat to the health of pregnant women, leading to increased risks of premature birth, low birth weight, and maternal mortality. This study determines the prevalence of anemia among women of repro- ductive age in Goa. The Anemia Mukt Bharat program in India was launched to accelerate the decline of anemia among pregnant women aged 15-49 years from the current national average of 52.2% to 32%.

Methods

The data for analysis has been taken out from the secondary data available with the State Family Welfare Bureau, Directorate of Health Services in Goa, India, on the Reproductive and Child Health (RCH) portal. The analysis utilized variables such as year of pregnancy registration, location and date, age at pregnancy, menstrual dates, hemoglobin levels (closest to the delivery), and high-risk categorization. Anemia was a hemoglobin concentration below 11 gms/dl (mild: 10-10.9, moderate: 9.9-7, severe: <7). Data cleaning was performed using Microsoft Excel, and analysis was conducted using Epi Info v7.2.

Results

Mean age of pregnant women was 27±5 years. The prevalence of anemia in Goa was 17%, in contrast to the national family health survey-5 (NFHS-5) prevalence of 41%. The prevalence of "severe anemia" has increased steadily over the last five years, reaching a high of 0.2% in 2022. The prevalence of anemia in South Goa is marginally higher compared to North Goa. Taluka with the highest prevalence is Canacona (30%), Sanguem (26.7%) and Dharbandora (24.6%). Prevalence of anemia is highest in the age group 15-19 years (26%), followed by 20-24 years (21.3%).

Conclusions

This study found a relatively high but differential prevalence of anemia among women of reproductive age in Goa, with South Goa marginally higher than North Goa. Future research should explore the program's implementation and evaluate the risk factors necessary to design better interventions for decelerating anemia in Goa.

Facilitators and barriers to medication treatment adherence in patients with hypertension in primary health care in China: A qualitative study

Thursday, 14th September - 11:15: (Marie Reay 5.03 and 5.04) - Long Oral

Xinbo Di [1 2], Lifeng Han [3], Yang Zheng [4], Qinghua Yan [4], Cui Wu [5], Fei Wu [5], Feng Gao [6], Liping Liu [7], Li Wang [8], Lin Xiao[1]

1 Tobacco Control Office, Chinese CDC, 2 Chinese Field Epidemiology Training Program, Chinese CDC, 3 US CDC China Office. 4 Shanghai CDC, 5 Shanghai Baoshan CDC, 6 Luojing community hospitals, 7 Luodian community hospitals' 8 Luodiansan community hospitals

Background

Hypertension, a modifiable risk factor, poses a huge burden in China with an estimated prevalence of 27.9%. Medication adherence is key to controlling hypertension. This study aimed to identify factors influencing medication adherence and to use findings to develop recommendations.

Methods

Focus group interviews were conducted between September and October 2022 to collect information on barriers and facilitators on medication adherence. Hypertensive patients (n=58) and health workers (n=23) were purposively selected from three community hospitals in Baoshan District, Shanghai. Each group interview had 6-8 participants and lasted about 60 minutes. Interviews were conducted using a pre-developed interview guide. Interview recordings were transcribed and Nvivo 11.0 was used for coding and content evaluation. Thematic analysis was conducted to identify patterns of low adherence and facilitators at patient and health system levels.

Results

Patient-level barriers included a limited understanding of the criteria for determining hypertension and the need to take medication, their fear of drug dependence, and side effects. Forgetting to take medication, discomfort after taking medication, difficulty in paying for medicine, long distances to the clinic, and lack of social support were also found to reduce patients' medication adherence.

Health system level facilitators included the establishment of neighborhood health booths, implementation of health care models involving contracted combinations of community health service centers, secondary hospitals, and tertiary hospitals (1+1+1 model), enrollment of patients in chronic disease health management systems, and provision of follow-up interventions and health education by the hypertension management team at community health service center

Conclusions

Addressing medication affordability and accessibility to patient counseling would likely increase medication adherence. Promotion of patient-centered care facilities, a 1+1+1 service model, and IT-supported patient management system with a medical staff team are also likely to positive impact medication adherence.

Improving anti-hypertensive drug availability in public health facilities of Chikmagalur District, Karnataka, India, February to June 2022

Thursday, 14th September - 11:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Gopinath T Sambandam [1], ***Dr. Srinivas GN*** [2], ***Dr. Rangaswamy HV*** [2], ***Dr. Mogan KA*** [3], ***Dr. Archana Ramalingam*** [3], ***Dr. Prabhdeep Kaur*** [4]

1. *State Cardio-Vascular Health Officer (CVHO), India Hypertension Control Initiative (IHCI), World Health Organisation, Karnataka, India,* ***2.*** *Department of Health and Family Welfare Services, Govt. of Karnataka, India,* ***3.*** *Indian Council of Medical Research – National Institute of Epidemiology, Chennai, India,* ***4.*** *ICMR - National Institute of Epidemiology, Chennai*

Background

There was an acute shortage of anti-hypertensive drugs at government health facilities in Chikmagalur district, Karnataka, India. We aimed to improve the availability of anti-hypertensive drugs through quality improvement (QI) strategies.

Methods

We used the lean QI method in Chikmagalur district of Karnataka. The district used three protocol drugs for hypertension: Amlodipine, Telmisartan, and Chlorthalidone. During the first Plan-Do-Study-Act cycle we developed a QI package that included i) morbidity-based drug forecasting ii) support for planning logistics of drug distribu- tion, and (iii) close administrative oversight. We operationally defined 'inadequate drug stock' as the availability of less than 30-patient day stock of anti-hypertensive drugs. We used the electronic data of anti-hypertensive drug stock available in the 'Simple app'. We compared the proportion of health facilities with inadequate stock before and after the QI intervention using Mc Nemar's test. We also compared the median percentage of quarterly blood pressure control pre- and post-QI using the Wilcoxon signed rank test.

Results

Of the 330 health facilities, drug stock status was reported by 92% to 94% of facilities from February to June 2022. Due to procurement issues, there was a state-wide shortage of chlorthalidone. The proportion of facilities that reported inadequate drug stock for amlodipine and telmisartan reduced significantly before and after (66.8% vs 49.8% and 80.4% vs 49.8% respectively) the QI intervention ($p:<0.001$). The median percentage of quarterly blood pressure control at the health facility level improved significantly from 34% to 46% ($p<0.001$).

Conclusions

The QI intervention significantly improved drug availability and control of blood pressure and hence can be used during an acute shortage of drugs in similar settings.

Incentivizing urban Accredited Social Health Activists reduces missed visits among individuals with hypertension in Seoni district, Madhya Pradesh, India 2022

Thursday, 14th September - 11:45: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Rupali Bharadwaj [1], ***Dr. Mogan KA*** [2], ***Dr. Archana Ramalingam*** [2], ***Dr. Rajesh Shrivastav*** [3], ***Dr. Vinod Navkar*** [4], ***Dr. Prabhdeep Kaur*** [5]

1. *Cardio-Vascular Health Officer (CVHO), India Hypertension Control Initiative (IHCI), Chhindwara, Seoni, Madhya Pradesh,* ***2.*** *Indian Council of Medical Research – National Institute of Epidemiology, Chennai, India,* ***3.*** *Chief Medical and Health Officer, Seoni, Madhya Pradesh, India,* ***4.*** *District Civil Surgeon, Seoni, Madhya Pradesh, India.,* ***5.*** *ICMR - National Institute of Epidemiology, Chennai*

Background

One in four adults has hypertension in India. Only 10% of estimated hypertensive individuals have hypertension under control. Two-thirds of hypertensive individuals registered in district hospital, Seoni district of state Madhya Pradesh, India, missed follow-up in 2021. We conducted a Quality Improvement (QI) initiative to increase follow-up and reduce missed visits among hypertensive individuals registered under India Hypertension Control Initiative, district hospital Seoni, Madhya Pradesh, India in 2022.

Methods

We conducted a quasi-experimental study from January to September 2022 in the district hospital, Seoni, Madhya Pradesh. We defined the proportion of missed visits as hypertensive individuals with no recorded visit in a reporting quarter among all individuals under care. We calculated the proportion followed up each month among cumulative hypertension registrations. We identified major root causes for missed visits and developed countermeasures. The intervention package under Plan-Do-Study-Act (PDSA) includes i) Training urban Accredited Social Health Ac- tivists (ASHAs) to conduct house visits for missed visit individuals, ii) Incentives to ASHAs based on follow-up of individuals, iii) Maintenance of line-list of hypertension individuals registered and track treatment outcomes. We conducted fortnightly review meetings to follow up PDSAs.

Results

Of 27 urban ASHAs, all were trained to conduct house visits. Following the intervention, missed visit proportion decreased from 66% (228/345) in quarter four of 2021 to 24% (30/123) in quarter three of 2022. Of the 1,438 house visits made by ASHA for individuals who missed visit, 74.9% of individuals returned for follow-up. Monthly follow-up proportion increased from 21% (475/2231) in January to 37% (1297/2850) in September 2022.

Conclusions

In our setting, intervention decreased missed visits over time. Incentivizing peripheral health workers like ASHAs to follow-up regularly on hypertensive individuals might improve treatment outcomes. However, the interventions need to be implemented continuously for better monitoring and use in similar settings.

Risk Factors of Hypertension in Gunungkidul District: Secondary Data Analysis of Sehat Indonesiaku Database from October-December 2022

Thursday, 14th September - 12:00: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Bangun Hot Pandapotan Lumban Gaol [1], ***Mr. Brema John Kristo Damanik*** [1], ***Mr. Sidig Hery Sukoco*** [2], ***Dr. Riris Andono Ahmad*** [3]

1. *FETP Universitas Gadjah Mada,* ***2.*** *Gunungkidul District Health Office,* ***3.*** *Department of Biostatistic, Epidemiology and Population Health Universitas Gadjah Mada*

Background

Hypertension is ranked first out of the 10 most common diseases in Gunungkidul District for the last five years. This study was conducted to identify the risk factors for hypertension using the *Aplikasi Sehat Indonesiaku* (ASIK), a centralized application used for inputting and monitoring patient data from all primary healthcare workers.

Methods

We conducted a cross-sectional study using secondary data from the ASIK website for October-December 2022. The data analyzed were from three sub-districts in Gunungkidul with the highest number of hypertension cases. Blood pressure classification used WHO criteria, high if systolic blood pressure (SBP) is ≥140 mmHg and diastolic blood pressure (DBP) is ≥90 mmHg and normal if below. The independent variables were age, body mass index (BMI), lack of physical activity, less consumption of vegetables and fruit, excess oil/fat consumption, excess salt consumption, excess sugar consumption, consuming alcohol, exposure to secondhand smoke, and smoking. High blood pressure was the dependent variable. We used multivariate logistic regression to examine the factors associated with high blood pressure.

Results

The ASIK application has just been developed in 2022, there were a lot of incomplete data entries. Of the 5,430 data entered, there were 1,147 incomplete data and 4,283 were analyzed. The highest proportion was reported from the Ngawen sub-districts (56.5%). Participants with high blood pressure were 23%, and 53.7% were in the productive age group. The BMI proportions were mostly normal (53.2%), but 27.9% were overweight. Age, BMI, lack of vegetable and fruit consumption were associated with high blood pressure ($p<0.05$). The significant risk factors for high blood pressure were high BMI (aOR 1.87 95%CI 1.61-2.17) and age (aOR 1.7 CI 95% 1.46-1.98).

Conclusions

Factors influencing high blood pressure incidence were BMI and age. We recommend educating the community about the healthy living movement. The ASIK application still needs further socialization and development.

Long Oral Presentations: COVID-19 Aftermath

Post COVID-19 Respiratory Symptoms and its effect in the Quality of Life among Recovered Patients in Makati City: A Nested Case-Control Study Philippines, September-November 2021

Thursday, 14th September - 13:30: (Manning Clark Hall) - Long Oral

Dr. Nolie Rimando [1], ***Mr. Rammell Eric Martinez*** [2], ***Dr. Agnes Segarra*** [2], ***Dr. Gloria Nenita Velasco*** [3], ***Dr. Alethea De Guzman*** [3]

1. *City Government of Makati, NCR,* ***2.*** *PHILIPPINE FETP,* ***3.*** *Department of Health, Epidemiology Bureau*

Background

Amidst the ongoing clinical trial for safe and effective antiviral agents and vaccine development programs continuously being conducted, long-term sequelae of coronavirus disease 2019 have become increasingly recognized and concerning. With these, a substantial proportion of recovered patients suffered from post COVID-19 respiratory symptoms, thus affecting their activities of daily living. This study aimed to determine the post COVID-19 respiratory symptoms among recovered patients in Makati City and its effect on their quality of life.

Methods

A cross-sectional, nested case-control study was conducted. Cases were recovered patients with respiratory symptoms, while controls were those with no evidence of respiratory symptoms. A total of 132 respondents were randomly selected and provided verbal consent prior to data collection. The EuroQol 5D 5L assessed the quality of life based on a five-component scale and each component with five level responses. Bivariate analysis was done using Chi-square and Fisher's exact tests where p-value<0.05 was considered significant and logistic regression for controlling confounders.

Results

A response rate of 83% (109) of participants was achieved. Both males and females were equally distributed. Age ranged from 5 to 81 years old (Median: 33 years). The interquartile range is 21 years (Q1=27, Q2=48). The study found 39% of the respondents exhibited shortness of breath when moving, cough, sore throat, fatigue, shortness of breath at rest, and chest pain six months after recovery. In logistic regression, patients with comorbidities (OR 6.26, CI 1.65-23.621, p-value-0.007) were at higher risk of experiencing post-COVID respiratory symptoms. Of which, 37% of these patients' quality of life were affected based on the EuroQoL 5D 5L adapted tool.

Conclusions

Post COVID-19 patients with comorbidities were at higher risk of experiencing the persistence of respiratory symptoms. These illnesses somehow affected their activities of daily living, reducing the kind of quality of life they have.

Long COVID in a vaccinated population exposed to Omicron - Australia, 2022

Thursday, 14th September - 13:45: (Manning Clark Hall) - Long Oral

Dr. Mulu Woldegiorgis [1], ***Dr. Paul Knight*** [2], ***Prof. Rosemary Korda*** [1], ***Ms. Gemma Cadby*** [2], ***Ms. Sera Ngeh*** [2], ***Ms. Lauren Bloomfield*** [2], ***Ms. Kate Hutcheon*** [2], ***Dr. Paul Armstrong*** [2], ***Dr. Jelena Maticevic*** [2], ***Mr. Andrew Jardine*** [2], ***Prof. Paul Effler*** [2]

1. *The Australian National University,* ***2.*** *Western Australia Department of Health*

Background

Long COVID has emerged as an important public health issue. In Western Australia (WA), border closures delayed SARS-CoV-2 transmission until 2022. The ensuing pandemic wave was exclusively Omicron among a population with high 3-dose vaccination coverage. We aimed to estimate the burden of Long COVID in WA and identify risk factors in this unique pandemic setting.

Methods

All persons testing positive for SARS-CoV-2 in WA between 16 July and 3 August 2022 and who agreed to participate in research at the time of diagnosis were sent a text with a link to an online survey 90-days after their diagnosis. Persons who did not respond were telephoned. Long COVID was defined as reporting any new or ongoing COVID illness related symptoms or health issues and not fully recovered 90-days post diagnosis. We linked responses to data collected during the initial case investigation and applied design and post-stratification weights. Potential risk factors were assessed using log-binomial regression.

Results

11,752 (51.7%) of 22,744 case-patients participated; of these, 1983 (16.9%, 95%CI: 16.2%-17.6%) were classified as having Long COVID. Female sex (relative risk [RR]=1.6, 95%CI: 1.4-1.8), and having >1 pre-existing health condi- tion (RR=1.6, 95% CI: 1.4-1.8) were associated with Long COVID. The most common symptoms were fatigue (70.0%, 95%CI: 68.1%-71.9%), difficulty concentrating (59.7%: 95%CI: 57.6%-61.7%), and sleep problems (46.1%, 95%CI: 44.0%-48.1%). Of those with Long COVID, 37.9% saw a doctor in the month prior due to ongoing symptoms. Hospi- talisation for Long COVID was reported by 36 (1.5%) of all cases. Of 9,458 respondents who were working/studying before their diagnosis, 120 (1.3%) had not resumed their work/study and the risk of discontinuation was higher among those reporting Long COVID (RR=2.8, 95%CI:1.8-4.5).

Conclusions

One in six persons diagnosed with COVID-19 reported Long COVID 90-days after diagnosis, but hospitalisations and prolonged absences from work/study were rare.

Assessing the effects of COVID-19 related work on depression among community health workers in Vietnam

Thursday, 14th September - 14:00: (Manning Clark Hall) - Long Oral

Ms. Ngoc-Anh Hoang [1], ***Mr. Van Ngoc Hoang*** [2], ***Ms. Ha Linh Quach*** [3], ***Dr. Cong Khanh Nguyen*** [4], ***Mr. Huy Luong Duong*** [2], ***Prof. Quang Thai Pham*** [4], ***Dr. Florian Vogt*** [5]

1. *Faculty of Medicine, Phenikaa University,* ***2.*** *Ministry of Health,* ***3.*** *Duke-NUS Medical School, Singapore,* ***4.*** *National Institute of Hygiene and Epidemiology,* ***5.*** *Australian National University*

Background

Community health workers (CHWs) are an indispensable yet often overlooked workforce in many developing countries, including in South-East Asia. CHWs involved in the COVID-19 response might be at increased risk of depression, though the evidence is scarce. We investigated the effects of COVID-19-related work on changes in depression levels and identified associated factors among CHWs in Vietnam.

Methods

Using a cross-sectional online survey, we compared self-reported depression levels among 979 CHWs before the COVID-19 pandemic (baseline) and at the height of the epidemic in Vietnam (January to March 2021) using a validated depression questionnaire (PHQ-9). We calculated medians and inter-quartile ranges (IQR) and developed multivariable logistic regression models to estimate odds ratios and 95% confidence intervals (95%CI) for the asso- ciation between deteriorating high depression levels and selected risk factors.

Results

Median depression levels doubled from 3 (IQR 2–7) before the pandemic to 6 (IQR 3–9) during COVID-19 on the PHQ-9 scale. The proportion of CHWs with normal/minimal levels decreased from 77.1% (95%CI 74.4–79.7) to 50.9% (95%CI 47.7–54) (p-value <0.001), while the proportion of CHWs with moderate, moderately severe, and severe depression levels increased 4.3, 4.5, and 5-fold, respectively. Being involved in contact tracing and the organization of quarantine measures, lack of sleep and poor sleep quality, and working in unfavourable conditions increased the odds of deteriorating to high depression levels.

Conclusions

We found a substantial rise in depression levels among CHWs in Vietnam due to COVID-19-related work, and a particularly worrisome increase in CHWs suffering from severe depression. CHWs shoulder a heavy mental health burden during the pandemic response, and comprehensive psychological support for CHWs is needed to ensure the sustainability of community-based health interventions during COVID-19 and future epidemics.

Post COVID-19 Conditions and Patients Treated for Hypertension and Diabetes, Bangladesh 2021

Thursday, 14th September - 14:15: (Manning Clark Hall) - Long Oral

Dr. JAFRIN JAHED JITI [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Alden Henderson*** [3], ***Dr. Mahbubur Rahman*** [1], ***Dr. Tahmina Shirin*** [1], ***Dr. Meerjady Sabrina Flora*** [4]

1. *Institute of Epidemiology, Disease control and Research, Dhaka, Bangladesh,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *U.S. Centers for Disease Control and Prevention (CDC),* ***4.*** *DGHS*

Background

According to the World Health Organization, 43% of COVID-19 patients currently suffer from Post-COVID-19 Conditions, (PCC), and are treated symptomatically. We examined the association between co-morbidity treatment, specifically treatment for hypertension and diabetes mellitus, and PCC, with a view to updating the Bangladesh COVID-19 Treatment Guideline.

Methods

We conducted a cross-sectional study of randomly selected, lab-confirmed COVID-19 patients diagnosed between October 2020 to February 2021 in Dhaka City recorded in the National COVID-19 dataset. Being part of another study, PCC for this study was a condition related to COVID-19 even after nine months of the onset of their acute symp- toms. Participants were interviewed by telephone in December 2021 about their symptoms, physician-diagnosed co-morbidities, and treatment. We calculated adjusted odds ratios (AORs) and 95% confidence intervals (95% CI) to measure the associated risk of PCC among those with comorbidities and controlled for confounders e.g., gender, age, and hospitalization. The absence of comorbidities was the reference group.

Results

PCCs were reported in 58% (371/645) of COVID-19 patients. The most common PCCs were forgetfulness 59% (218/371), weakness 44% (164/371), and fatigue 38% (141/371). A total of 47% (301/645) reported pre-existing co-morbidity, 23% (147/645) hypertension, 17% (110/645) diabetes, and 8% (52/645) both hypertension and diabetes. Only patients with hypertension (AOR 1.9, 95% CI: 1.2-2.9) or diabetes (AOR 2.0, 95% CI: 1.2-3.1) had statistically significantly higher AORs for PCC. Patients treated for hypertension (AOR 1.3, 95% CI: 0.9-2.1) or diabetes (AOR 1.6, 95% CI: 1.0-2.7) had lower AORs than patients not treated for hypertension (AOR 12.0, 95% CI: 3.5-38.0) or diabetes (AOR 5.8, 95% CI: 2.0-17.0).

Conclusions

There was a significantly lower incidence of PCC among COVID-19 patients treated for hypertension or diabetes than those untreated for these conditions. We recommend studies to test an a priori hypothesis that treatment for hypertension or diabetes reduces PCC occurrence.

Impact of COVID-19 pandemic on HIV tests and diagnosis in the Republic of Korea, 2016-2021

Thursday, 14th September - 14:30: (Manning Clark Hall) - Long Oral

Ms. Eonjoo Park [1], ***Dr. Yeonju Kim*** [2], ***Ms. Koun Kim*** [2], ***Ms. Yoonhee Jung*** [2], ***Dr. Hwa Su Kim*** [2], ***Ms. Seon Yeo Min*** [2]

1. *Division of Infectious Disease Response, Capital Regional Center for Disease Control and Prevention, KDCA,* **2.** *Division of HIV/AIDS Prevention and Control, KDCA*

Background

To control coronavirus disease 2019 (COVID-19) pandemic, not only the hospital workers but also the public health service officers were in high service demand for coping with COVID-19 control. Especially workers in public health centers relocated as frontline health workers to respond to patients infected with COVID-19 leaving other infectious disease care, including human immunodeficiency virus (HIV), in shortage. The aim of this study is to examine the impact of COVID-19 on HIV tests and diagnosis in the Republic of Korea from 2016 to 2021.

Methods

We counted tests and diagnosis of HIV by types of institutions using a mandatory surveillance system for HIV and data collected from each facility. A difference-in-differences analysis was carried out to evaluate the causal effect of the pandemic on HIV tests and diagnosis.

Results

Before the COVID-19 pandemic, the trends in the tests and diagnosis of HIV observed in all institutions were sim- ilar. That trend increased until 2019. However, after the pandemic, the trends of each institution have diverged with a substantially large decline in public health centers compared to the other institutions. Comparing 2019 and 2020, differences in the amount of tests and diagnosis of HIV between public health centers and other institutions were -80 and -85 percentage-point, respectively. Comparing 2019 and 2021, there were -133 and -90 percentage- point differences in the amount of tests and diagnosis of HIV, respectively, between public health centers and other institutions.

Conclusions

The reduction of HIV tests and newly detected cases in public health centers were greater than the reduction of other institutions after COVID-19 pandemic. It is necessary to monitor the impact of reduction of HIV tests and detection during the COVID-19 pandemic to early diagnosis and treatment of HIV positives in the Republic of Korea.

Long Oral Presentations: Zoonoses

Epidemiological characteristics and spatio-temporal analysis of Brucellosis in Shandong province, China, 2015-2021

Thursday, 14th September - 13:30: (Drama Theatre) - Long Oral

Ms. Xiaolin Yu [1], ***Dr. Yingxin Pei*** [1], ***Mr. Ming Fang*** [2], ***Mr. Yan Li*** [2], ***Ms. Shujun Ding*** [2], ***Mr. Zengqiang Kou*** [2], ***Prof. Qun Li*** [3]

1. *China FETP, China CDC,* ***2.*** *Shandong provincial Center for Disease Control and Prevention,* ***3.*** *Public Health Emergency Center, Chinese Center for Disease Control and Prevention*

Background

Acute and chronic human infections of brucellosis can occur following contact with infected animal products or consumption of unpasteurized dairy products. Previous research has identified Shandong as a high-risk province for brucellosis. An analysis of human brucellosis case data was conducted to identify regions where interventions are likely to have the greatest impact.

Methods

Human brucellosis cases reported in Shandong province from January 1, 2015 to December 31, 2021 were obtained from the China Information System for Disease Control and Prevention Demographic and epidemiologic case characteristics were described, and spatial and spatial-temporal case clustering were explored by month and county. SaTScan was used to generate relative risks (RR) and corresponding p-values for high-risk clusters.

Results

From 2015 to 2021, 22,251 brucellosis cases were reported, with annual incidence rates ranging from 2.4 cases /100,000 population in 2015 to 4.0 case /100,000 population in 2021. Of all cases, 88% were 30-74 years of age, 72% were male, and 85% were farmers. Most cases (66%) were reported during March and August. For the spatial autocorrelation analysis, a high global autocorrelation at the county level, and the high–high clusters mainly distributed in the north and southwest region. The most likely spatio-temporal cluster involved 37 counties (26% of all counties) in the northern region from January 2015 to December 2017 (RR = 2.5, $p < .001$).

Conclusions

Most human brucellosis cases were reported during the spring-summer months and in counties where animal husbandry was well developed, suggesting infections are likely related to livestock birthing practices. In these counties, close collaboration between public health and animal health staff should be encouraged, particular in conducting joint field investigations following detection of positive human cases and implementing prevention and control measures, such as livestock vaccination.

Outbreak investigation of cutaneous anthrax in Shandong Province, China, 2021

Thursday, 14th September - 13:45: (Drama Theatre) - Long Oral

Ms. Xiaolin Yu [1], ***Dr. Yingxin Pei*** [1], ***Mr. Ming Fang*** [2], ***Mr. Aiqiang Xu*** [2], ***Mr. Zengqiang Kou*** [2], ***Mr. Zhong Li*** [2], ***Prof. Qun Li*** [3]

1. *China FETP, China CDC,* ***2.*** *Shandong provincial Center for Disease Control and Prevention,* ***3.*** *Public Health Emergency Center, Chinese Center for Disease Control and Prevention*

Background

Human anthrax infections can occur following contact with infected animal products or aerosolized spores. All infections are potentially fatal if not treated effectively. Seven cases of cutaneous anthrax were reported by County C, Shandong Province on 18 August 2021. An investigation was conducted to identify risk factors and implement prevention and control measures.

Methods

A record review was performed at eight hospitals and three village clinics and household survey at 107 households in County C to identify patients with clinical and laboratory diagnosis of anthrax between 14 July and 29 August 2021. Demographic, household, and behavioral risk factors were collected during interviews. A retrospective cohort study was conducted using exposure data from cases and family members. Environmental specimens were collected for PCR *Bacillus anthracis* testing

Results

On investigation 13 anthrax cases in two towns were identified, including six additional cases from the case search. All 13 cases presented an anthrax carbuncle, and 46% were laboratory confirmed. Cases were between 28 to 68 years old and 12 (92%) were male. During interviews, all cases reported slaughtering cattle prior to onset of illness, though none had a slaughtering license or personal protective equipment (PPE). Interviewees reported purchase of cattle from J province in early July that were resold after becoming sick. The risk ratio for slaughtering cattle was 3.75 (95%CI 1.08-13.07). Of the 126 environmental samples from livestock areas, 35 (28%) were PCR positive for anthrax.

Conclusions

The outbreak was likely caused by slaughtering anthrax infected cattle. All human cases were treated with antibiotics. To prevent future infections, monitoring and quarantining of livestock trades should be enforced, and the use of licensed slaughter houses – and PPE - should be incentivized. Physician awareness and importance of diagnostic testing and timely reporting of anthrax cases should also be addressed.

Seroprevalence and associated risk factors of Leptospira spp. in cattle in Ho Chi Minh city, Vietnam

Thursday, 14th September - 14:15: (Drama Theatre) - Long Oral

Dr. Van Dung Nguyen[1], Dr. Viet Bao Le[2], Dr. Sinh Dang-Xuan[3]

***1**. Head of Animal Science and Epidemiology Division Sub.Department of Animal Health of Ho Chi Minh City, **2**. Unknown, **3**. CGIAR*

Background

Leptospirosis is one of the most widespread zoonoses worldwide, causing severe impacts on beef and dairy cattle and other livestock. People can be infected with Leptospira spp. via contacting urine or collecting milk from infected cattle. Data of seroprevalence and risk factors associated with Leptospira spp. in cattle was limited in Vietnam

Methods

A cross-sectional study was conducted from October to December 2022, and aimed to determine seroprevalence and associated risk factors of Leptospira spp. in cattle farms in Ho Chi Minh city, Vietnam. Blood samples were collected from cattle on 99 dairy farms (494 animals) and 61 beef farms (303 animals). A structured questionnaire was used to gather information regarding cattle, farms and farming practices. The microscopic agglutination test was used to test antibodies against 24 Leptospira serovars. Multivariate logistic regression was applied to examine potential risk factors associated with seropositivity of Leptospira spp.

