



Global Health Security Agenda

SUCCESS STORIES

KAMPALA, UGANDA

October 2017

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The Global Health Security Agenda

The Global Health Security Agenda (GHSA), launched in February 2014, is a multisectoral and multilateral effort that seeks to accelerate progress toward implementation of the International Health Regulations (IHR 2005) and achieve a world safe and secure from infectious disease threats, whether naturally occurring, accidental, or deliberately released.

As of October 2017, more than sixty countries have joined the GHSA, along with numerous multilateral organizations and non-governmental stakeholders, including the private sector. The GHSA Success Stories are many and this document compiles but a fraction of all the multisectoral and multilateral efforts implemented in the past year.

AUSTRALIA

GHSA Success Stories

The Australian Government continues to pursue improvements to health security through strengthening our domestic preparedness and response capabilities; and, our continued regional investments to help address health security threats faced in the Asia Pacific region. The Australian Government's Indo-Pacific Health Security Initiative, launched on 8 October 2017, is investing A\$300 million over five years to contribute to the prevention and containment of communicable disease outbreaks with the potential to cause adverse economic impacts on a national, regional or global scale. This initiative will build resilient and sustainable human and animal health systems and strengthen regional preparedness for existing and emerging health threats, such as highly pathogenic avian influenza and drug-resistant forms of tuberculosis and malaria. The initiative will focus on three key areas:

- **Accelerating Health Security Research** to develop new diagnostics, medicines and delivery systems and support practical, applied research into health systems and policy;
- **Establishing Health Security Partnerships** to provide practical support to collaborative partnerships at global, regional and national levels to strengthen human and animal health systems and improve capacity to address health security challenges in the Indo-Pacific; and
- **Building a Health Security Corps** to undertake placements in government, research institutions and health organisations in the region to build capacity and institutional links. The Centre will foster partnerships with other governments, health institutions, donors, and the private sector and will advocate for the health security needs of the Indo-Pacific region in global forums. It will be advised by a Technical Reference Group and managed in close consultation with relevant Australian Government agencies.

Australia also continues to support global efforts to strengthen public health preparedness and response under the *International Health Regulations (2005)*, including through the Joint External Evaluation (JEE) process. Australia's external assessment component will be undertaken from 24 November 2017 to 1 December 2017. This process will provide an opportunity to test Australia against international standards and best practice, and identify opportunities for future improvements.

Australia is also supporting other countries to improve their public health preparedness and response capacities and has provided technical experts to five JEE missions. In addition, Australia continues to have an active role in the JEE Alliance and in 2017, Australia's Ambassador for Regional Health Security accepted the role of co-chair of the Alliance.

Domestically, Australia has made a number of advances in strengthening public health preparedness and response capacities. In 2016, the *Biosecurity Act 2015* commenced, providing a flexible, modern legislative framework for the management of biosecurity threats posed by international trade and travel. Funding is provided to sub-national governments to support the implementation of the Act to ensure the provision of expert health advice and seamless and safe transition of ill passengers into the hospital system, as required. Also in 2016, the Australian Medical Assistance Team (AUSMAT) was one of seven teams globally verified by the World Health Organization (WHO) as meeting internationally agreed standards under the WHO Emergency Medical Teams initiative.

Australia has continued to make progress in addressing antimicrobial resistance (AMR). Australia's domestic priorities for combatting AMR have focused on interventions for reducing inappropriate antimicrobial use and improving surveillance capability. Australia's surveillance of antimicrobial resistance and usage is expanding, and improved surveillance data has identified areas for intervention, such as assisting doctors to improve their prescribing practices in line with guidelines, and support for antimicrobial stewardship in aged care homes. New research into AMR profiles and transmission within and to/from aged care homes is being commissioned, which will assist with optimal prescribing and stewardship in this setting.

More broadly, Australia continues to actively engage in multilateral efforts to combat AMR, including through the WHO and G20. Australia's National Centre for Antimicrobial Stewardship has worked with the WHO to undertake an antimicrobial stewardship gap analysis in the Asia Pacific region. An antimicrobial stewardship training framework relevant to the needs of low- and middle-income countries was also developed.

CANADA

In support of the Global Health Security Agenda (GHSA), Canada has made significant contributions over the past year to strengthen global capacities to prevent, detect and respond to infectious disease threats, whether naturally occurring, deliberately-caused, or accidental. Canada is focused in a number of key areas, including the implementation of the International Health Regulations (IHR), biological counter-terrorism and threat reduction programming, and ongoing work to address antimicrobial resistance (AMR) as well as biosafety and biosecurity. Canada supports the renewed ongoing global commitment to the IHR and the critical role they play in strengthening global health security. Canada also recognizes the important role the GHSA continues to play in catalyzing in IHR implementation.

The Government of Canada will undergo a Joint External Evaluation (JEE) in 2018. Following the JEE, Canada will maintain the collaborative momentum in developing a Pan-Canadian National Action Plan. In addition, Canada is working with its G7 partners, the Pan American Health Organization, and the WHO to support the global implementation of the IHR in over 75 countries and regional organizations. In this role, Canada is providing expert technical assistance to strengthen and maintain IHR core capacities in 10 Caribbean countries as well as Guinea, while also providing programming support to Afghanistan, Mali and regionally to the fifteen-country Economic Community of West African States (ECOWAS). In addition, Canada participated in the development of a five-year Caribbean Regional GHSA Roadmap to support IHR implementation. We continue to work closely with the Caribbean region through its Regional Coordination Mechanism on Health Security for the Roadmap implementation.

Canada views the establishment of national biosafety and biosecurity oversight systems as critical to mitigate risks associated with the accidental or deliberate release of pathogens on the global scale. The Government of Canada's Weapons of Mass Destruction Threat Reduction Program has committed over \$40M since 2016 to address global biological threats, significantly exceeding the \$20M commitment made by Prime Minister Trudeau in March 2016 to assist up to 15 countries to fulfill commitments under the GHSA. With major biological threat reduction programming efforts underway in West and Sub-Saharan Africa, the Middle East, and Asia, and significant GHSA-relevant programming being implemented in partnership with the World Organisation for Animal Health (OIE), INTERPOL, and

the World Health Organization (WHO), Canada is delivering on its commitment to enhance the capacity of partner countries to mitigate all manner of biological threats.

Moreover, Canada has developed a self-led tool (Analytical Approach (AA)) countries can use to modernize or develop national oversight mechanisms for biosafety and biosecurity, at a pace that suits them, and in consideration of their country context. The AA has been piloted with the governments of Mali and Trinidad and Tobago, to advance ongoing work and to solicit feedback on ease of use. Canada is committed to conduct up to 3 additional pilots, incorporate feedback, and release the AA second edition to GHSA, WHO and other interested parties in 2018.

Under the United Nations General Assembly (UNGA) resolution on AMR in 2016, Canada committed to taking a broad, coordinated approach to address AMR across multiple sectors, including human health, animal health and agriculture. In this regard, the Ministry of Health and the Ministry of Agriculture and Agri-Food recently released *Tackling Antimicrobial Resistance and Antimicrobial Use: A Pan-Canadian Framework for Action*. As a demonstration of Canada's commitment to address AMR internationally, in November 2016, Canada announced \$9M CAD to support the implementation of the WHO's Global Action Plan on AMR. More recently, Canada financially supported the OIE's participation in the United Nations' Interagency Coordination Group on AMR, once again championing a One Health approach.

