Strengthening public health surveillance and risk assessment for health security threats in the WHO South-East Asia Region

Bangkok, Thailand, 27–29 September 2022
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Report of the meeting

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## Acronyms and abbreviations

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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>COVID-19</td>
<td>coronavirus disease 2019</td>
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<tr>
<td>EBS</td>
<td>event-based surveillance</td>
</tr>
<tr>
<td>EOC</td>
<td>emergency operation centre</td>
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<tr>
<td>ERD</td>
<td>epidemic analysis for response decision-making</td>
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<tr>
<td>EIOS</td>
<td>Epidemic Intelligence from Open Sources</td>
</tr>
<tr>
<td>FETP</td>
<td>field epidemiology training programme</td>
</tr>
<tr>
<td>HEPR</td>
<td>health emergency preparedness, response and resilience</td>
</tr>
<tr>
<td>IAR</td>
<td>intra-action review</td>
</tr>
<tr>
<td>IBS</td>
<td>indicator-based surveillance</td>
</tr>
<tr>
<td>ICT</td>
<td>information and communications technology</td>
</tr>
<tr>
<td>IHR NFP</td>
<td>National IHR Focal Point</td>
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<tr>
<td>JRA</td>
<td>joint risk assessment</td>
</tr>
<tr>
<td>PHSM</td>
<td>public health and social measures</td>
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<tr>
<td>PoE</td>
<td>point of entry</td>
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<tr>
<td>RRT</td>
<td>rapid response team</td>
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<tr>
<td>SOP</td>
<td>standard operating procedures</td>
</tr>
<tr>
<td>VoC</td>
<td>variant of concern</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>SEARO</td>
<td>WHO Regional Office for South-East Asia</td>
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The views expressed in this report are those of participants of the meeting on ‘Strengthening public health surveillance and risk assessment for health security threats in the WHO South-East Asia Region’ and do not necessarily reflect the policies of the conveners.
Executive summary

The COVID-19 pandemic posed unprecedented challenges globally and in the Region. Despite the progress made towards strengthening health security systems, COVID-19 challenged health systems and caused considerable disruption in socioeconomic activities. It is critical to learn from this pandemic to further strengthen health security systems.

In the South-East (SE) Asia Region, as recommended by the Seventy-fourth Session of the WHO Regional Committee for South-East Asia, the WHO Regional Office for South-East Asia (WHO-SEARO) has facilitated synthesis of the lessons learnt from the COVID-19 pandemic. It has also played a crucial role in the development of the Regional Strategic Roadmap on Health Security and Health System Resilience for Emergencies 2023–2027 through consultation with the Member States. This was adopted by the Member States at the Seventy-fifth Session of the Regional Committee for South-East Asia.

While this regional strategic roadmap provides high-level strategic direction for the Region, the next step involves translating the roadmap into concrete actions. This regional meeting was organized in Bangkok, Thailand, from 27 September to 29 September 2022 to identify the common priority actions for the SE Asia Region, related to surveillance, risk assessment and field epidemiology.

The overall objective of the meeting was to further strengthen public health surveillance, risk assessment and epidemiology workforce to manage health security threats in the Region, learning from the COVID-19 pandemic.

The specific objectives were to:

(1) review progress and synthesize lessons in surveillance, risk assessment and field epidemiology learnt from the COVID-19 pandemic and other health emergencies;

(2) identify the common priorities in the following areas:
   - public health surveillance, especially for early warning function and epidemic and pandemic intelligence,
   - risk assessment for acute public health events, particularly the approaches to inform decision-making for timely and appropriate public health response, and
   - programme to strengthen field epidemiology workforce, tailored to country context; and

(3) finalize approaches for the proposed evaluation of COVID-19 surveillance and contact-tracing.

The meeting was attended by 66 participants (59 in person and seven virtually) from 10 Member States, partners and WHO secretariats. The meeting was guided by the draft strategic framework for action in strengthening surveillance, risk assessment and field epidemiology for health security threats in the WHO South-East Asia Region, which aims to bolster both country and regional systems.
The meeting commenced with the review of the lessons learnt from the COVID-19 pandemic and other emergencies with regard to surveillance, risk assessment and field epidemiology. The participants discussed how to translate those lessons into concrete actions.

The subsequent sessions were organized to discuss each component of the proposed strategic framework, namely country systems (surveillance, risk assessment and field epidemiology) and regional systems.

- **Surveillance** systems should aim to provide the information needed for risk assessment and response decision-making in evolving situations of public health events. This requires collaborative approaches to connecting information from various sources and all levels. The roles of surveillance at the human-animal-environment interface, health-care systems, laboratory and points of entry (PoEs) were highlighted. The increased contribution of genomic surveillance, event-based surveillance and digital technology was discussed. Improved connectivity with subnational and international systems was also emphasized.

- Countries have already been conducting **risk assessment** to guide response measures, often using the tools adapted to meet their country needs, especially during the COVID-19 pandemic. Many countries expressed their intention to strengthen their risk assessment. A need for systematic and harmonized approach to risk assessment was suggested. Collaborative, multisectoral approach was also considered necessary, based on the holistic scope of risk management (assessment, mitigation and communication). The governance of risk assessment and expanding roles of analytics and forecasting were also highlighted.

- Strengthening the **field epidemiology** workforce was considered a critical priority for all participating countries. While having diverse status of the field epidemiology training programme (FETP), countries face key challenges with regard to the number of prepared field epidemiologists and mentors, approach to training field epidemiologists and recognition for field epidemiologists. Priority actions are proposed, such as planning action to address the challenges identified, strengthening FETP communities to connect fellows, graduates and mentors and to raise the recognition level for field epidemiology and leveraging the momentum of COVID-19.

- The participants reiterated the importance of improving **regional cooperation** to manage health security threats and discussed options to improve regional and cross-border **information-sharing**. They supported further strengthening IHR (2005) event communication, developing a regional epidemiological bulletin and exploring bilateral information-sharing, and welcomed the regional fellowship opportunity.

- The participants agreed that the whole-of-government, whole-of-society approach as well as the One Health approach will have important implications for the efforts to strengthen effectiveness of surveillance, risk assessment and field epidemiology. Village health volunteers of Thailand provided an effective model to implement the whole-of-society approach for preparedness and response to health emergencies.

- On the third day, the participants were invited to attend the Thai Ministry of Public Health, where they learnt important lessons from the experiences of the country during the COVID-19 pandemic.
1. Background

Strengthening health emergency preparedness and response has been an important health priority in the SE Asia Region. Emergency risk management was identified as a Regional Flagship Priority Programme in 2014 and was further endorsed by the ministers of the Member States in the Delhi Declaration – Emergency Preparedness in the South-East Asia Region at the Seventy-second Session of the WHO Regional Committee for South-East Asia in 2019.

Countries have made considerable progress in advancing IHR (2005) capacities for health security, including surveillance systems, risk assessment capacities and epidemiologist capacities. However, the context and consequence of health emergencies are increasingly becoming complex due to the growing volume of domestic and international movement of people, rapid urbanization, environmental degradation, climate change as well as an exponential rise in the use of social media. Moreover, COVID-19 has revealed that the current level of preparedness is not sufficient to manage severe and large-scale emergencies, such as the pandemic.

To more effectively manage current and future epidemics, pandemics and emergencies to protect the health of people and save lives, Member States, WHO and partners must work together to identify the key learnings from the COVID-19 pandemic to prioritize actions for further bolstering health security systems.

If we consider the global level, at the Seventy-fifth World Health Assembly in May 2022, Dr Tedros Adhanom Ghebreyesus, WHO Director General, put forth 10 proposals to build a safer world together – Strengthening the Global Architecture for Health Emergency Preparedness, Response and Resilience. The proposals build on over 300 recommendations from various independent reviews of the global response to COVID-19 and reports on previous outbreaks. They set three major priorities, namely governance, systems and financing. Furthermore, within systems, five interlinked subsystems for health emergency preparedness, response and resilience (HEPR) are proposed. One of these is “collaborative surveillance” that aims to bring together critical capabilities, systems and intelligence to better inform decisions and drive action.

In the South-East Asia Region, the Seventy-fourth Session of the WHO Regional Committee for South-East Asia, held in September 2021, recommended “further synthesis of the lessons learnt from the COVID-19 response at a regional level” and “to develop a regional roadmap to strengthen health security in the South-East Asia Region”. Responding to these recommendations, WHO-SEARO organized two meetings to review and distil key lessons, as follows:

- Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region – Virtual meeting, New Delhi, India, 20–22 October 2021; and
- Virtual regional consultation with informal expert group: Lessons learned from COVID-19 pandemic.

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Based on these lessons, the Regional Strategic Roadmap on Health Security and Health System Resilience for Emergencies 2023–2027 was developed through consultation with the Member States and was adopted at the Seventy-fifth Session of the Regional Committee.

Based on the regional strategic roadmap, there was a need to further clarify the strategic priorities and actions to achieve concrete results. This meeting was convened to consult Member States to develop the Strategic Framework for Action in Strengthening Surveillance, Risk Assessment and Field Epidemiology for Health Security Threats in the WHO South-East Asia Region, expected to facilitate operationalization of the regional strategic roadmap in the areas of strengthening surveillance, risk assessment and field epidemiology.

2. Objectives of the meeting

The overall objective of the meeting was to further strengthen public health surveillance, risk assessment and epidemiology workforce to manage health security threats, learning from the COVID-19 pandemic, in the WHO South-East Asia Region.

