Asia Pacific Strategy for Emerging Diseases
Progress Report 2015
Securing regional health
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<table>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AMR</td>
<td>antimicrobial resistance</td>
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<tr>
<td>APSED</td>
<td>Asia Pacific Strategy for Emerging Diseases (2010)</td>
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<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<td>EID</td>
<td>emerging infectious disease</td>
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<td>EOC</td>
<td>emergency operations centre</td>
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<td>EQA</td>
<td>external quality assurance</td>
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<td>ERF</td>
<td>Emergency Response Framework</td>
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<td>EST</td>
<td>Emergency Support Team</td>
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<td>EVD</td>
<td>Ebola virus disease</td>
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<td>EWARN</td>
<td>Early Warning Alert and Response Network</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FET</td>
<td>field epidemiology training</td>
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<td>FETP</td>
<td>Field Epidemiology Training Programme</td>
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<td>GISRS</td>
<td>Global Influenza Surveillance and Response System</td>
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<td>GOARN</td>
<td>Global Outbreak Alert and Response Network</td>
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<td>HCW</td>
<td>health-care worker</td>
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<td>IEC</td>
<td>information, education and communication</td>
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<td>IHR</td>
<td>International Health Regulations (2005)</td>
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<td>INFOSAN</td>
<td>International Food Safety Authorities Network</td>
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<td>IPC</td>
<td>infection prevention and control</td>
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<td>M&amp;E</td>
<td>monitoring and evaluation</td>
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<td>MERS-CoV</td>
<td>Middle East respiratory syndrome coronavirus</td>
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<td>NFP</td>
<td>National IHR Focal Point</td>
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<td>NIPPP</td>
<td>National Influenza Pandemic Preparedness Plan</td>
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<td>OIE</td>
<td>World Organisation for Animal Health</td>
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<td>PCR</td>
<td>polymerase chain reaction</td>
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<td>POE</td>
<td>point of entry</td>
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<td>PPE</td>
<td>personal protective equipment</td>
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<td>PSSS</td>
<td>Pacific Syndromic Surveillance System</td>
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<td>RRT</td>
<td>rapid response team</td>
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<td>SAARC</td>
<td>South Asian Association for Regional Cooperation</td>
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<td>SARI</td>
<td>severe acute respiratory infection</td>
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<td>SARS</td>
<td>severe acute respiratory syndrome</td>
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<td>SEARO</td>
<td>Regional Office for South-East Asia</td>
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<td>SOP</td>
<td>standard operating procedure</td>
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<td>TAG</td>
<td>Technical Advisory Group</td>
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<td>WEST</td>
<td>Western Pacific Ebola Support Team</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WPRO</td>
<td>Regional Office for the Western Pacific</td>
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<td>WPSAR</td>
<td>Western Pacific Surveillance and Response Journal</td>
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EXECUTIVE SUMMARY

Recent health security events have highlighted the importance of developing and advancing the core capacities as required under the International Health Regulations (IHR) [2005]. Examples of such events are Ebola virus disease (EVD) in West Africa, and Middle East respiratory syndrome (MERS), dengue and avian influenza A[H7N9] in the Asia Pacific Region.

In both the World Health Organization (WHO) Western Pacific and South-East Asia regions, the Asia Pacific Strategy for Emerging Diseases [2010] (APSED) has served as a regional tool to help Member States achieve minimum core capacity requirements. APSED is a common framework for all countries and areas in both regions, arranged under eight focus areas: 1) surveillance, risk assessment and response; 2) laboratory; 3) zoonoses; 4) infection prevention and control (IPC); 5) risk communications; 6) public health emergency preparedness; 7) regional preparedness, alert and response; and 8) monitoring and evaluation.

The outbreak of EVD in West Africa provided an opportunity to strengthen health security in both the Western Pacific and South-East Asia regions. APSED provided the foundation for a regional framework for action with three components: supporting the global Ebola response operations in West Africa; strengthening the preparedness of Member States to rapidly detect and respond to an Ebola outbreak; and strengthening WHO’s leadership and coordination. These actions were achieved through deployment of individuals and teams to Africa from the two regions and through simulation exercises, training on risk assessment, IPC, risk communication and laboratory capacity and other preparedness activities. The regional response to the EVD outbreak provided an opportunity to test our preparedness and further strengthen our capacities.

Strengthened health security in the Region is also shown through several outbreak case studies which highlight improvements in surveillance, risk assessment, preparedness and response. The gains made in developing the International Health Regulations (IHR) core capacities are evidenced by the response to these real-world events.

The recommendations from the 2014 Technical Advisory Group (TAG) meetings held in each region show that Member States and WHO have continued to work towards achieving or maintaining IHR core capacities. All countries that requested the June 2016 extension to the IHR deadline have work plans in place to address their gaps,
and those Member States that did not require an extension have maintained their capacities.

It has been nine years since APSED was conceived as the main strategic framework for the Asia Pacific Region to develop the IHR core capacity requirements. The APSED evaluation conducted in 2015 concluded that considerable progress has been made in several areas, including the establishment of event-based surveillance, training field epidemiologists, improving the effectiveness of rapid response teams (RRTs) and public health laboratory capacity for basic diagnosis. Other areas of good progress are coordination between human and animal health ministries for zoonotic diseases and regional-level surveillance, and information sharing and response. There is mixed evidence of progress in the area of risk communication capacity, IPC and consistent risk assessment at the national level.

Despite the progress noted above, it is clear that building capacities to detect, prepare for and respond to emerging infectious diseases and public health emergencies remains an ongoing and unfinished process for all Member States. It is therefore a critical time to decide how to move forward with strengthening regional health security, which will continue to be required well beyond the final deadline for the achievement of IHR core capacities in 2016.
1. Introduction

The International Health Regulations (2005) (IHR) have been in force since 15 June 2007, ensuring that national, regional and international capacities are in place to manage public health events and emergencies in a collective, coordinated and effective manner. In the South-East Asia and Western Pacific regions, the Asia Pacific Strategy for Emerging Diseases (APSED) serves as a key tool to help Member States achieve IHR core capacity requirements.

APSED is a strategic framework for building sustainable national and regional capacities and partnerships in the Asia Pacific Region to ensure public health security and to detect, prepare for and respond to emerging diseases and public health emergencies. The strategy has guided Member State actions to strengthen their capacities and to rally and coordinate the support of partners.

APSED pursues five interrelated objectives: 1) reduce risk; 2) strengthen early detection; 3) strengthen rapid response; 4) strengthen effective preparedness; and 5) build sustainable partnerships.

To achieve these objectives and define local, national and regional activities for capacity development, APSED suggests a step-wise approach, whereby Member States first focus on building individual technical areas, then strengthen the capabilities that link these areas, then reinforce the system as a whole.

This report looks at the progress of Member States and WHO for the reporting year July 2014 to June 2015. The report presents results reported by Member States, together with the progress by WHO in support of their efforts. The report is not meant to be comprehensive but to capture the main achievements: Member States may have engaged in further activities not noted here. The structure of this report differs from the reports of previous years to emphasize the efforts made towards Ebola preparedness and the APSED evaluation, the two central foci of the past year. Rather than reporting according to the progress in each APSED focus area, progress is addressed against the recommendations made at the 2014 Technical Advisory Group (TAG) meetings.
This report is divided into six main sections. The first describes the Region’s response to the Ebola virus disease (EVD) outbreak in West Africa, both in terms of supporting the global response operations in West Africa and strengthening preparedness, leadership and coordination in the Asia Pacific Region. The second section describes the progress achieved in strengthening national APSED capacities through case studies that highlight the use of systems and capacities in preparedness or response to outbreaks. The third section presents the progress on the recommendations of the 2014 APSED TAG meeting held in July 2014 in Manila, the Philippines. The fourth section provides a summary of the APSED evaluation, conducted as per the recommendation of the 2014 TAG meeting and the APSED work plan. The evaluation sought to assess the achievements of APSED and plan the future direction of work on emerging diseases and public health emergencies. The fifth section provides two case studies to emphasize work on gender, which is considered a cross-cutting topic for all areas of APSED. The sixth section provides an outlook for the Region in emerging diseases and public health emergencies.

Lastly, we acknowledge that APSED is a broad strategy, and other programmes are working towards similar goals, often in partnership with APSED. Where relevant, we have noted the progress led by other partners.
2. Ebola preparedness and response

The WHO Ebola preparedness and response plan in the Asia Pacific Region identified three strategic objectives:

1. supporting the global Ebola response operations in West Africa;
2. strengthening the preparedness of countries and areas to rapidly detect and respond to an Ebola outbreak; and
3. strengthening WHO’s leadership and coordination of EVD outbreak preparedness and response.

This section outlines the response of each region in terms of these three objectives, with the preparedness described in terms of the six key components of APSED/IHR priority capacity areas: (1) command and coordination; (2) surveillance, risk assessment and response; (3) laboratory capacity; (4) clinical management and infection prevention and control (IPC); (5) public health intervention including point of entry (POE) measures; and (6) risk communication.

**SOUTH-EAST ASIA REGION**

**Strategic Objective 1: Supporting the global response**

More than 40 health professionals have been deployed in Ebola-affected countries since October 2014; most of them were surveillance medical officers from India and Bangladesh. Furthermore, India and Thailand contributed US$ 10.5 million for Ebola response in West Africa.
Strategic Objective 2: Strengthening the preparedness of countries

In the absence of effective treatment and a human vaccine, raising awareness of the risk factors for Ebola virus infection and the protective measures individuals can take is the only way to prevent human infection and death. Preparedness, vigilance and community awareness will be crucial to success in our fight against a complex public health emergency like Ebola.

The possibility of EVD cases being imported into the WHO South-East Asia Region is not high, but if it did occur the consequences would be serious. The WHO Regional Office for South-East Asia has taken a proactive role in supporting Member States in preparedness and response to prevent possible incursion of Ebola in the South-East Asia Region. The Regional Office for South-East Asia has been providing epidemiological updates on the Ebola outbreak and possible public health interventions, such as public awareness, surveillance at POE, IPC, shipment of infectious materials, clinical case management and hospital preparedness in case of an Ebola outbreak.

The major activities conducted for Ebola preparedness and response are as follows.

Command and coordination

WHO declared the Ebola outbreak in West Africa a public health emergency of international concern on 8 August 2014 and a Regional Ebola Coordination Committee was established to support Ebola preparedness and response at the regional and country levels. Since July 2014 a series of teleconferences has been held with in-country WHO representatives for preparedness and response to EVD. The WHO Director-General briefed the ministers and delegates on the ongoing Ebola outbreak during a Health Ministers’ Meeting that took place during the Sixty-seventh session of the Regional Committee held in Dhaka on 12 September 2014. In response to potential international spread of Ebola, an Ebola Task Force consisting of WHO representatives from Bangladesh, India and Indonesia, all the directors, and relevant regional advisors from the WHO Regional Office for South-East Asia was established on 16 October 2014.

Advocacy, awareness and risk communication

An advocacy and awareness programme on Ebola has been organized by all Member States and a multisectoral coordination committee has been institutionalized as part of Ebola preparedness. A summary on EVD was published and disseminated. A dedicated webpage on EVD has been prepared. A media workshop on emerging infectious diseases (EID) that paid special attention to reporting on the Ebola outbreak and media communication was organized in Kathmandu from 26–28 October 2014.
Surveillance, risk assessment and response

A regional checklist on country preparedness on EVD was finalized and sent to Member States for self-assessment. Technical guidelines related to case definition, surveillance at POE, sample collection, shipping and laboratory investigation, and IPC were sent to the Ministry of Health in Member States through their respective WHO country offices. Weekly updates on Ebola surveillance and reporting on country preparedness were institutionalized and continued.

A joint assessment mission to Member States was planned to assess readiness and preparedness for EVD response, to assist Member States to identify vulnerabilities, opportunities and needs with regard to meeting EVD response requirements, and to identify priority areas for WHO to support. So far, six countries have undergone an Ebola preparedness review and all countries have committed to EVD outbreak or importation preparedness. No major gaps were seen in surge capacity preparedness in large countries but some major gaps were noted in smaller countries. Substantial evidence of operational readiness was noted by the assessment team.

Member States were supported to organize a table-top exercise on Ebola preparedness and response. A regional-level simulation exercise on Ebola outbreak response was organized in New Delhi from 30 November to 2 December 2014.

Regional training on risk assessment for acute public health events focusing on EID, and including Ebola, was organized in Bangkok in December 2014. Similarly WHO supported the ASEAN+3 Field Epidemiology Training Network (FETN) and the Ministry of Public Health of Thailand to organize a workshop on strengthening Ebola preparedness and joint response among ASEAN+3 FETN member countries in December 2014. The objectives of the workshop were to:

- develop a mechanism and steps for a joint response to Ebola and information sharing among ASEAN+3 FETN member countries;
- facilitate and promote sharing of experiences, lessons learnt, and technical instruments and guidelines; and
- develop a table-top exercise based on a scenario of imported EVD cases.

Laboratory support

A regional workshop on biosafety, biosecurity and bio-risk management was held at the National Institute of Virology, Pune (India), in August 2014. Onsite training on shipping of infectious material in accordance with international regulations was organized at country level in collaboration with the World Courier Service. Globally, an arrangement has been made for free international transport of suspected Ebola samples to the designated WHO Reference Laboratory, including those from the
South-East Asia Region. The National Institute of Virology (India), WHO Collaborating Centre for Viral Zoonoses, Chulalongkorn University (Thailand), National Institute of Health Research and Development (Indonesia) and Institute of Epidemiology and Disease Control (Bangladesh) have facilities to test suspected Ebola samples and a plan has been developed for validation and external quality assurance.