Results

Overall seroprevalence of leptospirosis in dairy and beef cattle were 25.1% of animals (79.6% of herds) and 19.1% of animals (47.5% of herds), respectively. Hygienic status of the farm (OR 2.2, $p<0.05$), hand milking (OR 2.9, $p<0.05$) were significantly associated with seropositive of Leptospira spp. in dairy cattle. Whereas, in beef cattle, hygienic status of the farm (OR 3.1, $p<0.01$), introduction of new animals on farm (OR 2.4, $p<0.05$) and rodents contact with feed (OR 1.4, $p<0.05$) were identified as risk factors of Leptospira spp. seropositivity. Leptospira Hardjoprajitno was highly prevalent (40.16%) in both beef and dairy cattle.

Conclusions

These findings indicated high seroprevalence of leptospirosis in both beef and dairy cattle in the studied area and identified risk factors associated with farm hygiene practices and management. Improving hygienic practices of farms and milking, control rodents and introduction new animals are necessary to prevention Leptospira spp. circulation in cattle farms.

Leptospirosis Outbreak in Boyolali Regency, Central Java Province, 2022

Thursday, 14th September - 14:30: (Drama Theatre) - Long Oral

Ms. Tiara Windy Pratiwi [1], ***Ms. Anandi Iedha Retnani*** [1], ***Mr. Teguh Tri Kuncoro*** [2], ***Dr. Riris Andono Ahmad*** [3]

1. *FETP Universitas Gadjah Mada,* ***2.*** *Boyolali District Health Office,* ***3.*** *Department of Biostatistics, Epidemiology and Population Health Universitas Gadjah Mada*

Background

The Boyolali District Health Office received a report of two probable cases of Leptospirosis from the Public Health Center of Ampel after three years without positive cases in the area. An investigation was conducted to confirm the outbreak, identify the risk factors and make recommendations to control the outbreak.

Methods

We conducted a descriptive study with univariate analysis, from June to July 2022. Active case finding was carried out by interviews, environmental observation, and laboratory examinations of blood samples using the Polymerase Chain Reaction (PCR) and Microscopic Agglutination Test (MAT), while water samples and soil samples were tested using PCR. A case was a person with one or more symptoms of fever, muscle aches, weakness, nausea, headache, calf muscle pain, jaundice, vomiting, abdominal pain, and/or diarrhea from June-August 2022.

Results

A total of nine suspected cases with PCR and MAT test results showed two positives and seven negative cases with symptoms of fever and muscle aches. The environmental assessment identified 94% of rat holes in community housing neighborhoods that were considered rat habitats. Fifty-three blood serum samples were examined, consisting of eight human blood samples, seven cow blood samples, and 38 rat blood samples. At the same time, the results of the MAT test showed that there was one blood serum of cows infected with Serovar *Bataviae* and one blood sample of rats infected with Serovar *Icterohaemorrhagiae* and *Djasiman*. Meanwhile, the examination of water and soil showed negative results.

Conclusions

There was an outbreak of Leptospirosis in Boyolali. The recommendations are carry-out rat control, increase the cross-sector role in the One Health approach, and cooperate with Livestock Office to administer treatment to cows that are confirmed positive for serovar Leptospirosis.

From a way of life to taking away lives: An Outbreak of Leptospirosis among Fishermen – Northern Luzon, Philippines, 2022

Thursday, 14th September - 14:E: (Drama Theatre) - Long Oral

Mr. Arvin Plete [1], ***Mr. Florentino Lopez, Jr.*** [1], ***Mr. Dino Duclayan*** [1], ***Mr. Niño Rebato*** [2], ***Ms. Mariz Zheila Blanco*** [3], ***Ms. Karen Lonogan*** [4], ***Dr. Rosario Pamintuan*** [4], ***Dr. Janice Bugtong*** [4], ***Dr. Rio Magpantay*** [4]

1. *FETP - Intermediate Course, Northern Luzon, Philippines,* ***2.*** *Philippine FETP,* ***3.*** *Philippines FETP,* ***4.*** *Department of Health - Philippines*

Background

In November 2022, increasing numbers of suspect leptospirosis cases were reported from the Municipality of Santa, Ilocos Sur, Northern Luzon. We conducted an epidemiologic investigation to verify the diagnosis, profile the cases, identify the source of transmission, and recommend control and preventive measures.

Methods

A descriptive study was done. We did active case finding and defined a suspect case as any previously well individual from Santa who manifested fever with any of the following: headache, body weakness, muscle pain, calf pain, and jaundice from October 17- November 24, 2022. A confirmed case was laboratory confirmed through Polymerase Chain Reaction (PCR) and Microscopic Agglutination Test (MAT) in serum or urine.

Results

There were 21 leptospirosis cases identified with six deaths (CFR=29%). Outbreak was declared in the municipality. All cases were male fishermen with ages ranging from 17-62 years (median=39 years). Common exposure in all cases is through wading in a swamp which is the only way to reach the river where they catch the seasonal goby fish. The dirt from the nearby rodent-infested piggery and open dump site all drain through the swamp. Specimens collected more than 10 days from the date of onset tested negative for leptospira but all cases were admitted to hospital and were diagnosed with leptospirosis.

Conclusions

There was an outbreak of leptospirosis among fishermen in Santa, Northern Luzon. The source of transmission is through wading in a contaminated swamp. This study highlights the importance of prompt reporting of suspected cases, early recognition of signs and symptoms, and prompt medical attention. Precautionary measures against leptospirosis should be done for people working in environments prone to infestation with rodents – the primary reservoir hosts of this disease. We recommended immediate vermin control and closure of illegal piggery in the area, as well as distribution of post-exposure prophylaxis to the affected community.

Long Oral Presentations: Gastrointestinal Outbreaks

An Investigation of Dysentery Outbreak in Tum Hamlet, Telefomin District, West Sepik Province, Papua New Guinea, January 2019

Thursday, 14th September - 13:30: (Marie Reay 5.02) - Long Oral

Mr. Stanley Masi [1], ***Dr. Mathias Bauri*** [2], ***Mx. Cletus Bon*** [1], ***Dr. Joanne Taylor*** [3], ***Mrs. Stephanie Wheeler*** [3], ***Mr. James Flint*** [3], ***Mr. Berry Ropa*** [4]

1. *Wosera Gawi District Health, East Sepik Province,* ***2.*** *National Department of Health,* ***3.*** *University of Newcastle,* ***4.*** *Field Epidemiology Training Program Papua New Guinea*

Background

Enteric diseases remain a significant cause of mortality in Papua New Guinea. On 12 January 2019, we were notified of three persons in Tum Hamlet who had presented with blood-stained watery stool and vomiting and subsequently died. We deployed a team to conduct an outbreak investigation.

Methods

The team looked at past syndromic surveillance data and confirmed a likely increase in dysentery cases in Tum Hamlet. The case definition included residents in Tum catchment area with bloody stool, fever, diarrhoea, abdominal pain, vomiting and/or nausea between 1 and 31 January 2019. Households were surveyed to actively find cases, and clinically confirmed cases were isolated. The team engaged community leaders and volunteers, who assisted with translation, community mobilization, and inspecting toilets and water sources for a potential illness source.

Results

Forty of 221 residents met the case definition with symptom onset dates spanning 3 to 18 January 2019 (16 days). The median age of cases was 12.5 years (range 0.6–70 years), and 23 (57.5%) were female. Clinical presentation included diarrhoea (93%), abdominal pain (73%), fever (53%), bloody stool (45%) and vomiting (38%). Ten out of 31 pit toilets in the hamlet were condemned for human use and burned by village leaders with household approval. Water source inspection revealed no visible health threats. Because stool and water samples were not tested due to transportation issues, the outbreak aetiology is unknown. The team concluded that the outbreak likely started with a child who had travelled from another village.

Conclusions

Spread of dysentery within the community was likely due to poor personal hygiene and lack of medical treatment. Key public health actions taken by the team included effective management of cases, educational awareness, and implementation of hand hygiene for each household. Restriction of people's movement and building of new toilets also helped contain the outbreak.

Investigation of an Acute Gastroenteritis Outbreak Following a Religious Ceremony-Bangladesh, 2022

Thursday, 14th September - 13:45: (Marie Reay 5.02) - Long Oral

Dr. Immamul Muntasir [1], ***Dr. Sabrina Mohona*** [1], ***Dr. Fawzia Akhter*** [1], ***Dr. Zakir Hossain Habib*** [2], ***Dr. Ahmad Raihan Sharif*** [2], ***Dr. Mohammad Rashedul Hassan*** [2], ***Dr. Nazneen Akhter*** [3], ***Dr. Tahmina Shirin*** [2]

1. *FETP (Advanced) Fellow,* ***2.*** *Institute of Epidemiology, Disease Control and Research, Dhaka, Bangladesh,* ***3.*** *Technical Advisor, FETP (Advanced)*

Background

Foodborne outbreaks frequently manifest as acute gastroenteritis and are threat for public health in Bangladesh. On 17 November 2022, the health-manager of Delduar, Tangail reported an acute gastrointestinal outbreak to the Institute of Epidemiology, Disease Control and Research (IEDCR). A team was deployed to investigate the source and risk factors of the outbreak and contain it.

Methods

We conducted a retrospective cohort study after verifying that all cases ate food of a religious ceremony (Mahfil) on 13 November 2022. We defined case as any person who ate food from the Mahfil and developed diarrhea or vomiting. Cases were identified through hospital record-review and active case-finding. We interviewed every person who ate the Mahfil-food with structured questionnaires. The field team inspected kitchen hygiene and preparation and processing of food. Stool and water samples were analyzed for enteric pathogens. Food-specific attack rates and relative risks were calculated to identify risk factors.

Results

Overall attack rate was 57% (229/400); one died of acute hypovolemic shock. Median incubation period was 13 hours [Inter-Quartile-Range (IQR): 10-19 hours]. Median age was 30 years (IQR: 17-48 years) with female predominance (57%). Most common symptoms were diarrhea (100%), fever (75%) and vomiting (34%). The epidemic curve sug- gested a point-source outbreak. 224 of 329 persons who ate khichuri (rice and lentils) served in a polybag (AR=68%, RR=9.7, 95% CI= 4.1-22.6) developed illness compared to 5 of 70 who ate on plate (AR=7%, RR=0.1, 95% CI= 0.05-0.25). Khichuri was placed on banana leaves immediately after cooking in a kitchen with inadequate sanitation and pack- aged in polybags without proper cooling. Stool and water samples were negative for *Vibrio cholerae, Salmonella* and *Shigella*.

Conclusions

The outbreak most likely occurred due to packaging hot khichuri in polybags. To prevent a similar outbreak, we recommend maintenance of hygiene during food processing and proper cooling of food before packaging.

Outbreak of Norovirus Gastroenteritis during orientation week in a college - Port Dickson City, 2022

Thursday, 14th September - 14:00: (Marie Reay 5.02) - Long Oral

Dr. Shahdattul Dewi Nur Khairitza Taib [1], ***Dr. Mohamed Paid Yusof*** [1], ***Dr. Zulraini Jusof*** [1], ***Ms. Nur Azirah Mohd Anis*** [2], ***Ms. Siti Nur Wahidah Ab Karim*** [2], ***Dr. Abdul Rahman Dashuki*** [2], ***Mr. Erwan Safian*** [2], ***Dr. Esther Rishma Sundram*** [2]

1. *Epidemic Intelligence Program (EIP) Malaysia,* ***2.*** *Ministry of Health Malaysia*

Background

Norovirus (NoV) is the most common cause for acute gastroenteritis outbreak in educational institution. It is highly infective. Transmission occurs through fecal-oral route primarily from person-to-person. An outbreak of Norovirus has occurred among college student during orientation week in August 2022. This study aims to describe the epidemiological characteristic, to identify the risk factors and to implement appropriate control measures.

Methods

A descriptive study was conducted with case defined as any person in the college with following symptoms: vomiting or diarrhoea from August 14th to 24th. Epidemiological, environmental and laboratory investigation were carried out to describe the epidemiological characteristics of the outbreak and a case control study was conducted to identify the risk factors.

Results

There were sixty-three cases identified with an attack rate of 7.6%. Main symptoms were diarrhoea (92.1%) and abdominal pain (69.8%). Male and female students aged 18 to 20 years old were both affected (55.6% and 44.4%). The primary case begun having symptoms before attending the orientation week. Median onset was on 15th August, 20-26 hours from when the orientation week begun. Outbreak officially ended on 24th August when no cases reported after two incubation periods. Norovirus was isolated from case stool sample (10% positivity rate) and pos- itive culture result for bacterial was obtained from one environmental sample and two food handlers hand swab. Environmental assessment showed poor hand washing facilities in the cafe due to blocked sink, no soap provided and frequent water supply disruption. Poor hand hygiene practice (OR 2.381, 95% CI 1.353, 4.191) was identified as the risk factor for the outbreak.

Conclusions

This is an outbreak of NoV among college students. To prevent NoV-related acute gastroenteritis outbreak in edu- cational institution, good hand hygiene practice and proper hand washing facilities must be available at all times. Isolation of sick student during a mass gathering event is paramount.

A Large Gastroenteritis Outbreak of Rotavirus Genotype G3P[8] in a Secondary School - Pathum Thani Province, Thailand, 2022

Thursday, 14th September - 14:15: (Marie Reay 5.02) - Long Oral

Dr. Siriyakorn Thanasitthichai [1], ***Dr. Rapeepong Suphanchaimat*** [1], ***Dr. Thanit Rattanathumsakul*** [2]

1. *Thailand FETP,* ***2.*** *Division of Epidemiology, Department of Disease Control*

Background

On 14 September 2022, the Division of Epidemiology was notified of a cluster of food poisoning in a secondary school in Khlong Luang, Pathum Thani. We conducted an investigation to identify causative agent, source of illness and possible risks, describe the epidemiological characteristics of the outbreak, and provide control and preventive measures.

Methods

A descriptive study was conducted with active case finding using an electronic-based questionnaire distributed to all students and teachers. Students and school staff were interviewed. Patients' medical records and school infirmary records were reviewed. Inspection of the school canteen, the water supply system, toilets, and hand washing facilities, as well as observation of personal and food hygiene practices among food handlers were done. A retrospective cohort study was also conducted. The dependent variable was defined as either a suspected or confirmed case. The main independent variable was defined as being exposed to school canteen. Other covariates were gender, age, occupation, and hygiene behaviors. Univariable and multivariable logistic regression models were performed.

Results

Among 3,654 school personnel and students, 684 cases were identified, combining survey respondents and addi- tional interviewees (food handlers and other staff) and therefore the overall attack rate was 18.7% (684/3,654). Most cases were students (95.9%). Thirteen samples from random rectal swabs of cases were positive for rotavirus, with some being identified as genotype G3P[8]. Being exposed to the school canteen was a significant risk factor (adjusted odds ratio (AOR) 2.35, 95% confidence interval (CI) 1.23-4.52) and bringing own drink was a protective factor (AOR 0.67, 95% CI 0.50-0.88). Contaminated groundwater supplying the canteen for cooking and washing was the most likely source. Lack of water treatment system was observed.

Conclusions

This study emphasized the effect of unsafe drinking water as a public health hazard. We recommended routine water quality testing and installation of groundwater treatment to ensure water supply safety.

An acute gastroenteritis outbreak following a wedding feast in a rural area of western Nepal, December 2022

Thursday, 14th September - 14:30: (Marie Reay 5.02) - Long Oral

Mr. Hem Raj Pandey [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Ananad Ballabh Joshi*** [3], ***Dr. Rabin Gautam*** [4], ***Dr. Mona Pradhan*** [4], ***Dr. Pranit Sharma*** [4], ***Dr. Yadu Chandra Ghimire*** [5]

1. *Senior Public Health Officer, Health Office Pyuthan, Lumbini Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Public Health and Infectious Disease Research Center, Kathmandu,* ***4.*** *World Health Organization (WHO), Nepal,* ***5.*** *Director, National Health Training Center, Teku, Kathmandu and Course Director, FETP Nepal*

Background

Wedding feasts in rural areas of Nepal often overlook food hygiene and serve food for a longer duration. On December 5, 2022, Pyuthan hospital in western Nepal, notified 37 acute gastroenteritis (AGE) cases, to the district public health office. All cases attended a wedding feast in a rural area on December 3, 2022. We investigated the event to determine the source of the outbreak.

Methods

We conducted a cross-sectional study among the wedding feast attendees from December 5 to 12, 2022. We defined an AGE case if any attendee experienced diarrhea or vomiting or abdominal pain from December 3-7, 2022. Attendee without symptoms was categorized as non-case. We interviewed the attendees and people involved in food preparation using a semi-structured questionnaire. We tested water samples for bacteriology. We calculated the odds ratio (OR) and adjusted odds ratio (AOR) with a 95% confidence interval (95% CI).

Results

Among 179 attendees interviewed, 84% had acute gastroenteritis and 16% had no symptoms. Median incubation period was 24 hours (range:10-64 hours). Median age for cases was 30 years (range:2-79 years) and 53% were female. Common symptoms were diarrhea (92%), abdominal pain (89%), fever (79%), and vomiting (43%). Bivariate analysis showed that salad (OR: 8.2, 95% CI: 3.5-19.4), vegetable curry (OR: 5.4, 95% CI: 2.31-12.4), and legume pakora (OR: 4.5, 95% CI: 2.0-10.4) had statistically significant association with AGE. After adjusting vegetable curry and legume pakora we found salad (AOR:4.6, 95% CI: 1.7-12.1) was significantly associated with AGE. Salad ingredients were washed in stored water and salad was served for >10 hours. Laboratory investigation of water samples showed coliform count >200/100 ml.

Conclusions

Consumption of contaminated salad was probably the source of the outbreak. Washing salad items in contaminated water and serving for a long duration could be the source of contamination. We recommended washing vegetables in clean water and preparing salad in batches to avoid serving for longer duration.

Long Oral Presentations: Leprosy and Tuberculosis

Fluctuating new case detection & poor detection through contact survey over five years in Tiruvallur district, Southern India, April 2017-March 2022: Need to revisit case search strategies of leprosy programme

Thursday, 14th September - 13:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Sridevi Govindarajan [1], ***Dr. Vasanthi Thangasamy*** [2], ***Dr. Manickam Ponnaiah*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai,* **2.** *Deputy Director (Leprosy), Tiruvallur District, Tamil Nadu*

Background

Annual new case detection rate (ANCDR) per 100,000 population is a key indicator in India's National Leprosy Eradication Programme (NLEP). In the Tiruvallur district of Tamil Nadu State, ANCDR remained static and was above State or National levels since 2011. In the absence of district-specific analysis for action, we described the distribution of ANCDR by time, place, and person during 2017-2022.

Methods

We extracted data on age, gender, community, type of leprosy, deformity, and mode of detection of new cases from programme registers for fiscal years 2017-2022. We calculated ANCDR based on new cases detected and year-specific population denominators projected based on 2011 census data by age group, gender, community, and residence. We computed rates by type of leprosy, grade 2 deformity (per million), and mode of detection.

Results

During 2017-22, district reported 842 new cases. ANCDR ranged from 7.5 (2017-18) to 5.5 (2021-22). ANCDR was more in three border sub-districts (Range 16-21), rural area (Range 4.2-9.2), among tribals (Range 17.6-96.8), males (Range 3.4-7.7) and those aged 15-60 years (Range 4.9-6.2). Multi-bacillary leprosy ANCDR was more in rural area (19.9), among males (16) and 15-60 years age group (14.9). Pauci-bacillary was more in urban area (14.7), females (11) and <15 years age group (18.6). Detection rate by active case search was more in urban area (13.6) and among tribals (206.8), young children (16.6) and females (8.7). Voluntary reporting was predominant in rural areas (17.9). Grade 2 deformity (per million) was more in urban (2.0) area and among tribals (26.3), 15-60 years age group (1.6) and males (1.7). Detection among case contacts through surveys remained low (Range 0.4-2.3) across years.

Conclusions

Five-year district-level NLEP data indicated fluctuating ANCDR, poor detection through contact surveys, and higher rates in males, the 15-60 age group, and rural and tribal populations. This situation calls for a review of NLEP's case search strategies.

Investigation of leprosy cases in Lumbini Province, Nepal, 2022

Thursday, 14th September - 13:45: (Marie Reay 5.03 and 5.04) - Long Oral

Ms. Pushpa Thapa [1]***, Dr. Mallick Masum Billah*** [2]***, Mr. Babu Ram Bhusal*** [3]***, Dr. Yadu Chandra Ghimire*** [4]

1. *Senior Public Health Officer, Health Office Arghakhanchi, Health Directorate, Lumbini Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Senior Public Health Officer, National Health Training Center, Teku, Kathmandu,* ***4.*** *Director, National Health Training Center, Teku, Kathmandu*

Background

Nepal achieved leprosy elimination (<1/10,000 population) at national level in 2010. Leprosy Control Program has set the goal to eliminate leprosy at sub-national levels and provides training to health workers of non-eliminated districts. In Nepal, leprosy patients from the community usually visit local health facilities, also known as health posts, where paramedics perform screening, provide initial management, reporting and referral. We evaluated leprosy diagnosis and reporting by health posts of Arghakhanchi district of Lumbini province, Nepal.

Methods

We conducted a cross-sectional study from January 19-25, 2023. Leprosy cases were defined as any patient reported by routine surveillance from Arghakhanchi district in 2022, having hypopigmented skin patches with loss of sensation, and/or thickened peripheral nerve with loss of sensation, and/or weakness of muscles supplied by that nerve. After taking verbal consent and ensuring privacy, we interviewed cases using semi-structured questionnaire. We calculated the median delay of leprosy reporting both from date of onset of symptoms and date of first visit to health post.

Results

Five leprosy cases were reported in Arghakhanchi (<1/10,000 population), from four different municipalities in 2022. Among them, 4 (80%) were male, and median age was 55 years (range: 40-60 years). All cases were multi- bacillary type**.** During investigation, 4/5 (80%) gave consent for interviews. None of the cases were aware of leprosy symptoms. Median delay in reporting from onset of symptoms was 25.5 months (range: 3-36 months), where median delay due to misdiagnosis was 19 months (range:1-26 months). All 4 (100%) cases were misdiagnosed as skin allergy, nerve related disease, or fungal infection by paramedics of health posts in the initial stage.

Conclusions

Although the district achieved leprosy elimination, our evaluation revealed low reporting might be due to misdiagnosis by paramedics working at health posts. Leprosy Control Program should organize leprosy trainings for paramedics of health posts in Arghakhanchi district.

Epidemiology and outcomes of Drug-resistant Tuberculosis cases notified in a low resource district in Kerala, India 2017-2021

Thursday, 14th September - 14:00: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Raman Swathy Vaman [1], ***Dr. Madhanraj Kalyanasundaram*** [1], ***Dr. Manoj Murhekar*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai*

Background

Kasaragod district reports the highest Drug-resistant Tuberculosis (DR-TB) case notification rates in Kerala. We conducted a cross-sectional study in Kasaragod to describe the DR-TB cases notified from January 2017 to December 2021 and to identify the factors associated with unfavourable treatment outcomes in DR-TB patients.

Methods

We analyzed data from "Nikshay portal" (a web-based patient management system for TB under National TB Elimination Program), DR-TB treatment cards and treatment registers for all the DR-TB patients notified during the study period. We described DR-TB cases by year, local self-government area (the local administrative set up), age, gender, income level and by treatment outcomes. We compared sociodemographic and clinical factors among the DR-TB patients with favorable (cured and treatment completed) and unfavorable (died, lost to follow up and treatment failure) treatment outcomes.

Results

During January 2017 to December 2021, 128 DR-TB cases were notified. Annual notification rates varied from 1.4 to 3.4 per 100,000 population with highest notification in 2019. The notification was higher in inter-state border areas and coastal belt of the district. The notification was highest among 45-59 years age group (17/100,000) followed by ≥60 years age group (11/100,000). Males and those living below poverty line had higher notification rates. Among the outcome evaluated patients, 78% (81/104) had favorable treatment outcome and 16% (14/104) died. Age more than 45 years at diagnosis (OR=3.4, 95%CI 1.2-11), occurrence of adverse drug reactions (ADRs) during treatment (OR=5, 95%CI 1.5-17) and hospitalization for at least two times during treatment (OR=7.3, 95%CI (2.2-24.5) were significantly associated with unfavourable treatment outcomes.

Conclusions

The DR-TB notification is increasing over the years with increase in drug sensitivity testing. Though the district has acceptable treatment outcomes, we recommend prompt management of ADRs, strengthening trans-border TB activity monitoring and further spatio-epidemiological study to ascertain the reasons for concentration of cases in coastal areas.

Evaluation of the Drug-Resistant Tuberculosis (DR-TB) management component under the National Tuberculosis Elimination Programme (NTEP) in Kasaragod district, Kerala, India 2021-2022

Thursday, 14th September - 14:15: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Raman Swathy Vaman [1], ***Dr. Madhanraj Kalyanasundaram*** [1], ***Dr. Manoj Murhekar*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai*

Background

The DR-TB programme was initiated in 2007 in Kerala and has rapidly evolved over the years. We evaluated the DR-TB component of NTEP in Kasaragod district in Kerala with the highest DR-TB notification rates, to understand how the programme was performing in screening, diagnosis, treatment, and follow-up of notified DR-TB patients during 2021-22.

Methods

We used a mixed methods study design. Using the logic framework model, we divided the DR-TB programme components into three arms: Screening and diagnosis, Treatment and follow up and Programme management. We developed input, process, output, and outcome indicators for all the arms. We conducted facility surveys and analyzed the programmatic data to calculate the indicators. We also conducted in-depth stakeholder interviews to enrich the survey data.

Results

Overall, 70% (344/494) of microbiologically confirmed TB patients notified were tested for drug sensitivity to at-least Rifampicin and 30 DR-TB patients were identified. All were initiated on appropriate regimen within seven days of notification. The favourable treatment outcome (cured and treatment completed) was 74%. Only 2% (1/64) private hospitals had a designated microscopy centre, and no established sputum transport mechanism existed for drug sensitivity testing. There was no separate district DR-TB treatment centre with airborne-infection control facilities, and only 16% (66/422) of field staff were trained on the recent guidelines. Only 30% (9/30) of DR-TB patients were provided with any psychological assessment. Interviews revealed poor readiness and motivation from the private sector for screening, contextual barriers in human resource availability, transportation, and financial barriers to the beneficiary despite providing financial benefits and local-level problem-solving.

Conclusions

The district has acceptable levels of screening and treatment outcomes. The district should prioritize establishing a district DR-TB treatment centre and sputum transport mechanism, private sector engagement for screening, clinical psychologist support to patients and training of all categories of staff on DR-TB management guidelines.

Predictive Factors for Drug Resistant Tuberculosis (DR-TB) - A Rising Concern in Kuala Lumpur, Malaysia

Thursday, 14th September - 14:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Rosvinder Singh [1], ***Dr. Rohani Ismail*** [1], ***Dr. Sunita Abdul Rahman*** [1], ***Dr. Amin Sah Ahmad*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

The global trend of DR-TB has been on the rise since 2015. The incidence of DR-TB in Kuala Lumpur and Putrajaya was the 2nd highest in Malaysia at 2.57 per 100,000 population in 2021. DR-TB impacts current public health TB control programs and incurs high costs on health expenditure. The objective was to analyze the epidemiological characteristics and determine risk factors associated with DR-TB in Kuala Lumpur and Putrajaya to aid in the planning for control measures.

Methods

A cross-sectional study was conducted using DR-TB data from the National TB registry from 2017 to 2021. Factors such as sociodemographic characteristics, comorbidities, smoking status, TB diagnosing facility, and direct observation treatment (DOT) were analyzed. A multivariate analysis using a logistic regression model was performed to analyze significantly associated factors.

Results

A total of 162 DR-TB cases were analyzed. The incidence of DR-TB increased by 3 folds from 0.9/100,000 in 2017 to 2.57/100,000 in 2021. The incidence was highest among the 15-24 years age group, males, foreigners, and other ethnic groups. Acquired DR-TB which attributed to disruptions in TB treatment accounted for 61% of the total DR-TB cases. Multivariate analysis found that the 35-44 age group (OR=2.25), smoking (OR=1.94), TB diagnosed at a government clinic (OR=2.81), and diabetes (OR=1.92) were significantly associated with DR-TB. DOT by family members (OR=0.15), and by NGO (OR=0.14) was found to be protective against DR-TB.