At the World Health Assembly in May 2017, Canada joined the Alliance of Champions, a group of health ministers committed to increasing awareness, engagement, and leadership on AMR among national and global leaders, and strengthening high level political momentum for action on AMR. Canada remains a leading funder of the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR), a partnership of 26 countries that supports collaborative action to fill knowledge gaps on AMR via a One Health perspective.

Finally, Canada has taken a leadership role as the GHSA AMR Action Package Chair as of October 2017. As Chair, Canada will work with other leading countries to support the implementation of, and to accelerate progress on, the World Health Organization's Global Action Plan for AMR, in close cooperation with the WHO, FAO, and OIE.

COTE D'IVOIRE

AMP success story

Problem statement: The Agence de Medecine Preventive (AMP) is funded by the Centers for Disease Control and Prevention (CDC) under a Cooperative Agreement in Cote d'Ivoire to implement in Cote d'Ivoire interventions to improve measles-containing-vaccine first-dose (MCVI) immunization coverage among children 9-12 months old. During supervision field visits, AMP staff found the following constraints on vaccination uptake:

- A Health staff were asking parents of children age 6 months to pay for the *vaxigrip* vaccine against flu. As a result, parents who could not afford the vaccine stopped taking their children for subsequent vaccines such as measles and yellow fever;
- B Health workers were demanding payment of 200-500 FCFA (30 cents to 1 dollar approximately) for vaccinations thus discouraging parents to bring their children for vaccinations;
- C Health workers were requiring a number of sufficient children to be present at the facility before opening the 10 –dose vial measles vaccine thus some children were sent home without having received the vaccine.

Actions implemented: Results of the findings were shared with stakeholders including directors of health districts, regional health directors, the director of the Expanded Program of Immunization (EPI), the Director General of Health (DGS), and international partners including WHO, UNICEF and CDC. AMP strongly advocated at both the peripheral (district and regional levels) as well as at the central level (DGS, EPI) and asked for leadership to take actions to address the identified constraints.

Results:

This advocacy led to the issuance by the Director General of Health of two official instructions to all health districts and health centers to take immediate actions to cease the counterproductive practices and follow guidelines to offer all routine vaccines at all public health centers at least once a week to eligible children, regardless of the number present at the facility, and to offer vaccines free of charge to stop the practice of requiring payment for vaccination services. (See Fig 2 and Fig 3).

Short term impact



The sensitization initiated by AMP, the commitment of district and regional directors against these constraining practices, and changes in administrative policies, signed in June 2017, led to a decrease of the percentage of unvaccinated children from 16.4% (May 2016, the beginning of the AMP project) to 5.6% (May 2017), and a reduction of the vaccination drop-out rate between the Pentavalent (DTP/HEP/HIB1) first dose vaccination at 6 weeks to the Measles Containing Vaccine first dose (MCVI) vaccination at 9 months from 11% (May 2016) to 1% (May 2017) in the health districts targeted by AMP.

Figure 1: Acte of vaccination of children in rural area



Figure 2: Official instructions on vaccination free of charge



Figure 3: Official instructions on vaccinating children when present regardless of their number

Global Health Security Partner Engagement
IRC Côte d'Ivoire
Success story of the Plague of Small Ruminants

Sahisso, located 12 km from Bakandesso and 67 km from Touba (West of Cote d'Ivoire), is a small rural community where Soumahoro Gbato works as a community health worker (CHW) on the IRC's CDC-funded Global Health Security community-based surveillance project. Since October 2016, he has been successfully notifying "alerts" about suspect cases of human and animal diseases to the health facility in his area. This achievement is the result of IRC's strategy of: (1) using phone network to facilitate information exchange/data transfer among community health workers and health staff and to link them up (2) improving the rate of investigation, and (3) detecting and reporting alert cases.

1. Creating a téléphone network

« We set up a telephone communication network to facilitate communication between the 17 IRC agents, the 541 CHWs, the 78 health centers and the 3 district Epidemiological Surveillance Officers (CSE). We had to map the network available in the region and identified two major phone operators. The telephones provided allow free calls between network members, and enable them to submit alert cases of diseases or dead animals quickly and easily » Dr Saya N'Guessan (Health Project Manager, IRC)

2. Improve the rate of investigation

« After a survey, we found out that we had a low rate of investigation of the diseases under surveillance. In order to improve this rate, IRC provided sampling kits for acute flaccid paralysis, lumbar punctures, measles and yellow fever » Dr Saya N'Guessan (Health Project Manager, IRC)

3. Detecting and reporting alert cases *« Every morning, before going to my farm, I ride the bike that IRC gave me to visit the households under my responsibility as a community health worker. So on 25th October 2016, clusters of deaths of sheep were reported to me. In accordance with my training I know that I must notify this public health events. So with the mobile phone that was provided to me by IRC, I alerted the IRC and the health center nurse about these cases by SMS. This continued until October 31st, 2016. By then I had notified a total of 15 dead sheep. »* Soumahoro Gbato Aimé, IRC Community Health Worker

« As a result of these notifications, we reported the information to the department of Animal Resources and Fisheries of Touba (MIRAH) and the Ministry of Health and Public Hygiene (MSHP). Investigations carried out by both Ministries confirmed an outbreak of Ovine rinder pest (peste des petits ruminants) in the locality. Efforts were made by all parties and sparked the reaction of the Animal Health Authorities and those of IRC enabling MIRAH to launch a vaccination campaign on 19th and 20th December 2016 in the localities of Sahisso, N'Gamonso, Baniga, Bakandesso, and Sogbéni. This led to the immunization of 177 ruminants over a period of 12 months. Sensitization sessions were also organized to help people to reduce the damage caused by this epidemic in the locality and to stop it from spreading to neighboring localities ».

DENMARK

Government of Denmark 2017 GHSA Ministerial Conference report

In support of the Global Health Security Agenda (GHSA), Denmark has made significant contributions to strengthening the biosecurity system in Kenya, to help ensure that especially dangerous pathogens are identified, held, secured and monitored according to best practices and international obligations. Under the Kenyan-Danish Biosecurity Partnership Program in East Africa, the Danish Centre for Biosecurity and Biopreparedness supports efforts to develop a whole-of-government biosecurity and biopreparedness system, including policy and legislation, capacity building, training and awareness raising.

Since its launch in 2014, the Programme has delivered a range of tangible results in Kenya, including a book on how to build an efficient biosecurity system, a biosecurity survey, a biosecurity whole-of-government working group, draft policy and legislation to establish a biosecurity agency, biosecurity training

and awareness raising. Working with Kenyan partners, CBB supports a regional conference on biosecurity in Nairobi, Kenya 7-8 March 2018. For more information, please see: www.biosecurity.dk.

At the national level, Denmark has strengthened its measures to control animal pathogens and consolidated the control of human and animal pathogens under one agency, the Danish Centre for Biosecurity and Biopreparedness. Danish biosecurity regulations does not only include biological pathogens, but also technology with a misuse potential.