**Clinical case management and IPC**

Personal protective equipment (PPE) and laboratory-related supplies for Ebola diagnosis were provided according to country needs and requirements. Regional training on case management, IPC of EID including Ebola was organized and all countries have designated isolation wards for treatment of Ebola patients.

Since IPC is important for emerging diseases such as EVD, Middle East respiratory syndrome coronavirus (MERS-CoV) and avian influenza A(H7N9) in health-care settings, a regional meeting on health-care-associated infection control was organized in Chiang Mai (Thailand) from 9 to 12 December 2014. The objective of the meeting was to strengthen the South-East Asia Region’s preparedness and response to health-care-associated infections and to discuss the way forward for health systems strengthening to address issues related to preparedness for outbreak response. A standard training module and training materials were discussed and finalized so that national and subnational training programmes on health-care-acquired IPC could be conducted. A regional training workshop on IPC of diseases caused by highly infectious pathogens including EVD was organized in Bangkok (Thailand) from 23 to 25 March 2015.

**Public health interventions including POE measures**

All Member States have institutionalized screening at major international airports, particularly for passengers arriving from Ebola-affected countries. Six countries in the South-East Asia Region have reported investigation of sick travellers returning from Ebola-affected countries and so far none were found to have EVD.

**WESTERN PACIFIC REGION**

In the Western Pacific Region a regional Framework for Action was developed with the objective of strengthening preparedness in Member States in the Region. The Regional Office for the Western Pacific has continued to monitor the EVD situation in West Africa and supported the Member States in their preparedness activities for Ebola or any other EID. APSED has continued to serve as a platform for the Member States in strengthening their IHR core capacities.
Strategic Objective 1: Supporting the global response

The deployment of WHO staff and international experts to Africa through the Global Outbreak Alert and Response Network (GOARN) to support efforts to fight the EVD outbreak commenced in August 2014. To explore a new deployment mechanism, the Western Pacific Ebola Support Team (WEST) was established in November 2014 under the leadership of the WHO Regional Director, following the discussions of the WHO Global Policy Group. A “team” approach was advocated to ensure continuity and sustainability in supporting response efforts in four core functions i.e. coordination, surveillance and epidemiology, information and communication, and operations.

The first team arrived in Sierra Leone on 24 December 2014 as an exploratory mission. Following discussions with the WHO Office of Sierra Leone and WHO Headquarters, it was decided that WEST would be based at the district level in Port Loko.

Since then, WEST members have been filling critical roles in field coordination, surveillance and contact tracing, including providing operational and technical advice. In addition, administration and logistic support has been provided to the district response with the goal of “getting to zero”. WHO visibility and technical leadership in all response areas and convening roles was acknowledged by partners and the community.

On 7 May 2015, based on the situation in Port Loko, and in consultation with the WHO Office of Sierra Leone, a more flexible approach to WEST was applied. Under the guidance of the WHO Representative, national experts from the Western Pacific Region and WHO staff would be deployed to districts beyond Port Loko to support the Ebola response.

WEST provided a platform to engage Member States, which included national experts from Australia, China, Japan, Malaysia, the Republic of Korea, Singapore and Viet Nam.

To ensure the sustainability of deployments, pre-deployment training (in collaboration with WHO Headquarters, GOARN and RedR Australia) took place in November 2014 in Darwin, Australia and in February 2015 in Manila, Philippines, providing training to more than 50 participants. Additional training sessions have also been conducted in Manila for national experts prior to their deployment to Sierra Leone.
Strategic Objective 2: Strengthening the preparedness of the countries and areas

2.1. Ebola preparedness Framework for Action

The Regional Office for the Western Pacific sent out two web-based Ebola preparedness surveys to National IHR Focal Points (NFPs) in the Western Pacific Region on 29 September 2014 and 31 March 2015. The surveys used the structure of the Framework for Action. Twenty-six NFPs (96%) completed the first survey, which was published in the Western Pacific Surveillance and Response journal (WPSAR). Following the survey, action was taken by WHO regional and country offices to improve preparedness, including training in clinical management and IPC, providing reagents and dangerous goods shipment training to laboratories, PPE distribution and strengthening of POE measures. The second survey was completed by 26 NFPs after six months. Overall, substantial improvement in Ebola preparedness was reported by NFPs as described below.

Command and coordination

In the Western Pacific Region, all countries had a national public health emergency response plan and a predetermined incident command and coordination structure to respond to a potential EVD event. All countries would activate the emergency operations centre (EOC) if an EVD case was to occur. Several countries, e.g. Lao People’s Democratic Republic and Mongolia activated their EOC to enhance their preparedness planning and test the EOC’s function by conducting simulation exercises and training staff. In the Ebola preparedness surveys, performance in this area is high and 2015 results were comparable to those of 2014. In 2015, all responding countries reported having a response plan that covered Ebola and 96.2% had a command and coordination structure in place for initiating response activities in the event of an EVD case.

Surveillance, risk assessment and response

All countries in the Western Pacific Region have been actively monitoring the EVD situation in West Africa to update public health decision-makers and stakeholders on the EVD situation, global and regional risk assessments and WHO guidance materials. Furthermore, all countries had raised awareness among all stakeholders.

1 Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, Japan, Kiribati, the Lao People’s Democratic Republic, Malaysia, the Marshall Islands, the Federated States of Micronesia, Mongolia, New Zealand, Niue, Palau, Papua New Guinea, the Philippines, the Republic of Korea, Samoa, Singapore, Solomon Islands, Tonga, Tuvalu, Vanuatu and Viet Nam.
involved in a potential front-line response including health-care workers who could encounter a potential EVD case.

Based on the 2015 survey results, over 90% of countries’ existing event- and indicator-based surveillance systems were used to detect potential EVD cases and over 95% had developed EVD case definitions. Risk assessment is important for informing public health preparedness actions; however, it was performed by only 69.2% of responding countries.

In regard to Ebola response in the Region, the 2015 survey indicated that 88.5% of country rapid response teams (RRTs) were briefed or trained on Ebola response, compared to 60.0% in the 2014 survey.

**Laboratory**

In the 2014 Ebola preparedness survey results, the lowest-scoring core capacity was laboratory (60%). However, marked improvements in this component were reported in 2015, particularly in the Pacific island countries and areas. Although in-country testing for EVD is not available in any of the Pacific island countries and areas, 84.6% had made referral arrangements with a WHO collaboration centre and all have laboratory staff trained in packing specimens according to international guidelines. In-country testing for EVD is available for 84.6% of Asian countries.

**Clinical management and IPC**

The 2015 follow-up survey showed that improvements had been made in clinical management and IPC. In the event of an imported EVD case, over 96% of countries have designated hospitals for isolation and treatment of the affected person. IPC guidelines have been developed and disseminated by 77% of countries and 92% had trained health-care workers on the use of PPE. Over 65% of countries had an adequate supply of PPE for rapid response and containment operations. However, availability of sufficient PPE remains an issue in the Pacific island countries and areas (38.5%, up from 15.4% in the 2014 survey).

**Public health interventions including POE measures**

Preparedness at POE requires further strengthening across the Region, particularly in Pacific island countries and areas. Although more than 84% of countries had a public health emergency contingency plan available at POE that could be used for EVD case management and 88.5% of countries reported preparing their staff on appropriate actions to be taken on the arrival of suspected EVD cases, only 69% had a protocol on monitoring and managing returning travellers with Ebola-like symptoms. Mechanisms for the referral of ill travellers to designated hospitals were in place in 96% of the countries, while 81% had a separate area for rapid assessment and isolation of suspected EVD cases at POE.
Risk communications

Overall, countries demonstrated strong risk communications capacity in both the 2014 and 2015 surveys. In 2015, the majority of countries (88.5%) confirmed that there was a mechanism and procedure in place to rapidly disseminate information and health messages. Most countries (nearly 95%) are prepared to provide information to the public in the event of the first EVD case.

2.2. Ebola simulation exercise

An Ebola simulation exercise was conducted on 8 and 9 October 2014. Its aim was to identify strengths and challenges regarding preparedness levels in Member States by way of requiring NFPs to respond quickly to incoming information by email of a potential EVD event. Twenty-three NFPs participated in the exercise; 11 from Asian countries on 8 October and 12 from Pacific island countries and areas on 9 October 2014. The simulation exercise supported the results of the first survey suggesting that a number of areas of Ebola preparedness still required improvement. The findings of the simulation exercise were reported in the WPSAR publication.

2.3. Country support

So far, 21 countries have been supported by the WHO Regional Office for the Western Pacific [Cambodia, China, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Lao People’s Democratic Republic, Malaysia, Marshall Islands, Mongolia, Nauru, Niue, Palau, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu and Viet Nam] in preparedness for a potential EVD case in the Region. The preparation includes:

- national simulation drills of imported Ebola cases in Cambodia, Lao People’s Democratic Republic, the Philippines and Viet Nam;
- Ebola preparedness and response plans drafted in Cambodia, Lao People’s Democratic Republic and the Philippines;
- laboratory training in Viet Nam;
- joint regional and country missions in collaboration with the ministries of health in several Member States including Cambodia, China and Mongolia;

The countries that participated in the exercise were Brunei Darussalam, Cambodia, China, Cook Islands, Federated States of Micronesia, Fiji, Japan, Kiribati, the Lao People’s Democratic Republic, Malaysia, Marshall Islands, Mongolia, Niue, New Zealand, Palau, the Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Tuvalu, Vanuatu and Viet Nam.
• sharing information on the Ebola situation in China;

• capacity-building of health-care workers (in health-care facilities in Cambodia and the Philippines);

• additional in-country support for selected priority Pacific island countries and areas including Fiji, Samoa, Solomon Islands, Tonga and Vanuatu;

• risk communication support including: training materials applicable to WHO, ministry of health and medical services and other stakeholders; and information education and communication (IEC) materials on EVD that can be adapted to the specific country context; and

• the Regional Office for the Western Pacific has identified a local source for Ebola-appropriate PPE, based on the WHO PPE technical specifications. PPE kits have been shipped to Cambodia, Malaysia and all Pacific island countries and areas.

2.4. Regional and subregional meetings and training courses

• The Pacific National IHR Focal Points’ meeting, held from 24 to 26 November 2014 in Fiji, focused on Pacific Ebola preparedness. A simulation exercise was conducted during the meeting and priority activities were recommended and are being implemented with WHO’s support.

• Four EVD IPC training of trainers sessions were conducted in Pacific island countries and areas. From 1 to 3 December 2014, a regional workshop was held in Nadi, Fiji, involving 34 participants from 16 Pacific island countries and areas, and in February 2015, workshops took place in Majuro, the Marshall Islands (26 participants), Pohnpei, the Federated States of Micronesia (39 participants), and Palau (around 20 participants).

• A Pacific Infectious Substances Shipping Training with a focus on EVD was held in Fiji from 9 to 11 February 2015 to train and certify laboratory staff in the principles and practice of shipping infectious substances in compliance with international transport regulations. Twenty-seven of 29 trainees from 12 countries and areas passed and received certification.

Although clear improvements in Ebola preparedness over the past six months were evident from the surveys, further improvement is still necessary before the Region can effectively respond to potential EVD events, including in laboratory capacity for Ebola virus testing, clinical management and IPC, and risk assessments to inform rational public health interventions, including measures related to POE.
Strategic Objective 3: Strengthening WHO’s leadership and coordination

A number of activities have been put in place to strengthen WHO’s readiness for a potential imported case of EVD in the Region, using the Framework for Action. The Ebola Emergency Support Team (EST) was formed in August 2014 in the WHO Regional Office for the Western Pacific to assist Member States and country offices in preparedness activities. Coinciding with the establishment of the EST was the activation of its EOC to monitor and assess the situation, and coordinate responses. EST has been monitoring and analysing the global and regional situation on a daily basis as well as through weekly EST meetings. This includes monitoring of people under investigation for EVD in the Region’s Member States. To date, numerous Member States (Australia, China, Japan, Malaysia, New Zealand, the Philippines, Republic of Korea, Singapore and Viet Nam) have investigated suspected cases of Ebola.

Ongoing regional risk assessment on EVD is being conducted in the Regional Office for the Western Pacific to guide priority actions. Based on the most up-to-date information, it is concluded that the possibility of imported EVD cases to the Region is low but if it does occur, the consequences would be significant. A regional Ebola risk assessment was published online to guide Member States in conducting a risk assessment. In 2015, a risk assessment was conducted in the Division of Pacific Technical Support, WHO in Suva, Fiji, specifically for the Pacific island countries and areas, which was published in WPSAR.

Communication and information sharing has occurred through weekly Ebola situation updates, which have been produced and shared with WHO country offices and key staff. The Health news daily digest on Ebola has been shared with staff of the Regional Office for the Western Pacific.

Various activities have been carried out in the area of risk communications. These include communicating accurate information on the risk and potential impact of a case of EVD presenting in the Region to the media through print, television and radio interviews. IEC materials on Ebola were produced in the WHO Regional Office including an Ebola packet, Q&A, briefing notes, posters and media messages.