Conclusions

Special intervention needs to be done to address the increasing trend of DR-TB in Kuala Lumpur and Putrajaya particularly among those in working age groups, smokers, and diabetic individuals.

To further improve TB treatment adherence, DOT by NGOs and family members can be applied as a strategy to combat DR-TB in Kuala Lumpur and Putrajaya.

Long Oral Presentations: Infection Prevention and Control

Knowledge, attitude, practices of face mask usage among the residents of Kannur District, Kerala, India, 2021-22

Thursday, 14th September - 15:30: (Manning Clark Hall) - Long Oral

Dr. Sachin Kuthirummal Chirammal [1], ***Dr. Sharan Murali*** [2], ***Dr. Rubeshkumar Polani*** [2], ***Dr. Manikandanesan Sakthivel*** [2], ***Mr. Vettrichelvan Venkatasamy*** [2], ***Mr. Chokkalingam Durairajan*** [2], ***Dr. Preetha Muduvana*** [1], ***Dr. Prabhdeep Kaur*** [2]

1. *Directorate of Health Services, Kerala, India,* ***2.*** *ICMR - National Institute of Epidemiology, Chennai*

Background

The Government of Kerala mandated wearing face masks in public places as a mitigation strategy to combat the COVID-19 pandemic. We assessed the knowledge, attitude, and practices (KAP) of adults (>18 years) towards face mask usage in Kannur, Kerala, India, 2021-22, and compared the results of both rural and urban settings.

Methods

We conducted a cross-sectional survey in December 2023 among the residents of Kannur District, Kerala, using multistage sampling with a calculated sample size of 200 each for urban and rural settings. Trained data collectors interviewed one selected adult (≥18 years of age) to assess the KAP towards face mask usage from each selected household. We collected data using an ODK tool and summarized the findings in percentages using complex sample frequencies in Epi Info v7.2.5.0.

Results

Four-fifths (346/400, 86%, 95% CI: 82 - 89) of the participants agreed that wearing a face mask helps reduce the spread of COVID-19. About 55% of the rural (110/200, 95% CI: 47 - 62)) and urban (109/200, 95% CI: 47 - 62) participants felt forced to wear masks. However, ninety-five percent of rural (189/200, 95% CI: 90-97) and ninety-six percent of urban (192/200, 95% CI: 92-98) wore face masks while stepping out of their homes. Participants reported that face masks disrupt their breathing (229/400, 57%, 95% CI:52-62) and conversations (171/400, 43%, 95% CI: 38-48)

Conclusions

We found that the knowledge and practice of mask use among the residents of Kannur were high. However more than half of the participants felt that they were forced to wear masks. We recommended exploring innovative ways of spreading awareness about the importance of wearing masks, so that the residents continue to wear masks even after the removal of compulsory mask usage mandate.

Difficulties preventing transmission of SARS-CoV-2 in high-risk hospital settings during periods of high community transmission — Canberra, Australia, 2022

Thursday, 14th September - 15:45: (Manning Clark Hall) - Long Oral

Mrs. Jenna Hassall [1], ***Dr. Anna Lieschke*** [2], ***Dr. Robyn Hall*** [3], ***Dr. Timothy Sloan-Gardner*** [4], ***Prof. Martyn Kirk*** [1], ***Mr. Matthew Griffith*** [1], ***Dr. Benjamin Schwessinger*** [1], ***Prof. Karina Kennedy*** [2]

1. *The Australian National University,* ***2.*** *Canberra Health Services,* ***3.*** *ACT Health Directorate,* ***4.*** *ACT Health Department*

Background

Later in the COVID-19 pandemic, a major Canberra hospital had adopted improved infection control measures, enhanced surveillance of patients, healthcare workers (HCWs) and visitors with second daily rapid antigen tests (RATs) and universal mask use. We investigated a COVID-19 outbreak within the hospital to understand drivers of transmission while these enhanced measures were in place.

Methods

We defined a confirmed case as someone positive for SARS-CoV-2 by nucleic acid amplification test (NAAT) and probable case as someone positive by RAT. Both definitions required positive test and epidemiological links to the outbreak setting between 7–30 June 2022. We tested all contacts, and all patients and HCWs present between 18–22 June 2022 by NAAT. We reviewed contact tracing, clinical records, and measures in place to prevent transmission. We conducted viral genomic sequencing to prepare phylogenetic trees and identify genomic clusters. We analysed data descriptively as at-risk totals were unavailable.

Results

There were 29 COVID-19 cases in this outbreak, including 18 patients, seven HCWs and four visitors. The median age was 65 years (IQR 39–74), 59% (17/29) of cases were male, 75% (22/29) of cases had ≥3 COVID-19 vaccine doses and 52% (15/29) of cases were asymptomatic. For patient cases, 66.7% (12/18) were not detected via enhanced surveillance but positive by NAAT, and 94% (17/18) were clustered in shared rooms when exposed. Genomic analysis revealed four genomic singletons, four genomic clusters and transmission to HCWs despite appropriate personal protective equipment. We observed some visitors removed their masks to eat, drink or speak whilst in close, prolonged contact with patients.

Conclusions

Potential drivers of transmission included asymptomatic infections, sharing a room and mask non-compliance; drivers were exacerbated by ineffective surveillance testing. We recommended the hospital rely on the most sensitive, practicable diagnostic methods for surveillance testing protocols and the correct, consistent use of masks.

Factors associated with prevention of COVID-19 outbreaks in Nursing care facilities: South Korea in 2022

Thursday, 14th September - 16:00: (Manning Clark Hall) - Long Oral

Mr. Geehyuk Kim [1], ***Mr. Yeong-Jun Song*** [1], ***Ms. Mi Yu*** [1], ***Mr. Hanul Park*** [1], ***Ms. Hye Young Lee*** [1], ***Mr. Sang-Eun Lee*** [1], ***Mr. Young-Joon Park*** [1], ***Dr. Sangwoo Tak*** [1]

1. *COVID-19 Central Disease Control Headquarters, KDCA*

Background

During COVID-19 pandemic, the incidence of COVID-19 infections in nursing care facilities was high, and the mortality was higher than other community facilities. We examined those nursing care facilities without COVID-19 outbreaks to identify the facility level characteristics that are associated with prevention of outbreaks.

Methods

We used a structured questionnaire to survey nursing care facilities nationwide and collected facility level information. Information on facility included size, building type, ventilation and air-conditioning method. Additionally, information on infection control room, dedicated personnel and regular diagnostic testing was also collected. An adjusted odds ratio (aOR) for each factor and 95% CI were estimated by logistic regressions. A stratified analysis was also conducted for selected variables.

Results

The year of establishment facilities (more or less 5 years) were 1.27 times (95% CI=1.13-1.33) more effective at preventing COVID19 outbreaks than those established before 2017. And exclusive buildings were 1.11 times (95% CI=0.98-1.26) more effective than non-exclusive buildings. In the case of having an air purifier, the preventive effect was 1.39 times higher (95% CI=1.21-1.6). In sequence, the larger the institution size, the higher the prevention effect on air conditioner, ventilation method, air purifiers, building type (combined with other business or standalone), and dedicated personnel. Building type has the greatest effect on outbreaks prevention (aOR=1.44; 95% CI=1.26-1.64), followed by facility type (nursing home or nursing hospital) (aOR=1.25; 95% CI=0.90-1.73), air purifier (aOR=1.18; 95% CI=1.00-1.38), and year of establishment (aOR=1.05; 95% CI=0.92-1.2) in order.

Conclusions

We found that a few facility characteristics are highly associated with the prevention of COVID-19 outbreaks. The effect becomes much larger as the scale increases. In trying to improve the infection control, nursing care facilities may consider enhancing ventilation system including local air purification and keeping the infections from being imported through the building space shared with the public.

Infection Control Practice in Companion Animal Clinics in Japan

Thursday, 14th September - 16:15: (Manning Clark Hall) - Long Oral

Dr. Tomimasa Sunagawa [1], Dr. Natsu Sudani [1], Dr. Takahisa Shimada [1], Dr. Tomoe Shimada [1], Dr. Ken Maeda [1]

1. *National Institute of Infectious Diseases*

Background

After the vector-borne and zoonotic infectious disease of severe fever with thrombocytopenia syndrome (SFTS) emerged, companion animal veterinarians exposed to SFTS virus-infected cats in clinical settings have been re- ported in Japan since 2018. How veterinary personnel in Japan perform infection prevention and control (IPC) measures is not clear. We aimed to describe the use of personal protective equipment (PPE) among veterinarians and identify potential hindrances to improving IPC practices in clinical settings.

Methods

We conducted a cross-sectional study via online questionnaire survey of veterinarians through the website of the Japan Veterinary Medical Association in Japan in November 2021. Questions included use of PPE (e.g., gloves, gowns) in clinics, reasons for using or not using PPE, training in PPE practices, and infection with zoonotic diseases due to occupational exposure.

Results

The questionnaire was completed by 228 veterinarians of whom 98% worked in animal clinics. The proportion of responses by companion animal veterinarians was estimated at 2.6%. Only 11% and 4% of respondents reported that they "always" or "often" wear gloves and gowns in their practice, respectively. Main selected reasons for not wearing PPE were "lack of need", "potential discomfort to the owner", "cost", and "hindered palpation especially wearing gloves". Among the respondents, 13% received training on donning and doffing PPE, and 13% reported becoming infected with zoonotic diseases during their clinical practice.

Conclusions

Due to the low proportion of responses, the results might not be representative. Nonetheless, the present study suggested that infection control measures involving wearing of PPE among veterinarians are inadequate and that a reasonably high proportion of veterinarians contracted zoonotic diseases during clinical practice. To improve this situation and reduce the risk of veterinary occupational infection, it is critical to educate and train veterinarians, and efforts to gain understanding of animal owners about IPC practices are also needed.

Assessment and Strengthening of Biosecurity Practices of Swine Farms in Bais City, Negros Oriental

Thursday, 14th September - 16:30: (Manning Clark Hall) - Long Oral

Dr. Melanie Pescadilla [1]

1. *City Veterinarian,City of Bais*

Background

African Swine Fever has devastated the swine industry worldwide. Ways to prevent and control outbreaks such as the implementation of biosecurity measures should be given utmost priority. Bais City is ASF-Free but the risk is high due to its proximity to ASF affected areas and the existence of pork-products that are shipped in/out from these areas. This study aims to assess the biosecurity practices of smallholder swine farms in Bais City and to identify interventions to strengthen biosecurity and prevent ASF.

Methods

A total of 1,891 small hold farms (1-20 heads population) based on 2022 survey were used as the key study population. A cross-sectional survey was used for data collection with 323 respondents from 35 villages. Enumerators were 48 Village-Based Nutrition Workers who were deputized and trained as Barangay Biosecurity Officers. A socio-demographic questionnaire and biosecurity toolkit, including a matrix to determine biosecurity scores, developed by Philippine College of Swine Practitioners, translated into local dialect was used. The data was analyzed using descriptive data analysis.

Results

The biosecurity score of Bais is 0. Majority of the respondents had no movement and facility biosecurity measures, located within 500 meters from the nearest farm and do not maintain records of mortality and visitors' logs. Bais farms are at high risk for transboundary animal diseases.

Conclusions

Policy on biosecurity measures should be prioritized by the government. A comprehensive and simplified Biosecurity tool for all animals needs to be developed for the prevention of animal diseases adaptable to the cultural practices of smallholder farmers with due consideration to their socio-economic profile regardless of disease or species through a participatory evidenced-based approach. Village-based Health Workers can augment the veterinary workforce in surveillance and advocacy activities.

Long Oral Presentations: Miscellaneous Diseases

Mothers receiving adequate postnatal care and associated factors in rural Virudhunagar district, Tamil Nadu, India 2019 - A community based analytical cross-sectional study

Thursday, 14th September - 15:30: (Drama Theatre) - Long Oral

Dr. Vijay Krishnamoorthy [1], ***Dr. Santhosh Kumar Muthusamy*** [2]

1. *Directorate of Public Health and Preventive Medicine, Tamil Nadu,* ***2.*** *ICMR - National Institute of Epidemiology, Chennai*

Background

Tamil Nadu state had MMR of 66 per 100000 live births during 2017-18. In Virudhunagar district MMR during 2017-18 was 88 per 100000 live births of which 83% maternal deaths occurred during postnatal period. Rural part of Sivakasi Health Unit District (HUD) alone had MMR of 123 per 100000 live births. Government of Tamil Nadu recommends four postnatal visits at 1, 3, 7 and 42 days of delivery. Despite the implementation of large programs, emphasis on the provision of postpartum care and its evaluation was lacking. The objectives of this study were to es- timate the proportion of postnatal mothers received all four postnatal visits and to determine the factors associated with postnatal care in rural areas of Virudhunagar district, Tamil Nadu, India 2019.

Methods

We did an analytical cross sectional study with population proportion to the delivered mothers from each block in Sivakasi HUD. Then by consecutive sampling technique a total of 330 postnatal mothers after 42 days of delivery were selected as study participants. Data collected using ODK application with pretested structured questionnaire. Data were analysed using Epi-info.

Results

Proportion of postnatal mothers received all four postnatal visits was 11.5 and by skilled birth attendants (SBA) were 2.7, 21.2 and 10 on days 3, 7 and 42 respectively. Type of delivery with caesarean section (OR 2.9 [95% CI 1.3-6.6]) and duration of stay in the health facility after delivery < 5 days when adjusted for type of delivery (aOR 0.5 [95% CI 0.2-0.9]) were all significantly associated with postnatal visits of mothers.

Conclusions

Postnatal care received by mothers was inadequate with lack of postnatal visits done by SBA. Facility stay after delivery and type of delivery determines the postnatal visits. Interventions to improve the adherence of postnatal mothers to postnatal visits by SBA are required to further reduce MMR and improve maternal health.

Vulnerability to heat: a case-crossover study using emergency department presentations and hospital admissions – Victoria, Australia, 2014–2021

Thursday, 14th September - 15:48: (Drama Theatre) - Long Oral

Ms. Tilda Thomson [1], ***Ms. Daneeta Hennessy*** [2], ***Ms. Marion Easton*** [2], ***Ms. Vanora Mulvenna*** [2], ***Prof. Anthony Paul Stewart*** [1]

1. *The Australian National University,* ***2.*** *Victorian Department of Health*

Background

Several studies have demonstrated the effects of heat on human health, particularly mortality, and how individual and community level characteristics increase vulnerability to heat. In Victoria, Australia, heat health alerts are issued when the temperature forecast exceeds predefined thresholds. These alerts guide the implementation of organisational heat plans to mitigate the impacts of extreme heat. We aimed to describe the effect of high temperatures on morbidity at a state-wide level and identify if certain groups are more likely to require medical care.

Methods

A space-time-stratified case-crossover design and conditional logistic regression were used to examine whether certain characteristics were associated with heat-related and all-cause emergency department (ED) presentations and hospital admissions on days on or directly after heat health alerts were issued in Victoria, from 1 November 2014 to 31 March 2021. Odds ratios and 95% confidence intervals were calculated. Models controlled for public holidays.

Results

We observed an increase in heat-related ED presentations (OR 1.73, 95% CI: 1.53 – 1.96) and hospital admissions (OR 1.23, 95% CI: 1.16 – 1.30) on days on or directly after heat health alerts were issued. Increases in heat-related ED presentations were highest for those aged 65 years or older. A significant increase in heat-related hospital admissions was not observed for those aged under five years or residents of aged care facilities, however there was a small but significant increase in all-cause ED presentations for those aged under five years (OR 1.02, 95% CI: 1.01 – 1.03).

Conclusions

Findings confirm that increases in morbidity occur when the temperature is above the heat health threshold and describe which population groups are more or less likely to require healthcare in hospital on days with high temperatures. They inform the development of a heat health surveillance system in Victoria and support data-driven adaptation strategies including targeted messaging for vulnerable groups.

Verification of a Suspected COVID-19 Outbreak at Tokyo 2020 Olympic and Paralympic Games Through Intelligence Activities

Thursday, 14th September - 16:06: (Drama Theatre) - Long Oral

Dr. Tomimasa Sunagawa [1], Dr. Keiko Tsukada [1], Dr. Kensuke Takahashi [1], Dr. Chiaki Ikenoue [1], Dr. Munehisa Fukusumi [1], Dr. Tomoe Shimada [1], Dr. Kanako Otani [1], Dr. Yusuke Kobayashi [1], Dr. Motoi Suzuki [1], Dr. Tomoya Saito [1], Dr. Tsuyoshi Sekizuka [1], Dr. Makoto Kuroda [1], Dr. Yura K Ko [2], Dr. Masato Yamauchi [3]

1. *National Institute of Infectious Diseases,* ***2.*** *Tohoku University Graduate School of Medicine,* ***3.*** *Japan International Cooperation Agency*

Background

During the Tokyo 2020 Olympic and Paralympic Games in 2021, Field Epidemiology Training Program (FETP)-Japan contributed to epidemic intelligence activities on highly concerning events relating to the games. Between July 22 and 23, three delegates from different countries of the same sport, staying at facility X tested positive by SARS-CoV-2 daily screening tests, and an outbreak among delegations in facility X was suspected. FETP-Japan rapidly verified this event and assessed its impact.

Methods

Cases were defined as games-related personnel staying at facility X during its operation (July 17–30, 2021) who tested positive by SARS-CoV-2 PCR test. FETP-Japan investigated this event using (i) screening test results provided by the games organizing committee, (ii) epidemiological information collected by local public health authorities, and (iii) the haplotype network analyzed by the Center for Pathogen Genomics in the National Institute of Infectious Diseases.

Results

Four asymptomatic cases occurred in three delegations of countries A, B, and C during the period. The four cases all arrived in Japan within four days before their tests and used the cafeteria and storage area common to facility X. The two cases from country C took the same flight and shared a room in facility X. Cases from countries A and B and the two cases from country C showed separate genome sequences of the delta strains, none of which were the dominant PANGO lineage in Japan. Identical genome sequences of the cases from country C suggested a common infection source between them.

Conclusions

Spread of infection across the delegations in facility X was denied through multi-source information analysis, which lowered the impact of this event on the games. Epidemic intelligence activities by FETP-Japan enabled rapid assess- ment of the event, which may have influenced games operation. Enhancement of epidemic intelligence is essential for rapid response at future mass gatherings.

Ambient Air Quality and Acute Respiratory Emergencies in Context of Air Pollution, Chennai, India, 2021-2022

Thursday, 14th September - 16:24: (Drama Theatre) - Long Oral

Dr. Nivethitha N [1], ***Dr. Santu Ghosh*** [2], ***Dr. Rameshwar Sorokhaibam*** [1], ***Dr. Tanzin Dikid*** [1], ***Dr. Aakash Shrivastava*** [1]

1. *NCDC,* ***2.*** *St. John's University, Bengaluru*

Background

Air pollution is one of the largest environmental threats to human health. Chennai is among the fastest-growing metropolitan cities in India. We estimated the incidence of acute respiratory emergencies (ARE) reported under National Programme on Climate Change and Human Health (NPCCHH) surveillance and assessed the association to air quality (Air Quality Index (AQI), particulate matter ($PM_{2.5}$, PM_{10})).

Methods

We did an ecological time series study; we acquired ARE data from sentinel tertiary hospitals during Jan 2021 – Oct 2022. We obtained air quality (AQI, $PM_{2.5}$, PM_{10}) and meteorological data from Central Pollution Control Board and Indian Meteorological Department. We calculated incidence as proportion of new ARE cases per 100 emergencies; semiparametric regression (generalized additive model, GAM) for association between acute respiratory emergencies and air quality, adjusted for non-linear confounders of time (seasonality), relative humidity and temperature. We used lag model for single-day lag effect until six days.

Results

The incidence of acute respiratory emergencies reported by sentinel hospitals was 17 per 100 emergency cases. Daily median ARE cases was 66 (IQR:36-85) and daily median $PM_{2.5}$, PM_{10} and AQI were observed to be 24 (IQR:4- 35), 56 (IQR:43-76), and 60 (IQR:46-78) respectively. The GAM model suggested that for every unit increase in AQI, the slope (b) of ARE was 0.002 ($p<0.05$), for unit (one mg/m^3) increase of $PM_{2.5}$, b was 0.004 ($p<0.05$), and unit (one mg/m^3) increase of PM_{10}, b was 0.002 ($p<0.05$) considering six single day lag on each exposure.

Conclusions

This model suggests that for 10 unit rise in AQI, $PM_{2.5}$, PM_{10}, ARE increased on the sixth day by 2%,4% and 2% respectively. Our data analysis generated local evidence to support acute effects of air pollution on respiratory morbidity. We recommended NPCCHH advisories to include hospital preparedness for six days following poor air quality days. Local administration was advised to strengthen air pollution mitigation activities.

Analysis of Mental Emotional Disorders based on SRQ after the Earthquake Disaster in Health Workers at the Nagrak Health Center, Cianjur Regency, December 2022

Thursday, 14th September - 16:42: (Drama Theatre) - Long Oral

Ms. Murti Utami Putri [1], ***Mr. Brema John Kristo Damanik*** [2], ***Prof. Asri C Adisasmita*** [3]

1. *FETP Universitas Indonesia,* ***2.*** *FETP Universitas Gadjah Mada,* ***3.*** *Department of Epidemiology, Faculty of Public Health, Universitas Indonesia*

Background

The earthquake that shook Cianjur Regency on November 21, 2022, happened in Nagrak Sub-district. 20 out of 38 health workers were affected by the disaster physically and mentally. However, they must keep providing health care services. This study aims to investigate the determinants of mental and emotional disorders in health workers at the Nagrak Health Center after the disaster.

Methods

This cross-sectional study involves all health providers in Nagrak Health Center (N=38). The data were collected using an SRQ questionnaire which consists of. 20 questions and a maximum of 20 scores. Mental Emotional Disorder was present if the SRQ score were >6. The analysis test used Fisher Exact and continued with Logistic Regression Analysis.

Results

Almost 95% of health workers feared aftershocks while working. Eight cases of mental-emotional disorders were found among 38 health workers based on SRQ. A total of 87.5% of cases of mental-emotional disorders were found in women. There is a relationship between feeling unhappy, and tired, having disturbing dreams about disasters, and difficulty expressing feelings with emotional and mental disorders (p-value <0.05). Based on the results of the logistic regression test, it is difficult to express feelings as the riskiest factor (0.15; 95% CI 0.03-0.84).

Conclusions

Most majority of women health workers experienced mental-emotional disorders. The highest risk factor is diffi- culty expressing feelings. It is important to provide professional psychological counseling service facilities to relieve health workers' emotional and mental conditions after the earthquake.

Long Oral Presentations: Reproductive Health

Survival analysis of people living with HIV between 1996 and 2021 in Jingzhou city, China

Thursday, 14th September - 15:30: (Marie Reay 5.02) - Long Oral

Mr. Maowen Lin [1], ***Dr. Yingxin Pei*** [1], ***Mr. Rui Liu*** [2], ***Mrs. Chun Sun*** [2], ***Dr. Zhihui Dou*** [3]

1. *China FETP, China CDC,* ***2.*** *Jingzhou CDC, China,* ***3.*** *China National Center for AIDS/STD Prevention and Control*

Background

HIV/AIDS has claimed millions of lives and remains a global public health problem. To prolong life of people living with HIV (PLWH), it is important to identify factors leading to death. Jingzhou is located in central China, with increasing PLWH in the past 15 years. We conducted a survival analysis of PLWH in the city.

Methods

The data of PLWH who were followed up regularly between1996 and 2021 was downloaded from the national HIV/AIDS information system. The survival curve was drawn with Kaplan-Meier method, and Cox proportional-hazards model was used to identify influencing factors of survival time.

Results

3304 PLWH were reported with 854 deaths. Death density was 6.81/100 person-years, decreased from 57.14/100 before 2004 to 4.17/100 in 2021. The cumulative survival rates of one, five and ten years were 82.83%, 72.73% and 63.46% respectively. Cox model showed that death risk of males (*aHR*=1.31, 95% *CI*: 1.11~1.54) was higher than that of females. Death risk of aged 45~59 years (*aHR*=1.61, 95% *CI*: 1.22~2.14) and over 60 (*aHR*=2.19, 95% *CI*: 1.60~2.99) was higher than that of aged 15~29. PLWH with baseline CD4 counts at 50~199 cells/mm^3 (*aHR*=0.39, 95% *CI*: 0.30~0.51), 200~349 (*aHR*=0.30, 95% *CI*: 0.23~0.39), 350~499 (*aHR*=0.28, 95% *CI*: 0.21~0.37) and >500 (*aHR*=0.25, 95% *CI*: 0.19~0.32) were at lower death risk than those with CD4 counts <50. Patients diagnosed in 2014-2017 (*aHR*=0.77, 95% *CI*: 0.65~0.92) and 2018-2021 (*aHR*=0.60, 95% *CI*: 0.49~0.72) had lower death risk than those diagnosed in 1996-2013. Death risk for PLWH without ART (*aHR*=8.41, 95% *CI*: 7.00-10.11) was higher than those with ART.

Conclusions

PLWH's survival time has increased significantly with the progress in HIV/AIDS policies. Four factors (gender, age at diagnosis, baseline CD4 counts, and ART) affected survival of PLWH. "Expanded testing" and "treatment upon diagnosis" should be continued and enhanced so as to prolong PLWH's survival.

Knowledge, Attitude and Practice of Commercial Sex Workers Regarding Cervical Cancer and its Screening, Daulatdia Brothel, Rajbari District, Bangladesh, 2020-2021

Thursday, 14th September - 15:45: (Marie Reay 5.02) - Long Oral

Dr. Md. Omar Qayum [1], ***Dr. Mohammad Rashedul Hassan*** [1], ***Dr. Alden Henderson*** [2], ***Dr. Mallick Masum Billah*** [3], ***Ms. Mehejabin Nurunnahar*** [1], ***Dr. Samia Afser*** [4], ***Prof. Tahmina Shirin*** [1]

1. *Institute of Epidemiology, Disease control and Research, Dhaka, Bangladesh,* ***2.*** *U.S. Centers for Disease Control and Prevention (CDC),* ***3.*** *Resident Advisor, FETP, Nepal,* ***4.*** *University of South Asia*

Background

Cervical cancer is the second most common cancer in females in Bangladesh. Two effective screening and prevention tools for cervical cancer are the Visual Inspection with Acetic Acid Test (VIA) and the human papillomavirus (HPV) vaccine. This study aims to assess the knowledge, attitude, and practice of commercial sex workers (CSW) residing in the largest and oldest brothels regarding cervical cancer and its screening.

Methods

A cross-sectional survey recruited 400 CSW living in Daulatdia Brothel, Bangladesh. Their knowledge and practice (KAP) scores were categorized as sufficient or insufficient using the median score as the cut-off point. Frequencies were calculated and binary logistic regression assessed the association between KAP scores and respondent's socio-demographic characteristics.

Results

Sixty percent of CSWs were between 29 to 35 years of age and 91% were divorced. Forty percent of the respondents had sufficient knowledge on cervical cancer and 12% knew that infection by HPV is a risk factor for cervical cancer. Higher educated respondents were more likely to have sufficient knowledge than the illiterate respondents (OR: 1.3; CI: 0.9, 2.1). CSWs aged 25-40 years were more likely have a VIA test than women in other groups (OR: 5.2; CI: 2.0, 13.5). Practices to prevent cervical cancer was very poor: 99% of the CSWs would advise other women to have a VIA test but only 7% had a VIA test and 2% were vaccinated for HPV. Unmarried sex workers were more likely to take actions to prevent cervical cancer.

Conclusions

CSWs in Daulatdia brothel have poor knowledge, attitude and practice of cervical cancer and its screening. The VIA test is underutilized, and HPV vaccine coverage is low.

Is Genital Chlamydia Disease Truly Increasing in Japan? — Results of a Surveillance Evaluation

Thursday, 14th September - 16:00: (Marie Reay 5.02) - Long Oral

Dr. Tomimasa Sunagawa [1], Dr. Hanae Ito [1], Dr. Takuya Yamagishi [1], Dr. Munehisa Fukusumi [1], Dr. Tomoe Shimada [1], Dr. Ayu Kasamatsu [1], Dr. Takuri Takahashi [1], Dr. Yuzo Arima [1], Prof. Hiroshige Mikamo [2], Dr. Mitsuru Yasuda [3], Dr. Motoi Suzuki [1]

1. *National Institute of Infectious Diseases,* ***2.*** *Aichi Medical University Hospital,* ***3.*** *Sapporo Medical University*

Background

Genital chlamydia disease has been under sentinel surveillance from approximately 1,000 sentinel sites since 1999 in Japan. Sentinel sites were designated by local governments, and surveillance data were aggregated monthly by sex and age groups. The data showed that the number of cases has been increasing in both sexes after 2018. We evaluated the surveillance system to ascertain whether the increasing trends in surveillance reflect the true trend of newly diagnosed genital chlamydia disease.