Regards,

Dr. John-Erik Stig Hansen, MD
Director

FINLAND

Finland is committed at the highest level to global multi-partner collaboration for strengthening health security, as underlined by President Sauli Niinistö in his address to the United Nations General Assembly in September 2017.

In March 2017, Finland underwent a Joint External Evaluation as the first country in the European Union. The national preparations of the JEE evaluation were steered by the Security Committee, a broad-based cooperation platform that assists the Government and ministries in issues of comprehensive security. The Committee consists of Permanent Secretaries from all ministries, the Office of the President and the Prime Minister's Office, as well as experts representing different administrative branches, national authorities, civil society and the business sector. The preparations were coordinated by a Team of Contacts consisting of officials from different sectors. This approach was very useful for Finland, as it helped gain a broad, high level commitment as well as strengthen cross-sectoral cooperation at the level of implementation. As a follow-up to the evaluation, Finland is currently developing its National Action Plan. The NAP will be included in the Security Strategy for Society which is overseen by the Security Committee. The implementation of the Strategy is a cooperation between the different stakeholders and it helps further strengthen Finland's national cross-sectoral work on improving health security. For example, the JEE recommendations will inform the national preparations for the implementation of the Sendai Framework.

In Finland, integrating health security into the wider security concept has proven to be an important innovation. Finland remains a strong advocate for sharing experiences and best practices among countries on the different models for multi-sectoral collaboration. To strengthen global multi-partner collaboration and sharing best practices such as existing structures and models, Finland is together with Australia co-chairing the JEE Alliance, established in May 2016. The Alliance is a voluntary and informal platform for systematic multi-actor, multisector cooperation. The Alliance facilitates engagement between countries and other relevant organizations and stakeholders involved in building health security across different sectors implementing the One Health approach. To date, there are more than 60 members in the network, including countries, international organizations, financial institutions, non-governmental organizations

and the private sector which is represented through the Private Sector Roundtable.

The JEE Alliance is currently setting strategic targets and indicators to guide the Alliance in its work to support Joint External Evaluations, National Action Plans and the One Health Approach. It is also discussing activities for facilitating regional cooperation for capacity building.

Since 2016, 21 Finnish experts from different fields have participated in JEE missions in different regions. This has provided important learning experiences and strengthened networks that will further contribute to Finland's work on health security capacity building at global, regional and national levels.

Finland committed in 2014 to a five-year collaborative project on building local capacity for infectious disease monitoring, and training of local experts in biothreat management in Tanzania. The project is funded by the Ministry for Foreign Affairs. Main partners in the project are the Finnish Centres for Military Medicine and Biothreat Preparedness, together with the Tanzania Veterinary Laboratory Agency (TVLA). The achieved expertise and capabilities in rapid field diagnosis support and strengthen capacities for the Tanzanian health and other sectors dealing with biothreat reduction in concordance with the One Health strategy. A Mid Term Evaluation conducted by EcoHealthAlliance in April 2017 determined the project as exemplary of engagements based on a commitment to sustainability and strong ownership.

Antimicrobial resistance (AMR) is an important area both for global collaboration and nationally. Collaboration across sectors has been the basis of Finland's approach on AMR, as reflected in the AMR National Action Plan 2017-2020 which Finland has drafted according to the WHO guidelines.

At the regional level, Finland works actively with the WHO Regional Office for Europe, the European Union through the Health Security Committee, the European Centre for Disease Prevention and Control (ECDC) and through Nordic cooperation, among others. One Health is one of the key priorities for Finland's chairmanship of the Chair of the Arctic Council (2017 - 2019).

FRANCE and European Commission

France and European Commission have hosted an international conference on Health security in Lyon the 22 and 23 March 2016 in Lyon with the co-sponsorship of WHO/NL.

The 2 day-conference, concluded by the French President François Hollande, have hosted more than 280 participants including relevant International Organisations beyond the health sector, Ministers and official Delegates of WHO Member States, the European commission, donors and stakeholders from all relevant sectors (public health, animal health, agriculture, international cooperation...).

Primary purpose of the international conference was to reaffirm the need for high level political commitment and intersectoral approach for a concrete IHR implementation. IHR is the intervention framework of reference and their implementation has to be reinforced. Many countries have yet to acquire the eight core capacities required under the IHR (2005) that are essential to maintain national and global health security. The most vulnerable countries are often those with the weakest health systems. It is crucial to adopt a long-term approach through prevention and preparedness, by integrating country capacities building to the broader scope of health

systems strengthening. Health security is a global public good that is the responsibility of all and requires strong and transparent global governance under the auspices of WHO. The mutual commitment of all actors, from all the sectors and levels in a “One Health” perspective, should contribute to a more efficient and concrete approach to periodic evaluations of core capacities required of states, in the framework of continuous process of improvement.

The second purpose of the conference was to reaffirm the need for a common framework of IHR monitoring and evaluation scheme at the global level, in order to provide mutual accountability among Member States for global health security. Transparent, accurate and timely reporting will give all Member States information on existing capacity and will foster dialogue, trust and mutual accountability among Member States. The development of WHO’s Joint External Evaluation tool (JEE) is an important step in this regard. It is essential that WHO leads its implementation, guaranteeing its sustainability while ensuring its independence.

The international conference has also promoted innovative tools addressing the challenges above with a virtual simulation of epidemic situation.

OUTCOMES

A chair summary has been adopted by Minister Touraine and Commissionaire ANDRIUKAITIS.

The main points of the chair summary are:

- strengthen global health security through the implementation of the International Health Regulations (IHR (2005)) by reaffirming the critical role of international organizations such as the World Health Organization (WHO), the World Organization for Animal Health (OIE) and the Food and Agriculture Organization (FAO);
- Promote intersectoral approach for the IHR implementation;
- The development of WHO’s Joint External Evaluation tool (JEE) is an important step in this regard. It is essential that WHO leads its implementation, guaranteeing its sustainability while ensuring its independence;
- Within this new Outbreak and Health Emergencies Programme, the WHO Office in Lyon, which already builds country capacities for IHR implementation (preparedness, learning and training), would need to engage in gap analysis and evaluation processes to deliver tailor-made assistance to countries. It would rely on its qualified staff and would work in a multisectoral approach, in close collaboration with WHO regional offices and liaising with OIE and FAO.
- Participants are committed to strengthen global health security through the implementation of the International Health Regulations (IHR (2005)) by reaffirming the critical role of international organizations such as the World Health Organization (WHO), the World Organization for Animal Health (OIE) and the Food and Agriculture Organization (FAO).

- Health security is a global public good that is the responsibility of all and requires strong and transparent global governance under the auspices of WHO.
- The International Health Regulations (IHR (2005)) is the unique tool for global health security legally recognised by the 194 Member States of the World Health Organization. It is the intervention framework of reference and its implementation has to be reinforced.
- The development of the required core capacities relies on the reinforcement of human resources for health and the strengthening of health systems. Development and cooperation policies should contribute to strengthening health systems, health human resources and core capacities to ensure a sustainable and stable impact on the social, economic and political development of countries.
- It is important that all countries be equipped with the means to prevent, detect and assess the threats on public health, as well as communicate and respond, with the support of WHO and in a spirit of trust.