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3 http://www.wpro.who.int/outbreaks_emergencies/wpr_ra_09oct2014.pdf
3. Outbreak case studies

This section describes the progress achieved in strengthening national APSED capacities through actual outbreak case reviews. Although the IHR monitoring tool allows Member States to assess their IHR implementation in a quantitative way, this approach has limitations. Therefore these case studies provide an opportunity to describe in a qualitative way the use of capacities and systems that APSED has helped build and thus, to gain a clearer understanding of progress.

SOUTH-EAST ASIA REGION

Case study 1: MERS-CoV in Thailand

On 18 June 2015, the Thai Ministry of Public Health notified WHO of its first MERS-CoV-infected patient: a 75-year-old Omani man. The patient, who was reported to have a heart condition, developed symptoms (cough and dyspnoea without fever) on 8–9 June and he was admitted to a hospital in Oman. As his symptoms did not improve, he decided to travel to Thailand to seek further treatment. He took a flight with three family members and arrived in Bangkok on 15 June. Neither the patient nor his family members reported fever upon arrival in Thailand. He was admitted to a private hospital on 15 June. Upon suspicion of MERS-CoV infection, sputum was sent to four laboratories (Ministry of Public Health’s National Institute of Health; the WHO Collaborating Centre for Viral Zoonoses, Faculty of Medicine, Chulalongkorn University, Thailand; Bamrasnaradura Infectious Diseases Institute [BIDII], Thailand and Mahidol University-Siriraj, Thailand). All four centres reported positive results of testing for MERS-CoV by real-time polymerase chain reaction (UpE and ORF 1a) on 17 June. The identified virus was subsequently shown to have
a genomic sequence that indicated 99% homology with the virus recently found in
the case in China that was linked to the Republic of Korea.

**Response**

On 18 June, Thailand’s Ministry of Public Health (MOPH) notified WHO of the case,
including the information that the patient had been referred to an isolation unit in
BIDI hospital for further treatment. The three family members who had travelled
with him were also placed under quarantine in BIDI hospital. Thailand recognized
the event as of highest priority and triggered its response plan: (1) a taskforce
to coordinate eight MOPH departments through a daily “war room” meeting;
(2) daily exchanges with a panel of experts; and (3) daily feedback to the Minister of
Public Health. The MOPH promptly enhanced surveillance at POE, and across the
country in health-care facilities and at the community level through the network of
Village Health Volunteers; using a sensitive case-definition, which included acute
respiratory infection and history of recent travel from the Middle East and the
Republic of Korea.

Within 24 hours of the initial IHR notification, guidelines regarding infection control,
medical clinical management and surveillance were disseminated. Contact tracing
quickly identified 176 contacts – 36 of whom were defined as high-risk contacts
(relatives, close flight passengers, health-care workers, hotel employees and
taxi drivers who were within 2 metres of the patient). Action taken to enhance risk
communication included provision of a daily update on the situation to the media
and via the website, heightened media monitoring, rumour surveillance and opinion
surveys, active use of social media, and establishment of a dedicated telephone
hotline.

WHO was invited to participate in the daily task force meeting providing inputs
and information sharing. WHO collaborated with MOPH on risk assessment, and
supported coordination of risk communication approaches and activities, including
developing messages to communities, national and foreign travellers and health-
care workers, as well as sharing key information with the United Nations (UN) system
and the international community via the Event Information Site and Disease Outbreak
News (DON). Following communication through the IHR focal point network, the
Omani health authorities identified another 11 close contacts in Oman, including
relatives and health professionals who had cared for the patient when he was
admitted to the Omani hospital. WHO also facilitated a “clinical forum” where key
Thai clinicians were able to participate in close discussion with internationally
recognized clinical experts on MERS-CoV infection.

On 3 July 2015, The Minister of Public Health announced that the patient had been
discharged from hospital, having made a full clinical recovery and that after repeat
laboratory testing he showed no evidence of residual infection. In addition, it was announced that a period of 14 days had also passed for all the individuals who were considered to be contacts of the patients, and that none of those identified showed any sign of infection with MERS-CoV.

**Challenges**

Despite a comprehensive and well-coordinated response (beyond the MOPH), there were difficulties in tracing some high-risk contacts. Other challenges included enforcing quarantine of non-compliant tourists who were co-passengers with the index case and addressing false rumours and false alerts and the concerns of health-care workers. The significant increase in workload associated with this event highlighted the need to enhance readiness, including making arrangements in advance to provide surge capacity in all technical areas.

It was concluded that further analyses of the challenges and their solutions should be encouraged and shared with other affected countries through documentation of lessons learnt, to improve future response in the Region.

**Conclusions**

Thailand is a major tourist destination and a major medical hub with about 1.4 million foreign patients per year visiting Thai private hospitals. It is very likely that the risk of cases being imported from the Middle East to the country will persist unless this disease is controlled at its source. In addition, introduction can occur through tourists, travellers, pilgrims or overseas workers who might acquire the infection following exposure to other cases (for example in a health-care facility) or to an animal or environmental source. This event is a reminder to the Asia Pacific Region that it needs to remain alert and that vigilance is required in recognizing suspected cases and maintaining high-level infection control in health-care facilities across the Region.

Thailand’s timely response, transparent communication and close collaboration with WHO in assessing and responding to the introduction of the MERS virus in humans is a result of good planning, a high state of readiness and close and continuing international collaboration. Above all, the effective response to address risks should also be perceived as one of the major returns on investments and efforts made in IHR and APSED.
Case study 2: Pandemic influenza A(H1N1) 2009 outbreak in India

Outbreak situation

Like many other countries, India was affected by the global pandemic influenza A(H1N1) in 2009 and 2010 which caused large outbreaks exceeding 20000 cases. In 2015, a total of 21412 influenza A(H1N1) cases and 1158 deaths were reported across India (Figure 1). The outbreaks were reported from urban centres in the seven most affected states, which may have been associated with unusual weather conditions during that winter season and mass movement of infected people by air, road and rail.

Figure 1: Reported cases and deaths from influenza A(H1N1) in India, 2015

Most cases occurred in people aged 18–50 years; only 5% of those affected were children aged 0–18 years (Figure 2). Males and females were equally affected. Of the 541 deaths that were analysed, the majority had co-morbidities, of these a large proportion had diabetes. In many cases, the affected people sought medical intervention at a very late stage (being brought to hospital after 4–5 days of symptoms) resulting in deteriorated health status.
States were asked to use the risk categorization adopted during the pandemic:

- category A – mild cases requiring domiciliary care and no drug treatment;
- category B – required oseltamivir, but no hospitalization; and
- category C – required drug treatment, testing and hospitalization.

The protocols for categorization and ventilator management of influenza cases were reviewed and provided to all the states.

According to an official report, there was no mutation of this influenza virus and oseltamivir was effective for treatment of patients infected with the circulating influenza virus strain.

**Response**

The strategic health operating centre room at the National Center for Disease Control (NCDC) in New Delhi was activated on 26 February 2015 on a 24-hour basis. A public health specialist was on duty round the clock to collect, compile, analyse and disseminate information related to the influenza A(H1N1) situation.

As health is a state matter, the state governments took prompt measures to prevent the spread of influenza A(H1N1) virus and for diagnosis, case management and treatment of the patients. However, the central Government proactively assisted the state governments. The Ministry of Health and Family Welfare (MOHFW) deputed senior-level public health teams to Gujarat, Jammu and Kashmir, Karnataka,
Madhya Pradesh, Maharashtra, Rajasthan, Telangana, and West Bengal to assess the situation and assist the states in managing the surge in cases.

The Integrated Disease Surveillance Programme (IDSP) and its state units have enhanced the surveillance for influenza-like illness and severe acute respiratory infections (SARI). The states of Gujarat, Madhya Pradesh, Maharashtra, Rajasthan and Telangana conducted active surveillance in the community to detect cases early. RRTs up to district level and clinicians from all the states and union territories underwent training during the pandemic in 2009.

The IDSP laboratory network of 12 laboratories provided laboratory support in testing, quality assurance, guidance, and provided viral transport media and diagnostic reagents. The laboratory network of the Indian Council of Medical Research (nine laboratories) was activated to test for influenza A(H1N1) cases.

Oseltamivir was made available through the public health system free of charge. The drug was also sold through Schedule X chemists. All the affected states had stocks of oseltamivir.

The MOHFW recommended vaccination of health-care workers against seasonal influenza. A joint statement issued by the Indian Medical Association and subject experts reiterated the stand taken by MOHFW that vaccination of the public to mitigate the impact of the outbreak was not advocated as a public health strategy.

Outbreak communication

The IEC campaign focused on prevention of transmission of the disease and its clinical management. The central Government supplemented the IEC efforts of the states. Advertisements placed by MOHFW in the print media were published on a regular basis in more than 200 newspapers in January and February 2015 all over the country. Radio and television were also used for information dissemination.

The Outbreak Monitoring Cell of NCDC worked round-the-clock to answer queries from members of the public. A total of 4781 calls were received during the period of activation (23 January 2015–9 April 2015). The average number of calls answered per day was 63 and the highest number answered on a given day was close to 250. The calls were received from all over the country. This service played a significant role in allaying panic and anxiety among the general population.
Lessons learnt

- Coordination, command and control remains a challenge, given that health is predominantly a state matter.

- Passive surveillance through case reports and media reports may not be sufficient to measure the magnitude of outbreak and the severity of illness. It is likely that the reported cases represented only a small fraction of the actual number of cases that occurred during the outbreak. Therefore, active surveillance for influenza is necessary to understand and predict the seasonal and outbreak cycles.

- Outbreak communication and public awareness on disease transmission, prevention and control are critical.

- The disease was referred to as swine flu in the mass media, although frequently clarified as seasonal influenza through official communications. Therefore, it is recommended that media workshops to educate media personnel should be held outside times of outbreaks to help ensure that the mass media communicate the right messages at times of peak activity and during outbreaks.

- Provision of proper guidance on risk categorization of patients, clinical case management and ventilator management to health professionals is a critical and strategic issue during outbreaks.

- It is important to minimize the period between onset of symptoms and hospital admission of category C patients to reduce the case fatality rate.

WESTERN PACIFIC REGION

Overview of public health events in the Region

Public health events were monitored at the Regional Office for the Western Pacific through the regional event-based surveillance system. In total, 212 events were monitored at the regional level between July 2014 and June 2015, 70 of which were emerging or re-emerging infectious diseases and 101 were other events including natural disasters, food contamination and civil unrest. These included:

- From 20 May to 30 June 2015, 182 MERS cases were reported in the Republic of Korea, and one case was reported from China.
• The Philippines reported an imported case of MERS from Saudi Arabia in February 2015.

• From July 2014 to June 2015, 222 cases of human infection with avian influenza A(H7N9) were reported in the Region; 217 cases from China, three from Hong Kong SAR and two from Canada. The two cases in Canada were the first cases reported from outside the Region.

• Five cases of avian influenza A(H5N1) and two cases of avian influenza A(H5N6) were reported from China.

• Suspected cases of EVD were reported from at least eight countries and areas; all tested negative. The Region has not had a confirmed EVD case.

• Dengue was reported from the Pacific islands, Malaysia and China.

had reported cases of MERS, mostly from the Middle East, with many community-acquired infections thought to be associated with direct or indirect contact with infected dromedary camels or camel-related products. Sporadic cases have been reported in the Western Pacific Region in Malaysia (April 2014) and the Philippines (February 2015) that were imported from the Middle East.

In May 2015, the Republic of Korea notified WHO of the first laboratory confirmed case of MERS-CoV infection in a traveller who returned from the Middle East.
As of 30 June 2015, 182 cases (181 in the Republic of Korea and one in China) and 33 deaths had been reported to WHO. All cases appeared to be epidemiologically linked with the initial imported case or subsequent secondary cases. This has been the largest outbreak of MERS reported outside the Middle East.

In the Republic of Korea, the national response plan was adapted for the outbreak and included the establishment of a round-the-clock situation monitoring system, expanded laboratory testing capacities and stockpiling of PPE. The Government’s central command and control structure, led by the Ministry of Public Safety and Security, was supported by 10 counties. This MERS response centre coordinated the overall health response, especially planning, field response, resource management and communication.

In early June, response measures were significantly intensified with new policies and emergency measures, including implementation of an information system to manage all cases and contacts. This included a contact location tracking system and a government subsidy for close contacts under quarantine, hospital IPC, patient management and risk communication.

WHO’s response to the outbreak in the Republic of Korea was guided by the IHR (2005), WHO’s Emergency Response Framework (Grade 2) and APSED. On 28 May 2015, WHO activated the EOC and established an Event Management Team with four core functions: epidemiology and information; technical expertise; risk communications; and core services. Daily situation updates were published on the WHO Regional Office for the Western Pacific website, along with regular updates to the web-based Emergency Information System and Disease Outbreak News (DON) bulletin.

A joint Korean Ministry of Health and Welfare and WHO mission was conducted in June 2015. This joint mission assessed the risks posed by the outbreak and made recommendations on response measures. High-level recommendations for the Government included immediate strengthening of IPC in health facilities nationally, guidance to health workers on questions to ask patients presenting with fever or respiratory symptoms, and appropriate reporting and monitoring of suspected cases and close contacts.