The specific objectives were to:

1. review progress and synthesize lessons in surveillance, risk assessment and field epidemiology, learnt from the COVID-19 pandemic and other health emergencies;
2. identify common priorities in the following areas:
   - public health surveillance, especially for early warning function and epidemic and pandemic intelligence,
   - risk assessment for acute public health events, particularly the approaches to inform decision-making for timely and appropriate public health response, and
   - programme to strengthen field epidemiology workforce, tailored to country context; and
3. finalize approaches for the proposed evaluation of COVID-19 surveillance and contact-tracing.

3. Discussions and deliberations

3.1 Session 1. Opening session

Dr Jos Vandelaer, WHO Representative in Thailand, delivered the welcome and opening remarks on behalf of Dr Poonam Khetrapal Singh, WHO Regional Director for South-East Asia. The remarks highlighted the importance of sustaining and accelerating the work on emergency risk management, a flagship priority since 2014. He emphasized the progress made prior to and throughout the pandemic, including increasing IHR (2005) capacities, conducting joint evaluation exercises (JEE) and continuing to implement national action plans for disaster risk management in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, as guided by the Delhi Declaration on Emergency Preparedness.
He also highlighted the launch of two critical new frameworks for action: the Regional Roadmap to Strengthen Health Security and Health System Resilience for Emergencies 2023–2027 and the South-East Asia Regional Roadmap for Diagnostic Preparedness, Integrated Laboratory Networking and Genomic Surveillance 2023–2027. Both emphasize the importance of utilizing surveillance, risk assessment and field epidemiology for decision-making.

He stressed that context and consequences of emergencies are becoming more and more complex. Timely information is critical for decision-making to manage emergencies. We need surveillance systems that are effective, efficient, timely and adaptable to cope with the evolving information needs. We need a risk-based approach to guide a public health response, based on systematic risk assessment. We need epidemiological workforce for surveillance, field investigation and risk assessments at the national and subnational levels. We need to integrate these components into our broader whole-of-government, whole-of-society approach as well as the One Health approach to effectively manage future health security threats. He added that the contributions of all participants throughout this meeting, and in the months ahead, will be critical to the efforts of the Region to fortify health security systems and achieve a healthier, more resilient and more secure future for all.

Dr Supamit Chunsuttiwat (Adviser, Department of Disease Control Ministry of Public Health Bangkok, Thailand) was elected as the overall meeting Chair. Sessions were chaired by experts from the Member States, including Dr Chunsuttiwat (Thailand, Sessions 2, 3 and 12), Dr M.P. Wijeratne (Sri Lanka, Session 4), Mr Abdurrahman Amin Faisal (Indonesia, Session 5), Dr Frederico Bosco Alves dos Santos (Timor-Leste, Session 6), Dr P. Ravindran (India, Session 7), Mr Ibrahim Ashraf (Maldives, Sessions 8 and 9) and Dr Sanjay Kumar Thakur (Nepal, Session 11). Dr Hannah Brindle (WHO consultant) was elected as the Rapporteur.

### 3.2 Session 2: Learning from the COVID-19 pandemic – lessons in surveillance, risk assessment and field epidemiology

**Learning from the COVID-19 pandemic and other health emergencies to strengthen surveillance, risk assessment and field epidemiology for public health threats – Dr Masaya Kato, Programme Area Manager, Health Emergencies Programme, WHO-SEARO**

The COVID-19 pandemic has posed unprecedented challenges globally and in the Region. At the global level, the WHO Director General released the [10 Proposals to Build a Safer World Together](https://www.who.int/dg/speeches/detail/who-director-general-s-speech-at-the-73rd-who-conference-of-states-parties) to strengthen the Global Architecture for Health Emergency Preparedness, Response and Resilience, in which governance, systems and finance are set as three priorities – within systems, five core subsystems are proposed, including “collaborative surveillance”.

At the regional level, meetings were organized in October 2021 to synthesize lessons from the COVID-19 pandemic²,³, based on which the [Regional Strategic Roadmap on Health Security and Health System Resilience for Emergencies 2023–2027](https://www.who.int/emergencies/disease-prevention-and-control/roadmaps) was developed in consultation with the Member States and adopted at the Seventy-fifth Session of the Regional Committee for South-East Asia in September.

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² [Learning from the COVID-19 response to strengthen health security and health systems resilience in the WHO South-East Asia Region Virtual meeting, New Delhi, India, 20–22 October 2021](https://www.who.int/emergencies/disease-prevention-and-control/roadmaps)

³ [Virtual Regional Consultation with Informal Expert Group: Lessons learned from COVID-19 pandemic](https://www.who.int/emergencies/disease-prevention-and-control/roadmaps)
2022. This roadmap proposes high-level priority actions to strengthen health security systems, with the elements including information, surveillance and intelligence.

To operationalize this element of the regional roadmap, the draft Strategic Framework for Action to Strengthen Surveillance, Risk Assessment and Field Epidemiology for Health Security Threats in the WHO South-East Asia Region was developed. Using this draft framework as a reference, this meeting aimed to identify the common priorities regarding surveillance, risk assessment and field epidemiology at country and regional levels in the South-East Asia Region. The meeting also examined how the whole-of-government, whole-of-society arrangement as well as the One Health approach may further strengthen surveillance, risk assessment and field epidemiology.


The surveillance systems in Sri Lanka consist of routine communicable disease surveillance (passive surveillance), sentinel surveillance, special surveillance and event-based surveillance. In response to COVID-19, various actions were taken at the central level, including strengthening the central surveillance capacities for active surveillance, establishing the emergency operation cell and upgrading communication systems with regional public health teams. Guidelines, circulars and protocols were developed and updated; intersectoral collaboration was strengthened for a unified response; the National Operation Centre was activated, the National COVID-19 Health Information System (NCHIS) was launched and the surveillance data on COVID-19 were disseminated via situation reports.

Regional public health teams and hospital infection control teams also played pivotal roles in early case detection and case management, and multi-pronged surveillance was implemented, combining passive surveillance of confirmed cases with active surveillance of close contacts. Risk assessment was conducted to address the risks of spread and to inform the adjustments of movement restrictions. Sri Lanka found that its strengths included well-established, island-wide uniform system, trained staff and teamwork while passive surveillance systems (pre-COVID-19 time), timeliness and staff shortage were identified as potential weaknesses. Intersectoral collaboration, community participation, online working platform and new skills focused on mapping and dashboard development were considered opportunities.

*Going forward from the COVID-19 lessons – Dr Anu Shakya, Section Chief, Disease Surveillance and Research Section Epidemiology and Disease Control Division, Nepal*

There were a number of challenges in the initial phase of the COVID-19 response in Nepal. For example, the existing Early Warning and Reporting System (EWARS) had covered only 118 sites with many of these not providing timely or complete reporting; there was only one laboratory competent to conduct PCR testing and no in-country mechanism for genomic sequencing; and there was a delay in developing a national protocol for case investigation and contact-tracing. However, Nepal has made efforts to advance the COVID-19 response, including strengthening case investigation and contact-tracing, expanding PCR laboratories for COVID-19 diagnosis (from one in February 2020 to 95 in 2022), establishing genomic sequencing capacities, strengthening PoE capacities and introducing a risk-based approach to applying public health and social measures (PHSM).
Intra-action review was conducted to identify the best practices and the challenges. The best practices that were identified included establishment of call centres, which also functioned as event-based surveillance systems, and involvement of the private sector in expanding testing laboratories. The challenges included limited laboratory information management system and insufficient human resources and supplies at the points of entry (POE).

Moving forward, priority actions have been identified, including strengthening reporting from the sentinel sites while improving data quality; establishing alert thresholds for timely outbreak detection and response; strengthening event-based surveillance through call centres and Epidemic Intelligence from Open Sources (EIOS); continued capacity-strengthening for genomic surveillance while enhancing linkage of epidemiology and laboratory information; formation and training of rapid response teams (RRT) at all levels; and institutionalizing the field epidemiology training programme (FETP). Overall surveillance planning aims to connect the components of surveillance, risk assessment and field epidemiology, incorporating the One Health framework and being guided by the Public Health Service Act 2018.

**Breakout session**

*The participants were divided into four groups. Each group was asked to seek answers to the question, “How do lessons from COVID-19 and other health emergencies inform the strengthening of surveillance, risk assessment and field epidemiology in the countries and in our Region?” Then, the four groups provided feedback presentations to the plenary, which were summarized as follows.*

**Group 1**

**Surveillance**: Group 1 highlighted the need to integrate private sector surveillance; advance the use of digital technology for surveillance and forecasting; ensure community-based surveillance, potentially introducing digital technology with community volunteers, to review mandatory reporting requirements; and enhance collaborative efforts at the human-animal-environment interface. Strengthening point-of-care testing and laboratory capacities at the subnational level was also proposed. Improving information management, including further upgrading of functions of health emergency operation centres for information management, and having media monitoring centres to handle misinformation were considered priorities.

**Risk assessment/risk-based approach**: The group agreed that risk assessment is a crucial activity as it informs appropriate control measures and helps prioritize which diseases or events need to be responded to. During the COVID-19 pandemic, countries used a set of indicators to assess the situation and identify hotspots to implement risk-based control measures. The potential development of tools or checklists that can be used for initial risk assessment by local teams and harmonized digital tools to address risk matrix were suggested. Promoting joint risk assessment and dissemination of the risk assessment results to a larger audience were also considered priorities.