The mutual commitment of all actors, from all the sectors and levels in a “One Health” perspective, should contribute to a more efficient and concrete approach to periodic evaluations of core capacities required of states, in the framework of continuous process of improvement.

Therefore, we would like to further support the work of WHO as regards the continuous improvement of the Joint External Evaluation tool, the implementation of the JEE missions in countries in collaboration with its partners, and the use of the data collected.

In the framework of the Outbreak and Health Emergencies Programme, WHO will coordinate the implementation of the JEE by ensuring the training of experts and the transparency of the selection process; by guaranteeing the centralization and the analysis of data, and by promoting the independence of evaluations conducted in the framework of the JEE.

WHO's new Outbreak and Health Emergencies Programme will allow to put into practice all commitments on the implementation of the IHR (2005) through a intersectoral approach. It will prepare the world for possible future crises, notably through the training of resource persons and the development of a biennial report on health security and associated good practices.

GEORGIA

Global Health Security Agenda has become a new vision for Georgia since 2014, when first external assessment of baseline GHSA capabilities was conducted and since Georgia took a path to contribute to Zoonotic Disease and National Laboratory System Action Packages and lead an Action Package of Real-Time Surveillance.

The primary basis for success in these directions is multisectoral approach – main stakeholders, Ministry of Labor, Health and Social Affairs, National Center for Disease Control and Public Health and National Food Agency of Ministry of Agriculture are actively working in order to meet the targets defined for minimization of disease transmission, ensuring the sustainability of the surveillance systems, expanding laboratory capacities and provision of joint, rapid response.

In this sense, One Health committee was established to support decision makers and coordinate activities concerning zoonosis between the Ministry of Agriculture, Ministry of Health, international donors and other non-government organizations, hence contributing to incidence reduction not only in humans but also in animals for state priority diseases, such as Anthrax, Rabies and Crimean Congo Hemorrhagic Fever. As a result of joint efforts Anthrax incidence in humans was reduced by 79%, while in animals by 40% in 2015-2016; for the first time since 1990, there

were no human rabies cases reported since 2015 and reduction of CCHF cases by 75% was achieved.

Georgia is already moving forward on the target of developing the national and regional capacity to interconnect, analyze and link data through an existing surveillance system. Through Georgia's long-standing and strong collaboration with US government, a fully functional Electronic Integrated Disease Surveillance System (EIDSS) and modern countrywide laboratory network, including Lugar Center of Public Health Research as a reference laboratory, was established based on One Health approach. Electronic Integrated Disease Surveillance System (EIDSS), which is used for intersectoral collaboration in veterinary, human and vector surveillance is a path for the enhanced control of zoonotic diseases and successful implementation of One Health operational framework.

Information exchange for GHSA is considered to be the proxy indicator for controlling and managing communicable diseases. In this regard, Biosurveillance Network of the Silk Road (BNSR) as a regional partnership, which consists of Human and Animal Health professionals from, Georgia, Azerbaijan, Kazakhstan, and Ukraine, works to create sustainable, integrated disease surveillance network, thereby contributing to One Health perspective and supporting the implementation of global health security agenda within the region.

INDONESIA

Indonesia has declared its full compliance to the IHR (2005) core capacities since 2014. As part of its continuous efforts to strengthen and maintain its national health capacity, Indonesia was committed to joining the Global Health Security Agenda (GHSA) and has served as the member of the GHSA Steering Group since 2014. In line with this commitment, Indonesia has been developing the GHSA Roadmap, integrating all health security programs involving concerned ministries or institutions and at the same time serving as a national guideline for all stakeholders to achieve the shared goals in health security.

To support these efforts to accelerate the achievement of the GHSA goals and targets, Indonesia has drafted a Presidential Decree on Global Health Security Working Group, which is expected to be signed by the President this year. The Working Group consists of 25 ministries/agencies related to global health security issues. The Working Group will be coordinated by the Coordinating Minister for Human Development and Culture and the Coordinating Minister for Political, Legal, and Security Affairs. The Minister of Health will serve as the chairperson of this Working Group.

As the GHSA Chair in 2016, Indonesia is fully committed strengthening the coordination of the 11 Action Packages participating countries. In light of this commitment, Indonesia has organized the GHSA Action Package Coordination Meeting on 23-25 August 2016. The meeting adopted the “Jakarta Call for Action” on the GHSA Action Package Implementation which focuses on efforts to strengthen coordination and sharing of information, experiences, and best practices in implementing and achieving Action Packages targets, which will contribute further to the strengthening of the national and global health security. As one of the leading countries for Zoonotic Disease Action Package, Indonesia is in the process of developing the Integrated Surveillance System for Zoonotic Disease (SIZE) as a platform of integrating all the zoonoses data from the Ministry of Health and Ministry of Agriculture. Moreover, a multi-sectoral task force on zoonosis control is established

under the coordination of the Coordinating Minister for Human Development and Culture. Multisectoral table top exercises and pandemic simulations have also been conducted to characterize the functionality of IHR core capacities. In December 2016, Indonesia organized GHSA Steering Group Meeting to wrap up our chairmanship of steering group in 2016 and chance to Republic of Korea to introduce their program as a chair in 2017.

Indonesia is also committed to undergo the Joint External Evaluation as part of its efforts to strengthen and maintain national capacities in health security. The assessment for the country is scheduled to be carried out in November 2017. In preparation of the assessment, Indonesia has begun the self-assessment in the technical areas for Points of Entry. Moreover, in support of the JEE assessments, Indonesia has provided support in technical expertise in the form of external evaluators for three JEE missions (Mozambique, Bangladesh, United States).

Indonesia will remain committed to advancing global health security although its tenure as the GHSA Chair had been completed by the end of 2016. Indonesia will join the Alliance for Country Assessment to support the JEE missions and serve as the member of the advisory group of the alliance. Moreover, in collaboration with the World Bank and a number of countries and development partners, Indonesia has taken part in the development of the Health Security Financing Assessment Tool (HSFAT). In 2017, we hosted several international meeting and workshops regarding health security issue which were Consultative Meeting on Mass Gathering supported by WHO, Full Scale Pandemic simulation for influenza and also Table Top Exercise on global health security which collaborated with International Commission on Military Medicine and WHO. Indonesia also actively engaged with several meeting group of ZDAP.

Last but not least, Indonesia commit as a host of 2018 GHSA ministerial meeting which is important corner stone as “new age” of GHSA cooperation.

JAPAN

Japan's support for countries

Japan has been implementing or preparing supports to strengthen IHR core capacities, focusing on laboratory capacity and surveillance, as well as research capacities. In some countries, these efforts are made in collaboration with JICA's long-time partners such as Kenya Medical Research Institute (KEMRI), Noguchi Memorial Institute for Medical Research (NMIMR), University of Zambia School of Veterinary Medicine (UNZA SVM), Philippines' Research Institute for Tropical Medicine (RITM) and Vietnam's

National Institute for Hygiene and Epidemiology (NIHE). In collaboration with KEMRI, NMIMR and UNZA-SVM as centers of excellence in the regions, JICA will also implement regional training programs, aligned with Africa CDC's regional laboratory and surveillance networks. JICA has launched a long-term training program for administrators and researchers from African countries in collaboration with Japanese universities.