The MERS-CoV outbreak in the Republic of Korea demonstrates the importance of investing in preparedness, even in high-income countries. Together with national preparedness, international collaboration during peacetime can ensure that public health events are contained as they arise. WHO is continuing to work with national authorities to control the outbreak and to monitor EID in the Region.
Case study 2: Are we prepared for re-emerging diseases?
First confirmed dengue outbreak in nearly 70 years in Japan

Initial case

In August 2014, a physician saw an 18-year-old schoolgirl at an emergency room in a neighbouring prefecture of Tokyo. She was suffering from sudden high fever, nearly 40°C, with body aches and joint pain (day 1). The physician also noticed many mosquito bites on her legs. She did not have any history of travel outside Japan one month prior to disease onset. Her high fever persisted and her white blood cell count and platelets decreased on day 6.

Tests for the usual suspect infectious agents were all negative, and based on her clinical manifestations, the physician considered dengue fever as a diagnosis as he had personally diagnosed a few cases of imported dengue in the past. He reported that he remembered an alert published by Japan’s Ministry of Health, Labour and Welfare (MHLW) in 2014 about an imported dengue case in Germany, which was potentially exported from Japan. As there were diagnostic kits for dengue available in the hospital, the patient was tested and was found to be positive for dengue.

The physician immediately notified the case, in accordance with the Infectious Diseases Control Act, and the National Institute of Infectious Diseases (NIID) confirmed the diagnosis on day 7.

Outbreak response

After notification, the MHLW reported the initial case as a locally-acquired dengue case, both domestically and internationally, and conducted timely and routine press conferences. Alerts were issued to the general public, health-care workers and local health centres regarding preventive measures and surveillance and laboratory testing protocols for dengue virus infection.

Local public health officials collected information from the initial patient regarding her exposure to mosquito bites, which were reported to have occurred at a park in central Tokyo. Some of her classmates who had been in the park at the same time reported similar symptoms. Local health officials shared this information with other relevant local health-care centres across administrative borders to facilitate early detection of potential additional autochthonous dengue cases and the necessary response measures. In addition, staff at NIID deployed a Field Epidemiology Training Programme (FETP) fellow to the MHLW to conduct a risk assessment and descriptive epidemiological analysis. Such rapid and efficient utilization of FETP in times of acute public health events can increase surge capacity.
As of 17 September 2014, a total of 131 autochthonous dengue cases had been confirmed, with the majority linked to visiting the park or its vicinity in Tokyo, and the serotype detected was serotype 1.\(^5\)

**Preparedness for the re-emergence of dengue**

The case reported from Germany in January 2014, possibly resulting from exposure in Japan, prompted the MHLW, in conjunction with the Tokyo Metropolitan Government, to prepare for a possible outbreak of locally-acquired dengue in Japan. As the risk assessment raised concern about a possible domestic dengue outbreak, guidelines for clinical management were developed and diagnostic kits were distributed to selected medical facilities that were likely to see dengue cases. The health sector worked with the environmental sector to implement environmentally-friendly measures for mosquito control.

Therefore, when the dengue outbreak occurred in 2014, laboratory testing, surveillance, clinical management and vector control were prepared. This outbreak also demonstrated the usefulness of international sentinel traveller surveillance emphasizing that sharing information about case(s) of infectious disease in travellers to suspected source countries can contribute to timely domestic preparedness for re-emerging diseases.

In April 2015, the MHLW, in collaboration with relevant stakeholders, published comprehensive guidelines for the prevention and control of vector-borne diseases, including chikungunya. The lessons learnt from the 2014 dengue outbreak were included, as was vector control, public education for preventive behaviour, surveillance, early diagnosis, clinical management and outbreak response.

The diagnostic kit for dengue was approved and widely distributed to hospital laboratories. In addition, in the spring 2015, MHLW held a workshop on dengue prevention and response, targeting local government workers in the health and vector control sectors. As a result, the general public, medical practitioners and local governments have a better understanding of how to prevent and respond to vector-borne diseases.

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Case study 3: Investigation of Cambodia’s largest reported outbreak of foodborne illness, March 2015

An outbreak of suspected foodborne illness was reported to the national event-based surveillance system in Cambodia in March 2015. The initial report from the local RRT in the province of Siem Reap, a popular tourist destination, indicated that hundreds of people, mostly children, were inundating local health centres with gastrointestinal complaints.

The central-level RRT (comprising national staff from the Communicable Disease Control Department and a team from WHO) reviewed the preliminary report and conducted a risk assessment using the risk algorithm developed by the WHO Regional Office for the Western Pacific. The outbreak was classified as being of moderate to high risk. That this risk assessment was conducted prior to deployment of the central-level RRT shows progress in achieving the core capacities under the IHR (2005) in detecting and responding to an acute public event.

After the risk assessment, a multisectoral investigation team comprising local and central-level RRT members, food safety personnel, an applied epidemiology training graduate (Cambodia’s modified FETP), and national laboratory staff was deployed. WHO staff provided technical support to the investigation.

Owing to the scale of the outbreak, the total number of cases was not documented, however, there were more than 700 cases, with no fatalities. Patients were cared for at local health centres and hospitals and they all recovered. A case–control study conducted by the investigation team found a statistically significant association
with meat rolls served at an anti-child labour event hosted by an international nongovernmental organization (NGO). The meat rolls were made by a local youth group: 750 rolls were provided to the NGO for the event and additional rolls were sold to the general public.

The environmental investigation indicated poor hygiene and storage practices. No food handlers reported illness prior to event. Epidemiology and laboratory findings implicated *Salmonella* infection. Food safety messages were communicated to food handlers and the community.

In May 2015, an outbreak review was conducted as part of APSED. The review consisted of a one-day guided discussion by all partners involved in the investigation to determine the strengths and identify gaps. Action points to improve outbreak detection and response were developed, which will ensure that Cambodia meets the core capacities required under the IHR (2005).

**Case study 4: Solomon Islands flash flood emergency 2014:**
Enhanced post-disaster surveillance using existing early warning systems

In April 2014, heavy rains from a tropical depression caused severe flooding in Honiara, the capital of the Solomon Islands, and the adjacent Guadalcanal Province. An estimated 50,000 people were affected as several rivers burst their banks washing away houses and infrastructure. Almost 10,000 displaced people stayed in evacuation centres in Honiara and an unknown number in Guadalcanal; 22 people died as a direct result of the flash floods. Many bridges were damaged or destroyed and transportation throughout Guadalcanal Province was severely affected, hampering assessment and relief efforts.

A large international response was coordinated by the Solomon Islands National Disaster Management Office. The health sector (or cluster) response was coordinated by the Ministry of Health and Medical Services (MHMS), supported by WHO, and the EOC was activated. Multiple international organizations deployed humanitarian teams to support clinical care in the National Referral Hospital, including medical response teams from Australia and New Zealand, Médecins Sans Frontières mobile clinic teams and others.
Figure 4: Flash flooding caused severe damage in Honiara and Guadalcanal Provinces, Solomon Islands in April 2014

Risk assessment

MHMS and WHO conducted a joint post-disaster risk assessment of flood-affected communities. The assessment identified multiple post-disaster conditions predisposing to a communicable disease outbreak. These included poor sanitation, limited and poor quality water, displaced populations living in dirty and densely populated evacuation centres, exposure to floodwater, and increased exposure to disease vectors such as mosquitoes.

The risk assessment concluded that the risk of a disease outbreak was high; priority outbreak-prone diseases included shigellosis, leptospirosis, malaria, dengue, typhoid fever, measles, cholera and hepatitis A. Based on the post-disaster conditions, increased rates of general diarrhoea and respiratory infections were also expected.
Surveillance

Since 2012, the Solomon Islands National Surveillance Unit had been collecting and reporting syndromic data for four syndromes from eight sites, in five of the nine provinces. This was part of the Pacific Syndromic Surveillance System (PSSS), the early warning disease surveillance system run by 23 Pacific island countries and areas and coordinated by the WHO Division of Pacific Technical Support (Suva, Fiji). The System was established in 2010 after the influenza A(H1N1) pandemic of 2009, both in response to the acute public health threat and to ensure support for Member States in meeting core capacity commitments under IHR (2005).

As a result of the post-disaster risk assessment, the Solomon Islands Syndromic Surveillance System (SSS), was strengthened and expanded into an Early Warning Alert and Response Network (EWARN) to include an additional 17 sites in the flood-affected areas. The number of syndromes under surveillance was increased from four to eight to include all relevant epidemic-prone diseases.

Within one week of the flood crisis, a large increase in cases of diarrhoea in both Honiara and Guadalcanal was detected through the EWARN. In the following weeks, diarrhoea outbreaks and diarrhoea-related deaths were reported from many other parts of the country either through the existing SSS sites or event-based surveillance. The high mobility of people from Honiara to the provinces facilitated rapid and extensive spread of the disease. A large measles outbreak was also reported through EWARN in June 2014.

Outbreak response

The diarrhoea outbreak resulted in greater morbidity and mortality than that of the initial crisis. More than 5800 cases of diarrhoea and 27 diarrhoea-related deaths were captured by the indicator and event-based EWARN and follow-up investigations (Figure 7).
In response to the outbreak, clinical management protocols were developed and disseminated and refresher training was conducted to improve the management of diarrhoea, particularly for the most affected population: children aged less than 5 years. RRTs were deployed to affected provinces to provide clinical management guidance, and to determine the etiology and magnitude of the outbreak. A joint MHMS–WHO press release on the prevention and care of children with diarrhoea was released soon after the outbreak was identified. Printed materials in English and Solomon Islands Pidgin were developed providing advice on the management of children with diarrhoea at home. Advice on how to improve hygiene and sanitation was provided in the regular health column of the national newspaper.

By November 2014 more than 4600 suspected measles cases had been reported from all nine provinces. A mass measles–rubella vaccination campaign was conducted in response to this outbreak.
Outcome

The rapid establishment of the EWARN following the flood emergency was made possible by the existence of an established and robust national early warning syndromic surveillance system. Rapid implementation was facilitated by health staff – both clinical and public health – having an understanding of early warning surveillance, including the importance of strict case definitions, line lists and reporting pathways. The implementation or strengthening of post-disaster EWARN is a priority defined in the WHO Emergency Response Framework (ERF), the overarching guidance for WHO activities in disasters and other public health emergencies. Climate change, like emerging diseases, is a serious threat to future health security. Climate change is predicted to increase the severity of extreme weather events, with important implications for public health, including a high likelihood of increased epidemic disease transmission. The small Pacific island nations are particularly vulnerable. Through APSED, the Solomon Islands MHMS, despite considerable resource limitations, has demonstrated commitment to improving health security through implementation of the core elements of IHR (2005).
4. Progress on TAG recommendations from 2014

SOUTH-EAST ASIA REGION

Recommendations to Member States

1. To accelerate development of an all-hazards preparedness and response plan with the involvement of relevant sectors

   A series of national coordination meetings have been organized by Member States with the involvement of relevant sectors (agriculture, civil aviation, home affairs, defence, local development) on all-hazards preparedness and response covering issues such as zoonoses, food safety, chemical and radionuclear hazards.

2. To consider how best to utilize the IHR costing tool to assist with national IHR planning, budgeting and resource mobilization

   The IHR costing tool was field-tested in Indonesia in 2014. As a follow-up, a consultative meeting was conducted in May 2014 to finalize the tool.

3. To document and assess the response to events and outbreaks and/or conduct exercises or simulations to test the functional aspects of the IHR

   Outbreaks of EVD in West Africa, MERS-CoV in Middle-Eastern countries and new strains of avian influenza as a potential threat to human health in Asia Pacific countries have motivated a higher level of advocacy and awareness at all levels (global, regional, national and subnational) to strengthen core
capacities required for the implementation of IHR (2005). Table-top and simulation exercises were carried out to test functional aspect of the IHR in the event of an EVD outbreak in a number of countries. The successful handling of a MERS case in Thailand clearly demonstrates the functionality of surveillance, risk assessment, laboratory investigation, IPC, risk communication and public health measures at POE as per IHR (2005).

4. To strengthen poison centres and to establish a poison centre network in order to support the implementation of IHR for chemical hazards

Individual poison centres in six countries in the South-East Asia Region (India, Indonesia, Myanmar, Nepal, Sri Lanka and Thailand) are well placed to be involved in preparedness, response and training activities in support of implementation of IHR for chemical risks. Strengthening of contacts between poison centres and IHR focal points has been initiated and remains important to facilitate such support.

5. To strengthen intercountry collaboration and regional, bi-regional and global networking for implementation of IHR core capacities and document and share best practices in the context of IHR implementation

Various regional, bi-regional and global networks were used to facilitate intercountry collaboration and to share best practices. The eighth bi-regional meeting of national influenza centres was held in Jakarta from 12 to 15 August 2014 to strengthen influenza surveillance, preparedness and response, and was attended by representatives of 36 countries from the Asia Pacific Region. Similarly, the Fifth Asia-Pacific Regional Workshop on Collaboration between Human and Animal Health Sectors on Zoonoses Prevention and Control was organized by the Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (OIE) and WHO in Bangkok from 24 to 26 November 2014 to strengthen intersectoral collaboration on prevention and control of zoonoses through operationalization of the One Health approach, taking into consideration country-specific situations and priorities.

A training course on case management of avian influenza A[H7N9] was organized in Jakarta in September 2014 to facilitate intercountry collaboration and share best practices.

6. To continue to actively engage with various development partners and initiatives for strengthening IHR core capacities

A number of development partners are supporting Member States in strengthening core capacities in the areas of epidemiological surveillance, laboratory diagnosis and biosafety, zoonoses control, and emergency preparedness and response.
The European Union is providing funding for strengthening laboratory capacity and biosafety in Bangladesh, Indonesia, Myanmar and Nepal. Similarly USAID is planning to support Bangladesh, India and Indonesia in the implementation of the Global Health Security Agenda. The US Centers for Disease Control and Prevention (US CDC) is actively supporting a number of Member States, such as Bangladesh, Bhutan, Maldives and Myanmar, in strengthening field epidemiology and influenza surveillance activities.