Methods

Guidelines for surveillance evaluation developed by the United States Centers for Disease Control and Prevention were used for this study with modification. For quantitative evaluation, we compared numbers of genital chlamydia disease reported by sentinel sites with the data from another independent study in four prefectures (two urban and two rural prefectures) between 2016 and 2021. For qualitative evaluation, we interviewed local public health officers, local infectious disease surveillance centers, and clinicians.

Results

The data on genital chlamydia disease in males well represented almost all age groups (R=0.7-0.9), whereas those in females showed poor representation, especially between females aged in their 10s and 30s (R=0.3-0.5). Because data for reporting were simple and took only 10 minutes to register, data quality was nearly perfect and acceptability by stakeholders was good. However, the public health centers did not analyze, interpret, or distribute the surveillance results. The sentinel sites were designated under consultation with the local medical associations and were subjected to change.

Conclusions

Fair representativeness of surveillance for male genital chlamydia disease suggests an increasing number of cases in Japan, which clearly shows the need for providing data and interpretations that can be utilized to enhance control measures including promotion of safe sex. Poor representation of surveillance of female genital chlamydia disease suggests the need for improvement in the design of the sentinel surveillance system including redesignation of sentinel sites.

Trends in late adolescent pregnancy: A retrospective analysis of routinely collected data during April 2016-March 2021 in Thanjavur district, Tamil Nadu, India

Thursday, 14th September - 16:15: (Marie Reay 5.02) - Long Oral

Dr. Elavarasan Mathivanan [1], ***Dr. Bhavani Shankara Bagepally*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai*

Background

Late adolescent pregnancy remains a significant global health challenge, with 12 million late adolescents (girls aged 15-19 years) giving birth each year in developing regions. Thanjavur district has a higher prevalence of late adolescent pregnancies (8.4%) than Tamil Nadu (6.3%) and India (6.8%), making it a focus of study. Our study aimed to describe the trend and variations in late adolescent pregnancy from April 2016 to March 2021 in the Thanjavur district.

Methods

We extracted data from the pregnancy and Infant Cohort Monitoring and Evaluation (PICME ver 2.0) web portal and Reproductive and Child Health (RCH) registers, capturing details of all registered late adolescent pregnancies from April 2016 to March 2021. We did a descriptive cross-sectional analysis of late adolescent pregnancies using the Adolescent Fertility Rate (AFR) as the indicator (with category-specific estimated populations as denominators). The data was analysed to map the AFR across various geographic and social settings.

Results

Of the 1162 registered late adolescent pregnancies, 1102 were included in the study. The AFR in Thanjavur district increased from 1 to 3 per 1000 women aged 15-19 years from 2016-2021. Five of 14 health blocks had higher AFR than the district average during April 2016 to March 2021. AFR increased from 1 to 4 per 1000 women aged 15-19 years in the Muslim community and from 1 to 3 per 1000 women aged 15-19 years in the Scheduled Caste community. AFR was 1 and 3 per 1000 women aged 15-19 years for urban and rural areas, respectively

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Conclusions

Increase in AFR was not uniform in different communities and health blocks, which may be due to a lack of education, economic opportunities, and cultural differences faced by marginalized groups. We used registered adolescent pregnancies, which may underestimate AFR. Our study highlights the need to explore and understand factors influencing late adolescent pregnancies in Thanjavur district.

Profile and determinants of adolescent pregnancy in a South Indian district: A cross sectional analysis of program data between 2017 and 2022

Thursday, 14th September - 16:30: (Marie Reay 5.02) - Long Oral

Dr. Ashok Periyasamy [1], ***Dr. Jeyashree Kathiresan*** [1], ***Dr. Vineet K Kamal*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai*

Background

Globally, 21 million adolescent girls become pregnant and half of them give birth every year. Adolescent pregnancy is considered as a high-risk and high-cost event. The National Family Health Survey-5, India, showed that 6.8% of adolescent girls have ever been pregnant. Our objective was to estimate the burden and describe the distribution of adolescent pregnancy in a district where the burden is higher (7.7%) than national and state averages.

Methods

We analyzed the routine program data on pregnant mothers between 2017 and 2021 from the database of Pregnancy Infant Cohort Monitoring & Evaluation (PICME) of the district. We calculated proportion of pregnancies that had occurred among adolescent girls. We compared the socio-economic characteristics and maternal mortality ratio (per 100,000 live births) between adolescent and adult (>19 years) pregnant women.

Results

Of the 36,894 mothers registered under the program, 4769 (13%) were adolescents. The proportion of adolescent pregnancy had increased from 7% (2017) to 15% (2021). The adolescent pregnancy rate per 10000 adolescent girls had increased from 46 (2017) to 113 (2021). Proportion of adolescent pregnancy was similar in all blocks within the district. We found that adolescent pregnancy is significantly higher among the women who belongs to lower socio- economic status (p-<0.001), Hindu by religion (p-<0.001), backward caste(p-<0.001) & rural residence (p-<0.001). The Maternal Mortality Ratio (MMR) among adolescent girls was 84 per 100,000 live births whereas MMR for the adult women was 16 per 100,000 live births.

Conclusions

There is an increasing trend in adolescent pregnancy over the five-year period. We found that higher proportion of adolescent mothers were from the lower socio-economic status, Hindu religion, backward Caste & Rural residence. There is a need to evaluate the implementation and evaluation of programs aimed at reducing adolescent pregnancies in the district.

Long Oral Presentations: Children's Health

Prevalence and patterns of Low-Birth-Weight babies born in Theni district, Tamil Nadu, India from 2018-2022 - A Descriptive Cross-sectional study

Thursday, 14th September - 15:30: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Kartik Palaniappan [1], ***Dr. Bocso Raja*** [2], ***Dr. Rajanandhini Tharmalingam*** [3], ***Dr. Devika S*** [1], ***Dr. Madhanraj Kalyanasundaram*** [1]

1. *ICMR - National Institute of Epidemiology, Chennai,* ***2.*** *Theni Health Unit District, Tamil Nadu,* ***3.*** *Aruppukottai Municipality, Virudhunagar District*

Background

Low birth weight (LBW) is one of the leading causes of morbidity and mortality among children. A health situation analysis done in the Theni district, Tamil Nadu, India, at the end of 2022 revealed an increasing trend in the preva- lence of LBW for the past five years. Hence, to explore further, we conducted a cross-sectional study to describe the proportion of LBW babies by block level, mother's age, and selected maternal clinical characteristics/risk factors using the available data from 2018-2022.

Methods

We analysed the data from PICME (Pregnancy Infant Cohort Monitoring and Evaluation) for 2018-21 and HMIS (Health Management Information System) for 2022. Data were retrieved and cleaned in Excel and analysed using Epi info. We cleaned 86455 entries (excluding the entries with no birth weight data), and the final analysis was done with 78082 entries.

Results

The prevalence of low birth weight was 16.3%, and more than 1% of the babies were very low birth weight (VLBW). Trend analysis revealed that the proportion of LBW babies had been increasing since 2018, with a marginal dip on 2022 and the VLBW proportion consistently increasing since 2018. A block called *Kadamalaikundru* has a higher prevalence of LBW babies than any other block in all five years. The proportion of LBW was higher among teenage mothers and elderly mothers. Among the studied clinical characteristics/risk factors, twin pregnancy (85%), bronchial asthma during pregnancy (30%), maternal underweight (24%), elderly primi (23.8%), and pregnancy- induced hypertension (23.8%) emerged as the toppers.

Conclusions

There is a continuous increase in the prevalence of VLBW babies in the Theni district, Tamil Nadu, India. One specific block, "*Kadamalaikundru,*" also showed consistently high prevalence. There is a need for further studies to evaluate the functioning of the RMNCH-A (Reproductive, Maternal, Newborn, Child, and Adolescent Health pro- gram) in the study district.

Profile and outcome of newborns seeking care at "Special Newborn Care Unit" - District Hospital, Kalahandi, Odisha, 2020-2021

Thursday, 14th September - 15:48: (Marie Reay 5.03 and 5.04) - Long Oral

Mr. Dayasis Sahu [1], ***Ms. Smitamayee Sahu*** [2], ***Dr. Quincy Mariam Jacob*** [3], ***Dr. Sharan Murali*** [4], ***Dr. Bhabani Sankar Sahoo*** [5], ***Dr. Arghya Pradhan*** [6]

1. *FETP Intermediate Scholar, Indian Council of Medical Research - National Institute of Epidemiology, Chennai, Tamil Nadu, India,* ***2.*** *Scholar, Shri Venkateshwara University, Uttar Pradesh, India,* ***3.*** *Indian Council of Medical Research - National Institute of Epidemiology, Chennai,* ***4.*** *ICMR - National Institute of Epidemiology, Chennai,* ***5.*** *Deputy Manager Reproductive & Child Health, Kalahandi, Government of Odisha, India,* ***6.*** *Joint Director of Health Services, Government of Odisha, India*

Background

Facility-based interventions can reduce neonatal mortality by 50%. Considering this, the government of Odisha has established Special Newborn Care Units (SNCU) at the district level. However, routine analysis and monitoring of the SNCU data for action is rarely done. The present study described the neonatal admissions in the SNCU, Kalhandi, Odisha, from 2020 to 2021 by time, place, and person and also estimated the quality of care delivered by the same.

Methods

We conducted a cross-sectional descriptive study of all newborns who received care at SNCU, Kalahandi, using the data from the SNCU online database for 2020 - 2021. Data obtained included age, gender, birth weight, admission type, gestational age, outcome, and details of community follow-up. We calculated the SNCU Quality of Care Indices (SQCI) as per the guidelines. We summarized the key findings as proportions and the SQCI as scores. We used MS Excel for data cleaning and analysis.

Results

We included 4,565 neonates admissions, of which 2,586 (57%) were inborn. The majority (n=4063, 89%) were from Kalahandi and were males (n=2374, 52%). The trend in admission remained the same all months of the year. Adjacent blocks Bhawanipatna (n=1004, 22%) and Junagarh (n=593, 13%) contributed to the maximum admissions. Nearly 75% (n=3424) were full-term deliveries, and half (n=2054, 45%) had low-birth weight. Perinatal asphyxia was the most common morbidity (36%), followed by neonatal Jaundice (16%). Around 12% (n=527) of the admissions reported death as an outcome. Mortality was higher among admissions with birth asphyxia (38%) and among out-borns (55%). The composite SQCI score corresponded to satisfactory care (0.54 - 0.70)

Conclusions

Management of birth asphyxia at the peripheral centers will need to be improved. We must conduct a detailed program evaluation of the SNCU program to understand why the SQCI score is stagnant at a satisfactory level.

Acute Respiratory Infection symptoms among Under-five children in Cambodia: Analysis of 2000 to 2014 Cambodia Demographic and Health Surveys

Thursday, 14th September - 16:06: (Marie Reay 5.03 and 5.04) - Long Oral

Mr. Samnang Um [1], ***Mr. Daraden Vang*** [1], ***Dr. Punleak Pin*** [2], ***Dr. Darapheak Chau*** [1]

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Background

Acute Respiratory Infections (ARI) are a public health concern worldwide, accounting for 3.5% of all diseases in the world and more than 808,000 (15%) of all under-five deaths worldwide in 2017. ARI continues to be one of the leading causes of childhood morbidity and mortality in Cambodia. This study aimed to assess the trends over time of ARI symptoms and examined the socio-demographic, behavioral, and environmental factors associated with children aged 0-59 months.

Methods

We used data from the Cambodia Demographic and Health Survey (CDHS) with a total of children aged 0-59 months including 7,828 in 2000, 7,621 in 2005, 7,727 in 2010, and 6,864 in 2014, respectively. Multiple logistic regression was used to determine the main predictors of ARI symptoms using STATA V16.

Results

Prevalence of ARI symptoms among children in the past two weeks was 19.9% in 2000, 8.6% in 2005, 6.4% in 2010, and 5.5% in 2014 respectively. Factors independently associated with increased odds of ARI symptoms were children aged 12-23 months [AOR=1.79; 95% CI: 1.46-2.20], maternal smoking [AOR=1.61; 95% CI: 1.27-2.05], and households used unimproved toilets [AOR=1.20; 95% CI: 0.99-1.46]. The following factors were associated with decreased odds of having ARI symptoms: mother completed at least secondary education [AOR=0.45; 95% CI: 0.21-0.94] and better wealth quantile [AOR=0.73; 95% CI: 0.56-0.95].

Conclusions

Maternal smoking, children's ages, and unimproved toilets were the main risk factors associated with ARI symptoms. Conversely, maternal higher education and the richest wealth quantile were negatively associated with ARI symptoms. Therefore, government and child family programs must promote maternal education.

Magnitude of undernutrition among children of 5-10 years residing in North region of Chennai, Tamil Nadu, India, 2022

Thursday, 14th September - 16:24: (Marie Reay 5.03 and 5.04) - Long Oral

Dr. Nandhini Selvanesan [1], ***Dr. Jeromie Thangaraj*** [1], ***Dr. Saraswathi VS*** [2]

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Background

Undernutrition among under five-year-old children in India is a major public health problem. As per the report of NFHS -5, the prevalence of underweight, stunting, and wasting in Chennai are 21.5, 20.4, 18 respectively which is higher than that of the state. However, studies that focus on five- to ten-year-olds and slum population are scarce. Hence, we sought to describe the prevalence of undernutrition among understudied vulnerable population: five- to ten-year-olds living in North region of Chennai, which comprises 50% of the slum population.

Methods

A descriptive cross sectional study was done with a study population of 7,477 students from 57 Government Primary schools of Zones 1 to 5 in Chennai. Indicators of undernutrition were calculated and compared with WHO standard anthropometric growth measurements.

Results

The prevalence of underweight was comparatively higher among students of Zone 5 (27.6%) and of age interval 5 to 6 (24.60)**.** The prevalence of stunting was higher among students of Zone 4 (24.4%) and of age interval 5-6 years (12.2%). The prevalence of wasting was higher among Zone 1 (19.6%), among boys (21.10%) and age interval 8-9 years (24.32%)

Conclusions

The prevalence of stunting, wasting and underweight are comparatively higher among Zones 4 and 5 and among age interval 5-6 years. The prevalence of wasting is more among boys than among girls. The data presented here suggests that the effectiveness as well as reach of nutritional supplement programs such as Integrated Child De- velopment Services may need to be reexamined particularly in urban slums among children. Also new programs addressing the nutritional need of 5 to 10 years old children must be encouraged.

Short Oral Presentations: Vaccines

Impact of the National Shingles Vaccination Program on Zoster epidemiology in Victoria, Australia

Wednesday, 13th September - 11:00: (Manning Clark Hall) - Short Oral

Dr. Madeleine Marsland [1], ***Dr. Rebecca Gang*** [2], ***Ms. Anna Glynn-Robinson*** [3]

1. *The Australian National University,* ***2.*** *Victorian Department of Health,* ***3.*** *Australian National University*

Background

In November 2016, Australia implemented a National Shingles Vaccination Program (NSVP), recommending herpes zoster (HZ) vaccination to all adults aged ≥60 years, and offering free vaccination to adults aged 70–79 years. Early studies suggested that the NSVP led to a decline in HZ incidence in the years immediately following implementation, however, there is limited evidence of the program's longer-term impacts. This study investigated the impact of the NSVP on the epidemiology of HZ among Victorian adults aged ≥60 years.

Methods

Epidemiological analyses were undertaken using routinely collected HZ surveillance data (notifications, emergency department presentations, hospitalisation and vaccinations) reported between 2012 and 2021. Annual incidence rates and age-specific incidence rate ratios were calculated to compare the period prior to (Jan 2012 to Oct 2016) and following (Nov 2016 to Dec 2021) NSVP's implementation.

Results

HZ vaccination rates in Victoria were highest among those eligible to receive free vaccination (70–79 years), but appear to have plateaued across all other age-groups. Incidence rate ratios showed a statistically significant increase ($p<0.01$) in HZ notifications across all age groups, however this may be associated with an increase in testing over time. Overall, emergency department presentations and hospitalisations remained relatively stable, but statistically significant decreases in incidence rate ratios ($p<0.01$) among the 70–79 years age-group and increases among the 60–69 and 85+ years age groups were observed.

Conclusions

HZ continues to cause significant disease among the older adult population in Victoria. The NSVP may have contributed to a decline in severe complications of HZ among age groups eligible for government-funded HZ vaccination (70–79 years). There is less evidence this program has influenced other age groups recommended for vaccination (60–69 and 80+ years). Further work is needed to increase vaccination uptake within the target age groups.

Measles outbreaks in the Sleman Regency, Indonesia 2022: A retrospective cohort study

Wednesday, 13th September - 11:10: (Manning Clark Hall) - Short Oral

Mr. Yusup Maulana [1], ***Ms. Wiwit Khuntari*** [1], ***Ms. Mija Darwanti*** [1], ***Mrs. Khoirunnisa Khoirunnisa*** [2], ***Mr. Isa Dharmawidjaja*** [2], ***Dr. Vicka Oktaria*** [3]

1. *FETP Universitas Gadjah Mada,* ***2.*** *Sleman District Health Office,* ***3.*** *Department of Biostatistic, Epidemiology and Population Health Universitas Gadjah Mada*

Background

On 18 November 2022, Public Health Center X reported a child with suspected measles. From active case detection on 28 November, we found 7 more people with similar symptoms. An investigation was conducted to confirm the outbreak, identify risk factors, and make recommendations for control the outbreak.

Methods

A retrospective cohort study design was conducted with suspected cases defined as a person who has or had a history of fever or rash. Confirmed cases included people with fever/rash who tested positive for measles or had an epidemiological relationship with a positive measles from 07 to 25 December 2022. Rapid Convenience Assessment (RCA) was carried out on 52 children aged 3 months to 5 years who lived near positive cases to estimate measles immunization coverage. Blood samples were tested with IgM ELISA serology. Chi-square test used to identify the risk factors of outbreak.

Results

There were 9 confirmed cases of positive measles out of 22 suspected cases, with 323 population at risk and an Attack Rate (AR) of 2.78% (9/323). The most reported symptoms of suspected cases were fever 100% (22/22) and rash 82% (18/22). The identified risk factor for the outbreak was incomplete immunization status (RR=11.57; 95% CI 1.5-91.5). All confirmed cases had epidemiological relationships. RCA found that 23% (9/39) of children had not received the Measles and Rubella (MR) booster vaccine. All suspected and confirmed cases received the appropriate dose of vitamin A.

Conclusions

We confirm a measles outbreak in Sleman District with incomplete vaccination as a risk factor. Increasing the coverage of MR immunization in the local area and cross-sectoral coordination to prevent future outbreaks.

HPV vaccine coverage and AEFI analysis prior to introduction of government financed HPV vaccination for 12-year-old girls, Jinan, China

Wednesday, 13th September - 11:20: (Manning Clark Hall) - Short Oral

Ms. Xiaoxue Liu [1], ***Ms. Yujing He*** [2], ***Ms. Hongyun Sun*** [2], ***Mr. Xiaodong Zhao*** [2], ***Dr. Lijie Zhang*** [1], ***Mr. Lei Cao*** [3], ***Dr. Zundong Yin*** [3]

1. *China FETP, China CDC,* ***2.*** *Jinan Center for Disease Control and Prevention,* ***3.*** *Immunization Planning Center, Chinese Center for Disease Control and Prevention*

Background

Cervical cancer is a major global public health problem and HPV vaccination is the most effective prevention measure. HPV vaccine is a self-paid, non-program vaccine and has low coverage in China. In October 2021, Jinan city (a provincial capital; population over 9 million) became one of 15 pilot cities providing government-financed bivalent HPV vaccination of 12-year-old girls at no charge to families. We determined pre-pilot HPV vaccine coverage to provide baseline evidence for HPV vaccine policy making.

Methods

We obtained HPV vaccination and AEFI data from the Jinan Immunization Information System to determine coverage by age group, county, and vaccine type and to estimate AEFI incidences. We evaluated associations between vaccine coverage levels and regional social economic indexes.

Results

As of June 2021, HPV vaccine coverage was 4.38% among 9-to-45-year-old females. Coverage was 14.09% among 25-to-29-year-olds, 13.2% among 20-to-24-year-olds, and <1% among 9-to-14-year-olds. Ninety-five percent of people vaccinated were 20-to-44 years old at the time of vaccination. Coverage was higher in urban areas than rural areas and ranged from 2.92% to 17.75% by county. HPV9 vaccine coverage ranged from 3.90% to 40.68%, and coverage correlated with regional GDP. HPV9 coverage among 20-to-26-year-olds was significantly higher than HPV4 coverage. 14 AEFIs reported among 171 thousand recipients, for an incidence of 8.18/100,000. Two were classified as abnormal vaccine reactions.

Conclusions

Pre-pilot HPV vaccine coverage was lowest among 9-to-14-year-old girls. Women over 20 were much more likely to be vaccinated than adolescent girls. Coverage was higher in wealthier counties, and there was preferential use of higher valency vaccines. We recommend manufacturers provide broad-spectrum HPV vaccines, and governments include HPV vaccines into immunization programs to reduce cost to families and improve access and equity. Health and economic analyses and post-marketing safety and effectiveness monitoring will be important during the pilot period and after vaccine introduction.

Fewer self-reported adverse events following Australian adult pneumococcal National Immunisation Program change

Wednesday, 13th September - 11:30: (Manning Clark Hall) - Short Oral

Ms. Zoe Croker [1], ***Ms. Alexis Pillsbury*** [2], ***Dr. Helen Quinn*** [2]

1. *The Australian National University,* ***2.*** *National Centre for Immunisation and Surveillance*

Background

AusVaxSafety has conducted active surveillance of adverse events following immunization (AEFI) since 2016. Aus-VaxSafety monitored the safety of pneumococcal vaccines before and after the Australian National Immunisation Program (NIP) schedule changed for adults from recommending the 23-valent pneumococcal polysaccharide vac- cine (23vPPV) to recommending the 13-valent pneumococcal conjugate vaccine (13vPCV) on 1 July 2020.

Methods

AusVaxSafety received de-identified, patient-reported AEFI collected through SMS solicitation. Data for participants including Aboriginal and Torres Strait Islander people (hereafter referred to as Indigenous) ≥50 years, and other adults ≥65 years receiving 23vPPV, and Indigenous people ≥50 years, and other adults ≥70 years receiving 13vPCV were analysed. AEFI rates were compared by vaccine brand and concomitant vaccination. Logistic regression was used to analyse the relationship between vaccine brand, sex, Indigenous status, concomitant vaccination and reporting of any AEFI or medical attendance.

Results

Among 91,113 participants who received a pneumococcal vaccine, 54.4% received 23vPCV and 45.6% received 13vPCV. Across both vaccine brands, the most frequently reported adverse events were local reactions, headache and fatigue. Results showed vaccinees receiving 13vPCV were 52% less likely to report any AEFI (Odds Ratio=0.48; 95% Confidence Interval [0.45, .50]) compared to respondents who received 23vPPV. Further, recipients of 13vPCV were 68% (OR=0.32; 95% CI [.25, .41]) less likely to require medical attention. Vaccinees receiving either brand with a concomitant vaccine were at least 1.4 times more likely to report any AEFI than vaccinees receiving only a pneumococcal vaccine. Indigenous status did not statistically predict AEFI.

Conclusions

Using patient-reported outcomes, analysis of AusVaxSafety data supports the recent NIP recommendation change for pneumococcal vaccines in 2020. Our comparison of the safety of 13vPCV and 23vPPV pneumococcal vaccines demonstrated that adults receiving 13vPCV were less likely to experience an AEFI than those receiving a 23vPPV vaccine. AusVaxSafety generates policy-relevant data that can be used to reassure the public.

Effectiveness of COVID-19 vaccines during a SARS-CoV-2 Delta variant outbreak in a large surgical hospital in Vietnam, September to October 2021

Wednesday, 13th September - 11:40: (Manning Clark Hall) - Short Oral

Ms. Hien Nguyen [1], ***Dr. Kieu-Anh Thi Nguyen*** [2], ***Prof. Quang Thai Pham*** [3], ***Dr. Than Huu Dao*** [2], ***Mr. Huy Luong Duong*** [4], ***Dr. Huyen Thi Nguyen*** [1], ***Dr. Trang Thu Vu*** [1], ***Dr. Nghia Duy Ngu*** [3], ***Prof. Duong Nhu Tran*** [3], ***Prof. Duc-Anh Dang*** [3], ***Dr. Kim-Nhung Thi Le*** [5], ***Dr. Nhi-Ha Thi Tran*** [6], ***Dr. Florian Vogt*** [7], ***Dr. Cong Khanh Nguyen*** [3]

1. *The Australian National University,* ***2.*** *Hanoi Center for Disease Control,* ***3.*** *National Institute of Hygiene and Epidemiology,* ***4.*** *Ministry of Health,* ***5.*** *Viet Duc University Hospital,* ***6.*** *Hanoi Department of Health,* ***7.*** *Australian National University*

Background

On 27 September 2021, an outbreak of the SARS-COV-2 Delta variant, confirmed by sequencing results, started in Viet Duc University Hospital (VDUH), the largest surgical hospital in Northern Vietnam. All patients, caregivers, and hospital staff present in the affected departments were placed into strict quarantine until 18 October and repeatedly tested. There were diverse vaccination statuses present in the population at that time. Protective effects from COVID-19 vaccines in hospital settings in low-and-middle-income settings have not yet been assessed. We aimed to assess vaccine effects among patients, caregivers, and hospital staff during this outbreak, and to identify risk factors associated with SARS-CoV-2 infection.

Methods

This was a retrospective analysis using existing routine data from Vietnam's National COVID-19 Contact Tracing Sys- tem and from the VDUH database between 27 September and 31 October 2021. We estimated vaccine effectiveness (VE), attack rates (AR), and adjusted risk ratios (aRR) to identify factors associated with infection among all patients, caregivers, and staff using multivariate logistic regression.

Results

Among the total of 630 study participants, with 42% females and a median age of 43 years (interquartile range 31- 58 years), there were 131 (21%) PCR-confirmed COVID-19 cases, including three deaths. The overall VE was 78% (95%CI 59-88; $p<0.05$). 29% of participants were fully vaccinated at the start of the outbreak, and this group had a substantially lower AR (6%; 95%CI 3-11) than unvaccinated or partially vaccinated people (27%; 95%CI 23-31). Hospital staff (aRR 0.20; 95%CI 0.09-0.42) and people who were fully vaccinated (aRR 0.51; 95% CI 0.28-0.95) had a significantly lower risk of SARS-CoV-2 infection ($p<0.05$).

Conclusions

Our analysis shows the importance of being fully vaccinated in reducing the risk of SARS-CoV-2 infection in hospital settings. We recommend all hospitals in Vietnam promote the completion of vaccine schedules among all persons accessing medical facilities to protect vulnerable populations.

Evaluation of the Surveillance System of Adverse Events Following COVID-19 Vaccination, Chennai District, Tamil Nadu, May - June 2022

Wednesday, 13th September - 11:50: (Manning Clark Hall) - Short Oral

Dr. Serin Kuriakose [1]***, Dr. Suhas Dhandore*** [2]***, Dr. Deepak Polpakara*** [3]***, Dr. Tanzin Dikid*** [4]***, Dr. Vinay Kumar*** [5]***, Dr. Hemalatha M.S.*** [6]***, Dr. Thulasi S*** [6]***, Dr. Kayalvizhi J*** [6]

1. *NCDC,* ***2.*** *Immunization Division, Ministry of Health and Family Welfare, Delhi,* ***3.*** *Immunization Technical Support Unit Delhi,* ***4.*** *tanzindikid@gmail.com,* ***5.*** *Directorate of Health Services, Chennai, Tamil Nadu,* ***6.*** *Medical Services Department, Chennai, Tamil Nadu*

Background

The adverse event following immunization (AEFI) surveillance is useful to identify, report, investigate, and causally assess adverse events, and analyse and communicate results to maintain confidence in vaccines. COVID-19 vaccina- tions were administered to an eligible population in India after receiving emergency use authorization in January 2021. We evaluated the COVID-19 vaccination-related AEFI surveillance processes; and conducted a descriptive analysis of AEFI cases for evidence-based recommendations.

Methods

We used the CDC's updated guidelines for evaluating public health surveillance using selected attributes. We interviewed stakeholders, examined records, and collected data in a semi-structured questionnaire for the reference period of 12 months. AEFI data for 12 months was analysed using RStudio (2022).