Activities for some countries:

Kenya: With Kenya Medical Research Institute (KEMRI), a joint research project was implemented which established an alert system for 14 notifiable diseases including yellow fever and rift valley fever by using mobile phones. JICA also contributed the JEE for Kenya. As mentioned above, JICA and KEMRI will implement a regional training program for the countries in the Eastern African region, in coordination with Africa CDC.

Ghana: With Noguchi Memorial Institute for Medical Research (NMIMR), a joint research project on surveillance and laboratory support for emerging pathogens of public health importance is being implemented, which not only enhances NMIMR's research capacity but also strengthens the country's surveillance system. Construction of NMIMR's research center equipped with BSL3 laboratory is also under way. JICA also contributed the JEE for Ghana. As mentioned above, JICA and NMIMR will implement a regional training program for the countries in the Western African Region, in coordination with Africa CDC.

Zambia: With University of Zambia School of Veterinary Medicine (UNZA SVM), a joint research project on surveillance of viral zoonoses is being implemented. JICA also contributed the JEE for Zambia. As mentioned above, JICA and UNZA SVM, University Teaching Hospital and National Public Health Institute will implement a regional training program for the countries in the Southern African Region, in coordination with Africa CDC.

Nigeria: Construction of laboratories (BSL2 and BSL3) for Nigeria CDC is planned to be implemented as a grant aid project. A technical cooperation

project will start in April 2018 to strengthen detection of and response to public health threats. JICA also contributed the JEE for Nigeria.

DR Congo: Construction of laboratories (BSL 2 and BSL3) for National Institute for Biomedical Research (INRB) is planned to be implemented as a grant aid project. A technical cooperation project will start in summer 2018 which may include activities to strengthen risk assessment, surveillance and laboratory network, as well as management and research capacities of INRB.

Philippines: A joint research on laboratory surveillance system for rabies elimination will start from 2018 next year.

Myanmar: A technical cooperation project for development of malaria control (interrupting transmission toward pre-elimination) model is being implemented which conducts activities such as trainings for community health workers and surveillance monitoring. Advisor on infectious disease control has been dispatched to support planning and M&E of the national strategy.

Vietnam: A technical cooperation project for capacity strengthening for medical laboratory network on biosafety and testing of highly hazardous infectious pathogens is being implemented in Vietnam, Laos and Cambodia. JICA also contributed the JEE for Vietnam.

Honduras: The Project for Construction of National Laboratory of Health Surveillance is being implemented which includes construction of BSL2+ laboratory.

Japan's actions to combat Antimicrobial Resistance (AMR)

Antimicrobial Resistance is a threat to global health security, and all countries are required to participate in combatting this issue. Japan has been tackling AMR issues since the 2000's by Japan Nosocomial Infections Surveillance (JANIS), which is a national surveillance program organized by the Ministry of Health, Labour and Welfare (MHLW). It provides basic information on the incidence and prevalence of nosocomial infections and antimicrobial-resistant bacteria in inpatients settings inside the country. Although participation in JANIS is on a voluntary basis, currently, about 1,800 hospitals across Japan join the system, allowing us to provide representative nation-level epidemiological data. Furthermore, JANIS has provided pertinent data to GLASS (Global Antimicrobial Resistance Surveillance System) launched by WHO and contributed to the global AMR strategy for monitoring and evaluation of the effect & impact of global action plan.

In April 2016, Japan developed a National Action Plan, and is promoting countermeasures on AMR. MHLW launched AMR One Health Surveillance Committee in 2017 in collaboration with other Ministries and stakeholders and are about to publish our first "Nippon AMR One Health Report (NAOR) 2017". Furthermore, AMR clinical reference center (AMR-CRC) just kicked off in 2017 for AMR promotion to both professionals and the general public.

Japan has supported global efforts against AMR through several meetings; "Tokyo Meeting of Health Ministers in the Asia on AMR" (April, 2016), "G7 Ise-Shima Summit" (March, 2016) and "G7 Kobe Health Minister's Meeting" (September, 2016). Furthermore, we will hold the "Tokyo AMR One-Health Conference" in November 13th and 14th of 2017 to share information on actions towards proper use of antimicrobial agents in the field of human health and agricultural industry.

KENYA

PREVENT avoidable outbreaks

1. AMR – Strengthening Antimicrobial Resistance to prevent disease outbreaks

- The Government of Kenya (GOK), supported by the Fleming Fund, FAO and GHSA investments, developed, finalized and launched a National Action Plan (NAP) for Antimicrobial Resistance (AMR) in 2017. The NAP includes surveillance plans for AMR priority pathogens. It also includes infection prevention and healthcare control guidance on associated infections and provides an outline for stewardship activities.
- To combat the growing threat of AMR, the GOK is developing an extensive national surveillance system. This system aims to improve the evidence base for prevalence and effects of priority AMR pathogens in the country. The expanded evidence base will inform updates to appropriate treatment guidelines and promote additional research on AMR. Kenya also plans to contribute to international AMR surveillance efforts by submitting data to the WHO Global Antimicrobial Resistance Surveillance System (GLASS). Additionally, GOH led a mapping of the national veterinary medicines supply chain. This is aimed at establishing a national surveillance system for veterinary medicines.
- In the area of Infection Prevention and Control (IPC), The Ministry of Health completed a baseline assessment of AMR for two sites. The team evaluated hospitals in Thika (Central Region) and Kitale (Western Region) for infection control activities and AMR to identify gaps that need to be filled. The hospital wards, laboratory, environment were all assessed using a tool supported by CDC.
- Leveraging GHSA funds, the Ministry of Health developed an IPC basic training curriculum. Over 140 staff from 23 of Kenya's 47 counties completed a 'training of trainers' course. This has been feasible through support from CDC Kenya, University of Maryland Baltimore, AMREF and FHI 360.

2. ZOO NOTIC DISEASES

– Strengthening the One Health Approach to Tackle Disease Outbreaks

- Supported by GHSA funds, GOK successfully established County-level 'One Health' Units through advocacy and training human, animal and environmental health county officials. Twenty of Kenya's 47 counties have been trained through GHSA support and an additional 13 counties trained through other partners. These Units have improved joint human animal health outbreak investigations.. A good example of multi-sectoral response experienced is during a zoonotic disease outbreak investigation . The Zoonotic Diseases Unit (ZDU) received reports of a possible anthrax outbreak in Murang'a County in May 2016, with three reported cases of livestock deaths. More than 20 people were exposed to anthrax after consuming infected meat. The ZDU and Field Epidemiology and Laboratory Training Program (FELTP) residents, both veterinarian and medical doctors, responded to the outbreak, identified the cause, characterized the type of infection and reported the animal and human cases. With reported frequent outbreaks of anthrax in Murang'a County, ZDU is looking to decentralize One Health in the county as a priority to enhance surveillance.
- Kenya's Ministries of Health and Agriculture have a robust zoonotic surveillance system for priority diseases (Rabies, Brucellosis, Rift Valley Fever, and Anthrax). These systems have contributed to epidemiological analyses for some of these diseases. Field officers have been trained on syndromic surveillance and outbreak investigation to improve detection and reporting rates. Public and animal health sectors have been integrated at the central level via development of joint prevention and control strategies for select zoonotic diseases (RVF, Rabies). Additionally, Kenya finalized national guidelines for investigation and response to of zoonotic events. This document clarifies roles and responsibilities during zoonotic disease outbreak responses.