**Field epidemiology**: The group agreed that workforce development is essential and highlighted the importance of strengthening FETP. The priorities will include reviewing the curriculum, potentially introducing field epidemiology to the medical education curriculum and retaining the workforce trained during the COVID-19 crisis. Suggestions included developing a centralized database of trained experts. The group also emphasized the need to build capacity in the animal health sector under a One Health approach as well as provide training in the use of media during outbreaks.
**Group 2**

**Surveillance:** Group 2 highlighted the importance of strengthening surveillance atPoE (i.e. airport, land crossing). A vast and porous land border poses a major challenge and a strong cross-border collaboration between two countries is needed. There was also a call for timely data-sharing between countries for immediate response. Other priorities suggested for surveillance included integration of data from different sources, using interoperable data system, for timely and efficient decision-making; timely sharing of information with decision-makers to provide directives and guidance; and sharing information with the public on a regular basis to gain their trust and engage them in the response. The importance of timely laboratory diagnosis, hospital-based surveillance to screen and detect people with influenza-like illness, and effective data management were also highlighted. For an emerging disease, case definition needs to be revised in the evolving situation in the country.

**Risk assessment/risk-based approach:** The group also emphasized the importance of the risk-based approach. It is important to adapt response strategy, based on the situation, through regular risk assessment. A strategy to target clusters is effective and pose less burden to people and the authorities (compared with a long-term broad lock-down) and helps timely mitigation of risks. The group felt that technical assistance is needed to conduct risk assessment, especially to inform the risk-based approach to adjusting POE measures (preferably using simple and user-friendly risk matrix). Management teams should be trained to carry out rapid assessment in the community.

**Field epidemiology:** It was suggested that village health workers be trained in field epidemiology and surveillance teams be set up at strategic locations and delegated with clear responsibilities.

**Group 3**

**Surveillance:** Group 3 explained that during the COVID-19 pandemic, new surveillance systems were developed, building on existing systems. However, these systems tend to demand analysis of so many variables that these may not be sustainable. Strengthening existing surveillance system and improving integration of local data with the national platform continue to be crucial. The guidelines were issued centrally and implemented locally. It is not easy to change the guidelines once issued – sometimes, this caused implementation challenges at the local level. Having a common platform to share data is considered beneficial, especially to synthesize information for decision-making. It is crucial that the right focal persons with appropriate roles and responsibilities are identified to represent the respective sectors – appropriate roles and responsibilities of stakeholders.

**Risk assessment/risk-based approach:** Due to differences in the flow of information, variables used and who undertook the assessment, an underestimation or overestimation of the risk occurred at different times during the pandemic. Determining risk was challenged by limitations of data, including data from the private sector, data on self-testing and data on vaccine effectiveness. Furthermore, response activities were prioritized, not necessarily on the basis of risk assessment. Overall, the capacities for conducting risk assessment need to be improved.

**Field epidemiology:** There is a major need to strengthen field epidemiology workforce. We need call for action for FETP at all levels. The curriculum should be reviewed in the context of COVID-19 and technological and logistics support should be strengthened. The challenges include a limited number of FETP trainers and mentors and constrained local capacities for epidemiological data analysis.
**Group 4**

**Surveillance**: Group 4 proposed strengthening laboratory capacities and networks as one of the priorities. This included strengthening sentinel surveillance systems, capitalizing on existing sites on severe acute respiratory infections and influenza-like illness and their linkage with laboratories. The group also highlighted the importance of expanding the use of information technology (IT) to enable web-based reporting and digital surveillance systems as well as promoting the whole-of-government arrangement and improving event-based reporting from various sectors (not just within health sectors). Balancing the privacy of data with the need to use this for surveillance and contact-tracing was challenging.

**Risk assessment/risk-based approach**: During the COVID-19 pandemic, countries introduced risk zoning, based on specific risk assessment. Such experiences are considered a strength and important lessons for future risk management. Synthesizing information from various sources for risk assessment and decision-making are considered challenges and should be further strengthened.

**Field epidemiology**: FETP alumni and frontline epidemiologists are found to be critical assets in responding to large outbreaks. Mobilizing a sufficient health workforce at all levels for surveillance, investigation and contact-tracing has been a major challenge.

**3.3 Session 3: Identifying common strategic priorities – surveillance for health security threats**

*Integrated health information platform in India: Progress and lessons learnt – Dr Himanshu Chauhau, Joint Director, National Centre for Disease Control (NDCC), Ministry of Health and Family Welfare, India*

Outbreaks in the 1990s led to the development of a surveillance and response system (NSPCD), launched in 1997–98, followed by the Integrated Disease Surveillance Programme (IDSP), implemented in 2004. The objectives of IDSP included detecting early warning signals, initiating timely and effective public health actions, and reducing mortality and morbidity due to communicable disease outbreaks.

In 2021, the reporting of IDSP transitioned to the Integrated Health Information Platform (IHIP). IHIP has various functions, involving, among other things, real-time, case-based information, integrated analytics, artificial intelligence tools, advanced visualization, geographical information system mapping and automated report generation, integrating information from multiple sources. IHIP is compliant with the standards of the Government of India to ensure interoperability and uses an advanced programming interface (API) to enable integration of information within IHIP and with various systems of hospitals, laboratories and other health programmes.

IHIP has upgraded IDSP in many ways; for example, by enabling case-based surveillance (allowing relevant disaggregation), electronic data transmission (instead of paper-based) and daily to real-time reporting (instead of weekly). In addition to collecting data on 33 conditions, reporting units can report events (event-based surveillance). These events are then referred to those who verify the events. Outbreak investigation can be monitored electronically. IHIP also has various reporting interfaces to visualize the analytics, such as performance dashboard, outbreak dashboard, heat maps and special surveillance.
“Collaborative surveillance” as a priority for the Global Architecture for Health Emergency Preparedness, Response and Resilience – Dr Emilie Peron, Epidemiologist, Health Emergencies Programme, WHO HQ

There are ongoing consultations with Member States and partners to strengthen the Global Architecture for Health Emergency Preparedness, Response and Resilience (HEPR), based on the white paper, “10 proposals to build a safer world together”. The proposals were informed by over 300 recommendations from global reviews and processes and framed under three priorities – governance, systems and finance. The new architecture requires whole-of-government and whole-of-society approach and must be grounded in resilient health systems and communities. The systems need to be interconnected from national to regional and global levels. HEPR proposes five interconnected subsystems of core capabilities and solutions, one of which is the “collaborative surveillance” subsystem.

“Collaborative surveillance” is a new model for surveillance of emerging threats. It not only builds upon traditional surveillance approaches, but also incorporates epidemic intelligence, genomic surveillance, behavioural and social insights, and surveillance at the animal-human interface. It aims to strengthen the national integrated disease, threat and vulnerability surveillance; enhance laboratory capacity for pathogen and genomic surveillance; and ensure collaborative approaches for risk assessment, event detection and response-monitoring. The details for each subsystem are currently being developed through consultations, based on which the implementation roadmap is expected in mid-2023.

Potential common priorities in surveillance for public health threats in the WHO South-East Asia Region, including genomic surveillance – Dr Masaya Kato, Dr Amarnath Babu, Mr Tika Sedai and Mr Francis Inbanathan, Health Emergencies Programme, WHO-SEARO

The purpose of surveillance is to inform risk assessment and decision-making for public health response. In the course of pandemics and emergencies, various decisions need to be made, which may require different types of information. No single surveillance system can respond to all evolving information needs; therefore, synthesizing multiple sources of information will become critical. Therefore, aiming towards a holistic system composed of multiple surveillance systems will be an important priority.

The critical role of event-based surveillance (EBS) for event detection and early warning is increasingly being highlighted. EBS should source information from multiple sources, such as Internet media, health-care workers and communities. Epidemic Intelligence from Open Sources (EIOS), designed to accelerate global public health intelligence activities, is available for countries. Genomic surveillance is the critical priority for future epidemics and pandemics. The Regional Action Plan for enhancing genomic surveillance was launched, aiming to build sustainable genomic sequencing and surveillance systems for pathogens of endemic and pandemic potential.

Use of integrated platform for disease surveillance will be another potential priority; for example, ILI and SARI sentinel surveillance systems, combined with virological confirmation, are well positioned to monitor incidence of influenza and COVID-19 cases. Monitoring the burden on health-care systems will be yet another potential priority, given the fact that clinical severity of the disease will be an important variable in informing risk-based adjustment of response measures. Coordinated surveillance and information-sharing at the human-animal-environment interface, as part of the One Health approach, should also be further enhanced.
3.4 Session 4: Identifying common strategic priorities – risk assessment and analytics to manage public health threats

The experience of Singapore in applying risk-based approaches to managing the COVID-19 pandemic – Professor Vernon Lee, National University of Singapore

The COVID-19 Surveillance Strategy of Singapore focuses on three domains: The global epidemiological situation, the local epidemiological situation and surge plans for a new variant of concern (VOC). Risk assessment and decision-making are informed by international horizon scanning; data from the local surveillance system, including assessment of severity and impact; and mathematical modelling to determine the “red line”.

The approach to risk assessment for COVID-19 has evolved. In early 2020, a formalized and structured risk assessment framework with a set of fixed qualitative and quantitative indicators was developed, wherein indicators were regularly refined to align with domestic posture and policy considerations. Since mid-2021, a risk-calibrated approach, targeting individual travellers, was introduced and severity indicators were prioritized over incidence rates. More recently, risk assessment focuses on new variants’ characteristics and their potential public health impact, with transmissibility, severity and vaccine effectiveness as key indicators.

The Disease Outbreak Response System Condition (DORSCON) is a framework to guide responses to epidemics and pandemics by reflecting the overall disease impact on the population and facilitating coordination among agencies. One of the four severity levels (represented by colour codes) is assigned, accounting for disease characteristics (e.g. virulence, transmissibility, availability of treatment and vaccines, importation risks, outbreak situation in Singapore and recommendations by WHO). Based on the DORSCON level of severity, advice is given to the public.