**Recommendations to WHO**

1. **Continue to advocate with Member States and partners to keep IHR high on the public health agenda by using advocacy plan and materials**

   The core capacities required for implementation of the IHR (2005) have been reiterated at all regional and national meetings and workshops. WHO had been working with the OIE on the IHR/Performance of Veterinary Services assessment tool under the World Bank-funded project. The pilot testing of the assessment tool was carried out in Thailand and the final version was presented during the tripartite (FAO/OIE/WHO) workshop on zoonoses prevention and control in November 2014 in Bangkok. The implementation of IHR was discussed at the Regional Committee meeting and regional platforms such as the South Asian Association for Regional Cooperation (SAARC) consultation on cross-border collaboration in Kathmandu in September 2014 and the regional meeting on IHR core capacities at POE in Colombo in June 2015.

2. **Finalize and disseminate the costing tool and facilitate use of this tool**

   Following the field testing and consultative meetings in January and May 2014 respectively, the IHR costing tool is being finalized. It is expected that by the end of 2015, the training module for the IHR costing tool will be made available and ready for implementation.

3. **Develop guidelines and tools for risk mapping and all-hazards preparedness and response plan**

   Guidelines and tools for risk mapping are being developed. Member States regularly review and update their disease-specific plans [e.g. National Influenza Pandemic Preparedness Plan (NIPPP)]. Some Member States have started to incorporate or link the NIPPP into their disaster management plan (Bhutan, Nepal and Thailand) while others have expanded the NIPPP to include other EIDs. The latter is also one of the recommendations of the
Regional Workshop on Influenza Pandemic Preparedness Planning, held from 23 to 25 September 2014, in Kathmandu, Nepal. Member States in the South-East Asia Region are now broadening the scope of their pandemic influenza preparedness plans to include EID.

4. **Finalize and disseminate the APSED/IHR monitoring and evaluation tool and facilitate institutionalization of its use in Member States**

Regional support for national monitoring and evaluation (M&E) is provided on an adhoc basis when requested. Most Member States in the South-East Asia Region are currently utilizing APSED as a strategic framework to support the establishment of IHR core capacities and IHR is regarded as the national priority. Therefore, national and regional planning and review processes are focused on the IHR self-monitoring process. The 11 countries in the Region completed the IHR core capacity self-monitoring in 2014.

5. **Collate information to support evaluation of APSED as a means to strengthen national capacities and explore its scope beyond 2016**

The WHO Regional Office for South-East Asia in collaboration with the Regional Office for the Western Pacific conducted a bi-regional APSED evaluation in 2015. As an integral part of the evaluation, country visits were made to two focus countries in the Region (Indonesia and Nepal) to collect information on the implementation, sustainability, lessons learnt and future priorities of APSED/IHR. In addition, a set of questionnaires for Member States on APSED/IHR implementation were developed and distributed. The feedback received from Member States in the South-East Asia Region will be analysed together with the feedback from Western Pacific countries to find out what both regions have achieved and inform the future direction with regard to EID and public health emergencies in the Region.

6. **Continue to support the establishment and strengthening of Emergency Operations Centres (EOCs) in Member States**

The Strategic Health Operations Centre room in the Regional Office for South-East Asia has been modernized to deal with acute public health events such as the Nepal earthquake and the MERS-CoV event in Thailand. The Health Emergency Operations Centre at the Ministry of Health and Population was instrumental in dealing with the coordination and deployment of the foreign medical team, including surveillance, logistics and emergency response to support these events.

In the WHO South-East Asia Region, Bangladesh, India, Indonesia, Nepal and Thailand have established EOCs with different functions, hazards covered and
capacities. The variations pose substantial challenges for the interoperability that is essential to effective communication and collaboration between EOCs and response systems. Member States were supported to participate in the first meeting of the Public Health Emergency Operations Centre Network (EOC-NET) in Geneva from 27 to 29 April 2015 to review the EOC research findings in four technical areas including 1) plan and procedures, 2) communication technology and infrastructures, 3) training and exercises and 4) minimum datasets and standards. A regional workshop on strengthening and Networking of public health EOCs was held in New Delhi from 23 to 25 September 2015 to strengthen national public health EOCs and the regional networking for public health emergency preparedness and response.

7. **Support and facilitate the strengthening of poison centres and the establishment of a poison centre network to support the implementation of IHR for chemical hazards**

A regional workshop on strengthening surveillance on chemical events in the context of IHR will be held in the fourth quarter of 2015. This regional workshop will support the implementation of the IHR for chemical hazards. A South-East Asia Network of Poison Control Centres is being formalized and will consider ways the centres can work together to strengthen support for the implementation of IHR for chemical hazards.

8. **Work with partners to mobilize technical and financial resources to support national IHR core capacity implementation**

WHO has been working with the FAO and OIE to support multisectoral collaboration and capacity-building for prevention and control of zoonoses in Member States. A number of donors and partners are involved in developing core capacities for implementation of IHR (2005) through various WHO projects. The ongoing activities at regional and country levels are as follows:

- Australian Government Department of Foreign Affairs and Trade (DFAT) – Ebola preparedness and response;
- European Union – laboratory biosafety and biosecurity;
- CDC Cooperative Agreement (USA) – influenza surveillance, FETP; and
- Pandemic Influenza Preparedness Framework – influenza preparedness and response.
9. Advocate more formal harmonization of intercountry collaboration for implementation of IHR core capacities (for example, development of common standard operating procedures at POE)

A regional meeting on IHR core capacities at POE was organized to review progress made under IHR (2005) at POE in Member States, identify gaps and agree on priority areas for strengthening capacities at POE. The country participants identified three priority actions for core capacity development at POE in their respective countries based on deliberations and a new piece of information, which will be considered in the WHO work plan 2016–2017. The meeting of the SAARC Technical Committee on Health and Population held in New Delhi in April 2015 called upon SAARC Member States to explore the possibility of joint designation of POE in ground crossings.

10. Support Member States to implement the South-East Asia Strategy to Strengthen Public Health Response to Chemical and Radionuclear Events in the context of IHR (2005)

A draft strategic framework for public health response to chemical and radionuclear events in the context of IHR (2005) has been developed to provide support to Member States. It is planned to organize regional training on chemical and radionuclear hazards.

A number of Member States had the opportunity to learn more about the issues associated with radionuclear events during a workshop conducted in April 2015 by the Korea Institute of Radiological and Medical Sciences, which was held as a contribution to the WHO Radiation Emergency Medical Preparedness and Assistance Network. Building up common surveillance methods is one area of work that the network can engage in and this will be explored further in the coming biennium 2016–17 as part of implementing the South-East Asia Strategy to Strengthen Public Health Response to Chemical and Radionuclear Events in the context of IHR.

11. Explore opportunities with regional forums on harmonization intercountry collaboration

WHO has been using ASEAN and SAARC platforms to harmonize intercountry collaboration on surveillance, prevention and control of EIDs of regional importance such as EVD and MERS-CoV. SAARC consultations on cross-border collaboration and establishment of the ASEAN Coordination Center on Animal Health and Zoonoses (ACCAHZ) are pertinent examples. WHO supported the ASEAN+3 Field Epidemiology Training Network (FETN) to organize a workshop on strengthening Ebola preparedness and joint response among
ASEAN+3 FETN member countries in December 2014. In addition, WHO has been participating in teleconferences organized by the ASEAN+3 FETN to discuss public health events of importance in ASEAN countries such as the hand, foot and mouth disease outbreak in Cambodia, avian influenza A[H7N9] in China and the surge of dengue fever outbreaks in ASEAN countries.

WESTERN PACIFIC REGION

Recommendations to Member States

1. In light of the June 2016 deadline for achievement of IHR core capacities, Member States which have sought IHR (2005) extensions should accelerate implementation of their national work plans towards achieving these capacities, including specific plans to address identified gaps.

All the nine Member States that sought an extension to the deadline for achievement of IHR core capacities in 2014 developed two-year work plans to address the gaps identified. Several of these Member States implemented multi-year work plans to strengthen capacities for dealing with emerging diseases and public health emergencies.

2. Those Member States which have not sought extensions should:

   - maintain and, where possible, enhance their existing capacities; and
   - where possible, and upon request, directly support the Member States that have sought extensions to meet their capacity requirements.

Maintain and, where possible, enhance existing capacities

IHR monitoring questionnaire

For the 11 Member States that did not seek an extension and which completed both the 2014 and 2015 IHR self-monitoring questionnaires, the average score per capacity was above 90% for both years for all capacities, with the exception of POE and chemical and radiological (Figure 8).
EVD preparedness survey

Seventeen of the Member States that did not request an IHR extension completed the second EVD preparedness survey in May 2015. The results of this survey suggested that these Member States are maintaining their existing capacities in the following areas:

- **Command and coordination**: all 17 Member States affirmed that a national public health emergency response plan (or equivalent) was in place that could be used to contain potential EVD events.

- **Surveillance, risk assessment and response**: all 17 Member States reported raising awareness of EVD among health-care workers, with 13 reporting that an EVD surveillance protocol had been developed and disseminated to public health officials and hospitals.

- **Laboratory capacity**: all 17 Member States reported having either testing capacity and/or referral arrangements for EVD specimens.

- **Clinical management and IPC**: 16 Member States had designated a hospital or hospitals for EVD cases, while 13 of them had developed and disseminated IPC guidelines that could be used for EVD response.

- **Public health interventions and risk communication**: 15 Member States reported both ensuring that POE staff had been briefed on appropriate action to manage suspected EVD cases in arriving travellers and having a risk communication plan in place to communicate with stakeholders and the public during an EVD event.
Where possible, and upon request, directly support the Member States that have sought extensions to meet their capacity requirements

Pre-deployment training for Ebola funded by Australia

In November 2014, the Australian Government funded RedR Australia, a UN-standby partner, to run pre-deployment training on responding to the Ebola outbreak. The purpose was to prepare technical experts to be deployed in various capacities to join the Ebola response in Africa. Twenty-four epidemiologists from Australia, Japan and Singapore participated, with one epidemiologist leaving for Sierra Leone on the last day of the training.

Following the success of the pre-deployment training, another pre-deployment training course was conducted in Manila in February 2015, which was also funded by the Australian Government and conducted by RedR Australia in partnership with various other agencies. There were 31 participants from China, Japan, Malaysia, Mongolia, the Philippines, Republic of Korea and Viet Nam. The training objectives were expanded to include preparing and responding to an imported case of Ebola within the Western Pacific Region.

Training from WHO collaborating centres

The National Environment Agency in Singapore, the WHO Collaborating Centre for Reference and Research of Arbovirus and their Associated Vectors, conducted the biannual Asia Pacific Dengue Workshop in 2014. The workshop aimed to strengthen national and regional dengue surveillance by addressing laboratory testing, vector control and clinical management in alignment with APSED. Participants included government officials and experts from Member States that had requested IHR extension.

3. Member States are strongly encouraged to review their response plans in line with the WHO frameworks for action on avian influenza A[H7N9] and MERS-CoV, and to keep themselves, their health services and the public informed about other potential health security threats such as EVD. Specific areas of focus are recommended:

- strengthening public health emergency preparedness, including development of all-hazards public health emergency plans, building on pandemic influenza and other existing plans;
- strengthening IPC, clinical management and health service awareness, preparedness and response, in light of the potential for EIDs such as
MERS-CoV to cause nosocomial infections and amplify their transmission in health-care settings;

- strengthening and maintaining IHR capacities at POE, and ensuring that POE are part of the overall national and local systems for public health emergency event detection and response.

**Strengthening public health emergency preparedness, including development of all-hazards public health emergency plans, building on pandemic influenza and other existing plans**

According to the 2015 IHR self-monitoring questionnaire, 14 of the 17 responding Member States have tested and updated multihazard national public health emergency preparedness and response plans:

- Cambodia has developed a national strategic plan on disaster risk management for health as well as a national pandemic influenza plan.

- Lao People’s Democratic Republic has developed and tested contingency and response plans for EIDs and public health emergencies including avian influenza and EVD.

- Malaysia has developed a multihazard disaster management plan.

- Mongolia has developed a generic public health emergency preparedness and response framework covering multiple hazards.

- Papua New Guinea has drafted a national contingency plan for public health emergencies.

- Viet Nam’s Ministry of Health has developed a national action plan for public health emergencies and emerging disease outbreak control for 2014–2017 that includes specific diseases such as avian influenza, MERS-CoV and Ebola.

According to the Ebola survey (see Section 2 Ebola preparedness and response) all 26 participating Member States reported having a national public health emergency response plan (or equivalent) in place in case of an EVD event and 92% of the Asian and 50% of the Pacific Member States had tested or planned to test those plans.

In Lao People’s Democratic Republic a joint national preparedness and contingency plan for avian influenza A(H7N9) and avian influenza A(H5N1) was developed and then tested by a table-top exercise in September 2014. An Ebola simulation and table-top exercise was also conducted in October 2014 to test the Ebola work plan, followed by development of an Ebola manual to provide further guidance for all sectors during the preparedness and response activities.
Viet Nam developed a national plan of action and technical guidelines for EVD response, and conducted a table-top exercise on avian influenza A(H7N9) to identify gaps in current plans.