- Finalized national rabies guidelines to strengthen surveillance and support implementation of the National Rabies Elimination Strategy 2014 – 2030.
- Strengthened surveillance for Rift Valley Fever (RVF) through sero-monitoring of the RVF sentinel herds and procuring of RVF diagnostic test kits (ELISA) and consumables for field sampling.
- Conducted an assessment of the country's workforce current capacity for veterinary services (epi, lab, field personnel) to identify gaps for strengthening.
- The One Health Technical Working Group (OHTWG) ensures timely and systematic information exchange between animal/wildlife surveillance units, human health surveillance units and other relevant sectors at the national and sub-national level in response to potential zoonotic risks and urgent zoonotic events to move the country to next capacity level is in progress.
- Conducted surveillance for the Middle East Respiratory Syndrome Corona Virus (MERS-CoV) in camels and other livestock species (cattle, sheep, goats, donkeys) in five counties. Serology tests were completed at the Central Veterinary Laboratories (CVL) through the capacities strengthened by FAO. This will inform which MERS-CoV type is circulating in Kenya thus informing control strategies.

3. BIOSAFETY and BIOSECURITY

– Developing a national biosafety and biosecurity system in Kenya

- The GOK is in the process of developing a comprehensive national biosafety and biosecurity (BS&S) system. The country completed a comprehensive biosecurity survey (2015) and identified critical gaps in BS&S training and implementation. Plans are underway to complete a common training curriculum in November 2017.



a multi-year effort that began with the signing of the agreement in July 2015. Moving forward the agreement will facilitate mutually beneficial efforts to reduce biological threats of common concern including the pending BS&S upgrades at the Kenya Medical Research Institute, the Central

- With support from the Danish Centre for Biosecurity and Biopreparedness (CBB), GOK developed biosecurity and bio preparedness systems in accordance with international standards. This work includes conducting workshops to develop policy and legislation to establish a legal framework for biosecurity as well as facilitating biosecurity and bio preparedness training. GOK and CBB will co-host a regional conference on biosecurity in Nairobi in March 2018.
- In February 2017, Kenya's Parliament unanimously voted in favor of the ratification of an agreement between the U.S. Government and the Government of the Republic of Kenya concerning the Cooperation in Threat Reduction Biological Engagement Programs (CTR/CBEP). Ratification of the agreement marks the end of information exchange between animal/wildlife surveillance units, human health surveillance units and other relevant sectors at the national and sub-national level in response to potential zoonotic risks and urgent zoonotic events to move the country to next capacity level is in progress.
- Trained staff at some facilities who work with dangerous pathogens or toxins. There is general awareness among the laboratory workforce of international BS&S best practices for safe, secure and responsible conduct in the country. Conducted assessments of the Central Veterinary Lab and Kenya Agriculture and Livestock Research Organization to objectively check for laboratory performance using the FAO laboratory mapping tool, external quality assessment and Biorisk assessment for sample transport and referral systems. These assessments identified existing gaps and the capacity strengthening in the laboratories that is required.

DETECT threats early

4. LABORATORY - Strengthening Laboratory Systems in Kenya

Kenya's National Public Health Laboratory (NPHL), in collaboration with partners, launched the NPHL 5-year Strategic Plan, and laboratory policy guideline documents. These efforts fulfilled the International Health Regulations (IHR) mandate of delivering quality laboratory services to the nation and taking a lead in protecting the health of Kenyans against emerging and re-emerging health threats. The aim of the NPHL Strategic Plan 2016-2020 is to define the division's strategic direction towards achieving its core mandate of delivery of safe, reliable, quality laboratory services that meet national health priorities and international requirements and standards. Implementation of this strategic plan will enhance and strengthen the planning and resource mobilization efforts for the institution.

- NPHL also celebrated the accreditation of the National Microbiology Reference Laboratory, the National HIV Reference Laboratory and the opening of the NPHL Centre of Excellence for equipment, calibration, certification and training and National Influenza Centre.

With GHSA support, laboratory testing capacity for the detection of priority zoonotic diseases has been strengthened through the procurement of laboratory expendables and non-expendable items and conducting proficiency testing and capacity assessments.

5. SURVEILLANCE – Improving early detection of outbreaks in livestock and wildlife

- Supported by GHSA, GOK successfully launched the Kenya Livestock and Wildlife Syndromic Surveillance (KLWSS) system - a near real-time electronic surveillance and reporting system developed by Washington State University (WSU). The KLWSS aims to improve early detection and investigation of outbreaks in livestock and wildlife to facilitate response before spillover into humans. Three counties have been trained, targeting livestock, public health and wildlife officers from the Ministries of Agriculture, Health and Environment.
- The system allows veterinary practitioners to enter, transmit and analyze surveillance data using an electronic data collection app known as the Kenya Animal Bio surveillance System (KABS). The app operates on Android mobile devices and allows reporting of syndromic and surveillance information. The data collected could dramatically improve early detection of outbreaks in livestock and wildlife. In addition, surveillance units in Ministry of Health and Directorate of Veterinary Services have received computers to assist in data analysis

6. WORKFORCE DEVELOPMENT - Promoting Excellence in Competency-Based Training in Applied Epidemiology and Public Health Laboratory Management (Kenya FELTP).

- In September 2017, the Kenya Field Epidemiology and Laboratory Training Program (FELTP) received accreditation from the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET). The Kenya FELTP, along with Brazil and Cameroon, were the three programs globally to receive TEPHINET accreditation this year joining EIS, Canada's Field Epidemiology Program and the UK's FETP as the only accredited programs. Kenya also recruited its 14th cohort of 20 advanced-level residents who will primarily provide disease detection support at the county level for two years. Since September 2016, one of the Cohort 13 residents joined from Burundi and is supported by the World Bank. All Kenya FELTP residents take part in classroom education as part of a 2-year MSc degree program from Moi University. Like all FETPs, 25% of their time is spent in the classroom, while 75% is spent in the field participating in outbreak investigations, leading human and animal disease surveillance activities, and evaluating public health systems.
- The first cohort of Kenya's Improving Public Health Management for Action (IMPACT) Distinguished Fellows graduated in 2016. This five-month intensive public health management training program focused on increasing knowledge and skills of senior-level managers working for the GOK. The fellows learned about program planning and management, communication, community assessment, budgeting / financial planning, and emergency planning, preparedness and response. To complete the program,

fellows were required to design a public health program that effectively utilized and integrated core principles from IMPACT curricula. Fellows presented their programs to their cohort and representatives from Kenya's Ministry of Health, CDC Kenya, the Kenya School of Government, the International Union Against Tuberculosis and Lung Disease, and Kenyatta University.

- Conducted a regional needs assessment for a Field Epidemiology Training Program for Veterinarians (FETP-V) which described the current capacity and gaps in the veterinary workforce and developed a road map for improving capacity.