Rapid risk assessment for acute public health events and joint risk assessment for zoonosis – Mr. Abdurrahman Amin Faisal, Epidemiologist, Directorate of Surveillance and Health Quarantine, Ministry of Health, Indonesia

Indonesia was the first country to pilot the joint risk assessment (JRA) operational tool (OT) in 2017. Dr Abdurrahman highlighted the efforts of the country to strengthen JRA, including training JRA national trainers, orientation of the JRA tool for provinces and allocation of a part of the National Budget (2021) to support JRA in the priority provinces. Some examples of JRA conducted in Indonesia were shared, such as those pertaining to rabies (2019), SARS-CoV-2 transmission from humans to pets (2021), avian influenza H9N2 (2021), Nipah virus disease (2022) and leptospirosis (2022).

Dr Abdurrahman also highlighted the initiatives of Indonesia to strengthen rapid risk assessment (RRA) for acute public health events. Indonesia has made efforts to roll out RRA through trainings for rapid response team and epidemiology officers, and it has conducted RRA for public health emergencies of international concern, such as COVID-19 and monkeypox.

Indonesia has also been regularly conducting risk assessment to inform adjustment of public health and social measures. Challenges for RRA and JRA included varying capacities and high turnover of subnational-level staff, synthesis of various kinds of information from multiple sectors and issues with documentation and monitoring recommendations. Indonesia aims to further institutionalize JRA/RRA workshops with the MoH training centre to enhance collaboration among multisectoral stakeholders for sharing data for JRA and RRA and improve documentation on JRA and RRA.
Risk assessment, risk-based approach and analytics: Overview and options – Dr Masaya Kato, Programme Area Manager, Health Emergencies Programme, WHO-SEARO

Risk assessment aims to guide defensible decision-making, identify and recommend proportional, effective and timely mitigation measures, and inform risk communication approaches. Joint risk assessment with other sectors is needed, when the hazard concerned requires coordinated assessment and response from different sectors, e.g. to address health threats at the human-animal-environment interface.

Various practical tools have been developed to implement a risk-based approach to guiding public health response measures in evolving situations, e.g. adjustments of PHSM and international travel measures in the context of COVID-19 and pandemic influenza severity assessment (PISA). These tools suggest use of a set of indicators to guide proportional response.

The presentation also introduced other tools, including DORSCON of Singapore, epidemic analysis for response decision-making (ERD) and Strategic Toolkit for Assessing Risk (STAR). Analytics, including modelling and forecasting, helps improve assessment of risks and implement a risk-based approach. Overall, risk assessment and a risk-based approach require synthesizing multiple domains of information to guide decision-making for readiness and response to health security threats.

Epidemic analysis for response decision-making – Mr Matthew Myers Griffith, Consultant, Health Emergencies Programme, WHO SEARO

Epidemic analysis for response decision-making (ERD) is an efficient process for informing decisions during epidemics and pandemics. ERD is a type of risk assessment for decision-making when 2 or 3 decision options are under consideration. The ERD process works backwards from options for action to scenarios then specific data. ERD draws on multi-source information with assumption that all data systems have limitations and data from different sources counterbalance each other. ERD is data for action – it helps the epidemiologist to focus on the data that have impact at that time of public health event, and it also help train epidemiologists.

Risk assessment for Member States: A new initiative – Dr Emilie Peron, Health Emergencies Programme, WHO HQ

WHO HQ has started a project to improve or develop a holistic approach for Member States to conduct risk assessments. This is based on resolution WHA74.7 of the Seventy-fourth World Health Assembly in May 2021, the recommended that WHO support the States Parties in detection and assessment of public health emergencies. The primary objective of the project is to enhance the capacities of Member States to conduct risk assessment by improving methods, processes and tools to support evidence-based decision. The secondary objective is to enhance sharing of information related to risk assessment.

The project aims to develop risk assessment methods and tools, enhance risk assessment capacities and advocate for a systematic use of risk assessment in the decision-making process. During the first phase of the project, WHO aims to collect risk assessment methods and tools developed through a scoping review, listen to and assess the needs of Member States (via interviews) and identify and prioritize the activities to address the identified gaps.
3.5 Session 5: Panel discussion – realizing the whole-of-government, whole-of-society approach, translating the One Health approach into action

How village health volunteers contributed to effective COVID-19 surveillance and response in Thailand – Mr Mya, village health volunteer, Kanchanaburi province, Thailand

Ms Mya shared her experience of working as a village health volunteer at the Thai-Myanmar border. During the pandemic, people frequently moved in and out of the district, with many travelling between Bangkok and the district. The various festivals also added to the risk of the spread of COVID-19. The COVID-19 district health committee conducted monthly meetings and reported health issues, if any. Furthermore, in addition to providing outreach education to the community, they went from house to house to screen for COVID-19 symptoms, such as fever, cough and runny nose, referring people to health-care facilities, as and when needed. The volunteers also helped health workers with contact-tracing, quarantine and isolating. Ms Mya also highlighted the importance of trust and capacity-building in working with people in villages for prevention of COVID-19.

Mobilizing a whole-of-society approach for effective COVID-19 surveillance and risk-based public health measures – Dr Sonam Wangchuk, Specialist, Royal Centre for Disease Control (RCDC), Bhutan

Dr Wangchuk said that prior to the emergence of the Omicron variant of concern, there were very few COVID-19 cases in Bhutan. However, the government and institutions worked together to prepare well for the response. This included the adoption of a One Health approach – developing a technical advisory group with epidemiological experts from the livestock industry. Additionally, staff from the livestock industry were mobilized to expand laboratory capacity. A whole-of-society approach was implemented following the notification of the first case in the country. The support provided by everyone, including financial aid to support testing and contract-tracing, benefited the response.

Using surveillance and risk assessment to inform international travel measures – Mr Ibrahim Ashraf, Deputy Director General, Public Health Programmes, Ministry of Health, Maldives

Mr Ashraf pointed out that the economy in Maldives is dependent on tourism and therefore, during the pandemic, guidelines had been developed in consultation with the tourism industry to resume tourism. Isolation was managed through resorts and guest houses while international travellers were asked to present their vaccination status or negative PCR tests for entering the nation.

Supporting countries to enhance the One Health approach, applying tripartite operational tools – Dr Yin Myo Aye, Regional One Health and Tripartite Specialist, Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific

FAO aims to promote contribution of the animal health sector to One Health, improve One Health coordination mechanisms, enhance institutional and multidisciplinary workforce and facilitate operationalization of regional and national One Health platforms. Jointly with tripartite partners, FAO supports implementation of the operational tools for JRA and surveillance and information-sharing, which were introduced to the Region, such as in Indonesia and Thailand.
3.6 Session 6: Identifying common strategic priorities – field epidemiology

What is going on in the FETP community? Global perspectives – Dr Anne Perrocheau, Epidemiologist, Health Emergencies Programme, WHO Headquarters

As of May 2022, there are 91 FETPs covering 165 countries. FETP has expanded by integrating with other programmes, e.g. with laboratory-based epidemiology and applied veterinary epidemiology training (AVET). WHO promotes the “FETP Enterprise”, which is defined as a global partnership of leaders, funders, implementing partners, government agencies and other stakeholders engaged in the global effort to strengthen FETP.

WHO aims to support strengthening FETP via the One Health lens (e.g. an One Health FETP framework, including curriculum) and to develop standards for applied epidemiology workforce targets. WHO also works with partners to develop the public health workforce roadmap, define the function of an (field) epidemiologist and build evidence for the FETP approach. The global field epidemiology roadmap is being developed to accelerate the development of field epidemiology capacity worldwide.

Epidemiological studies to generate evidence – Dr Amarnath Babu, Medical Officer Epidemiologist, WHO-SEARO

The regional meetings held to synthesize lessons learnt from COVID-19 (October 2021) recommended that capacities for research and development in the Region be strengthened and further investment be made to generate regional evidence, to better prepare for and respond to future epidemics and pandemics. The Regional Strategic Roadmap for Health Security and Health System Resilience for Emergencies 2023–2027 also lists building capacity for conducting and utilizing research as well as collaborating for research on common problems as one of the priority actions.

Dr Babu shared the Early Investigation Protocols of the Unity Studies that promote standardized epidemiological, molecular and serological methods to collectively address knowledge gaps and inform an evidence-based COVID-19 response. Countries are encouraged to strengthen capacities and implement field epidemiological studies to generate evidence; for example, through first few X (FFX) case and contact investigation or household transmission investigation studies 4.

What COVID-19 revealed about field epidemiology: Core functions and key challenges – Mr Matthew Myers Griffith, Consultant, Health Emergencies Programme, WHO-SEARO

The interconnected community of field epidemiologists conducts and improves surveillance, responds to and investigates signals and events and conducts epidemiological and operational studies, all of which are aimed at informing public health decision-making. This community supports, communicates with and learns from each other and critically.

Key challenges to effective field epidemiology focus on the number of prepared field epidemiologists, the approach of training field epidemiologists and the regard for field epidemiology. With regard to the number of epidemiologists, shortage of trained

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field epidemiologists has often been recognized during the COVID-19 crisis. The globally proposed target is one trained field epidemiologist per 200,000 population; very few countries have met this target. Regarding training, a survey in 2019 showed gaps in social and leadership skills, data analysis and epidemiology methods. If this “core business” is not being addressed, then there is a need to review the training approach. “Regard” refers to recognition, respect and value for field epidemiology. Epidemiologists or field epidemiologists may not have recognized government roles or career paths, but regard for field epidemiologists should be strengthened.