Results

We evaluated 19 institutions. The simplicity of data collection and reporting was 71% on a Likert scale. While case reporting formats were complete, the use and maintenance of the AEFI register were inadequate; data quality was 42%. A minor AEFI rate of 1.7 cases per million was below the national rate (representativeness). Among the AEFI reviewed, 100% (185/185) were investigated, but post-mortem reports were delayed by non-health authorities in 50% of cases (acceptability). While no shortage of human resources or technical deficiencies was reported, the frequency of district AEFI committee meetings for severe AEFI categorization was only 25%; stability was 81%. The Co-WIN portal incorporated new vaccines and eligible beneficiaries (flexible). AEFI rates were similar after both doses (2.02 and 1.90 cases/lakh doses) and more frequent among the elderly vs. other age groups (3.13 and 1.82 cases/lakh doses). The AEFI frequency was more with the ChAdOx1 viral vector vaccine (5.7 cases/lakh doses) compared to the BBV 152 inactivated virus vaccine (0.7 cases/lakh doses).

Conclusions

The COVID-19 AEFI surveillance was simple, stable and flexible. There was scope to improve data quality, representation, and acceptability by the non-health authorities. We recommended stakeholder sensitization and programme workforce training.

Adverse Event Following Immunization of COVID-19 Surveillance System Evaluation - Bantul District, Indonesia, 2021

Wednesday, 13th September - 12:00: (Manning Clark Hall) - Short Oral

Ms. Fitriana Puspitarani [1], ***Mr. Samsu Aryanto*** [2], ***Dr. Riris Andono Ahmad*** [3]

1. *Field Epidemiology Training Program Indonesia Graduate,* ***2.*** *Bantul District Health Office,* ***3.*** *Field Epidemiology Training Program Indonesia, Universitas Gadjah Mada*

Background

Since 2021, several vaccines against COVID-19 were approved for mass use in Indonesia. Along with increasing immunization coverage, there were also adverse events following immunization (AEFI). This study aimed to evaluate the performance of the AEFI of the COVID-19 surveillance system in the Bantul District to support COVID-19 vaccination safety.

Methods

We used CDC guideline 2001 to evaluate the AEFI surveillance system. A structured questionnaire and observation form was used to collect data. In addition, interviews were conducted with 28 vaccination officers in Bantul District Health Office and Public Health Centres. We assessed the simplicity and acceptability of the system. Additionally, the surveillance database of AEFI of the COVID-19 vaccine was analyzed to assess the flexibility, data quality, timeliness, representativeness, and system stability.

Results

Of all the participants, 71% found the form and reporting system easy to use, but only 85% of the interviewees reported AEFI cases to the system. The system is flexible in accepting the addition of variables in reporting formats and policy updates. Only 40% of the AEFI reports were complete in all the requested variables without any mechanism for data validation or feedback from the district health office. 65% of the surveillance officers reported delaying reporting the AEFI case. The incidence of AEFI captured by surveillance systems is less than 1%. All participants reported the system's stability since there was regular system maintenance, which was always notified.

Conclusions

The AEFI surveillance system for COVID-19 in the Bantul District Health Office was simple, acceptable, and stable, but data quality and timeliness needs to be improved to support the safety evaluation of COVID-19 vaccination. Supervision needs to be done regularly to provide good-quality data.

Knowledge, Attitude, and Acceptance of Dog Oral Rabies Vaccination in Chiang Mai City

Wednesday, 13th September - 12:10: (Manning Clark Hall) - Short Oral

Dr. Pongpon Homkong [1], ***Dr. Terdsak Yano*** [2], ***Dr. Chidchamai Kewcharoenwong*** [3], ***Dr. Kriangkrai Thongkorn*** [4], ***Mr. Jirapong Pansiri*** [1], ***Mr. Karoon Chanachai*** [5], ***Dr. Satoshi Inoue*** [6], ***Dr. Wilaiwan Petsophonsakul*** [7]

1. *Veterinary Section, Bureau of Public Health and Environmental, Chaing Mai Municipality, Chiang Mai, Thailand,* ***2.*** *Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand,* ***3.*** *Infection & Immunity, Cellular and Molecular Immunology Unit, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand,* ***4.*** *Department of Companion Animals and Wildlife Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand,* ***5.*** *Regional Development Mission Asia United States Agency for International Development, Bangkok, Thailand,* ***6.*** *Department of Veterinary Science, National Institute of Infectious Diseases, Tokyo, Japan The Institute of Social Communication, Meiji University, Tokyo, Japan,* ***7.*** *Laboratory for Rabies Vaccine Evaluation Unit, Prompt Health Centre, Faculty of Associated Sciences, Chiang Mai University, Chiang Mai, Thailand*

Background

Rabies is a vaccine-preventable fatal zoonosis. Chiang Mai is one of Thailand's top ten tourist cities, so providing a healthy and safe environment is essential for the city's reputation. Canine rabies has re-emerged in Chiang Mai since 2020. Animal rabies vaccination is always challenging in a hard-to-reach dog population, such as free-roaming dogs. Oral rabies vaccination (ORV) can become an essential adjunct to traditional parenteral rabies vaccination for this dog population. As the oral rabies vaccine is newly introduced for rabies control in dogs in Chiang Mai, we wanted to evaluate the knowledge, attitude, acceptance, and practice of people involved in the ORV pilot in Chiang Mai.

Methods

We trained participants who were involved in the ORV pilot. They were instructed ORV and practiced handling safely before the pilot. The instruction included: knowledge of ORV, attitude toward animal welfare, and acceptance of ORV. Pre-and post-test questionnaires were performed before and after the instruction. Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups) was used for analysis.

Results

Seventy-four participants were included; 31% were monks and temple attendants, while 69% were dog caregiver volunteers. In determining existing knowledge before the instruction, both groups had average correct answers of 2.7±1.91 and significantly increased to 4.85±2.2 (10 questions, $p<0.05$) after instruction. After the training, participants improved their acceptance of free-roaming dogs significantly ($p=0.01$). They agreed that the ORV was a practical tool to enhance rabies vaccination in the free-roaming dog. Most participants were willing to pay for the oral rabies vaccine at 250 baht/dose (approximately five times higher than the cost of the parenteral vaccine).

Conclusions

Before using ORV, introducing knowledge, attitude, and practice of handling oral rabies vaccine is essential for administrators and dog caregivers. Participants accepted that ORV is a practical tool to improve dog rabies vaccination coverage in free-roaming dogs.

Short Oral Presentations: Outbreak Investigations 2

Pertussis Outbreak Investigation – Transmission in Parihasi village, Madhya Pradesh, September 2022

Wednesday, 13th September - 11:00: (Drama Theatre) - Short Oral

Dr. Vinay Kaushik [1], ***Dr. Shekhawat Bhartiy*** [1], ***Dr. Jalaj Khare*** [1], ***Dr. Manjeet Singh Choudhary*** [1], ***Dr. Khyati Aroskar*** [1], ***Dr. Kevisetuo Anthony Dzeyie*** [1]

1. *World Health Organization*

Background

In September 2022, district hospital reported four suspected pertussis cases in Parihasi village, Madhya Pradesh. We investigated to describe the epidemiology and recommend evidence-based control measures.

Methods

We defined a suspect case as cough of ≥2-week duration with paroxysm of coughing/ inspiratory whooping/ post-tussive vomiting in a resident of Parihasi Village, between 01 June–26 October 2022 and confirmed where serum/nasopharyngeal specimens positive by enzyme-linked immunosorbent assay at a regional reference laboratory, Indore. Contacts were defined as having close exposure with confirmed case three weeks prior to cough onset. We reviewed outpatient and inpatient records of government and private health facilities and conducted house-to-house searches to identify cases. We interviewed cases using a semi-structured questionnaire for clinico- demography, transmission in tolas (local areas), vaccination status after verbal informed consent, and calculated frequencies and proportions.

Results

We identified 22 suspect cases (59% female) between 12 July–12 September 2022 with attack rate (5%), of which two were confirmed including one death (case fatality: 4%) who had consulted an unqualified practitioner. The median age was six years (range: 10 months-53 years); seizure and subconjunctival hemorrhage developed in two (9%) cases and six (27%) were hospitalized. We identified the chain of transmission in all three affected tolas and 66 contacts in school/ families. Household attack rates were 4/12 (33%) in Chatni tola, 3/11 (27%) in Medvahi while 3/12 (25%) in Dodki tola. Six (20%) received age appropriate four doses of pentavalent/diphtheria-pertussis-tetanus (DPT) vaccine and none of them received fifth dose.

Conclusions

We reported a laboratory confirmed pertussis outbreak in a community with low vaccination coverage and likely transmission through school/family with improper health seeking behaviour. We recommended to improved pentavalent/DPT vaccine coverage through routine immunization, continued surveillance and information, education, communication campaigns. We provided post-exposure prophylactic antibiotics to contacts, and additional routine immunization sessions conducted in the village.

An Outbreak of Scombroid Fish Poisoning Associated with Consumption of Mackerel (Scomber Japonicus) in Bantul, Yogyakarta, October 2022

Wednesday, 13th September - 11:10: (Drama Theatre) - Short Oral

Ms. Nining Puji Lestari [1], ***Ms. Sylvia Gusrina*** [1], ***Mr. Samsu Aryanto*** [2], ***Dr. Bayu Satria Wiratama*** [3]

1. *FETP Universitas Gadjah Mada,* ***2.*** *Bantul District Health Office,* ***3.*** *Department of Biostatistic, Epidemiology and Population Health Universitas Gadjah Mada*

Background

On October 6, 2022, surveillance officers at Srandakan Public Health Center received one suspected case of food poisoning who suffered from dizziness and flushing after consuming food at The Family Hope Program Meeting (PKH) held by the Social Service on October 6, 2022, at Baru Beach, Srandakan. The investigation was conducted to confirm the outbreak and identify risk factors.

Methods

An active case finding and retrospective cohort study were conducted. Cases were people who consumed food from the PKH Meeting and had one or more symptoms of dizziness, nausea, headache, and flushing. Data on demographics, clinical, and food consumption were collected using a structured questionnaire. Food samples were collected and sent to the laboratory for microbiological examinations. The environmental investigation was conducted by observing the location of the event and the food handler. Logistic regression was used to identify the risk factors.

Results

There were 21 cases (attack rate 67,7%) from 31 populations at risk. All of the sick residents ate mackerel. The most common symptoms were dizziness (61.9%), nausea (61.9%), headache (52.4%), and flushing (42.3%). The average incubation period was 50 minutes. Multivariate analysis showed that eating mackerel (AOR=17.4; 95% CI=1.5-204.4) is a significant risk factor. The laboratory results showed positive *Klebsiella sp* in mackerel, which is one of the bacteria that can decarboxylate histidine into histamine. Examination of histamine levels in food cannot be facilitated in regional laboratories.

Conclusions

An outbreak of scombroid fish poisoning was confirmed in Kuwaru, Poncosari, Srandakan Bantul on 6 October 2022. The food associated with the outbreak was mackerel (*scomber japonicus*). Improvements in fish storage management should be a concern for fisheries services and food handlers. Increasing the capacity of regional laboratories for examining histamine levels in food must become a concern for local governments.

Food Poisoning from Consumption of Wild Mushroom in Manang Distirct, Gandaki Province, Nepal: A Case Series

Wednesday, 13th September - 11:20: (Drama Theatre) - Short Oral

Mr. Baburam Acharya [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Prajjwal Pyakurel*** [3], ***Dr. Yadu Chandra Ghimire*** [4]

1. *Senior Public Health Officer, Health Office Manang, Gandaki Province,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Research Officer, SAARC TB and HIV/AIDS Center, Thimi,* ***4.*** *Director, National Health Training Center, Teku, Kathmandu and Course Director, FETP Nepal*

Background

Mountains of Nepal are rich in wild mushrooms. Occasionally, local people and travelers misidentify the mountainous wild mushrooms and consume them, leading to gastrointestinal upset and hospitalization. In August 2022, the District Hospital of Manang, Gandaki province, reported to Health Office regarding admission of a group of migrant workers with features of food poisoning following consumption of a mushroom curry. We investigated the event to understand the sociodemographic and clinical profiles of admitted patients and identify the source of food poisoning.

Methods

We conducted a retrospective cohort study to investigate the event in Manang from 17th to 23rd January 2023. We defined the cohort as people who consumed the curry of wild mushrooms on 15th August 2022. Food poisoning was defined as having abdominal pain, loose stool, or vomiting developed following consumption of mushroom curry. We interviewed the exposed cohort and healthcare providers and reviewed hospital records. We consulted with forestry officials to identify the wild mushroom. Data were analyzed for descriptive characteristics like age, gender, incubation period, clinical features, and outcome.

Results

A total of 14 migrant workers ate wild mountainous mushroom curry. The attack rate was 100%. The median age was 29.5 years (Range: 18-50 years), and 79% were males. The median incubation period was 1.75 hours (range:1-2.5 hours). Common symptoms were vomiting (93%), diarrhea (93%), abdominal pain (71%), and dehydration (21%). All were hospitalized for 1-2 days and treated with activated charcoal, intravenous fluids, Vitamin K, and pantoprazole. The mushroom was from the *Galerina marginata* species. The Mushroom was picked unknowingly by the patients and cooked for 15 minutes to prepare the mushroom curry.

Conclusions

The food poisoning event was most likely due to consumption of wild mushroom *Galerina marginata*. We recommended forestry officials to prepare catalogue of classifying safe and unsafe mountainous mushrooms so that health workers could aware local people and migrant workers regarding poisonous wild mushrooms.

Cholera case concomitant with COVID-19 disease associated with "Raw fish" consumption in a Highly Urbanized City in Northern Luzon, Philippines, 2022

Wednesday, 13th September - 11:30: (Drama Theatre) - Short Oral

Ms. Glena Pulon [1], ***Ms. Ruby Marie Magsino*** [1], ***Ms. Paola Katrina Ching*** [2], ***Ms. Mariz Zheila Blanco*** [3], ***Ms. Karen Lonogan*** [4], ***Dr. Rosario Pamintuan*** [4], ***Dr. Janice Bugtong*** [4], ***Dr. Rio Magpantay*** [4]

1. *FETP - Intermediate Course, Northern Luzon, Philippines,* ***2.*** *Dr. Jose Natalio Rodriguez Memorial Medical Center, Philippines,* ***3.*** *Philippines FETP,* ***4.*** *Department of Health - Philippines*

Background

On October 6, 2022, the Epidemiology and Surveillance Unit of Cordillera Administrative Region, Philippines, received a report regarding a laboratory-confirmed Cholera case in Baguio City. On October 10, 2022, an investigation was conducted to profile the case, establish timeline of events, determine source of infection, and recommend control and preventive measures.

Methods

A case study was done. A suspect case was a previously healthy resident of Irisan, Baguio City with more than three episodes of acute watery diarrhea or severe dehydration from September 14 to October 14, 2022. A confirmed case is a suspect case who tested positive for *Vibrio cholerae*. We collected rectal swab and water samples for bacteriological testing. We inspected food establishment and interviewed food handlers. A 24-hour food recall and food traceability history was elicited.

Results

The case was a 67-year-old female, who experienced severe diarrhea, vomiting, and body weakness, 26 hours after dining with family at a food establishment. Of the 12 food items served, the case solely consumed "*kilawin na tanigue*", *or* raw fish cut into cubes and cured in a mixture of lemon juice or vinegar, fresh ginger, onion, chili, and seasonings, while other six family members shared the rest. She tested positive for *Vibrio cholerae* while other family members were negative for any enteric pathogen. Water samples collected from residence and establishment tested positive for total coliforms.

Conclusions

This is the first laboratory-confirmed Cholera case recorded in Baguio City, Philippines as evidenced by the isolation of *Vibrio cholerae* in the stool. The consumption of raw fish was the implicated vehicle for this illness. The food establishment's compliance with cleanliness and proper hygiene from food preparation until consumption is highly warranted to prevent occurrence of similar events in the future. Strict implementation and monitoring of the Philippine Food Safety Act by the local health authorities should be reinforced.

Outbreak of Covid-19 at PE Construction Site Kuala Lumpur, March 2020

Wednesday, 13th September - 11:50: (Drama Theatre) - Short Oral

Mr. Deenesh Kumar Krishnan [1], ***Dr. Rohani Ismail*** [1], ***Dr. Roslaili Khairudin*** [1], ***Dr. Fuad Hashim*** [1], ***Ms. Nordayana Musa*** [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

Construction site is one of the areas that contribute to high infection COVID-19 rate, which has impacted construction activities. An Outbreak of COVID-19 was reported among the construction worker at PE site in April 2020. This study aims to describe the epidemiological characteristics of cases, identify risk factors of infection, and provide recommendations for further improvement.

Methods

A prospective cohort study was carried out among construction workers at PE site. Case was defined as those with a positive RT-PCR laboratory test. Respondents were interviewed face-to-face using standard questionnaire for epi-demiological characteristics, followed by laboratory investigation for COVID-19 confirmation using RT-PCR testing and observation on environmental risks from 23th March to 7th May to 1st July 2021. The analysis was performed using Excel sheet and tabulated.

Results

A total of 489 construction workers were interviewed and tested; 57 were confirmed as cases with 12.0% attack rate. Out of 57 cases, 51 cases were asymptomatic, 6 cases were hospitalized and no fatalities recorded. All cases were male. Among foreign workers, 93% cases were Bangladeshi and 7% were Indonesian with ages ranging from 18 to 55 years old. Environmental observation showed that all cases stayed at the underground area of the construction site which was overcrowded, had poor ventilation and lacked hygiene.

Conclusions

Confined space and poor ventilation are risk factors contributing to the outbreak of COVID-19 at the construction site. Implementation of Movement Restriction Order under Act has made a substantial contribution to reduce the number of COVID-19 cases. All cases should be isolated from other workers, and a well-ventilated space with accept- able numbers of person should be provided for construction site workers to prevent the transmission of COVID-19.

Factors led to Influenza Outbreak in Semi-Boarding Sport School - Chiang Mai, Thailand, 2022

Wednesday, 13th September - 12:00: (Drama Theatre) - Short Oral

Dr. Rintham Charupash [1], ***Dr. Rapeepong Suphanchaimat*** [1], ***Dr. Tanasit Wijitraphan*** [2]

1. *Thailand FETP,* ***2.*** *Chiangmai Provincial Health Office*

Background

On 11 September 2022, the Department of Disease Control (DDC) was notified of a cluster of influenza-like-illness (ILI) in a semi-boarding sport school D in Chiang Mai. Epidemiological staffs from DDC and local health authorities investigated the outbreak with the objectives to describe the epidemiological characteristics of the event, identify possible risk factors and provide recommendations for control measures.

Methods

We conducted a descriptive study including active case finding in the school. A case was defined as a person staying in school D during 22 August-20 September 2022 with at least two symptoms compatible with ILI (such as fever/feverish, cough, sore throat, and rhinorrhea). The environmental and laboratory studies were performed. A retrospective cohort study was conducted to find risk factors. Multivariable logistic regression was exercised. Adjusted odd ratio (aOR) with 95% confidence intervals (CI) were presented.

Results

School D is a semi-boarding school, comprising both regular and sport programs. We identified 113 cases (attack rate=26.4%). All cases did not have serious complications. Almost all cases were students (n=112). Male to female ratio was 2.4:1. The cases' median age was 15 years (p25-p75: 14-17 years). Most of the patients (84%) developed runny nose. There was higher attack rate in crowded dorms (area density <0.8 m^2/person). Nine nasopharyngeal swab specimens showed positive for Influenza A (H3N2) by RT-PCR. The potential risk factors were being close to a patient (aOR= 2.23; 95%CI=1.35-3.68) and being in a sport program (aOR=2.37; 95%CI=1.05-5.35).

Conclusions

There was an influenza A (H3N2) outbreak in School D. Studying in the sport program is a key risk factor where physical distancing could not be effectively exercised. Overcrowding in certain dorms served as another risk. We recommend regular screening of ILI cases and adjusting the dorms' environment to make it less crowded to prevent further outbreaks.

Post Outbreak Reporting of Acute Gastroenteritis in Lalitpur Municipality, Nepal, 2023

Wednesday, 13th September - 12:10: (Drama Theatre) - Short Oral

Mr. Satish Bista [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Yadu Chandra Ghimire*** [3]

1. *Senior Public Health Administrator, Health Office Lalitpur, Nepal,* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *National Health Training Center*

Background

In Nepal, acute gastroenteritis (AGE) cases seeking treatment from government and selected private health facilities used to be reported by the Health Management Information System (HMIS). A cholera outbreak persisted in Lalitpur metropolitan in Kathmandu Valley from June to September 2022. The outbreak was assumed to be controlled as few AGE cases were reported through HMIS. We conducted a field investigation to find out whether the outbreak was contained in the metropolitan.

Methods

We conducted a cross-sectional survey in Lalitpur metropolitan from January 25-31, 2023. We selected ward 14 of Lalitpur metropolitan purposively. We defined AGE as any patient residing in ward 14 of Lalitpur metropolitan, irrespective of age, presented with an acute onset of diarrhoea or vomiting or abdominal pain from December 30, 2022, to January 27, 2023. We searched house to house for cases and conducted face to face interviews using a semi structured questionnaire. We performed descriptive analysis of the data by time, person and place. We also reviewed the number of AGE cases reported by HMIS from December 30, 2022 to January 27, 2023 from the selected ward of Lalitpur.

Results

Out of 104 AGE cases found in the selected ward, 77% were from 20-59 years of age, 53% were male. Among symp- toms, 87% had diarrhea, 76% had abdominal cramps or pain. Distribution of date of onsets showed a continuous common source infection. About 80% of cases sought treatment from local pharmacies/clinics, and only 8% of cases from health facilities reported to HMIS. From December 30, 2022, to January 27, 2023, only four AGE cases were reported from the selected ward through HMIS reporting.

Conclusions

The investigation suggested a continuous AGE infection in Lalitpur, which probably was not notified as most cases were seeking treatment from non-surveillance sites. We recommended conducting a feasibility study to include local pharmacies in HMIS for reporting AGE cases.

Short Oral Presentations: Surveillance

Antimicrobial Susceptibility Patterns of Burkholderia psuedomallei Isolates from Patients at Takeo Provincial Hospital, Takeo Province, Cambodia, January to August 2022

Wednesday, 13th September - 11:00: (Marie Reay 5.02) - Short Oral

Ms. Sosorphea Seang [1], ***Prof. Phalmony Has*** [2], ***Mr. Buntha So*** [3]

1. *Takeo Provincial Hospital,* ***2.*** *Phalmony Has, School of Public Health, National Institute of Public Health,* ***3.*** *Kirivong Operational District, Takeo Provincial Health Department*

Background

Burkholderia pseudomallei (*B. pseudomallei*), found in contaminated soil and water, causes melioidosis, with a mortality rate >80% for untreated cases; bloodstream infections were common among the dead. The Cambodia Commu- nicable Disease Control Department has monitored the trend of antimicrobial resistance of *B. pseudomallei* nation- ally since 2017. We describe characteristics of *B. pseudomallei* isolates in blood cultures collected from inpatients and outpatients in Takeo Provincial Hospital to identify antimicrobial susceptibility patterns.

Methods

We did a secondary analysis of *B. pseudomallei* surveillance data from hospitalized and outpatients in the Takeo Provincial Hospital included in the Cambodia Laboratory Information System from January–August 2022. Blood samples collected from patients were cultured on chocolate, MacConkey and blood agar media. Biochemical tests were done to identify *B. pseudomallei* isolates. Antimicrobial susceptibility testing was performed using disc- diffusion method on Mueller-Hinton agar (Bio-Rad) and/or E-test following the Clinical Laboratory Standard In- ternational guidelines. We computed the proportion of *B. pseudomallei* isolates and percentages of antimicrobial susceptibility or resistance to antibiotics currently being used in the hospital.

Results

Bacteria were isolated from 51% (1710/3378) of blood samples. *B. psuedomallei* accounted for 4% (69/1710) of the isolates. The majority (74%, 51/69) of the isolates were from male patients; 81% (56/69) were from those aged ≥40 years. The number of isolates increased during the months of June to August, coinciding with the rainy season. All isolates were sensitive to amoxicillin/clavulanic acid, ceftazidime, meropenem, and trimethoprim/sulfamethoxazole, while all were resistant to gentamicin.

Conclusions

Results of antimicrobial susceptibility tests were used to guide physicians in treating patients infected with *B. pseudomallei*. Infections appeared to increase during the rainy season. We recommend that aside from continuing antimicrobial resistance surveillance, studies be done to describe the epidemiological profile of patients with *B. pseudomallei* infections in the province, including risk factors to guide disease prevention and control efforts.

Antimicrobial Resistance Patterns of Escherichia coli Isolates from Blood cultures at Battambang Provincial Hospital, Cambodia, January-July 2022

Wednesday, 13th September - 11:10: (Marie Reay 5.02) - Short Oral

Ms. Rina Dork [1], ***Dr. Bun Sreng*** [2], ***Dr. Alyssa Finley*** [2], ***Ms. Sreypeou Hem*** [1], ***Dr. Seila Kak*** [1], ***Dr. Sivhour Chiek*** [1], ***Mr. Bunheng Hok*** [3], ***Prof. Phalmony Has*** [4], ***Mr. Buntha So*** [5]

1. *Battambang Provincial Hospital,* ***2.*** *US CDC,* ***3.*** *Preah Vihear Provincial Health Department,* ***4.*** *Phalmony Has, School of Public Health, National Institute of Public Health,* ***5.*** *Kirivong Operational District, Takeo Provincial Health Department*

Background

Escherichia coli (E. coli) is a common cause of bloodstream infections which can be life threatening. Battambang Provincial Hospital (BPH) has conducted Antimicrobial Resistance (AMR) surveillance since 2018 as part of a national network of sentinel sites. During the past five years, *E. coli* was the leading pathogen isolated from blood samples collected from patients at BPH. We analyzed AMR surveillance data to describe the antimicrobial sensitivity pattern of *E. coli* isolates from patients seen at BPH from January to July 2022.

Methods

We extracted data from January to July 2022 from the Cambodia Laboratory Information System (CamLIS) data base of the BPH. First, we computed the overall percentage of *E. coli* blood samples isolated, then stratified the positive samples by age and sex. Finally, we determined the antimicrobial susceptibility of *E. coli* isolates to a standard list of antibiotics per CLSI guidelines.

Results

E. coli was isolated from 32 (2.4%) of 1,361 blood samples collected from 1,277 inpatients. Of the 32, 20(63%) were from female patients. The median age of the patients was 61 years (range: 1 to 96). Among *E. coli* isolates, resis- tance to the following antibiotics were found: 97% each to ampicillin and cefazolin, 91% to ciprofloxacin, 84% to trimethoprim-sulfamethoxazole, 78% to ceftriaxone, 63% to amoxicillin clavulanate, 59% to ceftazidime, 50% to gentamicin, 9% each to amikacin and chloramphenicol, and 3% each to imipenem and meropenem. These resis- tance patterns have been in line with the national data.

Conclusions

Our study showed high levels of multi-drug resistant *E. coli* from patients in BPH with bloodstream infections. Of particular concern is the substantial resistance to all commonly used antibiotics in "Access" category, except chloramphenicol, and three of the antibiotics in "Watch" category. Physicians and the community should be educated on the dangers of AMR and avoid improper use of antibiotics.

Illegal fireworks, hospitalization, and amputation: National Fireworks-Related Injury Sentinel Surveillance during the Yuletide Season – Philippines, 2022

Wednesday, 13th September - 11:20: (Marie Reay 5.02) - Short Oral

Dr. Ian Christian Gonzales [1], ***Ms. Kathleen Gecosala*** [1], ***Mr. Rammell Eric Martinez*** [1], ***Dr. Agnes Segarra*** [1], ***Dr. Gloria Nenita Velasco*** [2]

1. *Philippines FETP,* ***2.*** *Philippine Department of Health*

Background

In the Philippines, it is a customary practice to use fireworks during the yuletide season, but not without consequences, such as Fireworks-Related Injuries (FWRI). Despite the pandemic, FWRI surveillance was maintained with the following objectives: 1) Identify the trend of FWRI from 2016 to the present, 2) profile FWRI cases, and 3) determine risk and protective factors for hospitalization and amputation.

Methods

A sentinel-based surveillance system composed of 61 hospitals was purposely selected, representing all regions. Data was collected from 6:00AM of 21 December 2021 to 5:59AM of 6 January 2022. Current data was compared to the previous year and recent five-year data. Odds ratios were calculated to determine risk factors for hospitalization and amputation.

Results

A total of 189 FWRI was reported. These were 54% higher compared to 2020 (123 cases) and 55% lower than the five-year average (416 cases). Ages ranged from 2 to 74 years (Median: 16 years). Males were consistently accounted for the highest number of injuries for the past five years. Twenty (11%) had blast/burn injuries requiring amputation, two times higher than last year. Sixty-five (35%) had a hand injury, consistent with the five-year trend. A shift in pattern was noted with legal fireworks now causing >50% of injuries. However, injuries due to illegal fireworks had higher odds of amputation (OR: 2.99, CI: 1.13-8.49) and hospitalization (OR: 4.0, CI: 1.76-9.62).

Conclusions

A downtrend in cases was noted in the past five years, especially for the previous year. However, more injuries were noted this year, perhaps due to less restrictive COVID-19 quarantine measures. Though injuries due to legal fireworks were more frequent, illegal fireworks were significantly associated with hospitalization and amputation. Health education and strict law enforcement may help reduce injuries in the future.