RESPOND rapidly and effectively

7. EOC – Improving coordination efforts to respond rapidly and effectively to outbreaks

- The Public Health Emergency and Operations Centre was established in 2016 to strengthen preparedness and response to outbreaks in Kenya.
- Through event based surveillance, outbreaks have been detected early, some outbreaks were reported at the national level the same day that they were reported in their Counties. These include the cholera outbreak in a school in Vihiga County and the last cholera outbreak in Wajir County.
- The Chikungunya outbreak in Mandera County was also reported at the national level the same day the laboratory results were released at the reference laboratory. Response for the Chikungunya outbreak was done within a week (usually response takes over 2 weeks).
- In July 2017, following the prolonged cholera outbreak, the GOK activated Kenya's Emergency Operations Center and identified an Incident Manager to coordinate the Cholera outbreak.

GHSA SUCCESS STORY – KENYA

FAO's CONTRIBUTION

Through the project "Supporting Global Health Security Agenda (GHSA) to address Zoonotic Disease and Animal Health in Africa" (GHSA-ZDAH), FAO is supporting the country to address critical capacity gaps identified by the World Organization for Animal Health tool for the evaluation of Performance of Veterinary Services (OIE PVS) and the Joint External Evaluation (JEE), and in line with the GHSA Action Package technical areas regarding priority zoonotic diseases in Kenya. The GHSA-ZDAH program covers the following GHSA Action Packages (APs) or technical areas: Zoonotic Diseases, Biosafety and Biosecurity, National Laboratory Systems and Workforce Development.

Zoonotic Diseases (capacity level: 4; Target: 5)

Currently a robust zoonotic surveillance system is in place for four priority zoonotic diseases (Rabies, Brucellosis, Rift Valley Fever, Anthrax) at the Ministries of Health and Agriculture and epidemiological analyses have been performed for some of the priority diseases. Field officers have been trained on syndromic surveillance and outbreak investigations

to improve detection and reporting rates for the priority zoonotic diseases (appendix 1). Systematic review of brucellosis has been conducted to inform development of a national integrated brucellosis control plan. Public and animal health sectors have been integrated at the central level via development of joint prevention and control strategies for select zoonotic diseases (RVF, Rabies). National guidelines for investigation of zoonotic events have been updated and finalized. This document clarifies roles and responsibilities of different players during zoonotic disease outbreaks and response. Draft national rabies guidelines have also been updated and finalized to strengthen rabies surveillance and to support implementation of the National Rabies Elimination Strategy 2014 – 2030 currently being implemented in five pilot counties. Surveillance for RVF has been strengthened through sero-monitoring of the RVF sentinel herds and procurement of RVF diagnostic test kits (ELISA) and consumables for field sampling. FAO has supported a multidisciplinary Rapid Response Teams from the DVS to conduct an outbreak investigation on unusual events in livestock (suspected anthrax outbreak in humans, livestock and wildlife).

There is improved animal health workforce with prerequisite skills and tools necessary to address priority zoonotic diseases through trainings which have been conducted to national and sub-national animal health workforce (syndromic surveillance and outbreak investigation, biosafety and biosecurity/ biorisk management, sample specimen collection, storage, package and specimens shipment, transport of infectious substances as per IATA guidelines, MERS CoV and Filoviruses surveillance, molecular techniques for priority zoonotic diseases) (appendix 2). An assessment of country's workforce current institutional and human resource capacity (epi, lab, field personnel) in relation to needs of veterinary services has been conducted to inform capacity gaps for strengthening. Coordination mechanisms to respond to outbreaks of zoonotic diseases by human, animal and wildlife sectors have been strengthened through the national One Health platform (Zoonotic Disease Unit – ZDU).

Joint outbreak teams have been facilitated to respond potential zoonoses outbreaks in humans, wildlife and livestock. Guidelines for investigation of zoonotic events have been updated and finalized. FAO has participated in quarterly One Health Technical Working Group (OHTWG) meetings (appendix 3). Efforts to ensure timely and systematic information exchange between animal/wildlife surveillance units, human health surveillance units and other relevant sectors at the national and sub-national level in response to potential zoonotic risks and urgent zoonotic events to move the country to next capacity level is in progress.

Surveillance for the Middle East Respiratory Syndrome Corona Virus (MERS-CoV) have been conducted with over 2,500 samples collected from camels and other livestock species (cattle, sheep, goats, donkeys) in five counties. Serology tests have been completed at the Central Veterinary Laboratories (CVL) through the capacities that have strengthened by FAO (training of staff on sampling, processing, testing as well as procurement of supplies and equipment required for this). FAO has also supported the government to ship to Germany over 2,000 nasal swabs for molecular analysis. This will inform on what MERS-CoV type is circulating in Kenya thus inform on the best control strategies.

AP – Biosafety and Biosecurity (capacity level: 3; Target: 4)

Biosafety/biosecurity trainings that has been provided to staff at some facilities (UoN, CVL, NPHLS, IPR, RVILs) but not at all that maintain or work with

dangerous pathogens or toxins. There is general awareness among the laboratory workforce of international Biosafety/Biosecurity best practices for safe, secure and responsible conduct in the country. Assessment of the CVL and KALRO laboratories have been conducted to objectively check for laboratory performance using the FAO LMT, External Quality Assessment and Biorisk assessment and sample transport and referral systems. These assessments have identified existing gaps and the capacity strengthening in the laboratories that is required (appendix 1).

AP - National Laboratory System (capacity level: 3; Target: 4)

For Laboratory testing for detection of priority diseases JEE indicator, the country is at capacity level 2 and progress is being made to move the country to capacity level 3. Key milestone to move to the next level is ability to conduct 3-4 core tests and ensure availability of kits and reagents for both human and veterinary laboratories for priority zoonotic diseases. Through GHSA ZDAH project, laboratory testing capacity for the detection of priority zoonotic diseases has been strengthened through procurement of laboratory expendables (diagnostic kits, reagents and consumables) for priority zoonotic diseases (Brucellosis, Rift Valley Fever, Rabies and Anthrax) and non-expendable items (dry shipper, RT-PCR machine); conducted proficiency testing for brucellosis and ASF; Laboratory capacity assessments (External Quality Assessments (EQA), biorisk assessment); use of FAO LMT; Installed LIMS to facilitate laboratory information management capacity at the CVL and KALRO and Equipped CVL laboratory with ICT infrastructure (computer, multi-machine printer copier scanner) to support establishment of central database for livestock information. Through the LIMS, the CVL and KALRO laboratories are now able to track samples from submission to testing and reporting and can facilitate the linkage between diagnostic results and response in the field, through a shift from paperwork to computerized systems. Essential equipment (RT PCR) at the CVL has been serviced and calibrated to ensure production of accurate test results for priority zoonotic diseases (appendix 1).