Mr Griffith concluded by summarizing the three challenges of numbers, training and regard, restraining field epidemiology from carrying out its work.

Panel discussion:

Moderator:
- Mr Matthew Myers Griffith

Panelists:
- Professor Tahmina Shirin, Director, Institute of Epidemiology Disease Control and Research (IEDCR), Bangladesh;
- Mr Caitano Gusmao, Officer of Epidemiology, National Institute, Ministry of Health, Timor-Leste;
- Dr Tanzin Dikid, Joint Director, WHO Collaborating Centre for Epidemiology and Training, National Centre for Disease Control, India; and
- Professor John MacArthur, South-East Asia Regional Director, US Centers for Disease Control and Prevention (US CDC)

Professor Shirin provided an overview of FETP in Bangladesh, consisting of advanced, intermediate and frontline programmes. There are 17 graduates from the advanced and intermediate programmes. Bangladesh needs approximately 900 graduates to meet the global target of one epidemiologist per 200,000 population. FETP follows a pyramid model with potential progression of training/career paths from the frontline programme to the advanced one. After establishing FETP Bangladesh in 2014, the fellows from the advanced programmes are involved in over 90% of outbreak response, conducted by the national rapid response team. The majority of graduates were involved in various aspects of the national response to COVID-19.

Mr Gusmao highlighted the efforts of Timor-Leste to strengthen its field epidemiology workforce. So far, two trainers had been trained in Thailand and India for three months and six trainees were trained for one month in India. Two local training courses trained 20 participants for three weeks (trained by an epidemiologist from Indonesia); 10 were trained in a training of trainers course for one week (by an expert from Bhutan); and 30 subnational trainees were trained in the Tetum language (trained by the local trainers). Training modules were developed for a one-month course (in English and Tetum languages), including field work guidance and exercises. There is a huge need for field epidemiology training at different levels, but there is a limited pool of local trainers, who can systematically conduct training. Timor-Leste aims to update the FETP training modules for different durations and institutionalize FETP at the National Institute of Health.

Dr Dikid works with the epidemiology division of the National Centre for Disease Control (NCDC), India, which is the WHO collaborating centre (WHO CC) for epidemiology and training. She provided an overview of FETP in India, which
provides the foundation for WHO CC activities. FETP India has three tiers, i.e. advanced, intermediate and basic programmes (mainly for rapid response teams). There are three hubs, which conduct the training and 12 peripheral training institutes. According to Dr Dikid, demonstrated institutional capacity and effective deployment record in outbreak responses are the strengths while challenges to scaling up (due to a large country size and shortage of mentors) and inability to retain trained fellows within the system are considered weaknesses. FETP India is also keen to strengthen the regional coalition on FETP and aims to organize an FETP India conference in February 2023.

Professor MacArthur said that US CDC had celebrated its 70th anniversary of the Epidemic Intelligence Service (EIS) programme of the United States of America. While US CDC used to promote two-year FETP, he acknowledged that the programme should be adjusted to the needs of respective countries. He highlighted specific training within FETP in, for example, malaria, emerging infectious diseases or noncommunicable diseases and the programme for veterinary and wildlife sectors. As the new Regional Director, he is working with expert teams in Atlanta to develop a five-year strategic plan that includes FETP. He will be employing a regional FETP technical adviser, who will work closely with the Member States and will collaborate with WHO regional offices, the Association of Southeast Asian Nations (ASEAN) and other regional bodies.

The panel was asked how inadequate recognition for field epidemiologists could be addressed. Professor Shirin said field epidemiologists had gained higher recognition during major public health events, such as COVID-19, but it was uncertain if such recognition could be sustained in the future. Professor MacArthur said recognition would be affected by whether there were clear career paths for field epidemiologists. For example, there is a clear path for EIS graduates in the USA, as there is a preference for employing an EIS graduate over someone with an academic qualification, given their ability to conduct field outbreak investigations. A participant cited the example of FETP in Thailand, which works under the Division of Epidemiology, Ministry of Public Health, with FETP constituting one part of the residency programme in preventive medicine and epidemiology. Following graduation, the fellows can pursue a specialist career in epidemiology and receive an additional salary.

The panel was then asked if there was scope for scaling up FETP significantly and if there was increased financing for retention of fellows. Dr Dikid responded to the query, saying that there had been a constant dialogue between the Ministry of Finance and the Ministry of Health in India, concerning funds to be spent over the next five years for health infrastructure and public health system strengthening, which may bring an opportunity to scale up FETP. Professor MacArthur stressed that now is the time to advocate for support. There are four key components of a scale-up – recruitment, mentors, potential external technical advisers and funding. As a result of the pandemic, young physicians or public health professionals are now considering a career in epidemiology; however, lack of field epidemiology-related curricula in medical or veterinary schools pose a challenge for them to getting engaged in an epidemiology dialogue.

Dr Perrocheau from WHO HQ mentioned that a tool for countries to conduct their needs assessments for FETP is being developed; it can be used according to the situation, technology and the health workforce.
3.7 Session 7: Identifying common strategic priorities – regional collaboration and information-sharing

Potential opportunity to strengthen regional cooperation and information-sharing to better manage health security threats – Dr Masaya Kato, Health Emergencies Programme, WHO-SEARO

IHR (2005) promotes “containment at source”, which requires building “core capacities”, timely information-sharing and coordinated responses for health security threats. For this, one of the priorities will be to strengthen the National IHR Focal Points (IHR NFPs) and IHR (2005) event communication. Routine sharing of epidemiological information in the Region can also be considered for the WHO South-East Asia Region, which may allow countries to monitor epidemiological situation/trend of key infectious diseases in the neighbouring countries. As such, development of a regional epidemiological bulletin can be considered. In addition, a few options to enhance regional cooperation and platform have been proposed. These include proposed regional evaluation of COVID-19 surveillance and contact-tracing, and potential development of the WHO-SEARO public health intelligence fellowship programme.

Country opinions to improve regional collaboration and information-sharing – Dr Charuttaporn Jitpeera, Medical Officer, Ministry of Public Health, Thailand

Due to globalization and increasing travel, pathogens can be easily transmitted across the borders. In Thailand, there is a frequent movement of travellers, migrants and animals across its international borders with its neighbouring countries. During the pandemic, information was exchanged and joint investigation teams developed between Thailand and its neighbouring countries. The Thailand Border Health Strategic Plan includes building friendship and trust and enabling sustainable exchange of information, experience and best practices to have strong and effective management systems. Dr Jitpeera provided an overview of the project on disease prevention and control in the border provinces, which have special economic zones (SEZ). Another development cooperation project with Cambodia, Lao PDR and Myanmar, “Building Awareness and Preparedness for Communicable Diseases and Emerging Diseases”, has been implemented since 2014. Thailand is also making efforts to strengthen bilateral collaboration with Cambodia, Lao PDR, Malaysia and Viet Nam. ASEAN Plus Three Field Epidemiology Network (FETN) provides an important platform for international cooperation among the ASEAN Plus Three countries.

Collaborative intelligence and the WHO Hub for Pandemic and Epidemic Intelligence – Dr Philip Abdelmalik, Lead, Intelligence Innovation and Integration, WHO Hub for Pandemic and Epidemic Intelligence, WHO Health Emergencies Programme, WHO headquarters

There have been several global reviews on the COVID-19 pandemic, which have highlighted the need to enhance collaboration, including information-sharing and transparency. To save lives and livelihoods with relevant and timely action, appropriate decisions and policies, robust intelligence, relevant and reliable information from different sources and engaged and collaborative communities are crucial. The COVID-19 pandemic highlighted issues around trust, privacy, confidentiality and security. To foster the collaboration, a virtual space “laboratory for collaborative intelligence” has been developed to facilitate the identification of challenges and solutions. The Hub is also looking at establishing an open-source program office (OSPO), which is a way to governance and establish open-source solutions. The Epidemic Intelligence from Open Sources (EIOS) initiative tries to establish a community of practice to improve early detection, verification and assessment. EIOS is built on three pillars – collaboration, community and technology.
3.8 Sessions 8: Breakout session

During this breakout session, the participants were divided into three groups. They discussed common priority actions regarding surveillance (Group 1), risk assessment, risk-based approach and analytics (Group 2) and field epidemiology (Group 3). The discussions were guided by a set of questions.

3.9 Sessions 9: Breakout session – feedback

**Group 1 – surveillance**

**Question 1. COVID-19 posed major challenges for all countries. Based on our experiences, what types of and approaches to surveillance need to be strengthened to better manage health security threats in your country and in our Region?**

Priorities for strengthening surveillance of health security threats at the country level include:

- early warning surveillance:
  - Indicator-based surveillance (IBS) to continue to play a key role as the backbone; and
  - Event-based surveillance (EBS) to play increasingly important roles to detect unusual events or clusters; in addition to online media screening, mechanisms should be in place to enable event reporting from communities, laboratories and hospitals;

- surveillance systems at the human-animal-environment interface:
  - Continue to strengthen information-sharing and coordination using the One Health approach.

- laboratory surveillance:
  - need to strengthen capacities, for example, genomic sequencing/surveillance; and
  - need to enhance linkage between epidemiology and laboratory data for integrating information and risk assessment; and

- surveillance at PoE.

Priorities for strengthening surveillance of health security threats at the regional level include:

- cross-border information-sharing:
  - IHR (2005) event communication needs to be further improved. This may require National IHR Focal points to be provided with the proper authority to fulfil their functions.