**Strengthening IPC, clinical management and health service awareness, preparedness and response, in light of the potential for EIDs such as MERS-CoV to cause nosocomial infections and amplify their transmission in health-care settings**

According to the Ebola survey (see Section 2 Ebola preparedness and response) most countries in both the Asian and Pacific subregions had a designated isolation facility (100% and 85% respectively), had IPC guidelines in place (77% and 73% respectively) and had given staff appropriate training (100% and 77% respectively). However, compared to 77% of Asian countries, only 15% of Pacific island countries and areas had adequate PPE to actually manage a potential EVD case.

IPC strengthening activities took place in several countries. For example, in Lao People’s Democratic Republic a national IPC strategy was revised and disseminated to hospitals throughout the country. In the context of EVD preparedness, several countries conducted IPC activities with a specific focus on EVD, such as two-day training courses in four provinces of Cambodia and training for the Pacific island countries.

Clinical management activities related to EVD preparedness included assessment of isolation units in selected hospitals in Cambodia and training of intensive care wards personnel in Mongolia. Clinical management training for other EIDs was also conducted. For example, Viet Nam ran four training courses on SARI for 140 key health staff working in intensive care units.

A workshop aimed to increase hospital preparedness for Ebola was developed collaboratively by the Philippine Department of Health and the WHO Country Office to rapidly prepare large numbers of health professionals working in hospitals in the Philippines to detect and safely manage EVD. A three-day workshop was held to train 364 doctors, nurses and medical technologists from 78 hospitals across the Philippines in three initial batches. This workshop could be adapted for use in other developing countries as baseline training on EVD to prepare large numbers of hospital staff to rapidly detect, isolate and safely manage EVD cases. An evaluation of this workshop was published in WPSAR.6

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Strengthening and maintaining IHR capacities at POE, and ensuring that POE are part of the overall national and local systems for public health emergency event detection and response

To test preparedness at POE, some Member States have conducted simulation exercises. For example, a simulation exercise was conducted in Singapore at the POE, in August 2014, which involved the Ministry of Health, the Communicable Diseases Centre and Changi Airport Group. In Mongolia, a simulation exercise was organized in December 2014 to assess POE in the event of an imported case of EVD. The exercise involved approximately 200 participants from multiple agencies including the health sector, military, customs and immigration officers.

In Cambodia, table-top exercises were conducted separately with staff from the Communicable Disease Control Department, quarantine officers, airport authorities, the national RRT and clinicians in designated hospitals, based on the standard operating procedure (SOP) for Cambodia’s international airports in Phnom Penh and in Siem Reap. The SOP covered the management of sick passengers, including those with probable Ebola and MERS.

4. Member States should ensure that EID managers and/or National IHR Focal Points (NFPs) have established linkages and arrangements with sectors that contribute to health security, including animal health, environmental health (including chemical and radiological safety), food safety, and emergency management (to address the public health consequences of natural and technological disasters). This should include multisectoral emergency preparedness plans and exercises as appropriate.

In most Member States, the human and animal health sectors work together through joint surveillance, investigation and response, as well as information sharing and joint risk assessment meetings. However, establishing sustainable linkages with other sectors is still a work in progress in several Member States. While committees, strategic plans and legislature exist in programme areas such as environmental, chemical, radiological and disaster management, the level of linkage with EID and public health emergency work is less clear. Some examples of multisectoral collaboration are provided below.

In Cambodia, the Ministry of Health developed multisectoral SOPs for the investigation of and response to foodborne disease outbreaks in collaboration with the five ministries involved in food safety. Monthly meetings of the Zoonosis Technical Working Group gathered partners from the human and animal sectors. In Mongolia, the Ministry of Health developed a multisectoral public health emergency preparedness and response framework which established linkages with animal health, food and chemical safety, emergency management and POE.
In Lao People’s Democratic Republic the Ebola simulation exercise conducted in October 2014 provided an opportunity for staff from hospitals, laboratories and the RRTs to communicate, plan and work together.

Annual APSED planning and review meetings were held in at least five Member States; these provided the opportunity for different sectors to convene to discuss health security.

5. To demonstrate effectiveness and promote learning, Member States are encouraged to implement the APSED monitoring and evaluation guide, with its emphasis on:

- utilize the APSED annual planning and review process;
- conduct outbreak reviews as a key tool to illustrate the successful functioning of the integrated system;
- participate in the upcoming APSED evaluation.

**Utilizing the APSED annual planning and review process**

At least five Member States – Cambodia, Lao People’s Democratic Republic, Malaysia, Mongolia and Viet Nam – used the APSED monitoring and evaluation (M&E) guide to implement their monitoring activities for APSED/IHR. These five Member States also held planning and review meetings in 2015. National stakeholders and partners jointly discussed and completed the IHR monitoring questionnaire. These meetings resulted in the annual national progress report, a review and update of the national APSED work plans and completion of the IHR monitoring tool.

The team conducting the APSED evaluation (see Section 5 APSED evaluation) conducted their site visits during the planning and review meetings in Lao People’s Democratic Republic, Mongolia and Viet Nam. Additional sessions were added to the typical review meetings, such as outbreak reviews, Ebola preparedness and the evaluation survey. This national-level meeting of all APSED stakeholders enabled the evaluation team to use existing mechanisms for M&E, which highlights the benefits of the APSED evaluation process.

Asian Member States attended the 2014 Regional Meeting of the Technical Advisory Group (TAG) on APSED in the Philippines, and the Pacific island countries attended the 2014 Pacific IHR Meeting in Fiji. These meetings, organized by WHO, brought together Member States, WHO and partners to jointly discuss regional progress in health security and guided activities by Member States and WHO through meeting recommendations.

Copies of the draft APSED monitoring and evaluation guide were distributed during the 2014 TAG meeting.
Conducting outbreak reviews as a key tool to illustrate the successful functioning of the integrated system

In June 2015, the Ministry of Health in Cambodia conducted a review of a suspected foodborne outbreak. The aim of the review was to determine the strengths and identify the gaps in detecting outbreaks and responding to a public health emergency (PHE). The review followed the methodology of the APSED M&E guide. Most participants (12/13) who evaluated the process assessed it as useful and considered that a review should be conducted more frequently. Ten participants responded that the structured methodology used for the review was good. The lessons learnt from conducting the outbreak review will be used to improve the draft M&E guide for APSED.

In Lao People’s Democratic Republic and Viet Nam, outbreak reviews were conducted as part of the APSED evaluation of the preparedness for the 2014 dengue outbreak and for the outbreaks of EVD and measles, respectively. This exercise was reported as being useful as the countries were able to reflect on the progress made on the key recommendations from each focus area.

Mongolia developed M&E procedures that include programmatic outbreak reviews and the Mongolian Field Epidemiology Training Programme fellows have also conducted a review of the foodborne illness outbreaks reported in 2014.

During the country visits for the APSED evaluation in Lao People’s Democratic Republic, Mongolia and Viet Nam, brief outbreak reviews were presented (see Section 5 APSED evaluation).

Outbreak reviews were also presented by Member States at the 2014 TAG meeting and outbreak case studies are presented in Section 3 of this report.

Participating in the upcoming APSED evaluation

See Section 5 APSED evaluation.

6. Member States should continue to mobilize resources internally and with partners in order to sustain core capacity obligations and achievements.

Many Member States actively engaged with partners in resource mobilization. The Ministry of Health in Cambodia has started to develop Health Strengthening Plan 3 (HSP-3) 2016–2020 with their Communicable Disease Control Department and Hospital Services Department actively looking for possible funding support for the development of IHR core capacities. Cambodia’s Communicable Disease Control Department uses the national EID/public health emergency plan to attract external support from donor agencies.
In Lao People’s Democratic Republic, many key programmes across a range of focus areas are largely externally funded. Plans are under way to increase the visibility of EID/PHE in the Lao People’s Democratic Republic Government agenda in order to increase budget allocation to these vital national programmes.

The WHO Country Office in Mongolia received US$ 1.7 million for five projects on security and public health emergency preparedness. The Embassy of China and the Korea International Co-operation Agency have also agreed to provide funding support for health security. WHO is also partnering with the Asia Development Bank on IPC, FAO on food safety and the Swiss Agency for Development and Cooperation on animal health.

The Ministry of Health of Viet Nam proactively mobilized internal resources for emerging public health emergencies including a stockpile of PPE for EVD outbreak preparedness training as well as a stockpile of medical stock for Natural disasters. Viet Nam’s Ministry of Health has also maintained good collaboration with other partners, such as US CDC, USAID, the Asian Development Bank, the World Bank and Japan International Cooperation Agency. Malaysia also mobilized internal resources in order to sustain core capacity obligations and achievements.

**Recommendations to WHO**

1. In order to effectively support Member States in the implementation of their work plans, WHO should maintain and strengthen its support to countries, particularly those that have requested deadline extensions, to further implement IHR core capacity development through APSED (2010). Specific areas of support should include:

   - finalizing and distributing its emergency operations centres (EOC) guide, and supporting Member States’ requests to assess progress in EOC capacity development where possible;
   - continuing to conduct the annual IHR communication Exercise Crystal to test and improve NFP functionality and intersectoral collaboration;
   - assisting with the annual IHR/APSED review process at country level; and
• assisting with preparation and conduct of outbreak reviews to demonstrate the effectiveness of the integrated system.

**Finalizing and distributing its EOC guide, and supporting Member States’ requests to assess progress in EOC capacity development where possible**

The EOC guide was updated and the current version was used by Member States in the establishment of their national EOCs. The guide has not been published yet, since resources were devoted to unexpected outbreaks such as EVD and MERS.

The three Member States visited during the APSED evaluation, reported using their EOCs for outbreaks and in regular “peacetime” surveillance work, suggesting that EOC facilities strengthen the management of surveillance more generally.

The operations of EOCs in Member States have been strengthened indirectly through the fellowship programme of rumour surveillance officers in the Regional Office for the Western Pacific. Fellows from different countries have gained exposure to the functioning of the EOC of the Regional Office for the Western Pacific and have contributed their experience to their national EOCs.

**Continuing to conduct the annual IHR communication exercise “Crystal” to test and improve NFP functionality and intersectoral collaboration**

In December 2014, the annual Exercise Crystal was conducted and for the first time it simulated a foodborne disease emergency event and included both NFPs and the International Food Safety Authorities Network (INFOSAN) emergency contact points. Eleven Asian countries participated, as well as the INFOSAN Secretariat and the WHO Regional Office for the Western Pacific. The exercise successfully achieved its objectives of validating the accessibility of the NFPs and INFOSAN emergency contact points using registered contact details, and of facilitating communication and collaboration among the participants.

The Exercise Crystal format was also adopted for the exercise conducted to assess preparedness for EVD in the Region over two days for the Asian and Pacific subregions respectively (see Section 2 Ebola preparedness and response).

**Assisting with the annual IHR/APSED review process at country level**

WHO continued to strongly promote the APSED planning and review process at both country and regional levels. At least five countries received technical and financial support from WHO to conduct their planning and review meetings.
Assisting with preparation and conduct of outbreak reviews to demonstrate the effectiveness of the integrated system

In June 2015, a WHO consultant facilitated the review of a suspected foodborne disease outbreak in Cambodia [see Recommendations to Member States no. 5].

The Government of the Republic of Korea requested that WHO participate in a joint mission for the MERS-CoV outbreak in June 2015 to assess the risks posed by the outbreak and make recommendations for strengthening its response and preparedness. Several factors thought to have contributed to the initial spread of this virus were identified:

- The appearance of MERS-CoV was unexpected and unfamiliar to most physicians.
- IPC measures in hospitals were not optimal.
- Extremely crowded emergency rooms and multibed rooms contributed significantly to nosocomial infection in some hospitals.
- The practice of seeking care at a number of medical facilities ("doctor shopping") may have been a contributing factor.
- The custom of having many friends and family members accompanying or visiting patients may have contributed to secondary spread of infection among contacts.

High-level recommendations for the Government included immediate strengthening of IPC in health facilities nationally, guidance to health workers on questions to ask patients presenting with fever or respiratory symptoms, appropriate reporting, and monitoring of suspected cases and close contacts.

Fourteen outbreak investigation reports were published in WPSAR from eight different Member States (see Box). By documenting these outbreaks in a regional peer-reviewed journal, the lessons learnt and experiences can be shared widely.
Box: Outbreak investigation reports published in WPSAR


2. **WHO** should conduct a participatory evaluation with Member States, and utilize the outcomes for the strengthening and maintenance of IHR core capacities.

See Section 5 APSED Evaluation.

3. **WHO** should enhance its readiness to perform alert and response functions, in particular to the ongoing threats of avian influenza, MERS-CoV, and EVD and be prepared to fulfil its WHO Emergency Response Framework requirements.

**Training on emergency and disaster risk management for WHO staff**

An internal training session on emergency and disaster risk management was conducted for Emerging Disease Surveillance and Response and Emergency and Humanitarian Action staff from both the WHO Regional Office and country offices in July 2014. The training included the Emergency Response Framework (ERF). An overview of the critical functions, key tools and performance standards of the ERF was provided and several scenario-based exercises were conducted.

**Regional EOC**

The regional EOC was activated for the response to Ebola in West Africa, MERS-CoV in both the Philippines and the Republic of Korea and for the response to cyclone Pam in the Vanuatu. The organization of the response teams were designed to fulfil the critical functions as outlined in the ERF.