Formative Evaluation of Integrated Road Accident Database Surveillance System, North-Goa, India, 2021-2022

Wednesday, 13th September - 11:30: (Marie Reay 5.02) - Short Oral

Dr. Punam Bandodkar [1], ***Mr. Shobhit Saksena*** [2], ***Dr. Vineet K Kamal*** [1], ***Dr. Tarun Bhatnagar*** [3]

1. *ICMR - National Institute of Epidemiology, Chennai,* ***2.*** *Police department, North Goa,* ***3.*** *ICMR-National Institute of Epidemiology*

Background

North-Goa district in the state of Goa reported a burden of RTAs higher than the National average in 2020. The Government of India launched Integrated Road Accident Database (iRAD) to improve road safety. It was launched in 2021 in Goa. Our objective was to conduct a formative evaluation of the iRAD surveillance system in North Goa.

Methods

We conducted a cross-sectional study from June to August 2022. We developed operational indicators for attributes like simplicity, acceptability, sensitivity, representativeness, timeliness, and usefulness of iRAD. We interviewed the nodal officers from police, transport, highways, and health departments, data collectors and station administrators from all twelve police stations, and motor vehicle inspectors from all four Road Transport Offices in the district. Data was collected using semi-structured questionnaires and data abstraction forms.

Results

Only police and transport departments were using iRAD in the district. Vertical integration of the iRAD workflow and functions were well understood within the police department. The system was simple, as inferred from both departments, though not well accepted by the police. The sensitivity was 47%, with variations in the real-time capture of the data. The median time of RTA registration was 1 hour (IQR:0.3, 3.2). The lack of dedicated, compatible devices and human resources contributed to low acceptability, sensitivity, and timeliness. Representativeness of reporting was 100% in the police department, 50% in the transport department, and 50% for the type of RTAs. iRAD was useful in identifying seven accident-prone zones, but no feedback was received, and no corrective actions were taken.

Conclusions

There is a need to strengthen the integration of iRAD between departments and to improve acceptability, sensitivity and timeliness. Outputs of iRAD can be better utilized to reduce the RTAs and their severity.

Assessment of the use and acceptability of electronic disease notification forms piloted during the COVID-19 response in Vanuatu, 2022

Wednesday, 13th September - 11:40: (Marie Reay 5.02) - Short Oral

Ms. Wendy Williams [1], ***Dr. Caroline van Gemert*** [2]

1. *Surveillance, Research & Emergency Response unit, Ministry of Health,* ***2.*** *Burnet Institute*

Background

The primary method for disease notification in Vanuatu is the completion of paper forms or telephone notifications to provincial surveillance officers. In 2022, an online notification form for COVID-19 was piloted to reduce reporting delays and missing reports. All government and private healthcare workers (HCWs) were requested to submit an online form for each newly detected COVID-19.

Methods

We conducted an assessment of the knowledge, attitudes, and practices of HCWs in Vanuatu to help inform future developments for notification processes. All HCW in Vanuatu were invited to participate, including government and private. Recruitment occurred between August-September 2022. All HCWs were emailed a link to an electronic survey, and provincial HCWs were also telephoned with the option of a telephone interview. The survey assessed knowledge of the notification system, practices used to notify COVID-19 cases, acceptability of electronic notification systems and information, communication, and telecommunications equipment availability. Data were collated and analysed using Google Sheets.

Results

A total of 52 Health Care Workers participated; the majority were from Shefa (39%) and Sanma (43%) provinces. Knowledge of notifiable diseases varied; almost half (49%) of participants knew that leptospirosis was notifiable, and three-quarters (73%) incorrectly reported that diabetes was notifiable. During the COVID-19 outbreak, three-quarters (77%) of participants routinely reported cases with reasons for not notifying, including not knowing the requirement (38%) or having too many priorities (21%). Half (52%) of participants lacked regular computer access; however, 90% had access to a mobile phone.

Conclusions

These findings suggest that knowledge of notification processes and awareness of notifiable diseases needs to be strengthened. It is recommended that the electronic notification system be expanded to include other notifiable diseases but that notifications by mobile phones are explored. Additional research is needed in smaller provinces to fully understand their context and attitudes toward the use of electronic notification systems.

Analysis of CamEWARN Surveillance Quality Problems in Romeas Hek District, Svay Rieng Province, Cambodia, July - October 2022

Wednesday, 13th September - 11:50: (Marie Reay 5.02) - Short Oral

Ms. Sopheak Kong [1], ***Mr. Chhunlong Sun*** [2], ***Dr. Sengdoeurn Yi*** [3], ***Prof. Phalmony Has*** [4]

1. *Svay Rieng Provincial Health Department,* ***2.*** *Kampong Cham Provincial Health Department,* ***3.*** *Communicable Disease Control Department, Ministry of Health,* ***4.*** *Phalmony Has, School of Public Health, National Institute of Public Health*

Background

CamEWARN is a syndromic case-based surveillance system for early detection and response to outbreaks. Health centers (HC) and hospitals are required to report cases. Quality surveillance data is important to be able to ac- curately describe disease trends, detect outbreaks early and implement timely control measures. In Romeas Hek District, problems related to data quality derived from a data quality audit have been noted, e.g., inaccurate reports with unclear root causes. In July 2022, we conducted a root cause analysis to understand the causes of less-than- optimal CamEWARN surveillance data quality and provide recommendations to improve the quality of reporting.

Methods

We interviewed staff at three health centers using a standard questionnaire focused on case definition, data collection, reporting and analysis, information dissemination, and any actions taken. We used fishbone analyses to identify root causes of problems found, then validated the root causes that were within our control to address and made recommendations to address these actionable causes.

Results

Nine HC staff were interviewed. The following problems were noted: case definitions were not used properly, and surveillance data was also not analyzed and disseminated on a timely basis. Fishbone analyses identified the following actionable root causes: outpatient logbooks were not properly filled out, new staff were not trained on CamEWARN surveillance, lack of logistics, e.g., poster with case definitions, templates for graphing numbers of cases, and lack of monitoring and supervision of HC staff by district and provincial staff.

Conclusions

After the results of this study were presented to the provincial, district, and HC staff, training of all HC staff was conducted, and logistics were provided for surveillance. We also recommended that provincial and district staff conduct regular monitoring and supervision of health center staff. Data quality (completeness of logbooks and accuracy of reports) and data analysis have since improved.

Using Intermittent Enhanced Surveillance to Better Understand Varicella-Zoster Virus Epidemiology — Queensland, 2010–2021

Wednesday, 13th September - 12:00: (Marie Reay 5.02) - Short Oral

Mr. Ashish Shrestha [1], ***Dr. Emma Field*** [1], ***Ms. Mohana Rajmokan*** [2], ***Prof. Stephen Lambert*** [2]

1. *The Australian National University,* ***2.*** *Communicable Diseases Branch, Queensland Health*

Background

In Queensland, most varicella-zoster virus (VZV) cases are notified without a clinical presentation (chickenpox or shingles) by pathology laboratories. In our setting, collecting clinical presentation data for VZV notifications is not prioritised as a routine public health activity for all ages. We used intermittent enhanced surveillance to better understand chickenpox and shingles epidemiology.

Methods

This study included notified VZV cases in Queensland from 2010–2021. Enhanced surveillance (contacting the notifying clinician to identify clinical presentation) was conducted consistently for targeted age groups, and for all ages when resources allowed. We used periods where the clinical presentation completeness was high to examine epidemiology and the impact of vaccination programs.

Results

Over the period, a majority of cases (n=61,298, 70%) had a final designation of unspecified, followed by shingles (n=19,927, 23%) and chickenpox (n=6,534, 7%). The proportion of unspecified clinical presentations decreased to 15% for enhanced surveillance periods (December 2017, March 2018, June 2018, September 2018, August 2019–December 2020). Clinical presentation was known for 70% (22,779/32,660) of the cases from December 2017–March 2021. For periods with high completeness, the chickenpox notification rate fell by 36% in those aged 18–23 months (eligible for chickenpox vaccine at 18 months) compared to those <12 months. VZV notifications in those aged ≥60 years, assumed to be almost exclusively shingles, decreased by 12–22% among 70–79-year-olds in 2017–2021, compared to 2016 (shingles vaccination program introduced November 2016).

Conclusions

Age-group specific, intermittent enhanced surveillance for clinical presentation is useful to understand disease epidemiology and vaccine impact when such follow up cannot be conducted routinely. Our use of enhanced surveillance data demonstrated age-specific impacts in cohorts eligible for vaccination. In Queensland, VZV control may be further enhanced by the introduction of a second dose chickenpox vaccine and highly effective recombinant shingles vaccine.

Evaluation of the SARS-CoV-2 genomic surveillance system—Taiwan, 2020–2022

Wednesday, 13th September - 12:10: (Marie Reay 5.02) - Short Oral

Dr. Pei-Jiuan Chao [1], ***Dr. Chia-ping Su*** [2], ***Prof. Ming-Tsan Liu*** [1], ***Prof. Jung-Jung Mu*** [1]

1. *Taiwan Centers for Disease Control,* ***2.*** *Taiwan Centers for DIsease Control*

Background

Genomic surveillance for SARS-CoV-2 is essential to track its evolution, optimize diagnostic tests, treatments, and vaccines, and guide public health responses. For routine surveillance, WHO recommends representative specimen collection, including systematic sampling and random sampling. Taiwan CDC has performed genomic surveillance of SARS-CoV-2 since early in the pandemic. We evaluated whether the surveillance could provide timely monitoring of prevalent variants of SARS-CoV-2.

Methods

We interviewed stakeholders to understand sampling methods. We retrieved metadata related to sequences from the COVID-19 database to evaluate representativeness and timeliness. To determine representativeness we calculated sequencing rates and analyzed epidemiological characteristics of COVID-19 cases sequenced. We analyzed sequencing rates in municipalities and counties using two-tailed *t*-test and considered *p* values < 0.05 statistically significant. To determine timeliness we calculated interval from sample collection to sequence report.

Results

Sampling was random for SARS-CoV-2 PCR-positive cases and targeted for re-infection cases. Between October 2020 and December 2022, there were 8,543,916 COVID-19 cases reported, and 8,775 (0.10%) were sequenced. Sequencing rate was 9.03% (3,612) of 40,001 imported cases and 0.06% (5,163) of 8,754,439 locally-acquired cases. Among locally-acquired cases, 0.57% (49,773) were re-infections; of the locally-acquired cases sequenced, 46% (2,353) were re-infections. Median sequencing rate for locally-acquired cases was 0.06% (range: 0.04–0.08) in six municipalities and 0.07% (range: 0.01–0.25) in 16 counties, without statistical significance ($p = 0.16$). Median interval from sample collection to sequence report was 11 days (interquartile range: 9–13).

Conclusions

We found no geographical difference in sequencing rates for locally-acquired cases, but targeted sampling showed nearly half of locally-acquired cases sequenced were re-infections. We recommend representative random sam- pling of locally-acquired cases and timely monitoring of prevalent variants in Taiwan.

Short Oral Presentations: Vectorborne Diseases 2

Rodent Diversity and Chigger Mite Infestation from Solid Waste Sites and Surrounding Landscapes near Dong Phayayen-KhaoYai Forest Complex in Thailand, 2021-2022

Wednesday, 13th September - 11:00: (Marie Reay 5.03 and 5.04) - Short Oral

Mr. Paisin Lekcharoen [1], ***Prof. Kittipong Chaisiri*** [2], ***Prof. Supaphen Sripiboon*** [3], ***Prof. Manakorn Sukmak*** [4], ***Ms. Nantida Soda*** [3], ***Prof. Serge Morand*** [5], ***Prof. Alongkorn Amonsin*** [1]

1. *Faculty of Veterinary Science, Chulalongkorn University,* ***2.*** *Faculty of Tropical Medicine, Mahidol University,* ***3.*** *Faculty of Veterinary Medicine, Kasetsart University,* ***4.*** *Faculty of Veterinary Medicine, Kasetsart University,Thailand,* ***5.*** *Faculty of Veterinary Techonology, Kasetsart University*

Background

An accumulation of food and shelter provided at solid waste disposal sites (SWS) near forest could attract domestic and wild animals, alters their interactions, and change the ecological and epidemiologic properties of hosts and parasites. Rodents thrive and may serve as a source of multi-host parasites in this landscape. This study investigated the rodent community and the infestation of chigger mites—an essential vector for zoonotic diseases—in SWS and the surrounding environment.

Methods

Investigators trapped rodents in SWS and SWS-connected areas near the Dong Phayayen-Khao Yai Forest Complex. This forest spans beyond the Thai-Cambodian border and is home to several endangered animals. We classified the areas into natural landscapes (NL: forest and scrubland) and human-modified landscapes (HML: SWS and agri- cultural lands). Rodent species was identified based on morphological criteria. Chigger mites were collected from each animal. Shannon diversity index (*H′*) for rodents, relative abundance, and the infestation percentage of chig- ger mites across rodent taxa and landscapes were compared.

Results

A total of 206 rodents and one tree shrew were trapped. Species richness and *H′* were 5 and 1.21, and 7 and 1.23 for HML and NL, respectively. Species richness and *H′* were significantly higher in SWS compared to other HML (p-value<0.05). *Mus* spp. were the predominant rodents in HML and NL; however, *Rattus* spp. were more abundant in SWS and forest compared to other HML and scrubland. The total infestation percentage of chigger mites was 53.62% (111/207). This rate was 39.13% (18/46), 53.85% (56/104), and 64.91% (37/57) in SWS, other HML, and NL, respectively. Rats had significantly higher infestation rate (75.36%: 52/69) than mice (44.36%: 59/133).

Conclusions

SWS had diverse rodent hosts and was predominated by highly infested taxa, *Rattus* spp. This result demonstrates the impact of environmental factors on the community structure of hosts and their parasite infestation, suggesting a candidate risk area for monitoring pathogen spillover.

Machine learning models for micro-bubble image detection in insecticide sprayer quality control: addressing class and scale imbalance

Wednesday, 13th September - 11:10: (Marie Reay 5.03 and 5.04) - Short Oral

Dr. Suppasit Srisaeng [1], ***Mr. Pongsakorn Sadakorn*** [2], ***Dr. Kritchavat Ploddi*** [3], ***Mr. Worasait Suwannik*** [4], ***Dr. Darin Areechokchai*** [3]

1. *Thailand FETP,* ***2.*** *Department of Disease Control,* ***3.*** *Division of Epidemiology, Department of Disease Control,* ***4.*** *Department of Computer Science, Kasetsart university*

Background

Vector-borne diseases (VBDs) cause 700,000 deaths annually, and insecticide spraying is an effective control measure. To assure sprayers' quality, detecting good quality micro-bubbles image (GM) and bad quality micro-bubbles image (BM) is needed. However, manual detection of micro-bubbles usually delays. This study aims to assess the performance of various supervised machine learning models for micro-bubble detection.

Methods

Three entomologists labeled multiple GM or BM in each 2,428 images, which were resized to 500x375 pixels. An augmented dataset was created through background patching, rotation, flipping, and cropping. Dataset were split into 60% train, 20% validation, and 20% test sets. Augmented images were used for training only. Two types of models were trained: Single-stage model (including Faster-RCNN with ResNet-50, Faster-RCNN with ResNeXt-101 and RetinaNet-101) and two-stage (YOLOv7). The micro-bubble characteristics were compared using ratio and T-test, and the models' performance was evaluated using Precision (PPV), Recall (Sensitivity), Average Precision (AP), and F-1 score.

Results

Of 40,259 micro-bubbles: 37,336 were GM and 2,923 were BM (ratio 12.8:1). The median size of GM and BM dif- fered significantly (p-value 0.001), with 82 pixels vs. 160 pixels. However, micro-bubble location did not differ significantly (p-value 0.49). In test set: YOLOv7 had the highest F1 score (GM 0.94, BM 0.53), AP (GM 97%, BM 45%), Precision (GM 93%, BM 54%), and Recal l(GM 95%, BM 42%). The AP of augmented images with model (1) was GM 66% and BM 18%, while the AP of non-augmented images with model (1), (2), and (3) ranged from GM 71%-72% and BM 21%-32%.

Conclusions

This study demonstrates the presence of class and bounding box scale imbalance in micro-bubble image classification. The single-stage model outperformed the two-stage models. Moreover, YOLOv7 exhibited high accuracy for GM micro-bubbles, indicating its potential to automating the evaluation of this specific class of images and applying it in real practice.

Evaluation Control Measure of Dengue Fever Distribution Using Geographical Information System - Selangor, Malaysia 2015-2019

Wednesday, 13th September - 11:20: (Marie Reay 5.03 and 5.04) - Short Oral

Mr. Kah Sing Hee [1]

1. *Epidemic Intelligence Program (EIP) Malaysia*

Background

In Malaysia, the incidence of dengue cases has been on the rise. A study was conducted to understand the distribution and behaviour of dengue cases and to develop a map identifying its distribution in Selangor using Geographical Information System (GIS) and spatial statistics. Collation of case data was obtained from the case registry Selangor Department of Health from 2015 until 2019.

Methods

Data was obtained from the case registry, Selangor Department of Health, from 2015 until 2019. This retrospective study is divided into two components, namely, the event of a spatial model for areas with high dengue risk and the risk prediction for dengue fever (DF) in the selected area. By utilizing the data on dengue incidences, a spatial model for dengue risk prediction is obtained. The spatial distribution of dengue cases average nearest neighbourhood (ANN) measure applied with spatial analysis in the GIS environment as the measure indicating good control.

Results

The results from ANN analysis showed that the pattern of DF in Selangor is the pattern of clustered, where the nearest neighbor ratio (NNR) from 2015 until 2019 is 0.15, 0.19, 0.18, 0.18 and 0.08, where the Z-score is less than 1 ($p<0$). Observed mean distance show that the mean distance had increase from 35.27m in 2015 to 181.89m in 2019. This shows that the dengue hot-spots and cluster has started to decrease and disperse.

Conclusions

By integrating Geographical Information System applications, this study showed that the current control and prevention activities is effective and provides a new dimension specifically to formulate strategies for the implementation of preventive and control activities.

Analysis of Dengue Sentinel Surveillance Data in Kampung Speu Province, Cambodia, January to September 2022

Wednesday, 13th September - 11:30: (Marie Reay 5.03 and 5.04) - Short Oral

Dr. Selachesda Sim [1], ***Mr. Bunyoeui Siea*** [2], ***Mr. Sophanith Ung*** [3]

1. *Kampong Speu Provincial Health Department,* ***2.*** *Battambang Provincial Health Department,* ***3.*** *South Asia Field Epidemiology and Technology Network ,INC.*

Background

Dengue fever is an important vector-borne illness spread by Aedes mosquitoes. The disease is endemic in Cambodia, with outbreaks occurring from time to time. Monitoring of cases is helpful for early detection and control of outbreaks and guiding interventions. The Ministry of Health has set up a sentinel surveillance system for dengue cases. In Kampung Speu, four hospitals serve as sentinel sites. We analyzed surveillance data from these four sites and also measured the timeliness and completeness of reporting from January to September 2022.

Methods

We reviewed dengue surveillance data from January to September 2022 from the four hospitals. Data were ana- lyzed by time, age, and sex. We compared the number of cases reported and the number of beds for each hospital. A weekly report was timely if it was sent to the national center on Mondays and complete if it contained all the required data for a case. We computed timeliness and completeness of reporting by each hospital.

Results

From January to September 2022, there were 1,000 reported dengue cases with three deaths (CFR 0.3%). Most cases belonged to the 5-15 years age group with no significant gender difference. The number of cases exceeded alert thresholds from the 17th to 28th morbidity weeks and have since decreased. On the 20th and 28th weeks, the number of cases seen at the provincial hospital exceeded their bed capacity. During the same period, timeliness of reporting by hospitals was 98% while completeness of reporting was 92%.

Conclusions

The number of dengue cases in 2022 exceeded that of previous years. Since most cases were in the school-age group, it would be helpful to conduct dengue education and control measures in schools in the province. Surveillance data quality was good. Information from the system should be given to local staff to conduct investigations of clusters and do targeted interventions.

West Nile Virus infection among suspected Japanese Encephalitis cases in Acute Encephalitis Syndrome surveillance in Bangladesh, 2022

Wednesday, 13th September - 11:40: (Marie Reay 5.03 and 5.04) - Short Oral

Dr. Syeda Tasnuva Maria [1], ***Dr. Mallick Masum Billah*** [2], ***Dr. Quazi Ahmed Zaki*** [3], ***Dr. Sharmin Sultana*** [3], ***Dr. Tahmina Shirin*** [3]

1. *Institute of Epidemiology, Disease Control and Research (IEDCR),* ***2.*** *Resident Advisor, FETP, Nepal,* ***3.*** *Institute of Epidemiology, Disease control and Research, Dhaka, Bangladesh*

Background

West Nile Virus (WNV) is a mosquito-borne disease with 10% case fatality rate globally. Having no vaccine or specific treatment available, preventive measures are necessary to control morbidity and mortality. The Institute of Epidemiology, Disease Control, and Research (IEDCR) has established a hospital-based Acute Encephalitis Syndrome (AES) surveillance with a focus on Japanese Encephalitis (JE) in Bangladesh since 2007. Our study aimed to describe the status of West Nile Virus (WNV) among JE-negative cases in AES surveillance in Bangladesh.

Methods

We designed a cross-sectional study to detect WNV in JE-negative samples from AES surveillance. From 106 surveillance sites, we collected 1331 epidemiological data and blood serum from January to May, 2022. A total of 300 randomly selected JE-negative sera were tested for detection of West Nile IgM antibody using commercially available Enzyme-Linked Immunosorbent Assay (ELISA) kit (Detect TM IgM Capture ELISA, InBios, USA) at IEDCR laboratory. We prepared a semi-structured questionnaire to identify sociodemographic data, clinical features, immunization history, and outcomes of WNV-positive cases through telephonic interviews.

Results

Among 300 tested AES cases, 7 (2.3%) were WNV positive with attack rate of 0.023 and case fatality rate of 28%. Among WNV positive cases, males were predominant in the 5 year (57%) and 0-15-year age groups (58%) with 4 cases each. A total of 6 (86%) were from rural areas and 3 (43%) were secondary school students. The highest number of cases were detected in Rangpur and Khulna divisions and during summer season. All WNV-positive cases suffered from fever, neck stiffness, and other associated symptoms. There was no comorbidity among 4 (57%) cases and the cases were not vaccinated against JE. Out of 7 cases, 5 (71%) fully recovered and 2 (29%) died during hospitalization.

Conclusions

WNV has been detected in Bangladesh for the first time. Strengthening AES surveillance to detect WNV by adding additional testing facilities within this platform is highly recommended for Bangladesh's health system.

Demographic and behavioural risk factors for Japanese encephalitis virus infection in Victoria, Australia

Wednesday, 13th September - 11:50: (Marie Reay 5.03 and 5.04) - Short Oral

Dr. Madeleine Marsland [1], ***Ms. Helen O'Brien*** [2], ***Dr. Chuan Kok Lim*** [3], ***Dr. Rebecca Gang*** [2], ***Ms. Janet Strachan*** [2], ***Ms. Anna Glynn-Robinson*** [4], ***Ms. Deborah Friedman*** [2]

1. *The Australian National University,* ***2.*** *Victorian Department of Health,* ***3.*** *Victorian Infectious Diseases Reference Laboratory,* ***4.*** *Australian National Univeristy*

Background

In early 2022, the first ever locally-acquired cases of Japanese encephalitis were reported in Victoria. Most infections caused by Japanese encephalitis virus (JEV) are asymptomatic, and the true burden of infections remains uncertain. There is limited evidence regarding risk factors for JEV infection, with available evidence from endemic regions. This study sought to investigate risk factors for JEV infection to guide vaccination and preparedness strategies.

Methods

A cross-sectional serosurvey was conducted in northern Victoria from August–December 2022. Asymptomatic participants were recruited during routine blood tests (opportunistic) and through community outreach and advertising (targeted). All participants completed a study specific questionnaire and had serological testing conducted to determine evidence of prior JEV infection. Results were descriptively analysed and prevalence odds ratios (POR) were calculated to identify investigated risk and protective factors.

Results

In total, 3.3% (27/815) of participants had evidence of prior JEV infection. Seropositivity was slightly lower among those recruited opportunistically (20/662, 3.0%) compared to targeted recruitment (7/153, 4.6%). Older age was significantly associated with JEV infection ($p<0.01$). More males were seropositive (51.9%) despite most participants being female (60.9%). The only statistically significant behavioural factor identified was contact with feral pigs in a small sample of participants ($p=0.01$). Of the 27 seropositive participants, two groups were husband/wife pairs (n=4).

Conclusions

Prior to or during the 2022 outbreak, a substantial proportion of the northern Victoria population may have had JEV infection; however, there remains widespread population vulnerability to future infection. Older age and male sex appeared to be associated with increased likelihood of prior JEV infection. Few other investigated factors identified increased risk of infection, demonstrating the difficulty of developing evidence-based vaccine eligibility criteria. Further work will be required to investigate other potential risk factors including shared risk or exposures among household members of seropositive persons.

Serological evidence of Japanese encephalitis virus infection across northern Victoria, 2022

Wednesday, 13th September - 12:00: (Marie Reay 5.03 and 5.04) - Short Oral

Ms. Tilda Thomson [1], ***Dr. Madeleine Marsland*** [1], ***Ms. Helen O'Brien*** [2], ***Dr. Chuan Kok Lim*** [3], ***Ms. Marion Easton*** [2], ***Prof. Anthony Paul Stewart*** [1], ***Ms. Deborah Friedman*** [2]

1. *The Australian National University,* ***2.*** *Victorian Department of Health,* ***3.*** *Victorian Infectious Diseases Reference Laboratory*

Background

Japanese encephalitis virus (JEV) was first detected in Victoria in early 2022, with the outbreak in south-eastern Australia declared a Communicable Disease Incident of National Significance. Given most JEV infections are asymptomatic, the extent of human infection related to the outbreak is unknown. A serosurvey was conducted in northern Victoria to better characterise the distribution of JEV infection.

Methods

From August – December 2022, participants were recruited in high-risk locations based on Victorian outbreak data (JEV detections in mosquitos and pigs and exposure sites for human cases). Participants born in JEV-endemic countries or with a previous diagnosis with or vaccination against JEV were ineligible. Participants completed a questionnaire and had a blood sample tested at a reference laboratory.

Results

We recruited 815 participants, of whom 27 (3.3%) had evidence of JEV infection. Of the seropositive participants, most (59%) had never travelled to a JEV-endemic country. There were seropositive participants from every primary recruitment location, however the sample sizes varied (range: 9 – 248). Seropositivity was highest for those living in the Loddon Mallee region (5/59, 8.5%) and lowest in the Ovens Murray region (14/520, 2.7%). By residential local government area, seropositivity was highest in Mildura (3/29, 10.3%), with the most seropositive participants detected in Wangaratta (7/208, 3.4%).

Conclusions

We found evidence of JEV infection in all areas identified as high-risk after the 2022 outbreak, including those where JEV had only previously been detected in animals. Whilst initial risk communications in Victoria emphasised the Murray River, we demonstrate infections in participants further south of the river. The geographic variability ob- served may reflect differing levels of risk based on environmental factors, or differing levels of recruitment, includ- ing the impacts of flooding in late 2022. These results support prevention activities such as vaccine prioritisation, including the progressive expansion of eligible local government areas.

Poster Presentation Session

Epidemiological profile of Tuberculosis - Sambalpur district of Odisha, India 2018 - 2020

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Mr. Smruti Ranjan Panda [1], ***Dr. Quincy Mariam Jacob*** [2], ***Dr. Sharan Murali*** [3], ***Dr. Ashok Kumar Das*** [4], ***Dr. Madan Mohan Pradhan*** [5]

1. *FETP Intermediate Scholar, Indian Council of Medical Research - National Institute of Epidemiology, Chennai, India,* ***2.*** *Indian Council of Medical Research - National Institute of Epidemiology, Chennai,* ***3.*** *ICMR - National Institute of Epidemiology, Chennai,* ***4.*** *District Public Health Officer, Sambalpur, Odisha, India,* ***5.*** *Directorate of Public Health, Government of Odisha, India*

Background

As India strives to eliminate Tuberculosis (TB) by 2025, analysis of National TB Elimination Program (NTEP) data is required to understand TB's current burden and give feedback. The present study described the epidemiology of the notified TB cases and estimated the proportion of cure rate among them in Sambalpur, Odisha, from 2018 to 2021.

Methods

We conducted a cross-sectional descriptive study among notified TB patients registered in the NTEP online portal (NIKSHYA) in the Sambalpur district between 2018 and 2020. We used the operational definitions and indicators listed by NTEP for this analysis. We described the time trend in notification using an epidemiological curve and summarised the sociodemographic characteristics, type of TB, and cure rates as proportions. We performed all analyses using Microsoft Excel.