- bilateral communication through information-sharing mechanisms, potentially based on the memorandum of understanding (MoU) between two countries:
  - including both formal and informal communication mechanisms; and

- joint investigations and joint meetings can be organized between two subnational areas of two countries that are adjacent to each other.
**Question 2. To strengthen the types of and approaches to surveillance discussed in the previous question, what do you think will be the priority actions both at national and subnational levels?**

The group proposed the following as priority actions:

- The list of country-specific priority diseases and health conditions should be periodically reviewed and updated in each country.
- National guidelines and standard operating procedures (SOP) should be developed, reviewed and updated, taking into account the lessons and adapting to the evolving situation.
- Reporting and laboratory capacities for known and emerging pathogens need to be strengthened.
  - This includes improving use of rapid diagnostic tests and reporting of community-based testing.
- EBS needs to be strengthened through:
  - applying innovative technologies (e.g. media, social media, artificial intelligence for event detection);
  - operating call centres, hotlines or helplines to allow public or health-care workers to report on acute health events;
  - establishing systematic procedures for community-based, event-reporting mechanisms;
  - strengthening rapid response teams for verification; and
  - ensuring time-bound event verification mechanisms are in place.
- Institutionalize best practices [e.g. case-based surveillance, monitoring and sharing of burden on health-care systems (e.g. bed occupancy), reporting health-care worker infections];
- Feedback mechanisms of reported events should be in place.
- Ensure adequately trained human resources for surveillance at all levels.

**Question 3. How can the whole-of-government, whole-of-society arrangement as well as the One Health approach facilitate the effectiveness of surveillance in our regional context?**

The group proposed the following options to strengthen surveillance through the whole-of-society arrangement as well as the One Health approach:

- establishing two-way communication within the government and between the government and the community to calibrate PHSM:
  - open discussion for transparency (using media could be an option);
  - involvement of community leaders to listen to community concerns; and
  - commitment of political leadership to connecting different ministries with the private sector for a coordinated approach;
- strengthening of the One Health approach that requires each sector to complement each other for an effective exchange of information; and
- engaging local partners to access hard-to-reach areas.
**Question 4. In the interconnected world, it is important that we can obtain intelligence of public health events as early as possible for our risk assessment and response actions. What can we do to strengthen information-sharing on public health events in our Region? Any suggestions on the proposed regional epidemiological bulletin?**

The group provided the following opinions:

- developing alert and event signal systems in the WHO South-East Asia Region for rapid sharing of information;
- strengthening the national IHR (2005) focal points network through formal and informal mechanisms, including trainings and meetings; and
- regional fellowships that will be beneficial for the Member States as they will provide opportunities for technical training and networking with WHO and colleagues from other Member States.

Regarding the regional epidemiological bulletin, the following suggestions were made:
- Capture outbreaks that are formally reported.
- There is a need to identify priority diseases and conditions (e.g. influenza, dengue, cholera).
- Information on the outbreak control measures implemented will be very helpful.
- Use data visualizations to show epidemiological trends and maps.
- The bulletin can be monthly.
- Include summary of travel measures imposed on different countries in the Region.

- WHO-SEARO can share the links of the websites of Member States, such as websites for the disease epidemiological situation.
- WHO SEARO can request granular data from Member States to show analysis of time, person, and place

In addition to providing technical guidance for surveillance and diagnostics (including rapid diagnostics), WHO SEARO can share the financial and logistics-related information with Member States. This will guide the Member States through planning their surveillance systems. This will be very helpful, especially for emerging infectious diseases and novel pathogens.

**Question 5. Please provide your feedback on the proposed evaluation of COVID-19 surveillance and contact-tracing.**

The group provided the following response:

- In principle, all participants agreed on conducting the evaluation.
- However, the group felt that a more detailed study proposal is required.
- Evaluation should aim to capture regional variations, including national and subnational variations.
- All inputs from the countries during the evaluation should be based on evidence.
This evaluation should address the question regarding when case investigation and contact-tracing should be indicated and when these can be discontinued. For example:

- Shall we continue contact-tracing when the epidemic/pandemic progresses towards community transmission?
- Can continuity of contact-tracing be determined after an intra-action review?

Group 2 – Risk assessment, risk-based approach and analytics

Question 1. COVID-19 posed major challenges for all countries. Based on our experiences, what types of and options for risk assessment and tools for risk-based approaches need to be strengthened to better manage health security threats in your country and in our Region?

Some countries shared data analyses that were conducted and risk assessment approaches that were used to inform decision-making for COVID-19 response in respective countries.

- Bangladesh conducts risk assessment of the COVID-19 situation and assigns risk levels (high, medium and low risks) to each subnational area, which are visualized on map to assist decision-making. Weekly, formal risk assessment is conducted to monitor the epidemiological situation and PHSM calibration.
- India conducts analysis of big data, using pre-set parameters, for national and subnational levels, and mapping to guide decision-making, especially for containment, contact-tracing, quarantine and PHSM. Challenges pertain to data analysis, forecasting and modelling (requiring advanced analytics, techniques and digital expertise).
- Indonesia conducts weekly data analysis and risk assessment to inform decision-making on PHSM and risk communication strategy, engaging the COVID-19 task force, the Ministry of Health and the Ministry of Internal Affairs. The data analysis uses a set of indicators (i.e. epidemiology, response capacities and vaccination).
- Sri Lanka conducts daily meetings for data analysis and assessment, which inform decision-making, to control diseases. Various information sources are used, including the surveillance and notification system for notifiable diseases (which is being used for COVID-19) and other information sources, e.g. from laboratories and hospitals. Challenges include limited technical expertise for data analysis.

Potential priorities were suggested to improve risk assessment, risk-based approaches and analytics to manage health security threats.

- Should develop uniform and harmonized methodology for forecasting and modelling, as part of pandemic and epidemic preparedness efforts.
- Should strengthen forecasting ability in the context of COVID-19.
- Assessment of governance structure should be conducted to optimize how to communicate health-related information and risk assessment results within the government and to the public.
- Multidisciplinary arrangement should be strengthened to implement results of risk assessment.
**Question 2. To strengthen the types and options of risk assessment and the tools for the risk-based approach mentioned in the previous question, what do you think will be the priority actions both at national and subnational levels?**

The group recommended the following potential priority actions to strengthen risk assessment, risk-based approaches and analytics.

- Conduct after-action reviews of the performance of existing tools for risk assessment and risk-based approach in order to inform potential improvements.
- Develop and validate a standardized tool for risk assessment and then train key stakeholders (i.e. technical people and decision-makers) to prepare for future epidemic- and pandemic-prone disease events.
- Countries should adapt risk assessment tools to their needs and identify indicators for risk assessment, based on the local contexts.
- Explore risk assessment tools that can be used for other priority outbreak-prone diseases (beyond COVID-19).
- It is important to place risk assessment in a holistic risk management framework – risk assessment, risk management and risk communication – not just focusing on assessment.
- WHO should support countries to strengthen risk assessment capacities, based on the country context and need.
- Conduct simulation exercises to validate a newly developed risk assessment tool, engaging countries.
- Further sensitize leadership on the values of risk assessment.
- Provide training to media in risk assessment and interpretation of risk assessment results.

**Question 3. How can the whole-of-government, whole-of-society arrangement as well as the One Health approach promote the effectiveness of risk assessment in our regional context?**

The group provided the following opinions.

- Involving other sectors in the risk assessment will be critical for certain hazards, such as zoonotic diseases and antimicrobial resistance. Joint risk assessment will strengthen information-sharing and coordinated response across the sectors.
- Joint risk assessment will need to look into genomic surveillance data – for example, genomic sequence data from humans, animals and environment can be shared and analysed together across the sectors.
- For effective joint risk assessment, a multisectoral committee should be formed.
- Prioritizing disease and conditions across the sectors (human, animal, environment) will help focus efforts on promoting One Health coordination and joint risk assessment.
**Question 4. In the interconnected world, it is important that we obtain intelligence of public health events as early as possible for our risk assessment and response actions. What can we do to strengthen information-sharing on public health events in our Region? Any suggestions on the proposed regional epidemiological bulletin?**

The group made following proposals.

- WHO should facilitate international (cross-border) information-sharing, risk assessment and implementation (e.g. dengue event at the Nepal-India border).
- Collaborative, cross-border risk assessment should be considered.
- Use IHR (2005) mechanism to strengthen information-sharing among countries. Enhance the existing IHR (2005) mechanism, including the IHR (2005) Event Information Site (EIS). The IHR NFPs should convey information to decision-makers for actions.
- Determine the purpose of information-sharing among countries (such as to provide early warning signals via the proposed regional epidemiological bulletin).
- For the epidemiological bulletin, use public data from formal government sources.
- Other information sources include the International Food Safety Authorities Network (INFOSAN) and the Codex Alimentarius. The United Nations agencies should work together to coordinate the provision of information.

**Question 5. Please provide your feedback on the proposed evaluation of COVID-19 surveillance and contact-tracing.**

The group provided the following views.

- Consider using an intra-action review approach to review COVID-19 surveillance and contact-tracing.
- Need a higher management decision in the country, no matter whether the country is willing to undertake evaluation of COVID-19 surveillance and contact-tracing.
- Evaluation of surveillance should identify gaps in existing surveillance systems, such as gaps in big data analysis and community contact-tracing in Thailand.

**Group 3 – Field epidemiology**

**Question 1. How can we describe the needs of the field epidemiology community in the WHO South-East Asia Region?**

The group was divided into two smaller groups and they brainstormed a list of field epidemiology needs, based on the experiences of group participants and the discussions from the FETP session earlier. Then, the two groups shared their lists with each other and agreed on broad categories of needs that include information management; mentors; career paths; network; financing; policy and advocacy; quality; and human resources. The needs identified are listed below, according to the broad categories.