The regional EOC was also used daily for routine meetings to discuss public health events in the Region.

**Risk communication**

During the EVD outbreak, the Regional Office for the Western Pacific communicated accurate information on the risk and potential impact, should a case of EVD occur in the Region, to the media through print, television and radio interviews. IEC materials on EVD were produced in the WHO Regional Office and included an Ebola packet, Q&A, briefing notes, posters and media messages. A similar strategy and products were developed for the MERS outbreak in the Republic of Korea and China, including a risk communications preparedness package for rapid use at country level.

**Surveillance and response**

The WHO Regional Office for the Western Pacific continued implementing the regional system of surveillance and response through event-based and indicator-based surveillance, as well as sharing information about priority diseases with Member States and within WHO. This included 24 situation reports on EVD and
27 on MERS-CoV in the Republic of Korea. The 2012 regional analysis for dengue was published in WPSAR.\(^8\)

Eleven fellows from Member States completed the FET/FETP fellowship programme at the Regional Office for the Western Pacific. These rumour surveillance officers monitored EID and other events through the event-based surveillance system. They also monitored avian influenza outbreaks in animals to better assess the epidemiological situation in terms of the animal–human interface. Daily risk assessments were conducted to prioritize these events.

In response to the second wave of human cases of avian influenza A[H7N9] in China in 2013–2014, the Regional Office for the Western Pacific, working with the WHO Country Office of China, conducted weekly standardized risk assessments, shared information on emergent cases daily, led weekly three-level (Country Office for China, Regional Office for the Western Pacific and WHO Headquarters) teleconferences and participated in bi-weekly tripartite [WHO/FAO/OIE] teleconferences to improve information-sharing among stakeholders. WHO conducted a joint risk assessment on avian influenza A[H7N9] with Chinese Center for Disease Control and Prevention in February 2015 and published the findings online.\(^9\)

**Laboratory preparedness**

The Global Influenza Surveillance and Response System [GISRS] has been successfully running in the Region for over 60 years. The system includes external quality assurance (EQA) programmes and the provision of reagents, guidance and training on novel subtypes of influenza. Preparedness for MERS-CoV testing was based on the infrastructure of the GISRS and WHO support to countries and their test capacity for MERS was summarized in a WPSAR publication.\(^{10}\)

In addition, WHO also facilitated laboratory participation in a WHO global EQA for MERS-CoV testing (results pending). For Ebola virus testing, WHO provided technical guidance and support to Member State laboratories with an emphasis on safe and rapid shipment directly to WHO Collaborating Centres for Viral Haemorrhagic Fevers or via laboratories within the region with capacity for [confirmation] testing. For example, training on the shipping of infectious substances was organized for the Pacific island countries and areas and countries in the Mekong. This year a new


A project was started that focuses on strengthening laboratory detection of emerging and dangerous pathogens in ASEAN in support of the APSED laboratory work plan.

Finally, at regional level, the first EQA for dengue testing was published in WPSAR in June 2015. The second round is under way with a larger number of pathogens (both dengue and chikungunya viruses) and countries (both Western Pacific and South-East Asia regions) and will be completed in 2015.

4. WHO should strengthen interregional collaboration to improve vigilance, information exchange and coordination for emerging threats.

The WHO Regional Office for the Western Pacific piloted an innovative approach for interregional collaboration during the Ebola outbreak in West Africa through the establishment of WEST. (see Section 2 Ebola preparedness and response.)

As part of interregional collaboration, the Regional Office for the Western Pacific facilitated the deployment of staff from the Regional Office for the Eastern Mediterranean to support the Republic of Korea in its response to the MERS-CoV outbreak in early 2015.

Regular communication between the WHO Regional Office for the Western Pacific, the Regional Office for South-East Asia and WHO Headquarters was established through a weekly teleconference to share information on events in the regions. During the event phase, the Regional Office for the Western Pacific shared daily situation reports on MERS with all WHO regions and received daily situation reports on Ebola from the Regional Office for Africa. Weekly reports on avian influenza, daily and biweekly reports on hand, foot and mouth disease, influenza-like illnesses and dengue are shared publicly and with WHO regional offices.

WPSAR

Information sharing, both within the Region and externally, was also achieved through WPSAR, the peer-reviewed journal on the surveillance of and response to public health events in the Western Pacific Region, which is run from the Regional Office for the Western Pacific. There were 65 submissions and 42 publications this year, compared with 40 and 29, respectively, in the previous year. The average time from article submission to publication was four months. The published articles came from 14 Member States. A special issue covering the response to Typhoon Haiyan in the Philippines will be published to mark the two-year anniversary of the typhoon. The WPSAR website received an average of 16,500 hits per month and an average of 2,100 hits originating from PubMed.

Information exchange was also enhanced through the WPSAR scientific writing workshops held in the Philippines in January 2015, in the Lao People’s Democratic Republic in April 2015, and in Mongolia in June 2015. Pre-submission support was given to 27 (42%) of the submissions and eight articles (19%) were published by FETP fellows.

*Interregional collaboration on influenza surveillance*

WHO held the 8th Bi-regional Meeting of National Influenza Centres and Influenza Surveillance in the Western Pacific and South-East Asia Regions in August 2014. Representatives from national influenza centres and influenza surveillance staff from WHO’s Western Pacific and South-East Asia regions, as well as representatives from the WHO Collaborating Centres and reference laboratories in the USA, Australia, Japan, China and Hong Kong (SAR) discussed progress, activities, and technical updates from the year preceding the meetings as well as future directions in influenza surveillance.

*2014 TAG Meeting*

The 2014 TAG meeting provided a forum for Member States to coordinate and discuss public health events from both within the Region and from other regions. This included avian influenza A(H7N9) virus in China, the lessons learnt from the detection of MERS-CoV and avian influenza cases in Malaysia, dengue and other arboviral disease outbreaks in the Pacific and the investigation of a potential zoonotic emerging infectious disease event in the Philippines. Presentations were also given by representatives from WHO Headquarters and the Regional Office for the Eastern Mediterranean on the Ebola outbreak in Africa and MERS-CoV in the Middle East, respectively.

5. **WHO should encourage investment partners to reaffirm their commitment to supporting regional health security.**

The WHO Regional Office for the Western Pacific continued to advocate for investment in regional health security. The APSED TAG meetings are an important forum to convene Member States, technical and funding partners to discuss the regional EID situation and the achievements and challenges of APSED implementation. As per established practice, there was a Partner’s Forum at the 2014 TAG to discuss the opportunities and challenges for regional health security.

The evaluation of APSED has engaged technical and funding partners and provided opportunities for advocacy for health security through meetings with partners in the countries visited.
The WHO Regional Office for the Western Pacific proactively engaged with partners through face-to-face meetings, video and teleconferences and email communication, to mobilize resources for regional health security. During this reporting period, resource mobilization has made advances in the Region in the following areas:

- In 2015, the Asia–Europe Foundation, WHO and the Government of Japan launched Phase 2 of the stockpile project, which will be continued until 2027.

- The Government of Japan continued its support to implement APSED, including TAG and FETP.

- Korea Centers for Disease Control and Prevention provided support for a regional information-sharing system.

- US CDC continued its funding support for surveillance and response to seasonal and pandemic influenza.

- The Canadian Department of Foreign Affairs, Trade and Development provided funding support for strengthening laboratory capacity for emerging and dangerous pathogens in the Asia Pacific region.

- The Australian Department of Foreign Affairs and Trade provided emergency funding to the Regional Office for the Western Pacific and the Regional Office for South-East Asia for Ebola preparedness.

- The Government of New Zealand provided emergency funding to support implementation of the Pacific Ebola Action Plan.

- The Defence Threat Reduction Agency of the United States provided funding in support of surveillance, risk assessment and response in the Mekong region.
5. APSED evaluation

APSED has been implemented in the South-East Asia and Western Pacific regions since 2006. These regions have been hotspots for EIDs, such as severe acute respiratory syndrome (SARS) and avian influenza, resulting in the need to develop common capacities in line with the IHR (2005). After nearly a decade of implementing APSED, it is time to review whether the strategy has been successful.

The evaluation of APSED was part of the 5-year APSED (2010) work plan. In January 2014, the scope and timeline of the evaluation was developed at an Informal Consultation on Monitoring and Evaluation for APSED. This consultation was attended by selected Member States, the Regional Offices for South-East Asia and for the Western Pacific, and the two main partners of APSED – the Australian Department of Foreign Affairs and Trade and US CDC. An evaluation concept note was approved at the APSED TAG meeting in July 2014 in Manila, Philippines and at the Pacific IHR Meeting in November 2014 in Denarau, Fiji. Both meetings recommended that Member States participate in the APSED evaluation.

Following the 2014 TAG meeting, a bi-regional evaluation team, led by an evaluation expert and supported by an evaluation specialist from US CDC, was established. The evaluation methodology was agreed at the two bi-regional meetings in Bangkok, Thailand and Manila, Philippines.

The purpose of the evaluation was to assess what the Region has collectively achieved through APSED and to inform the future direction of emerging disease and public health emergency work in the Region. It is an evaluation of the collective efforts of Member States, WHO and partners. The objectives of the evaluation were:

1. to inform Member States, WHO and partners about the status of the achievement of APSED objectives, the impact on and sustainability of national and regional APSED capacities and systems, the relevance of what was supported or prioritized, the efficiency of management of APSED and lessons learnt; and
2. to inform Member States, WHO and partners about the future direction of work on emerging diseases and public health emergencies.

The expected users of this evaluation are ministries of health and other government agencies, WHO, APSED TAG members, APSED partners, the wider public health community and donors.

The main evaluation methods were:

1. a desk-top analysis of APSED progress reports and other monitoring information, e.g. annual IHR monitoring questionnaires;

2. a questionnaire completed by Member States, TAG members and partners; and

3. visits to selected countries to help verify general conclusions.

From April to June 2015, five Member States were visited by the evaluation team – Indonesia, Lao People’s Democratic Republic, Mongolia, Nepal and Viet Nam. Where possible, the country visits coincided with the national APSED planning and review meetings.

To achieve the objectives, the evaluation has utilized a combination of different sources of evidence, including: self-assessments gathered through the IHR (2005) annual questionnaire responses; published peer-reviewed articles; responses received through the APSED evaluation questionnaire; field missions to five Member States; views of funding and technical assistance partners; lessons learnt through studying available outbreak reviews; assessments of recent Ebola preparedness planning for the Member States visited; evidence of tracking implementation against annual milestones in the APSED work plan; and regular APSED progress reports to APSED TAG meetings.

Initial findings of the evaluation suggested that APSED has been useful to both regions. Member States’ capabilities to detect, prepare for and respond to all public health events have been enhanced by the collective pursuit of a common goal using a common framework, proactive investment in capacities and a focus on generic capacities.

Considerable progress has been made in several areas, including the establishment of event-based surveillance, establishing national FETPs and training field epidemiologists, improving the effectiveness of RRTs and public health laboratory capacity for basic diagnosis. Other areas of good progress are coordination between human and animal health ministries for zoonotic diseases, and regional-level surveillance, information-sharing and response.
There is mixed evidence of progress in the area of risk communication capacity, and many of the stakeholders consulted recognize that this is a challenging area, which requires greater emphasis on evaluating the effectiveness of communications. IPC is an aspect of APSED that has received less attention than other focus areas and unsurprisingly has made only minor progress. Despite the accepted importance of risk assessment, the Member States consulted recognize that risk assessment is not being thoroughly and consistently applied at the national level.

Despite the progress noted above, it is clear that the building of capacities to detect, prepare for and respond to EID and public health emergencies remains an ongoing and unfinished process for all Member States. This capacity-building will need to continue well beyond the final deadline for the achievement of IHR core capacities in 2016, and the end of APSED (2010).

Based on proven continued vulnerability of all Member States, the demonstrated relevance of the current approach and its components, and the encouraging evidence of progress achieved to date, the evaluation report recommended Member States and WHO to commence discussions about an appropriate process for the development of a future common strategy to further strengthen capacities for detecting, preparing for and responding to EID and public health emergencies.

Member States may use the evaluation to inform strategic planning, learn from experiences in the Region, and advocate and mobilize resources. The evaluation will also inform discussions held at regional consultations on the post-2016 agenda on regional health security.
6. Gender

WESTERN PACIFIC REGION

Convincing evidence suggests that females and males differ in their susceptibility to both infectious and non-infectious diseases. A number of reports have shown that gender influences the severity and outcome of several infectious diseases, including leptospirosis, tuberculosis, listeriosis, Q fever and amoebiasis. Gender differences have been observed in the responses to vaccines and to antibiotic treatment regimens. Although the exact mechanisms are largely unknown, it is apparent that behavioural as well as biological variances in gender are likely to contribute to these differences. Growing consensus among experts emphasizes that – to provide optimal infection prevention and clinical management for both genders – it is essential to identify and study the role of gender in infectious disease. For APSED, gender differentials is a cross-cutting topic for all eight focus areas.