Results

Sambalpur district notified 6594 individuals with TB from 2018 to 2020. The notification rate was highest in 2019 (154 per lakh population) and lowest in 2020 (120 per lakh population). We observed a drop in notifications from April 2020 to Feb 2021. Maneswar block notified the highest cases consistently in the four study years (176 - 247 per lakh population). More cases were notified among males than females in all age groups other than the pediatric group (<14 years). Eighty-eight percent (n=5804) were new TB cases, and 72% (n=4748) were pulmonary TB. The TB cure rate was less than 70% in all study years. The death rate was highest in 2020 and 2021, with 11 TB deaths per 1 lakh population.

Conclusions

We noticed a reduction in TB notification, delay in treatment initiation, and poor outcomes during 2020 – 2021. We recommend having a continuum of care for TB even during pandemic situations to sustain our efforts for TB elimination.

Containment of a large cluster of malaria cases imported from Africa to Hong Kong among returning railway workers, July – August 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Sau Chun Jane Leung [1], ***Dr. Hin Yam Zenith WU*** [1], ***Dr. Albert Au*** [1], ***Dr. Shuk Kwan Chuang*** [1]

1. *Centre for Health Protection, Department of Health, Hong Kong*

Background

In Hong Kong, the last indigenous malaria case was recorded in 1998 but the risk of local transmission still exists. The annual number of imported malaria cases recorded ranged from 3-25 in recent 10 years. A marked upsurge in imported cases was observed in early July 2022 among railway workers from Africa who took transit in Hong Kong. Investigation and control measures were carried out immediately to prevent local introduction.

Methods

Case definition was any person tested positive by PCR for *Plasmodium* species in blood sample or identified with malaria parasites on blood film. Case detection was enhanced through liaison with respective companies in Africa and screening asymptomatic railway workers returning from Africa by PCR test at airport/quarantine hotels and medical surveillance. Cases were interviewed by telephone for demographic, epidemiological and clinical information. Descriptive analysis was performed.

Results

A total of 176 imported malaria cases were recorded in July-August 2022 affecting 174 males and two females with ages ranging from 25 to 57 years who worked in Guinea (158/89.8%), Nigeria (4/2.2%) and other African countries (14/8.0%). The last case was confirmed on 28 August 2022. 156 were infected with *P. falciparum* (88.6%), including one co-infected with *P. malariae* and one co-infected with *P. ovale*. 120 cases were tested positive at airport or during hotel quarantine (a measure for COVID-19. Amongst 575 coworkers/travel collaterals, 20.9% screened by PCR tests. 110 cases (62.5%) developed symptoms including fever (77, 43.8%) and headache (42, 23.9%), while the remaining 66 cases were asymptomatic. Six cases (3.4%) required admission to intensive care unit and two cases (1.1%) died. 34.0% (50/147) reported receiving chemoprophylaxis and 83.9% (135/161) reported previous infection history.

Conclusions

This major cluster of imported malaria cases was contained with prompt detection through collaboration with partners, surveillance, epidemiological investigation, isolation and treatment. No secondary cases were identified lo- cally.

Understanding the clinical and environmental factors of a Japanese Encephalitis Outbreak in Paracelis, Mountain Province, Philippines

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Fe Mapangdol [1], ***Ms. Lily Anne Safilo*** [1], ***Ms. Geraldine Alangui*** [1], ***Ms. Mariz Zheila Blanco*** [2], ***Mr. Ray Justin Ventura*** [3], ***Dr. Sheryl Racelis-Andrada*** [4], ***Ms. Karen Lonogan*** [3], ***Dr. Rosario Pamintuan*** [3], ***Dr. Janice Bugtong*** [3], ***Dr. Rio Magpantay*** [3]

1. *FETP - Intermediate Course, Northern Luzon, Philippines,* ***2.*** *Philippines FETP,* ***3.*** *Department of Health - Philippines,* ***4.*** *Mariano Marcos Memorial Hospital and Medical Center, Philippines*

Background

The impact of the illness on the community and the healthcare system can be mitigated by better understanding the various elements relating to Japanese encephalitis. This study aims to profile the case, establish the connection between the environment and host, identify the mode of transmission, and suggest control and preventative measures.

Methods

The investigating team interviewed key informants and reviewed records to obtain necessary information. A survey of the patient's surroundings was carried out to look for the presence of vectors and risk factors for the other diseases under consideration, in addition to the active case finding and identifying close contacts. Moreover, confirmation tests in the laboratory were carried out.

Results

Based on the investigation, the case was a 10-year-old female, who had fever, weakness in lower limbs, decrease in sensorium, and whitish biofilm on the tonsillar area. She was referred to a secondary-level hospital. It was determined that the case did not have a Japanese encephalitis vaccination. The Japanese encephalitis vaccination coverage of Poblacion, Paracelis was low, and the coverage of Mountain Province was inadequate. Culex pupae and larvae were seen in artificial and natural breeding sites around the residence, as well as a pig inside the case's residence. A confirmatory test for Japanese Encephalitis IgM turned out positive.

Conclusions

A laboratory-confirmed Japanese Encephalitis case with no vaccination history was reported in Mountain Province, Philippines. Low immunization coverage in the village provides no herd immunity. The team recommended the immediate implementation of Japanese Encephalitis vaccination campaigns in affected areas, and the strengthening of surveillance systems for early detection and prompt response to outbreaks. Overall, the investigation highlighted the importance of strong surveillance and response systems for detecting and controlling infectious diseases such as Japanese Encephalitis. It also underscored the need for comprehensive vaccination programs to prevent outbreaks and protect vulnerable populations.

Cover unveiled: A Prolonged Dengue Outbreak in the Mountainous area of Northern Luzon, Philippines, May 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Ivy Mae Calumpit [1], ***Ms. Glena Pulon*** [1], ***Ms. Lily Anne Safilo*** [1], ***Ms. Victoria Malicdan*** [1], ***Ms. Paola Katrina Ching*** [2], ***Ms. Mariz Zheila Blanco*** [3], ***Ms. Karen Lonogan*** [4], ***Dr. Rosario Pamintuan*** [4], ***Dr. Janice Bugtong*** [4], ***Dr. Rio Magpantay*** [4]

1. *FETP - Intermediate Course, Northern Luzon, Philippines,* ***2.*** *Dr. Jose N. Rodriguez Memorial Hospital and Sanitarium, Philippines,* ***3.*** *Philippines FETP,* ***4.*** *Department of Health - Philippines*

Background

On May 24, 2022, the Center for Health Development – Cordillera Administrative Region, Philippines reported a significant increase in Dengue cases in the Apayao province. An epidemiologic investigation was conducted in the municipality with the highest number of cases to verify the outbreak, characterize the cases, identify the source of transmission, identify gaps in Dengue program and surveillance system and recommend prevention and control measures.

Methods

We conducted a descriptive study and generated a line list of cases through active case finding in the community and records review in hospitals and epidemiology and surveillance unit (ESU). We conducted Key Informant Interviews to identify challenges in the implementation of the dengue program. Environmental scanning and vector surveillance were done in two municipalities with the highest attack rate. We collected serum from active cases for confirmatory testing.

Results

From Morbidity Week 13 to 21, Dengue cases in Pudtol exceeded the epidemic threshold, with one reported death. Females aged 11-20 years old were mostly affected. Vector surveillance results indicated that 94% of mosquitoes collected were Dengue vectors with high-density mosquito larvae. All serum samples collected from active cases were positive in confirmatory testing. During the investigation, we identified gaps in the surveillance system, including the lack of manual operations, no active case finding, and no weekly disease surveillance analysis.

Conclusions

Our investigation confirmed an outbreak of Dengue in Pudtol, Apayao, Philippines, likely due to the high density of mosquito vectors. The weak surveillance and monitoring system for Dengue cases may have contributed to the persistent increase in cases. These limitations might be related to the occurrence of other dengue outbreaks in the nearby municipalities. We recommend a review of the Dengue program and immediate implementation of active surveillance and control measures to prevent further spread of the disease.

Investigating the Dengue Outbreak in Kalinga Province: Epidemiological Study Findings

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Dianne Aurora Delizo [1], ***Ms. Leila Bernal*** [1], ***Ms. Fe Mapangdol*** [1], ***Mr. Roderick Charles Chua*** [1], ***Ms. Mariz Zheila Blanco*** [2], ***Mr. Ray Justin Ventura*** [3], ***Ms. Karen Lonogan*** [3], ***Dr. Rosario Pamintuan*** [3], ***Dr. Janice Bugtong*** [3], ***Dr. Rio Magpantay*** [3]

1. *FETP - Intermediate Course, Northern Luzon, Philippines,* **2.** *Philippines FETP,* **3.** *Department of Health - Philippines*

Background

In May 2022, the Center for Health Development - Cordillera Administrative Region (CHD-CAR) reported a significant increase in Dengue cases in the Kalinga province, Philippines, with 235 cases, a 1,075% increase compared to the same period in 2021. To address this outbreak, an epidemiological investigation was conducted to determine the existence of an outbreak, verify the diagnosis, profile the cases, and identify the source and mode of transmission.

Methods

A descriptive study using the Philippine Integrated Disease Surveillance and Response (PIDSR) for suspect and confirmed cases definitions was conducted in the top three municipalities. Active case finding and line listing were done among cases using a structured questionnaire. An environmental survey was also carried out in the communities.

Results

Between January 1 and June 4, 2022, a total of 302 Dengue cases were reported. The cases exceeded the epidemic threshold and peaked from May 28 to June 3, 2022. Tabuk City had the highest number of cases (177, 59%), followed by Rizal (90, 30%), and Pinukpuk (35, 12%). The majority of cases were female (163, 54%), and ages ranged from four months to 94 years old (median=14 years old). Aedes aegypti mosquitoes were identified as the vector and the source of transmission was primarily domestic water containers.

Conclusions

The investigation confirms the existence of a Dengue outbreak in the Kalinga province, with the top three municipalities heavily affected. Public health interventions such as vector control measures and health education campaigns are urgently needed to mitigate the spread of Dengue in the affected communities.

The Bite Next Door: Living with Dengue Type 1 in a Neighborhood Community. A Case-Control Study, July 6-14, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Kathleen Gecosala [1], Mr. Patjayson Mohammad [2], Mr. Rammell Eric Martinez [2], Dr. Agnes Segarra [2], Dr. Gloria Nenita Velasco [3]

1. *Philippines FETP,* ***2.*** *Philippine FETP,* ***3.*** *Philippine Department of Health*

Background

Stagnant water may increase after a typhoon due to rainwater accumulation. This can increase mosquito breeding sites, which increases dengue risk. A field epidemiology training program fellow was deployed to Southern Leyte on July 6, 2022, to verify the dengue outbreak and identify the source, mode of transmission, and risk factors after a report of 767 dengue cases with three deaths.

Methods

A descriptive study followed by 1:1 unmatched case-control study was done. A case was any individual residing in Southern Leyte with either tested positive for NS1 or any Dengue serotype, having a fever lasting 2-7 days, along with any of two symptoms including: headache, body malaise, myalgia, arthralgia, retro-orbital pain, anorexia, vomiting, diarrhea, flushed skin. Controls were residents of Southern Leyte who did not develop any signs and symptoms and were tested negative for Dengue PCR. Serum samples were collected among cases and controls and sent to the national reference laboratory for Dengue PCR.

Results

There were 889 Dengue cases identified from January 1 to July 14, 2022. Men comprise 53% of cases. Median age of cases was 15 years old. Exposed water containers were seen. Entomological survey records showed high larvae indices since January. Five (1%) cases were positive for Dengue serotype 1. Case-control study revealed that cases living with someone who recently had dengue (aOR=11.06, 95% CI=1.06-131.76, p-value=0.045), having a neighbor diagnosed with dengue (aOR=9.6, 95% CI=3.4-26.8, p-value=0.000) and households having uncovered water containers (aOR=6.9, 95% CI=2.4-20.03, p-value=0.000) were considered risk factors for having dengue fever. Wearing long pants was a protective factor (aOR=0.24, 95% CI=0.07-0.85, p-value=0.027).

Conclusions

There was a Dengue Outbreak in Southern Leyte with cases exceeding the epidemic threshold. A high mosquito density and the presence of unprotected domestic water containers used in collecting rainwater accelerated the outbreak. Dengue mostly affects children, especially those living with dengue-infected families or neighbors. Use of long pants and removal of breeding sites can prevent dengue infection.

A source hunting investigation in One health approach on Nipah Outbreak in the Northern Region of Bangladesh: The first survivor case in 2023

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Abir Shaqran Mahmood [1], ***Dr. Md. Sayik Bin Alam*** [1], ***Dr. Ahmad Raihan Sharif*** [1], ***Dr. Md Abu Sayeed*** [1], ***Dr. Md. Zulqarnine Ibne Noman*** [1], ***Dr. Nabila Nujhat Chowdhury*** [1], ***Dr. Dewan Imtiaz Rahman*** [2], ***Dr. Wasik Rahman Akib*** [2], ***Mr. Kamal Chowdhury*** [2], ***Dr. Fateha Akther Ema*** [2], ***Mr. Muhammad Rashedul Alam*** [2], ***Mr. Nazrul Islam*** [2], ***Mr. Arifur Rahman Bablu*** [2], ***Mr. Md. Arif Khan*** [1], ***Dr. Ariful Islam*** [1], ***Dr. Ayesha Siddika*** [2], ***Dr. Ferdous Rahman*** [1], ***Dr. Mohammed Ziaur Rahman*** [2], ***Dr. Syed Moinuddin Satter*** [2], ***Dr. Sharmin Sultana*** [1], ***Dr. Nazneen Akhter*** [3], ***Dr. Tahmina Shirin*** [1]

1. *Institute of Epidemiology, Disease control and Research, Dhaka, Bangladesh,* **2.** *International Centre for Diarrhoeal Disease Research, Bangladesh,* **3.** *Global Health Development, EMPHNET*

Background

Nipah virus is a pandemic potential viral disease. On 13 January, a confirmed case of Nipah Virus (NiV) Disease was reported through Nipah Enhanced Surveillance. We investigated to determine the scope and magnitude of the outbreak and the source of infection, also to explore the contributing perception, cultural patterns to control and prevent further spread.

Methods

Face-to-face interviews of the contacts were performed between 14-28 January 2023. An operational case definition was prepared for identifying confirmed, probable cases and contacts. Data were collected by semi-structured questionnaire both prospectively (to identify other cases and line listing) and retrospectively (to obtain information on notified cases). Blood and throat swabs were collected from high-risk and symptomatic contacts for detection of NiV infection by RT-PCR and ELISA.

Results

On 23 December 2022, eleven members of the same family drank Raw Date Palm Sap (RDPS) in Naogaon. Twelve days later, a 13-year-old boy and his 50-year-old aunt developed fever, diarrhoea, restlessness, incoherent speech, and became unconscious. The boy was admitted into ICU later and survived, but the woman died before the investigation. We identified 107 contacts: 16 in Naogaon, 25 in Nilphamari, 33 in Rangpur, and 33 in Dhaka. We tested 55 high-risk and symptomatic contacts, and all were negative for NiV by RT-PCR and ELISA. We maintained regular follow-ups according to protocol. Four bat roosts were found within a 10km radius (including the nearest roost which was within 2 km) from the source tree where the relative of the cases collected RDPS.

Conclusions

We identified one confirmed and one probable case of NiV infection. The outbreak was contained since there were no cases among the contacts. We suspect that the source of NiV was RDPS. As there is no specific vaccine or therapeutics, community awareness and enhanced surveillance can aid early detection and control of spillover events.

Strengths and Opportunities of One Health Approach for Rabies Control in the Urban Setting - Pattaya City, Thailand, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Nawarat Ninprapha [1]***, Dr. Charuttaporn Jitpeera*** [2]***, Dr. Onpirun Yurachai*** [3]

1. *Thailand FETP,* ***2.*** *Division of Epidemiology, Department of Disease Control,* ***3.*** *Division of Communicable Disease, Department of DIsease Control*

Background

Rabies prevention and control requires multi-sectoral collaboration. Pattaya City is a special local administrative self-governing municipal area in Chonburi province, Thailand. From January to October 2022, Chonburi reported 78 positive rabies dog heads to the national animal rabies surveillance, top ranking in Thailand. Twelve of them were from Pattaya City. This study aimed to describe and evaluate One Health rabies prevention and control practices, both routine and during outbreak periods.

Methods

Stakeholders in animal, human, and local administrative sectors were interviewed to describe Pattaya's rabies pre- vention and control practices. Document reviews and observations on routine rabies prevention and control prac- tices were also performed.

Results

Health and veterinary sectors under Pattaya's authority provide rabies control programs (i.e., health literacy, vacci- nation campaign, sterilization of stray dogs, and shelter support). Private animal hospitals are strong partnerships. However, the survey of dog populations was not implemented. Managing stray dogs is difficult due to the Non- Government Organizations' involvement and unavailable shelters. During animal rabies event occurrence, both health and veterinary sectors have collaborated. Contact tracing and vaccination were performed among rabies animal bite patients. Also, animal ring vaccination was done; however, the coverage area was only 200 meters of radian instead of five kilometers as per the guideline. There was limited regional or national support during the increasing rabies events.

Conclusions

Pattaya city has ability, resources and facilities to implement the One Health approach for rabies prevention and control. However, they still need aid and guidance from central government sectors. The health sector should pro- mote pre-exposure prophylaxis vaccination campaigns among people in the area affected by rabies events. Mass vaccination campaigns among susceptible rabies animals with the assistance of the Department of Livestock Devel- opment 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.

The impact of climate change on maternal and children's health under five years of age in Kiribati

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Mr. Teanibuaka Tabunga [1], ***Dr. David Angelson*** [2], ***Dr. Helen Brown*** [3], ***Dr. Kate Kennett*** [4]

1. *Ministry of Health and Medical Services,* ***2.*** *Harvard University,* ***3.*** *Curtin University,* ***4.*** *MHMS Former Lead Researcher on Climate Change and Health in Kiribati*

Background

Kiribati is situated in the central Pacific, and its population of >110,000 people is facing numerous challenges related to climate change. Climate change (CC) will impact on a significant number of non-communicable and communicable diseases that are of concern in Kiribati. This study focused on the potential health impacts related to projected changes in temperature and rainfall on several key diseases related to child and maternal health, including acute respiratory infection, malnutrition, and diarrhoeal diseases, and maternal conditions such as pregnancy-induced hypertension (pre-eclampsia and eclampsia), and premature birth.

Methods

A systematic review was conducted to explore related articles that show the associations between climate change variables, selected diseases, and selected maternal health conditions. A search engine was used to identify key words such as 'temperature,' 'rainfall,' and 'sea level, towards 'maternal health,' and selected diseases: 'gastroen- teritis,' 'malnutrition,' and 'acute respiratory infection.' Further search terms were 'effect of climate change' OR 'rising sea levels' OR 'rising temperature' OR 'rainfall' AND 'maternal health' OR 'Child health' AND 'diarrhea' OR 'acute respiratory infection' OR' malnutrition' AND the 'western Pacific region' OR 'developing countries' OR 'de- veloped countries.' Selected articles were stored in an Endnote database; data were compiled in a table. A similar method was used when studying the Kiribati national climate change adaptation plan. Key words searched for were 'diarrhea,' 'malnutrition,' 'acute respiratory.

Results

A total of 50 articles related to child and maternal health sequelae of climate change. Ten articles addressed PIH and CC, and proposed mechanisms. Eight posited a relationship. between premature birth and CC, ten found an association between malnutrition and CC, thirteen noted a relationship between diarrhea and CC, and fourteen found a correlation between acute respiratory infection and CC. This selection of studies provides evidence of the adverse impact of climate change on maternal and children's health. Diarrheal diseases [1], malnutrition [2,3], acute respiratory infection[4], and pregnancy-induced hypertension and preterm birth [5] have all been linked to CC. Therefore, a series of recommendations were developed to address the adverse impacts of CC on child and maternal health.

Discussion

Under-5 child mortality (U5M) and morbidity – as well as that of their mothers - are crucial social and economic determinants of health in both developed and developing countries [6,7,8]. One-third of children's mortality occurs within the first month of life [9]; improving maternal health is therefore doubly significant, as maternal health and child mortality are closely related. Targeting these two groups is vital to improving the health status of populations in developing countries, where 99% of maternal and children's mortality occurs [10]. Infant mortality rate remains a vital indicator of population health [11].

Conclusions

Climate change is a global concern, with effects including extreme weather events and emerging health threats. Kiribati is on the front line of climate change [12], facing multiple interrelated challenges. Numerous studies and health stakeholder reports state that the adverse direct and indirect impacts of climate changes are increasing mortality and morbidity, particularly for mothers, the old, and young children under the age of five in developing countries [13,14]. The primary purpose of the study was to explore and identify the impact of climate variables on maternal and children's health. For maternal health, the study focused on common complications such as PIH and preterm birth; for children's health: gastroenteritis, malnutrition, and acute respiratory infections. This set of conditions was identified by the Ministry of Health and Medical Services (MHMS) as the most common in South Tarawa (the most populous municipality) and Betio (its largest township) in the Republic of Kiribati [15]. However, despite a wide range of studies done on the adverse impact of climate change on maternal and child health, very little is known about the direct correlations between climate variables and particular diseases such as diarrhea, acute respiratory infections, and maternal conditions, especially in the most vulnerable developing countries such as Kiribati. Findings of climate change's adverse impact on maternal and child health may be useful for policy makers when planning climate change adaptation strategies and policies related to these diseases and to maternal conditions that are aggravated by climate change.

Varicella vaccine coverage of children living in agricultural and pasture areas and factors influencing coverage, Qinghai Province, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Bingju Guan [1], ***Mr. Kezhong A*** [2], ***Mr. Fuzhen Wang*** [3], ***Mr. Haishan Zhu*** [4]

1. *China FETP, China CDC,* ***2.*** *Qinghai Center for Disease Control and Prevention,* ***3.*** *National Immunization Program, Chinese Center for Disease Control and Prevention,* ***4.*** *Minhe Center for Disease Control and Prevention*

Background

Starting in October 2021, one dose of live attenuated varicella vaccine was recommended for 3-15-year-old children in Qinghai. In 2022, we conducted an investigation of varicella vaccine coverage and factors influencing coverage among children in rural agricultural and pasture areas to determine the impact of this varicella vaccine catch-up policy.

Methods

From three rural and pastoral counties in Qinghai Province, we selected a middle kindergarten class, a third-grade primary school class, and an eighth-grade junior middle school class for evaluation. We conducted a questionnaire- based survey of the students' parents in the selected classes using *Questionnaire Star Online* APP. We used SPSS 25.0 to analyze vaccine coverage. Multivariate logistic regression was used to analyze influencing factors.

Results

In total, 926 parents were invited to participate and 855 valid questionnaires were returned, for a 92% response rate. Overall varicella vaccine coverage was 79%, an increase of 34 percentage points compared with coverage before the catch-up policy was implemented. Coverage in rural agricultural areas (91%) was higher than in pasture areas (64%). The highest coverage was among junior middle school students (81.4%), followed by primary school students (79.2%) and kindergarteners (76.8%). Parents considered vaccination clinic medical staff as preferred sources of knowledge about vaccines. Multivariate logistic regression showed that two factors were significantly associated with higher varicella vaccine coverage: children attending schools in rural agricultural areas (OR=0.209, 95% CI: 0.137-0.317) and children whose parents had higher vaccine knowledge scores (OR=0.336, 95% CI: 0.207-0.547).

Conclusions

Although varicella vaccine is not included in Qinghai's Expanded Program on Immunization, implementation of a catch-up vaccination policy significantly improved varicella vaccine coverage. Educational publicity about the benefits of varicella vaccine should be strengthened through multiple channels, especially among medical workers in vaccination clinics, to promote voluntary, family-paid varicella vaccination and improve varicella vaccine coverage of school-age children as soon as possible.

Evaluation of surveillance system for measles through Integrated health Information Platform (IHIP) in the state of Rajasthan, India: January - June 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Anurag Dhoundiyal [1], ***Dr. Sushma Choudhary*** [2], ***Dr. Ravi Prakash Sharma*** [3], ***Dr. Praveen Aswal*** [4], ***Dr. Tanzin Dikid*** [5]

1. *EIS Officer,* ***2.*** *South Asia Field Epidemiology and Technology Network, New Delhi,* ***3.*** *State Surveillance Officer, IDSP Rajasthan,* ***4.*** *State Nodal Officer, IDSP Rajasthan,* ***5.*** *tanzindikid@gmail.com*

Background

India resolved to eliminate measles by 2023. Effective surveillance is crucial to achieve elimination. In 2018 paper based Integrated Disease Surveillance Programme (IDSP) transitioned to web and android app based Integrated health Information Platform (IHIP) to generate real time data of communicable diseases including measles. The data is reported through Syndromic (S), Probable (P) and Laboratory (L) form using mobile app or web portal. We evaluated surveillance system for measles through IHIP in Rajasthan.

Methods

We conducted a cross-sectional study in two districts of Rajasthan selected based on best and worst reporting performance on IHIP portal (Bharatpur 94% and Churu 19%). We interviewed stakeholders at all organizational levels, reviewed measles case investigation forms and reports from the IHIP portal as well as Vaccine Preventable Disease surveillance system. We assessed the structure of measles data flow in the surveillance system. Total measles cases in the state from January to June 2022 through various surveillance networks were collected to assess sensitivity of IDSP.

Results

A total of 35 stakeholders were interviewed, 32% (11/35) of them were not trained in the measles case identification and reporting, 100% of stakeholders felt they were adequately trained in reporting on IHIP portal. S form reporting was 0% in district with web-based reporting and 52% in districts where mobile app was used. 91% (32/35) of stake- holders found IHIP better tool for reporting than IDSP and 83% (29/35) found the reporting transition easier, 40% (14/35) received feedback from supervisor. Stability score was 97% (availability of trained human resources). Six percent (2/36) measles cases were reported on IHIP out of total measles cases in the state.

Conclusions

IDSP measles surveillance has transitioned to IHIP. Surveillance is stable, simple in terms of knowledge and reporting; acceptability is good with IHIP app but not with web portal. Sensitivity is low as the system is not capturing cases in IHIP.

Hospital Record Review of Acute Flaccid Paralysis in-Lhokseumawe City for Polio Outbreak Control, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Tutik Inayah Susilaningsih [1], ***Ms. Noer Farakhin*** [2], ***Mr. Samuel Pramadisa*** [3], ***Mrs. Yekti Praptiningsih*** [4], ***Dr. Haripurnomo Kushadiwijaya*** [5], ***Mr. Frans Yosep Sitepu*** [6], ***Dr. Bayu Satria Wiratama*** [7]

1. *FETP Universitas Gadjah Mada,* ***2.*** *FETP Universitas Airlangga,* ***3.*** *FETP Universitas Udayana,* ***4.*** *U.S. Centers for Disease Control and Prevention (CDC),* ***5.*** *Indonesia FETP,* ***6.*** *Provincial Health Office of North Sumatera,* ***7.*** *Department of Biostatistic, Epidemiology and Population Health Universitas Gadjah Mada*

Background

Hospital Record Review (HRR) of Acute Flaccid Paralysis (AFP) in Lhokseumawe City was carried out after one case of VDPV2 was reported from Pidie District, Aceh Province, Indonesia and declared as an outbreak. The objective of HRR was to estimate unreported cases from AFP routine reporting systems.

Methods

We conducted a descriptive study among hospitals and public health centers (PHC) in-Lhokseumawe City. We re-viewed manual and electronic register lists in all clinics where they treat children under 15 years, including the emergency room, pediatric clinic, neurologic clinic, inpatient care, and integrated management of childhood ill- ness (IMCI) clinic at the PHC from January to December 2022. We defined suspected cases of AFP as all the cases with differential diagnoses that could potentially lead to AFP, according to the guidelines of the national expert committee. The data were recorded on the HRR register and confirmed with the responsible doctor.

Results

A total of six hospitals, seven PHCs, one integrated healthcare center (*posyandu*) and one childcare center were visited and reviewed. We found eighteen suspected cases that could potentially lead to AFP. Most suspected cases were male (56%), children <5 years (72%). The diagnosis was meningitis (17%), encephalopathy (17%), growth delayed (16%), cerebral palsy (11%), typhoid with severe dehydration (11%), marasmus (11%), monoplegia (6%), polyneuropathy (6%), and SLE (5%). Eleven (61%) suspected cases were gathered from hospitals, 4 (22%) from PHC, 1 (6%) from posyandu and 2 (11%) from childcare. 7 cases (39%) from North Aceh and 11 (61%) suspected cases from Lhokseumawe. All suspected cases were not reported to the Lhokseumawe District Health Office. After confirmation, fifteen cases were excluded and three cases needed a follow-up.

Conclusions

Eighteen suspected AFP cases were unreported at Lhokseumawe. We encourage health facilities to conduct HRR regularly, strengthen hospital-based surveillance, and ensure proper follow up of cases.