- Information management (platform and database):
  - resource-mapping
  - peer network
Strengthening public health surveillance and risk assessment for health security threats in the WHO South-East Asia Region

- standard curriculum
- database
- bulletin.

➢ Mentors:
  - number
  - qualification
  - commitment.

➢ Career path:
  - recognition from a higher level
  - job description.

➢ Network:
  - placement or exchange activity.

➢ Financing, policy and sustainability:
  - advocacy.

➢ Quality:
  - standardized curriculum
  - M and E framework.

➢ Human resources:
  - no. of FETP persons
  - commitment of mentors
  - volunteers.

Question 2. Which activities or strategies for strengthening and supporting field epidemiology will work for our Region? Which actions should Member States, WHO and partners prioritize for the coming years to strengthen and support the field epidemiology capacity in the Region?

The group was divided again into two smaller groups to propose solutions to the needs identified. The two groups then shared their ideas with each other and agreed on a final list of potential actions that Member States, WHO and partners should prioritize in the coming years.

➢ Create a regional roadmap that clarifies the goal, the vision and the community of field epidemiology within the Region.

➢ Develop a comprehensive communication strategy for partners to leverage the momentum of COVID-19 and advocate for the role of field epidemiology.

➢ Create a learning resource centre as a place to develop, store and share materials, for example, on training curricula, wherein a bulletin may be posted and shared. It will serve as a platform for those working in FETP from different countries to foster connecting and sharing.

➢ Support a regular gathering of field epidemiology training focal points or leads in the country, such as a monthly virtual meeting along with a physical meeting once or twice a year, which focuses on topics of interest to trainers and facilitators and allows information- and experience-sharing and opportunities for cross-learning and training.
Advocate for and support Member States without field epidemiology training programmes for participating in global and regional FETPs, at least as observers.

- Develop and support technical working groups to investigate, research and explore topics, such as monitoring and evaluation frameworks.

- Conduct a gap analysis of numbers on the continuum (i.e. from recruitment of trainees to maintenance of graduates as mentors) and identify what has been tried and what has worked and not worked.

**Question 3. How can the whole-of-government, whole-of-society arrangement as well as the One Health approach promote the effectiveness of field epidemiology in our regional context?**

The group was unable to provide inputs for this question.

**Question 4. In the interconnected world, it is important that we obtain intelligence of public health events as early as possible for our risk assessment and response actions. What can we do to strengthen information-sharing on public health events in our Region? Any suggestions on the proposed regional epidemiological bulletin?**

The group was unable to provide inputs for this question.

**Question 5. Please provide your feedback on the proposed evaluation of COVID-19 surveillance and contact-tracing.**

The group was unable to provide inputs for this question.

### 3.10 Session 10: Learning from the Thai experience

On Day 3, the participants visited the Department of Disease Control (DDC), Ministry of Public Health (MoPH), in the morning to learn from the experiences of Thailand with regard to managing the COVID-19 pandemic. The participants were invited to the Pramern Chantawimon Meeting Room at DDC Building 1, Department of Disease Control, Ministry of Public Health, Thailand.

Dr Sopon Iamssirithaworn (Deputy Director General, DDC) welcomed the participants and delivered the opening remarks of the session.

Dr Soawapak Hinjoy (Director of Office of International Cooperation, DDC) presented an overview of DDC, including infrastructure, organogram, functions, COVID-19 management, establishment of the Centre for COVID-19 Situation Administration (CCSA), policies, strategies and tools for various disease threats.

This was followed by a presentation on the surveillance system of communicable diseases in Thailand, covering the R506 surveillance system, outbreak verification system, event-based surveillance system, sentinel surveillance and other surveillance mechanisms to manage outbreaks. Some of the key challenges to COVID-19 surveillance in Thailand included the limitations in human and financial resources and logistics, affecting the consistency of case detection and reporting. Coordination with several stakeholders, such as those working in hospitals, academic institutions and some areas of public health, was mentioned as another challenge. Information technology was applied effectively, resulting in reduction of workload and improving the efficiency of the surveillance system.
The next presentation summarized the **risk assessment experience** during the COVID-19 pandemic. The Emergency Operating Centre (EOC) was activated on 4 January 2020 and the EOC level was adjusted on the basis of the evolving situation. COVID-19 alert levels (ranging from level 1, living under new normal guidelines, to level 5, restricting travel) were established and public health and social measures were adjusted, according to the various alert levels.

The risk assessment took into consideration case incidence by province, implementation of public health and social measures, variants of concern and COVID-19 vaccination coverage. MoPH considered risk communication a top priority activity and held daily formal press briefings to communicate reliable information in a timely manner to the public in order to build trust and manage challenges related to misinformation and disinformation.

The DDC staff also shared their experiences of **contact-tracing** during the COVID-19 crisis, which included categorization of contacts into high-risk and low-risk ones. Thailand used the Morchana mobile application for contact-tracing.

Dr Thanawadee Chantian (Medical Officer, Professional Level, Division of Epidemiology, DDC) presented the **FETP** experience in Thailand, which was the first training of its kind held outside the United States of America. As of 2022, 43 FETP cohorts have been completed and 230 have graduated from FETP. Although Thailand has more than 40 years of FETP experience and has the certification from the Thai Medical Council since 1984, challenges to increasing the number of trainees and retention of trained FETP staff at MoPH remain.

Dr Jessada Thanakitjaroenkul (Medical Officer, Professional Level, Division of Disease Control in Emergencies, DDC) presented the overview of EOC. Thailand DDC established the Public Health Emergency Response (PHER) section in 2007. Initially, it focused on response planning, but expanded the scope in 2013 to include prevention, mitigation, preparedness, response and recovery. In 2018, DDC officially established EOC to operate both in normal situations and during emergencies and it was enhanced with the 3S approach, i.e. trained staff, stuff and facilities and systems and processes. The presentation detailed the various functions of EOC, including the command and management function, planning function, operations function and support function.

Following the presentations, the participants were provided with an opportunity for a quick tour of FETP and EOC.

### 3.11 Session 11: The way forward

The participating countries provided brief comments as reflection on the three-day meeting as well as their plans for action after returning home. All country teams reflected on key learnings from the meeting and shared what they considered priority in their country context, concerning surveillance, risk assessment and field epidemiology. Several countries mentioned the importance of learning from real experiences – in this regard, it is considered important to capitalize on the momentum of the COVID-19 pandemic to advocate for actual reforms, building on lessons from the pandemic response.
3.12 Session 12: Closing session

Dr Nilesh Buddh, Lead, Regional Emergencies, WHO-SEARO, concluded the meeting with closing remarks on behalf of Dr Edwin Salvador, Regional Emergency Director. On behalf of WHO-SEARO, he extended his sincere gratitude to all participants for sharing their experiences and perspectives and contributing to the meeting objectives. He thanked Dr Supamit Chunsuttiwat for serving as the overall Chairperson of the meeting and the Thai MoPH for hosting a visit for the participants. He also thanked the Secretariat members – both technical and administrative staff members from the WHO country offices and WHO-SEARO for preparation and administrative support for the meeting. He hoped that this meeting would become one of the important steps in advancing collaboration and information-sharing to collectively manage health security threats in the Region.

4. Conclusions and recommendations

4.1 Conclusion

- The participants were constructive in their bid to translate and incorporate critical lessons from the COVID-19 pandemic and other emergencies into country efforts to strengthen health security systems, including surveillance, risk assessment and field epidemiology.

- Surveillance systems should aim to provide information needed for risk assessment and response decision-making and should be adaptable to meet the evolving information needs in order to manage public health events. The participants discussed the potential priorities for surveillance in the Region, such as multisource surveillance, early warning and response, genomic surveillance, monitoring of burden on hospitals and improved information-sharing at the human-animal-environment interface.

- Risk assessment aims to identify the level of risks of the event to inform proportional and effective response measures and to guide the risk communication approach. Various tools have been developed to implement the risk-based approach to public health measures. These processes require synthesizing multiple sources of information to guide decision-making.

- The field epidemiology workforce plays critical roles in surveillance, risk assessment and epidemiological investigations. Key challenges to effective field epidemiology revolve around the number of prepared field epidemiologists, the approach to training field epidemiologists and regard for field epidemiology.

- The participants reiterated the importance of improving regional cooperation and information-sharing to manage health security threats and discussed how to enhance regional information-sharing. They expressed their willingness to improve IHR (2005) event communication and supported the idea of developing a regional epidemiological bulletin.

- The participants agreed that the whole-of-government, whole-of-society approach as well as the One Health approach have important implications for our efforts to strengthen the effectiveness of surveillance, risk assessment and field epidemiology. Village health volunteers of Thailand provided an effective model for implementing the whole-of-society approach to preparedness and response to health emergencies.
4.2 Recommendations

**Recommendations for Member States**

1. Identify priority actions to further strengthen surveillance, risk assessment and field epidemiology in the respective country context, taking into consideration the findings from intra-action/after-action reviews, recent reviews of national surveillance systems as well as discussions and outcomes of this meeting.
   - The priorities identified should be reflected in relevant national strategic plans, such as the National Action Plan for Health Security.
   - Strengthen the whole-of-government, whole-of-society approach as well as intersectoral collaboration to adopt the One Health approach.

2. Advocate for and support the national efforts to strengthen surveillance systems for health security threats, based on the priorities identified. In particular, consider strengthening the following:
   - early warning and response functions, combining event-based and indicator-based surveillance;
   - genomic surveillance of pathogens with pandemic and epidemic potential, including timely sharing of genetic sequencing data; and
   - systems to routinely monitor information on burden on health-care facilities (such as hospital bed occupancy), including private sector services.