Case study: MERS-CoV in the Republic of Korea

The Republic of Korea experienced the largest health-care-associated outbreak caused by MERS-CoV to occur outside the Kingdom of Saudi Arabia and the Middle East. As of 30 June 2015, there have been 183 MERS cases since the first imported case was reported on 20 May 2015, including one case reported from China. To understand possible variances between males and females with regard to susceptibility to and transmission of the disease, we conducted a gender-based analysis of the data. We also compared the data with available information from the Middle East to identify common patterns or disparities.
In the Republic of Korea, the mean age of males affected was 55 (16–87) years, and of females was 57 (24–84) years. Similar to the male predominance observed in the Middle East, 60% of the people affected in the Republic of Korea were male. When stratified by age and sex, the highest numbers were seen in men aged 40–59 years, while the number of females affected gradually increased, and peaked in the age group of 60–69 years (Figure 9). It is noteworthy that this distribution is different to the pattern in the overall population of the Republic of Korea, which has a large proportion of young and middle-aged adults of both sexes. In the Middle East, the predominance of young male patients was related to a more frequent exposure to camels – the putative animal reservoir of MERS-CoV – in this specific demographic group. Owing to the absence of camels in the Republic of Korea, it is unlikely that the sex and age distribution of MERS patients in the Republic of Korea could be related to exposure to camels.

When the data are further stratified by different risk groups (i.e. status at exposure: patients, visitors, and health-care workers), it becomes clear that each risk group has a distinct pattern.

Firstly, the ratio of hospital patients and visitors was relatively similar when comparing males and females (1.70:1 and 1.75:1, respectively), while among health-care workers, significantly more females than males were affected (ratio 0.7:1). Although the predominance of females in this group might be explained by the higher proportion of women working in the health-care sector of the Republic of Korea, this does not explain the extent of the observed ratio. The number of female health-care workers is at least three times that of male health-care workers, and therefore if the risk of infection is equal to one, then a ratio of 0.3:1 or below is expected.

Secondly, the age distribution of hospital visitors varied substantially between males and females. In males, mostly middle-aged individuals were infected, whereas the highest number of cases in females was observed in visitors aged 60–69 years. It is well documented that women are more likely to care for their sick relatives, and the fact that most of the patients were men suggests that most of the visitors were women, which would explain this difference.

Although the reasons for these striking differences remain equivocal, it is apparent that the heterogenic variances among male and female cases could have immediate implications for the prevention and control of the disease. Future clinical and epidemiological studies of MERS-CoV should also consider these differences between the sexes, because comparing groups with different proportions of male or female subjects may introduce a confounding effect. Therefore, in any treatment
or vaccine trials that have unequal proportions of males and females in the study groups, the results should be stratified by sex to avoid confounding.

Interestingly, a predominance of males has also been documented in patients with pneumonia caused by influenza A(H1N1) infections, and it has been shown that smoking is the most relevant and independent risk factor for the acquisition of influenza A(H1N1) infection during the 2009 pandemic in the Republic of Korea. While men from the Republic of Korea have one of the highest prevalences of smoking worldwide, women in the Republic of Korea have one of the lowest.

**Outlook**

As indicated in the previous APSED progress reports, the Regional Office for the Western Pacific has continued to monitor gender differentials of infectious diseases in the past year, including MERS-CoV. It is clear that surveillance and outbreak data need to be stratified by sex to gain important information about the basic characteristics of an infectious disease. Stratified analysis of data by age and sex may serve as an important proxy for gender-specific differences and an entry point for response. In contrast, neglecting gender differences may lead to discrimination, systematic under-investigation and under-treatment of either female or male patients, a major barrier to universal health coverage. The main challenge of sensitizing public health professionals and health-care providers at all levels to recognize gender as an important determinant in both prevention and control of infectious diseases in the Western Pacific Region still remains.

**Next steps**

The Regional Office for the Western Pacific will continue to promote activities that strengthen recognition of gender in infectious diseases in all APSED focus areas, specifically:

- the disaggregation of surveillance data by sex and age;
- tailored IPC documents;
- inclusion of gender aspects in risk communication strategies;
- planning a workshop on gender issues; and
- providing guidance on how to study gender-related differences.
Figure 9: Number of MERS cases by age group, sex and exposure group, Republic of Korea, 2015
7. Outlook

The past 12 months have, once again, been a powerful reminder of the world’s vulnerability to emerging diseases. The EVD outbreak in West Africa put tremendous strain on national health systems in affected countries, and required an unprecedented public health response from the international community. More recently, imported cases of MERS affected the Philippines, the Republic of Korea and Thailand. Both events reconfirmed the importance of the IHR core capacities. In the countries of the Asia Pacific Region, APSED has provided a strong foundation to develop preparedness and response mechanisms for these threats.

Many lessons have been learnt in the past year through the implementation of APSED, and from the efforts made in EVD preparedness and the response to MERS in the Republic of Korea. This includes the importance of the IHR, and of all Member States achieving the IHR core capacities, the requirement for continued investment in health security, particularly during “peacetime”, and the need to conduct periodic evaluations of functions through outbreak reviews and ongoing M&E.

Continuous learning and improvement are essential to maintain alert and response capacities. The recently conducted evaluation of APSED was an important exercise to demonstrate the overall progress of the WHO South-East Asia and Western Pacific regions. The preliminary findings indicate that both regions have made very good progress in developing capacities, systems and networks to effectively address emerging diseases and public health events. The evaluation also revealed an “unfinished agenda” of areas that require further strengthening, which suggests that neither of the regions is fully prepared. There may also be new challenges ahead, including urbanization, increases in international travel and social instability, which will require ongoing refinements to this work.

APSED has proved useful in strengthening capacities and mobilizing partners and its focus areas remain relevant as we look into the future. As recommended by the APSED evaluation, Member States, WHO and partners are encouraged to start a consultative process for the development of a strategy or framework to build on existing achievements for the detection, preparedness and response to EIDs for the Asia Pacific regions.
ANNEX 1. Status report on IHR

National capacity monitoring under the IHR (2005)

With the entry into force of the IHR (2005) on 15 June 2007, all IHR states parties were required to assess the ability of their national structures and resources to meet minimum national core capacities for surveillance and response, as specified in the Regulations, and to develop a plan of action to ensure that these capacities would be present and functioning throughout their territories by 2012. WHO was mandated to provide appropriate tools, guidance and support to states parties to achieve these goals. In accordance with Article 54 of the IHR and a related World Health Assembly resolution, states parties and WHO are required to report annually to the World Health Assembly on the implementation of the Regulations. For this purpose, a monitoring framework was developed on the basis of the views of technical experts drawn globally from WHO Member States, technical institutions, WHO partners, and from within WHO.

Throughout this report, percentage values relate to responding countries only. Analysis is based on self-reported data submitted by states parties in response to the IHR Monitoring Questionnaire 2013 and 2014 (Table A1.1). Specific country contexts and other sources of information, if available, may also need to be considered in identifying priorities and needs as well as planning for future activities.
### Table A1.1: Status report on implementation of IHR core capacities

South-East Asia Region, information as of 20 June 2014

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a In 2015, WHO’s global deadline for submission of the questionnaire from countries was 1 August 2015, while the regional deadline for the Western Pacific Region was 30 May 2015.

b New Zealand formally provided WHO with a statement that the established core capacities would continue to be maintained in 2014, although the country did not request an extension in 2012.
IHR regional core capacity scores 2013–2014 (%)

Capacity scores are defined as the proportion of attributes present expressed as a percentage. Scores shown here are averages for each capacity within the South-East Asia (Figure A1.1a) and Western Pacific (Figure A1.1b) regions based on the scores of all responding countries within the regions.

**Figure A1.1a. South-East Asia Region**
IHR regional average core capacity scores based on responses from countries of South-East Asia, 2013 and 2014

**Figure A1.1b. Western Pacific Region**
IHR regional average core capacity scores based on responses from the same countries in Western Pacific Region, 2013 & 2014
ANNEX 2. Conclusions and recommendations from TAG meeting 2015

Bi-Regional Meeting of the Technical Advisory Group on the Asia Pacific Strategy for Emerging Diseases 21-23 July 2015, Manila, Philippines

The Asia Pacific Strategy for Emerging Diseases (2010) (APSED), serves as a regional tool to help Member States in the Asia Pacific region meet the core capacity requirements of the International Health Regulations (2005) (IHR). APSED aims to build sustainable national and regional capacities and partnerships to ensure public health security through preparedness planning, prevention, early detection and rapid response to emerging diseases and other public health emergencies. A regional/bi-regional meeting of the Asia Pacific Technical Advisory Group (TAG) on APSED is convened annually to monitor implementation of APSED in meeting IHR (2005) and to provide technical advice on priority actions.

The Bi-Regional Meeting of the TAG on the APSED was held in Manila, Philippines from 21 to 23 July 2015. The objectives of the meeting were:

- to update on the regional and global situation of emerging diseases and public health emergencies, including Ebola virus disease (EVD);
- to review the progress of APSED (2010) implementation, including the national status towards fulfilling the IHR (2005) core capacity requirements;
- to update on the status of national and regional preparedness for EVD; and discuss regional contributions to global actions for EVD and beyond;
- to present and discuss the preliminary findings of the APSED evaluation to inform the future direction of IHR work; and
- to recommend common priority activities for the next 12 months until the next Technical Advisory Group meeting in 2016.
Conclusions

- APSED is a bi-regional strategic framework to guide IHR 2005 core capacity-building for improved preparedness, detection and response to emerging infectious diseases (EIDs) (including pandemic influenza) and other public health events. APSED has been an effective framework for promoting individual and collective action by Member States and partners, and for mobilizing resources.

- The APSED evaluation confirmed that the strategy remains relevant to developing capacities to deal with a variety of public health emergencies, using a generic and step-by-step approach. Together with other mechanisms, APSED has made significant contributions to collective health security.

- Following the adoption of the IHR in 2005, Member States have made significant progress in the implementation of IHR guided by APSED, tested by real-world events such as Middle East respiratory syndrome coronavirus (MERS), Ebola and other public health events.

- While better prepared than before APSED/IHR, all countries regardless of capacity remain vulnerable to unexpected, complex or severe events. MERS in the Republic of Korea reminds us that even a single imported case of an EID can lead to a significant outbreak.

- With generic core capacity-building under APSED/IHR, Ebola and MERS preparedness in the regions was established quickly. These events highlight the need to build capacities in advance, particularly infection prevention and control, laboratory capacity, risk assessment, risk communication and early warning.

- The EVD outbreak in West Africa taught us important lessons:
  - Even known diseases can cause large outbreaks in a new context, particularly if not recognized early;
  - Countries with weak health-care systems and infrastructure are especially vulnerable;
  - Outbreaks may have psychosocial, political and economic impacts far beyond their health dimensions;
- Collaboration and coordination within and outside the health sector is needed to deal with EIDs;
- Cultural considerations must be addressed in any outbreak response;
- Strengthening logistics and administration capacities should be prioritized, as these are important for outbreak response; and
- Strengthening international, regional, national and subnational alert and response systems is important in our interdependent and interconnected world.

- The South-East Asia and Western Pacific regions provided valuable support in responding to the EVD outbreak in West Africa. The Western Pacific Ebola Support Team (WEST) comprised of experts from Member States and WHO complements sending experts through other mechanisms, such as the Global Outbreak Alert and Response Network (GOARN). In addition, deployment of assets such as polio Surveillance Medical Officers from the South-East Asia Region was highly appreciated.

- Joint missions including WHO and national experts, some through a GOARN mechanism, have proven useful in providing on-site technical support, guidance and training during outbreaks as well as opportunities for outbreak review.

- Improved monitoring and evaluation of APSED/IHR implementation, through self-assessment systems, voluntary and joint outbreak reviews, discussion-based and operations-based exercises, and voluntary, joint, independent or peer review processes, is critical. These are important in validating implementation progress and as a basis for ongoing improvement and accountability.

- Cross-sectoral collaboration is important when preparing for and responding to disease outbreaks, other public health events and antimicrobial resistance (AMR).

- Both regions recognize that smaller Member States face unique APSED/IHR implementation challenges and need tailored support.

- As APSED (2010) draws to a close, an updated strategy or framework for action is needed, which builds on the achievements of APSED and takes into account new and ongoing challenges and priorities.
Recommendations for Member States

1. Continue to work towards achieving or maintaining IHR core capacities up to the June 2016 deadline.

2. Maintain and continue to improve IHR core capacities beyond the implementation deadline, and work to obtain or renew political commitment to enhance financial sustainability of those capacities.

3. In light of Ebola, MERS, avian influenza and other public health events, review preparedness and response systems to identify and address gaps.

4. Test and evaluate functional capacities through strengthened self-assessment systems, outbreak reviews, discussion-based and operations-based exercises, and voluntary, joint, independent or peer review processes.

5. Where possible, actively support activities that enhance collaboration between countries, such as joint missions and exchange of technical expertise through mechanisms such as GOARN, WEST or systematic deployments of staff.

6. Continue to use APSED 2010 as a capacity-building framework until an updated strategy is developed.

7. Participate in developing an updated strategy or framework for action.

Recommendations for WHO

1. Continue to provide tailored support to Member States to achieve, maintain and strengthen IHR core capacities to deal with EIDs and other public health events.

2. Facilitate intercountry collaboration and capacity strengthening where appropriate.

3. Further develop the methodology for monitoring and reporting on IHR core capacities in a way that better reflects the functionality of national preparedness and response systems.
4. Advocate and support Member States to conduct and share outbreak reviews and evaluations.

5. Promote and strengthen cross-sectoral collaboration in public health priority areas including the human-animal interface, food safety and AMR.

6. Work with Member States and development partners to obtain political and financial support to enhance health security, and address its sustainability, in the Asia-Pacific region.

7. Lead a consultation process to develop an updated strategy or framework for action, and report on progress to the TAG and Member States in one year.