Patient Knowledge and Perception about Antibiotics in Community Pharmacy

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Priya Chand [1]

1. *Fiji National University*

Background

The emergence and rapid spread of antibiotic resistance worldwide raises a serious question about the understanding of the important life-saving value that antibiotic agents offer in the therapeutics of infectious diseases. Studies have demonstrated that the general public has contributed significantly to the phenomenon of antibiotic resistance to microorganisms. Therefore, a behavior diagnostic study is warranted to determine what patients visiting the community pharmacy in Nausori, Fiji Islands understand about the likelihood of antibiotic resistance and the consequences of successful treatment of infectious diseases.

Methods

This was a cross-sectional survey which enrolled 200 consenting participants visiting the pharmacy with prescrip- tion for antibiotics from July to September, 2021, using convenience sampling strategy. A validated structured questionnaire was constructed for data collection including participants' knowledge and perception of the characteristic features of antibiotic use and its benefits. Data collected were analyzed using Microsoft excel and Epi Info Software version 7 which was used to determine predictors of low antibiotic knowledge at 5% level of significance.

Results

Findings showed that 70.5% of the respondents reported an average level of knowledge about the properties of antibiotics. 83.5% of the respondents had misconceptions that antibiotics would work on viral infections while 82% correctly identified misuse of antibiotics can result in antibiotic resistance. The age, educational level, and whether the participants were studying or working in medical field were found as important predictors of antibiotic knowledge.

Conclusions

The findings of this study demonstrate that the public surveyed had misunderstandings and alack of knowledge in some crucial aspects of prudent antibiotic use. Also, negative attitudes regarding rational use of antibiotics were evident. Educational interventions are required to promote rationale use of antibiotics among the general public.

Outbreak Investigation of Vancomycin-Resistant Enterococcus in a City Hospital — Shizuoka, Japan, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Tomimasa Sunagawa [1], Dr. Maki Masutani [1], Dr. Shogo Otake [1], Dr. Hitomi Kurosu [1], Ms. Yasuko Shirai [2], Dr. Takuya Yamagishi [1], Dr. Tomoe Shimada [1], Mr. Katsunori Sano [2], Ms. Terumi Mitsui [3], Ms. Keiko Anbe [3], Dr. Takeshi Anma [3], Ms. Hiromi Nagaoka [4], Dr. Hanako Kurai [5]

1. *National Institute of Infectious Diseases,* ***2.*** *Numazu city hospital,* ***3.*** *Shizuoka Prefecture Eastern Region Public Health Center,* ***4.*** *Shizuoka Environment and Hygine Institute,* ***5.*** *Shizuoka Cancer Center Hospital*

Background

Vancomycin-Resistant Enterococci (VRE) is an antimicrobial-resistant (AMR) pathogen prioritized for prevention in Japan. The frequency of VRE detection has remained low in Japan, where even a single detection of VRE is considered an outbreak. A city hospital in Shizuoka, Japan, experienced a VRE outbreak, and we conducted a joint investigation with the hospital's infection control team (ICT), a local public health center, and local experts. This report describes the successful collaboration with multiple stakeholders in responding to this AMR event.

Methods

This is a cross-sectional study. A case was defined as a hospitalized patient who tested positive for vancomycin-resistant *Enterococcus faecium* (VREfm, *E. faecium* with a minimum inhibitory concentration of vancomycin ≥16 μg/mL) by samples obtained in the hospital between 1 October 2020 and 17 October 2022. We reviewed the baseline data of VRE detection at the hospital, screening criteria, and information on cases from patient charts, interviewed healthcare workers, and inspected hand hygiene and possibly cross-contaminated materials in affected wards.

Results

Among 160 cases identified, 109 (68%) were male, and the median age was 79 (range 32–103) years. Cases were identified in eight of nine wards, with 111 cases (73%) occurring in two wards. Fourteen cases (9%) were found positive within three days after admission. Suboptimal hand hygiene, especially during patient bathing, and sharing of possibly cross-contaminated materials were observed. Awareness of VREfm and the outbreak varied among staff members. The hospital reinforced infection prevention and control measures including introduction of monthly screening of all inpatients from July 2021 and continued to monitor the outbreak with mutual support from local stakeholders.

Conclusions

This large-scale, long-standing nosocomial outbreak of VREfm was addressed by multiple stakeholders including the hospital ICT, local public health center and local experts, and national experts. This collaborative effort can serve as a model for controlling the spread of AMR pathogens.

An Epidemiological Study of Ventilator Associated Pneumonia in X Hospital in 2022, Ulaanbaatar, Mongolia

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Mrs. Uranchimeg Adiyakhuu [1], ***Ms. Munkhzul Battsend*** [1], ***Dr. Enkhmaa Gonchigsumlaa*** [2], ***Dr. Azjargal Batjargal*** [3]

1. *Mongolian Field Epidemiology Training Programme,* ***2.*** *Metropolitan Health Department,* ***3.*** *Field Epidemiology Department, National Center for Communicable Diseases, Mongolia*

Background

Ventilator-associated pneumonia (VAP) is one of the most common hospital infections and a side effect of a lengthy stay in an intensive care unit (ICU). In Mongolia, 127 VAP cases were reported, which was 50.4% of healthcare-acquired infections (HAIs) in 2021. We aimed to determine the prevalence of VAP and its bacterial causes in these patients in X hospital.

Methods

We conducted a retrospective cross-sectional study. The suspected case definition of our study was patients who developed pneumonia symptoms including fever above 38°C, purulent sputum, cough, increased respiratory rate, and X-ray changes after 48 hours under mechanical ventilation in ICU in departments of X Hospital, Mongolia, from January 1 - December 31, 2022. Demographic data, clinical and laboratory findings, and the outcome of the patients were extracted from the patient's clinical profiles. We used Epi-Info 7 for descriptive analysis.

Results

168 patients underwent mechanical ventilation during the study period. Among them, 13 patients (7.7%), with a mean age of 63.8 years (ranging from 30-93), met the suspected case definition of VAP, with 61.5% being male. The mean hospital stay was 12.6 days. The most common clinical symptoms observed were fever (76.9%), purulent discharges (53.8%), wheezing (23.7%), and cough (15.3%) . The mortality rate due to VAP was 76.9%. Only 5 (38.4%) cases were confirmed through bacteriological laboratory tests which was all *acinetobacter spp* (100%). Four out of five patients (80%) were resistant to more than one antimicrobial drug.

Conclusions

Based on our findings, the prevalence of VAP and its associated mortality in X hospital were 7.7% and 76.9%, respec- tively. The most common symptoms were fever, purulent discharge, wheezing, and cough. *Acinetobacter spp* was the only pathogen identified in sputum cultures of confirmed cases and 80% of them were resistant to more than one antimicrobial drug.

Investigations into a COVID-19 Cluster involving the Basement of a Hospital in Singapore, 2021

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Dr. Santhya M [1], ***Dr. Seow Yen Tan*** [1]

1. *Singapore FETP*

Background

The primary case of the COVID-19 cluster developed symptoms on 30 August 2021. Symptom onset in 72% of secondary cases occurred from 1 – 3 September, following which sporadic cases were identified till 16 September. Of the 57 staff in this cluster, six did not work in the basement, but visited the basement or had social interactions with staff who worked there. All staff were fully vaccinated at the time of investigation.

Methods

Site visits were conducted to identify risk factors. CCTV footage from the corridors and staff clock in/clock out areas was reviewed. We also conducted interviews with selected staff to understand staff movements, interactions and activities surrounding the time when the outbreak occurred. Further details were obtained with assistance provided by in house staff.

Results

58% of those affected were outsourced maintenance staff who spend substantial time in a common workshop and rest area. Propagation of infection within this group likely occurred in common areas such as the Facilities Manage- ment workshop, male toilet and through household transmission as some staff lived together across 6 households in rented apartments. Transmission to other areas in the basement could have also occurred during visits by maintenance staff, coupled with the lack of safe distancing and unmasked interactions in crowded common areas. 32 phylogenetically sequenced cases belonged to the same parent node, supporting findings from the investigation.

Conclusions

Air and droplet, fomite and multiple mode exposures accounted for the transmission of infection within this cluster. Poor ventilation facilitated rapid spreading of infection. Mitigating measures done include improving ventilation by upgrading AHU filters and exhaust mechanisms, increasing disinfection of common areas daily and introducing non-touch clock in/clock out points. Split team arrangements to access high traffic points, improved education, enforcement of infection prevention and control measures and keeping up to date with COVID-19 vaccination can also help.

Race against time: Estimating the impact of Vietnam's COVID-19 vaccination program

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Nhon Ho [1], ***Dr. Quang Pham*** [1], ***Dr. Robyn Stuart*** [2], ***Ms. Khanh Linh Tran*** [1], ***Dr. Quang Luong*** [1], ***Dr. Cliff Kerr*** [2]

1. *Pasteur Institute in Ho Chi Minh City,* ***2.*** *Institute for Disease Modeling, Bill & Melinda Gates Foundation*

Background

COVID-19 has led to millions of deaths and billions of infections globally. For the first 18 months of the pandemic, Vietnam successfully maintained a "COVID zero" policy, with relatively few infections, until vaccinations could be rolled out at scale. Our aim was to estimate the impact of COVID-19 vaccines in the Southern region with a population of 23 million people.

Methods

We used Covasim, an agent-based model of COVID-19 dynamics and interventions, and data from the General Department of Preventive Medicine, the National Institute of Hygiene and Epidemiology, and the Pasteur Institute in Ho Chi Minh City. The model was calibrated to cases, deaths, and vaccinations in the Southern region of Vietnam from May 2021 to May 2022. We then used Covasim to model three different scenarios of the vaccination program (no vaccination program, status quo, and one month earlier vaccination program) in the Southern region of Vietnam over the same period, and estimated cumulative infections and deaths.

Results

During the peak of the Delta wave in August 2021, diagnosed cases reached 10,000 per day while deaths reached 400 per day. Due to the increasing vaccination rate, while the wave in December 2021 had similar numbers of diagnoses, only half as many deaths were recorded. With no vaccination program, from May 2021 to May 2022 there would have been roughly an estimated 65 million infections and 630,000 deaths in the 20 southern provinces. With the vaccination program, an estimated 60 million infections and 200,000 deaths occurred. Thus, roughly 400,000 deaths were averted by Vietnam's vaccination program in the Southern provinces.

Conclusions

Efficient public health and social measures, together with high population compliance, contributed to limiting the spread of SARS-CoV-2 in Vietnam, especially combined with the mass vaccination program.

Using 'infodemics' to understand public awareness and perception of SARS-CoV-2: A longitudinal analysis of online information about COVID-19 incidence and mortality during a major outbreak in Vietnam, July—September 2020

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Ha Linh Quach [1], ***Mrs. Ngoc-Anh Hoang*** [2], ***Dr. Cong Khanh Nguyen*** [3], ***Prof. Quang Thai Pham*** [3], ***Dr. Florian Vogt*** [2]

1. *Duke-NUS Medical School, Singapore,* ***2.*** *Australian National University,* ***3.*** *National Institute of Hygiene and Epidemiology*

Background

Trends in the public perception and awareness of COVID-19 over time are poorly understood. We conducted a longitudinal study to analyze characteristics and trends of online information during a major COVID-19 outbreak in Da Nang province, Vietnam, in July-August 2020 to understand public awareness and perceptions during an epidemic.

Methods

We collected online information on COVID-19 incidence and mortality from online platforms in Vietnam between 1 July and 15 September, 2020, and assessed their trends over time against the epidemic curve. We explored the associations between engagement, sentiment polarity, and other characteristics of online information with different outbreak phases using Poisson regression and multinomial logistic regression analysis. We assessed the frequency of keywords over time, and conducted a semantic analysis of keywords using word segmentation.

Results

We found a close association between collected online information and the evolution of the COVID-19 situation in Vietnam. Online information generated higher engagements during compared to before the outbreak. There was a close relationship between sentiment polarity and posts' topics: the emotional tendencies about COVID-19 mortality were significantly more negative, and more neutral or positive about COVID-19 incidence. Online newspaper reported significantly more information in negative or positive sentiment than online forums or social media. Most topics of public concern followed closely the progression of the COVID-19 situation during the outbreak: development of the global pandemic and vaccination; the unfolding outbreak in Vietnam; and the subsiding of the outbreak after two months.

Conclusions

This study shows how online information can reflect a public health threat in real time, and provides important insights about public awareness and perception during different outbreak phases. Our findings can help public health decision makers in Vietnam and other low- and middle-income countries with high internet penetration rates to design more effective communication strategies during critical phases of an epidemic.

Depressed and stressed: working conditions and mental well-being among community health workers during the COVID-19 response in Vietnam, 2021

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Ha Linh Quach [1], ***Mrs. Ngoc-Anh Hoang*** [2], ***Prof. Quang Thai Pham*** [3], ***Mr. Van Ngoc Hoang*** [4], ***Mr. Huy Luong Duong*** [4], ***Dr. Cong Khanh Nguyen*** [3], ***Dr. Florian Vogt*** [5]

1. *Duke-NUS Medical School, Singapore,* ***2.*** *Australian National Univeristy,* ***3.*** *National Institute of Hygiene and Epidemiology,* ***4.*** *Ministry of Health,* ***5.*** *Australian National University*

Background

Mental health among community health workers (CHWs) participating in the COVID-19 response is often overlooked, risking the sustainability of community-based pandemic response in many low-and-middle-income countries. To enable targeted support interventions, we identified distinct profiles of working conditions during COVID-19 response activities among CHWs in Vietnam and examined how these profiles were associated with depression and stress.

Methods

Latent class analysis and multivariable regression were applied to cross-sectional data from an online survey among 979 CHWs, collected during the peak of the COVID-19 pandemic in Vietnam (January –March 2021). Working condition profiles were fitted based on CHWs' self-reported satisfaction and assessment of their working conditions and frequencies of exposure to confirmed or suspected COVID-19 cases. Depression symptoms and stress levels were measured by the Patient Health Questionnaire-9 and the Perceived Stress Scale-10, respectively.

Results

Four working condition profiles were identified: "intense and balanced" (33.2%), "low intensity and satisfied" (19.0%), "highly intense and satisfied" (22.1%), and "highly intense and dissatisfied" (25.7%). "Highly intense and dissatisfied" CHWs tended to have significantly higher depression scores and stress scores than CHWs who perceived their work as "intense and balanced" (β=1.38; 95%CI 0.71 – 2.05 and 1.66; 0.95 – 2.36, respectively). CHWs with "low intensity and satisfaction" profiles were less likely to be depressed or stressed than their "intense and balanced" counterparts (-1.19; -1.89 – -0.48 and -1.92; -2.66 – -1.18, respectively).

Conclusions

We found one fourth of CHWs in Vietnam to be working under highly intensive and dissatisfied conditions during the COVID-19 response, which was associated with higher prevalence of depression symptoms and stress. Targeted interventions are needed to improve mental health among CHWs at risk of developing depression or stress and to improve their working conditions in order to protect them from negative impacts through prolonged pandemic response activities.

Long COVID Baseline Study - South Australia, 2023

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Ms. Emma Northcote [1], ***Dr. Danica Liu*** [2], ***Dr. Ingrid Lensink*** [2], ***Mrs. Emma Denehy*** [2], ***Dr. Megge Miller*** [3]

1. *The Australian National University,* ***2.*** *South Australian Department of Health,* ***3.*** *University of Newcastle*

Background

Prevalence estimates for Post-COVID-19 Condition (long COVID) are highly variable (2-43%). Due to different pandemic control strategies employed globally, published data is largely unable to describe long COVID relative to South Australia.

Hospital emergency departments and general practice are examples of healthcare service settings reporting ongoing pressures with easing of COVID-19 restrictions, despite the introduction of dedicated long COVID outpatient clinics. We aimed to investigate associations between long COVID and service utilisation, compared with recovered individuals and estimate the proportion of adults with long COVID, 5.5 months after initial diagnosis.

Methods

The notifiable disease database was used to select and electronically distribute a survey to adults who were diagnosed with COVID-19 between 16-22 July 2022. Individuals with recent reinfection were excluded. Existing data were combined with valid survey responses to provide demographic, medical risk factors and self-reported history and service utilisation. Odds ratios were calculated, adjusted for confounders using multiple logistic regression.

Results

Valid responses were received for 21.9% of total invitations issued (n=5,153), with 1 in 5 reporting long COVID symptoms at 5.5 months (OR 20.4%, 95%CI 19.1-21.8).

Adjusting for demographic and medical risk factors health service utilisation is higher for cases (aOR 2.4, 95%CI 2.03-2.93) than for recovered individuals, with only 0.57% of cases (n=6) using dedicated long COVID clinics. Long COVID cases reported higher utilisation of general practice (aOR 3.48, 95%CI 2.15-5.64) and hospital emergency departments (aOR 2.07, 95%CI 1.54-2.78).

Conclusions

Results indicate a higher proportion of long COVID progression than recently published estimates from comparable Australian studies. Significant associations exist between long COVID and utilisation of South Australian health services, particularly in emergency departments and general practice. We recommend a review of health service delivery and systematic surveillance for long COVID.

Dysentery outbreak among logging workers, Toki Logging Camp - Nakanai District, West New Britain Province, 17-20 March 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

Mr. Bernard Titang [1], ***Mr. Herman Waina*** [1], ***Mr. Richard Bulo*** [1], ***Ms. Bethseba Peni*** [1]

1. *Ministry of Health*

Background

Dysentery is an infectious disease that causes inflammation of the intestine resulting in severe bloody diarrhea, and is transmitted through contaminated food and water. Dysentery is diagnosed with clinical symptoms and laboratory confirmation through stool cultures.

On 18 March 2022, a total of seven logging workers presented to Baea Community Health Post with bloody diarrhea. The Public Health office was alerted, and officials were deployed to the site to respond to the outbreak.

Methods

In Toki logging camp, the team reviewed health records and tally sheets of Baea Community Health Post from 17-20 March 2022. A case was defined as a person living in Toki logging camp who had bloody diarrhoea and abdominal pain between 17-20 March 2022. An environmental inspection in Toki logging camp was conducted using unstructured questionnaires and general observations. Data was collected and written on paper and then entered into and analyzed with Microsoft Excel 2016.

Results

A total of 41 cases met the case definition. The overall attack rate was 11% (41/345). Twenty-nine (71%) cases were males, and 17 (41%) were aged 25 years and above. Of the 41 cases, 31 (76%) presented with fever. Environmental inspection revealed poor sanitation practices (open defaecation, poor hand hygiene) untreated water source and old rusty container used for water storage.

Conclusions

It was concluded that the dysentery outbreak may have been caused by poor water and sanitation practices.

Six Events, a Caterer and a Norovirus Outbreak – Canberra, November 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

Foodborne norovirus outbreaks are a significant cause of morbidity and loss of productivity. We investigated an outbreak of gastroenteritis associated with a caterer who supplied food to events in Canberra over three days in November 2022.

Methods

Event attendees were surveyed using tailored food questionnaires developed in REDCap, with retrospective cohort studies conducted for events on two days. Univariate analysis, followed by multivariate analyses were performed. Employees were surveyed regarding days worked, foods prepared, illness and ill contacts and faecal specimens were collected from symptomatic event attendees. A food safety inspection was undertaken, and food and environmental samples were collected for microbiological analysis.

Results

108/134 (81%) attendees on the two days completed the food questionnaire. Univariate analysis identified that illness was significantly associated with consumption of egg sandwiches on day one (RR 1.6, 95% CI 1.1-2.5, P = 0.02) and teriyaki beef sushi and any sushi on day two (RR 2.1, 95% CI 1.7-2.7, P = 0.03; RR 1.6, 95% CI 1.1-2.5, P = 0.02). Egg sandwiches were independently associated with illness on multivariate analysis (aOR 3.9, 95%CI 1.2–15.0, P = 0.03). Seven faecal specimens from cases were positive for norovirus by PCR testing. While no food handlers reported illness prior to the outbreak, one food handler reported their child had gastroenteritis in the preceding week. The environmental inspection identified inadequate handwashing facilities. Microbiological testing of seven food samples produced two marginal results: coagulase positive *Staphylococcus* in a sandwich egg mix and a high standard plate count in the roast beef.

Conclusions

The source of norovirus infection was suspected to be an asymptomatic infected food handler and inadequate food-handling controls at the catering business allowing contamination of certain foods. As asymptomatic individuals can excrete and transmit norovirus this outbreak highlights the importance of maintaining hand hygiene and food handling controls.

HIV-AIDS Key Populations Outreach in Magelang City, Central Java Province, 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

Central Java is the province with the 4th highest HIV cases in Indonesia (47,417). Magelang city has the lowest HIV cases. The collaboration between Magelang City Health Office and NGO (Kalandara) was carried out to expand the case finding in key populations (KPs). This study aims to map the hotspot of KPs and conduct screening to prevent HIV/AIDS transmission.

Methods

We conducted a descriptive study from 9-13 August 2022. KPs are people who engage in risky behaviors, namely female sex workers (FSW), shemale, men have sex with men (MSM) met at hotspots in Magelang City and injec- tion drug users (IDU). Key population mapping used two methods: physical (face-to-face) and virtual communica- tion. The physical hotspot is a public place where key populations gather and meet customers or partners. Virtual hotspots are websites, social media, and applications where key populations usually socialize in cyberspace, find dates or meet customers. The mapping results were screened with voluntary counseling and testing services with standardized HIV testing.

Results

We found 864 persons as KPs from 116 physical hotspots and 56 virtual hotspots. Three-quarter (75%) were MSM. Shemale was only found in physical hotspots because they organized such events to gather. The team could not reach the IDU during these activities. All the key populations agreed to be screened for HIV testing. We found four HIV positive cases (AR 0.6%), all MSM aged 15-24 years.

Conclusions

The dynamic KPs of HIV/AIDS in Magelang was mapped, and we found four HIV-positive cases among MSM. Engage- ment with local NGOs contributed to outreach improvement to key populations, so it should be conducted routinely. Strengthening health promotion related to HIV/AIDS prevention, especially among young MSM groups, is needed.

Improving HIV reporting practices in East Sepik, Papua New Guinea, June to August 2022

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

Papua New Guinea (PNG) follows the UNAIDS 'Test and Treat' approach to end AIDS as a global threat by 2030. In 2020, PNG had a notable increase in new HIV infections, low treatment retention rates, high drug resistance rates and an increase in people living with HIV. Yet many cases were likely not identified; in 2020, national HIV reporting completeness was just 65%. In East Sepik Province, a 2021 surveillance evaluation showed only 19% of reporting was timely and 50% of reports were complete. To address this, an intervention was conducted to improve HIV surveillance timeliness and completeness in 2022.

Methods

The intervention comprised of onsite staff training on HIV reporting procedures and monthly reminders to improve communication. The intervention targeted 75 health workers at the 13 HIV reporting facilities in East Sepik from June to July 2022. Data were collected from monthly reporting forms, the HIV reporting register and pre- and post-training tests assessing staff knowledge of HIV surveillance. Data were analyzed through descriptive methods. Timeliness was defined as reports submitted before the 10th day of the month and completeness as the total number of reports submitted with at least one field filled.

Results

Exceeding the training target, 97 (129%) health workers were trained and 180 phone reminders were sent. The average knowledge score for pre-tests was 5%, increasing to 26% post-training; knowledge of data collection tools and standard practices remained low. In the six months' post-intervention, reporting timeliness increased from 19% to 100% and completeness from 38% to 85%.

Conclusions

On-site training and monthly reminders were effective interventions to improve timeliness and completeness of HIV reporting in East Sepik. Increasing health worker knowledge of surveillance practices and tools remains a priority, along with assessing and improving reporting accuracy. The training will be rolled out to the remaining district of the province.

Misclassification of Congenital Syphilis Report and Its Associated Factors – Health Region 9, Thailand, 2018-2021

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

Congenital syphilis (CS) is a significant public health problem in many parts of the world including Thailand. The World Health Organization established the global elimination of CS initiative. The rate of CS is a measure used globally to assess national situation with standard surveillance case definitions to consistently classify and count cases . CS cases are however commonly misclassified. The purpose of this study was to determine the frequency of CS misclassification and its associated factors.

Methods

An analytical cross-sectional study of 189 reported CS cases between 2018 and 2021 was conducted in Health Region 9 of Thailand. CS investigation forms were used to collect newborn characteristics and other factors associated with misclassification. The verification of CS cases was conditioned upon the global surveillance case definition. Logistic regression analysis was used to determine factors associated with misclassification. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated.

Results

A total of 189 reported cases by Health Region 9 were included in the analysis. Of those, 136 cases (72.0%) were misclassified. The most common characteristics among misclassified cases were being reported as adequacy of maternal treatment (n=96, 70.6%), performing CSF analysis (n= 94, 69.1%), occurring nonreactive CSF-VDRL test (n=89, 65.4%), and completing a 10-day course of Penicillin G (n=73, 53.7%). The misclassification among reported cases was associated with missing data of CSF analysis status (OR: 10.9, 95% CI: 1.09-109.39) and adequacy of maternal treatment (OR: 7.1, 95% CI: 1.86-26.80).

Conclusions

A substantial proportion of misclassified cases seriously affected case counting for public health surveillance purposes. Significant factors identified were the adequacy of maternal treatment and the presence of missing data of CSF analysis status. Therefore, the history of maternal treatment and infant tests should always be taken into consideration in surveillance and monitoring of CS.

Enhanced Community Disease Surveillance, Post-flooding (Typhoon Ulysses) in Cagayan Valley amidst COVID-19 Pandemic, Philippines, November 18-29, 2020

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

The Philippines is considered as the most exposed country in the world to tropical storms. Approximately 20 tropical cyclones enter the Philippine area of responsibility every year and have at least five to develop as typhoons with potential to be destructive. These extreme weather conditions have caused massive flooding, destruction of properties, displacement of families, and disruption in health care delivery. The establishment of a community enhanced disease surveillance system during natural disasters helps to detect clustering of diseases and outbreaks in co-occurrence with a global pandemic.

Methods

We identified disease reporting units affected by the flooding in the Cagayan Valley Region. We created a disease surveillance form which contains demographics of the patient (name, age, sex, address, barangay, city/municipality, and province) and the diseases with potential for outbreak during calamities including COVID-19. Case definitions for each disease and other health conditions such injuries were also written. All reports were made on a daily basis and encoded on a prepared Google sheet. Zero reporting was encouraged. All generated data were submitted to the Epidemiology Bureau of the Department of Health and analyzed using Microsoft Excel.

Results

Among the 63 disease reporting units which include rural health units, both public and private hospitals, 56 (88%) health facilities reported cases. There were 2, 312 cases reported within the 12-day period of surveillance. The top reported diseases and health conditions were Injuries (238), Acute respiratory infection (219), Dengue (106), Acute watery diarrhea (63), Influenza-like illness (32), and Leptospirosis (30).

Conclusions

Most natural disasters put a heavy strain on the health or public health system. Thus, disease surveillance is inevitable because it prevents death, major injuries and disease spread in disaster situations. It helps the responders know what the needs are, plan the response and gather the appropriate resources.

Mobilization of Rapid Response Team and Information Management during Yeti Airlines plane crash in Pokhara, Nepal

Tuesday, 12th September - 13:30: (Foyer or Lobby) - Poster

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Background

Uncertain weather, human errors, poor aviation safety measures and technical faults are related to frequent avi- ation accidents in Nepal. Efficient mobilization of Rapid Response Team (RRT) and effective communications are usually overlooked in post-crash situations affecting the rescue efforts and timely dissemination of information to the stakeholders and families and relatives of the deceased. On, January 15, 2023, a passenger aircraft of domestic airlines of Nepal crashed at the bank of Seti River in Pokhara, Kaski at 9.57 AM. The study evaluated the responses of the RRT and communication approaches following the aviation accident.

Methods

We conducted a cross sectional study from January 15 to 19, 2023 through direct observation of RRT response, visiting the crash site in Pokhara, and by analyzing information such as on post mortem received from the hospital administration and other data provided by the Airlines. Testimonies from local residents, security officials, relatives and family members were also helpful during the analysis of the findings.

Results

Out of 72 fatalities (4 crews and 68 passengers), 53% were male and 8% were children and infants. Among them, 79% of them were Nepalese, 7% Indians, 6% Russians and 3% Koreans and 5% were Australian, Argentineans, Irish and French. Security forces and provincial administrative RRT were immediately mobilized for search and rescue operations. A team from the capital was brought for the post-mortem. Placement of PHEOC team members in crash sites and hospitals smoothened communication. However, rumors spread through social media were found to affect communication by increasing anxiety among relatives. Support and counseling to the families of the victims were not performed effectively.

Conclusions

The evaluation found the RRT was deployed immediately and performed effectively following the plane crash. We recommended establishing a functional information and counseling desk to provide one-door authorized source of information and facilitate effective risk communication practices during such incidents.

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