   - Clarify the objectives of risk assessment/risk analysis and adapt, adjust or develop a procedure or a tool to conduct systematic risk assessment.
   - Strengthen national capacities to conduct systematic risk assessment as well as public health intelligence activities, synthesizing multiple sources of information.
   - Engage decision-makers to use the results of risk assessment more effectively.

4. Continue to strengthen field epidemiology tailored to the country context with a particular focus on the following:
   - Develop/review and implement national action plans to strengthen field epidemiology tailored to the needs and the context of the Member State. Address topics, such as the number of field epidemiologists and mentors, monitoring and evaluation frameworks, One Health and career paths through technical working groups.
   - Leverage the momentum of COVID-19 and raise the recognition level for the role of field epidemiology among high-level decision-makers.
   - Support strengthening the community of field epidemiologists, their facilitators and mentors to share information, experiences and materials, and for continuous learning.
(5) Contribute to strengthening regional cooperation and information-sharing through:

- further strengthening IHR (2005) event communication and the national IHR (2005) focal point in coordination with WHO;

- supporting development of a regional epidemiological bulletin – this may include improving timely data-sharing on infectious diseases of public health importance; and

- supporting strengthening the regional community of field epidemiologists, which may include developing a regional roadmap for FETP, developing communication strategy on FETP for advocacy, and facilitating regular interaction of field epidemiology training focal points.

**Recommendations for WHO**

1. Update the draft Strategic Framework for Action in Strengthening Surveillance, Risk Assessment and Field Epidemiology for Public Health Threats in the WHO South-East Asia Region, reflecting the discussions during this meeting.

2. Provide support to Member States to identify and implement priority actions to strengthen surveillance, risk assessment and field epidemiology in order to manage health security threats, especially for Member States to implement the recommendations in the previous section.

3. Support reviews and strategic planning of surveillance, risk assessment and FETP, upon request.

4. Work with Member States to further clarify the needs and objectives of Member countries for risk assessment and use these to develop or adapt the procedures or tools for risk assessment.

5. Continue to support the capacity-building efforts of the countries and clarify procedures to improve IHR (2005) event communication.

6. Develop a routine regional epidemiological bulletin, based on the data shared by the Member States.

**Roles of partners**

1. Partners have made a significant contribution to strengthening surveillance, risk assessment and field epidemiology in the Region. Continued cooperation to support national and regional efforts is considered crucial in further strengthening health security systems.
Annex 1

Programme of activities

Day 1 – Tuesday, 27 September 2022

Session 1

Opening Session
Welcome and opening remarks
Dr Poonam Khetrapal Singh, WHO Regional Director for South-East Asia
To be delivered by WR Thailand

Introductions of the participants
Overview of objectives and agenda
Nomination of Chairs and Rapporteur

Session 2

Learning from the COVID-19 pandemic: Lessons learnt in surveillance, risk assessment and field epidemiology
Learning from the COVID-19 pandemic and other health emergencies to strengthen surveillance, risk assessment and field epidemiology for public health threats

- WHO-SEARO Health Emergencies Programme (WHE) Health Emergency Information and Risk Assessment (HIM) team

Learning from COVID-19 to strengthen surveillance, risk-based approach and field epidemiology

- Dr W.I.U. Jayawickrama, Consultant Community Physician, Office of the Regional Director of Health Services, Puttalam, Ministry of Health, Sri Lanka

Learning from COVID-19 to inform strengthening of surveillance, risk-based approach and field epidemiology

- Dr Anu Shakya, Section Chief, Disease Surveillance and Research Section, Epidemiology and Disease Control Division, Ministry of Health and Population, Nepal

Instructions for the breakout session

Breakout discussion – how can learnings from COVID-19 and other health emergencies inform the strengthening of surveillance, risk assessment and field epidemiology in the countries and in our Region?

- 4 groups

Feedback from the breakout discussion
Session 3

**Identifying common strategic priorities – surveillance for public health threats**
The experience of Singapore in applying risk-based approaches to manage the COVID-19 pandemic
- Professor Vernon Lee, National University of Singapore

Integrated health information platform in India – progress and lessons learnt
- Dr Himanshu Chauhan, Joint Director, National Centre for Disease Control (NCDC), Ministry of Health and Family Welfare, India

“Collaborative surveillance” as a priority for the Global Architecture for Health Emergency Preparedness, Response and Resilience – global perspectives
- Dr Emilie Peron, Epidemiologist, WHO HQ WHE

Potential common priorities in surveillance for public health threats in the WHO South-east Asia Region, including genomic surveillance
- WHO-SEARO HIM team

Facilitated discussion

Session 4

**Identifying common strategic priorities – risk assessment and analytics to manage public health threats**
Risk assessment, risk-based approach and analytics – overview and options
- WHO-SEARO HIM team

Epidemic analysis for response decision-making
- Mr Matthew Myers Griffith, Consultant, WHO-SEARO

Rapid risk assessment for acute public health events and joint risk assessment for zoonosis
- Dr Abdurrahman, Epidemiologist, Directorate of Surveillance and Health Quarantine, Ministry of Health, Republic of Indonesia

Risk assessment by the Member States – a new initiative
- Dr Emilie Peron, Epidemiologist, WHO HQ

Facilitated discussion

Session 5

**Panel discussion – realizing the whole-of-government, whole-of-society approach, translating the One Health approach into action**
(moderated panel discussion – each panelist will have initial 4 minutes to share experiences focusing on assigned subjects, followed by a moderated discussion)
- Representative of village health volunteers in Thailand – how did village health volunteers contribute to effective COVID-19 surveillance, contact-tracing and response in Thailand?)
- Dr Sonam Wangchuk, Specialist, Royal Centre for Disease Control (RCDC), Bhutan – Mobilizing the whole-of-society approach to effective COVID-19 surveillance and risk-based public health measures

- Mr Ibrahim Ashraf, Deputy Director General, Public Health Programmes, Ministry of Health, Maldives – Using surveillance and risk assessment to inform international travel measures

- Dr Yin Myo Aye, Regional One Health and Tripartite Specialist, Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific – Supporting countries to enhance the One Health approach applying tripartite operational tools

**Day 2 – Wednesday, 28 September 2022**

**Session 6**

**Identifying common strategic priorities – field epidemiology**

What is going on in the FETP community? Global perspectives
- Dr Anne Perrocheau, Epidemiologist, WHO HQ WHE

Epidemiological studies to generate evidence
- WHO-SEARO HIM team

What COVID-19 revealed about field epidemiology: Core functions and key challenges
- Mr Matthew Myers Griffith, Consultant, WHO-SEARO

Panel discussion – Selected Member States and partners in the Region will discuss their experiences and plans for addressing the key challenges to the core functions for field epidemiology in the Region
- Bangladesh representative
- Dr Frederico Bosco Alves dos Santos, National Director of Public Health, Ministry of Health, Timor-Leste
- Dr Tanzin Dikid, Joint Director, National Centre for Disease Control (NCDC), India, WHO collaborating centre
- Dr John MacArthur, Captain, US Public Health Service, Regional Director, Southeast Asia Regional Office United States Centers for Disease Control and Prevention (US CDC)

**Session 7**

**Identifying common strategic priorities – regional collaboration and information-sharing**

Potential opportunity to strengthen our regional cooperation and information-sharing to better manage public health threats
- WHO-SEARO HIM team
Country opinions to improve regional collaboration and information-sharing
- Dr Charuttaporn Jitpeera, Medical Officer, Ministry of Public Health, Thailand

Facilitated discussion

Instruction for the breakout discussion
- WHO-SEARO HIM team

The work of WHO Hub for Pandemic and Epidemic Intelligence, with the focus on collaborative public health intelligence
- Dr Philip Abdelmalik, WHO Hub for Pandemic and Epidemic Intelligence

**Session 8**

**Breakout session** (the participants and partners will be divided into three groups and will discuss identifying common strategic priorities. Each group will also propose priorities for regional system strengthening)

Group 1 – Surveillance

Group 2 – Risk assessment, risk-based approach and analytics

Group 3 – Field epidemiology

**Session 9**

**Breakout session feedback**
- Feedback by the three groups to the plenary

Discussion

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**Day 3 – Thursday, 29 September 2022**

**Session 10**

**Learning from Thai experiences**

Sessions at the Thai Ministry of Public Health

**Session 11**

**The way forward**

Overviews of upcoming WHO guidance (to be confirmed)
- WHO-SEARO WHE HIM team

Group discussion for the way forward
Discussion by groups on priority actions for surveillance, risk assessment and field epidemiology

Brief feedback from the groups and discussion

**Session 12**

**Closing session**

Conclusion and recommendations
Closing remarks
## Annex 2

### List of participants

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The COVID-19 pandemic posed unprecedented challenges to health globally and in the Region. To more effectively manage current and future epidemics, pandemics and emergencies, Member States, WHO and partners must work together to identify the key learnings from the pandemic to prioritize action in bolstering health security systems. In the South-East (SE) Asia Region, the WHO Regional Office has facilitated synthesis of the lessons learnt from the COVID-19 pandemic, and the development of the Regional Strategic Roadmap on health security and health system resilience for emergencies 2023–2027 incorporating the lessons learnt.

A meeting on ‘Strengthening public health surveillance and risk assessment for health security threats in the WHO SE Asia Region’ was organized to identify common priority regional actions related to surveillance, risk assessment and field epidemiology. This report summarizes discussions and outcomes of the meeting, with key directions for the efforts and investment to advance health security and implementation of the International Health Regulations (2005).