AP - Workforce Development (capacity level: 2; Target: 3)

The program has improved animal health workforce with prerequisite skills and tools necessary to address priority zoonotic diseases and IHR core capacity requirements through trainings on syndromic surveillance and outbreak investigation, biosafety and

biosecurity/biorisk management, sample specimen collection, storage, package and specimens shipment, training on transport of infectious substances as per IATA guidelines and ToT training on biorisk management, MERS CoV and Filoviruses surveillance and molecular techniques for priority zoonotic diseases. An assessment of country's workforce current institutional and human resource capacity (epi, lab, field personnel) in relation to needs of veterinary services is has been conducted to identify areas for strengthening. A Regional Needs Assessment for Field Epidemiology Training Program for Veterinarians (FETPV) has been conducted describing the current situation of the field epidemiology training and capacity gaps in the veterinary workforce and developed a road map for developing veterinary epidemiology capacity in the region. A comprehensive needs assessment was conducted to develop and implement FETPV training curriculum to address

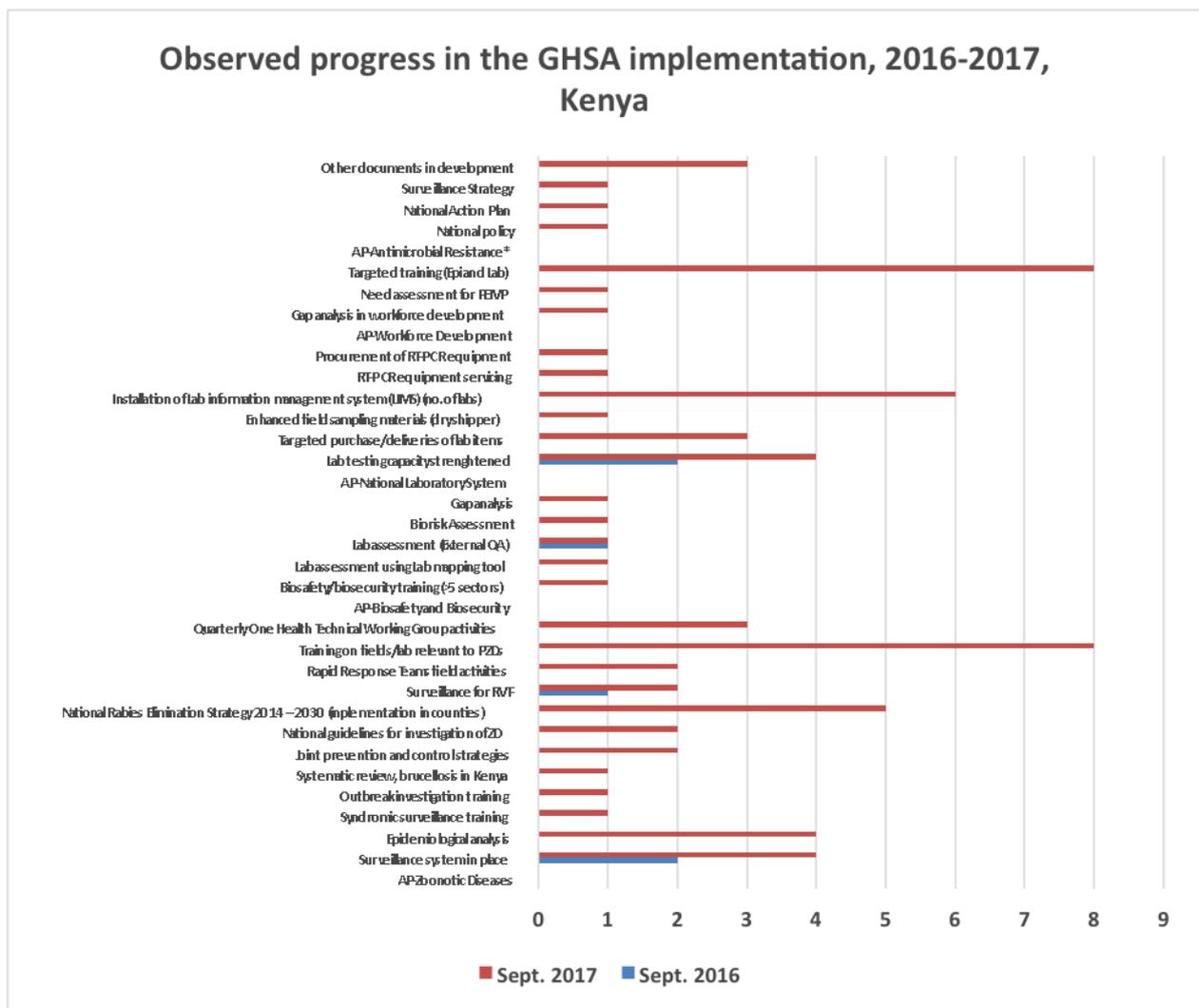
zoonotic and animal specific diseases related to human, animal and wildlife health that would include training in the field epidemiology at different levels of the workforce (appendix I).

AP – Antimicrobial Resistance (capacity level: 2; Target: 3)

Through funding from the Fleming Fund, FAO has supported development of the national policy on prevention and containment of AMR and National Action Plan (NAP). These documents aims to provide a coherent policy framework and priority actions to contain the emergence and spread of AMR. Mapping of the national veterinary medicines supply chain has been conducted. This is aimed at supporting the DVS setting up the National surveillance system for veterinary medicines (appendix I).

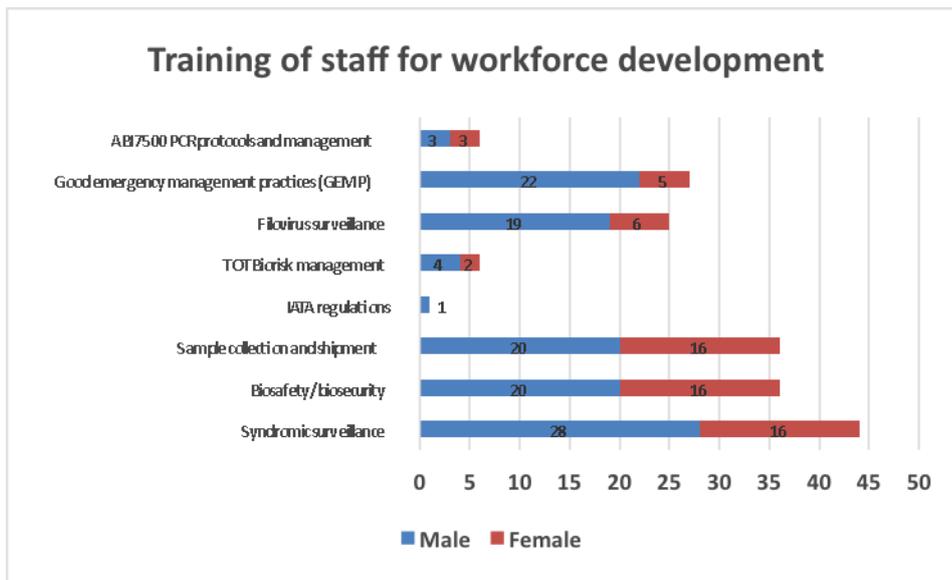
Appendix I

Progress has been made towards the implementation of selected GHSA Action Packages in Kenya including the Zoonotic Diseases (capacity level 4 – 5); Biosafety/biosecurity (capacity level 3 – 4); National laboratory system (capacity level 3 – 4); Workforce development (capacity level 2 – 3) and Antimicrobial resistance (capacity level 2 – 3). Some activities were suspended due to the USG suspension of relationship with the Ministry of Health, Kenya.

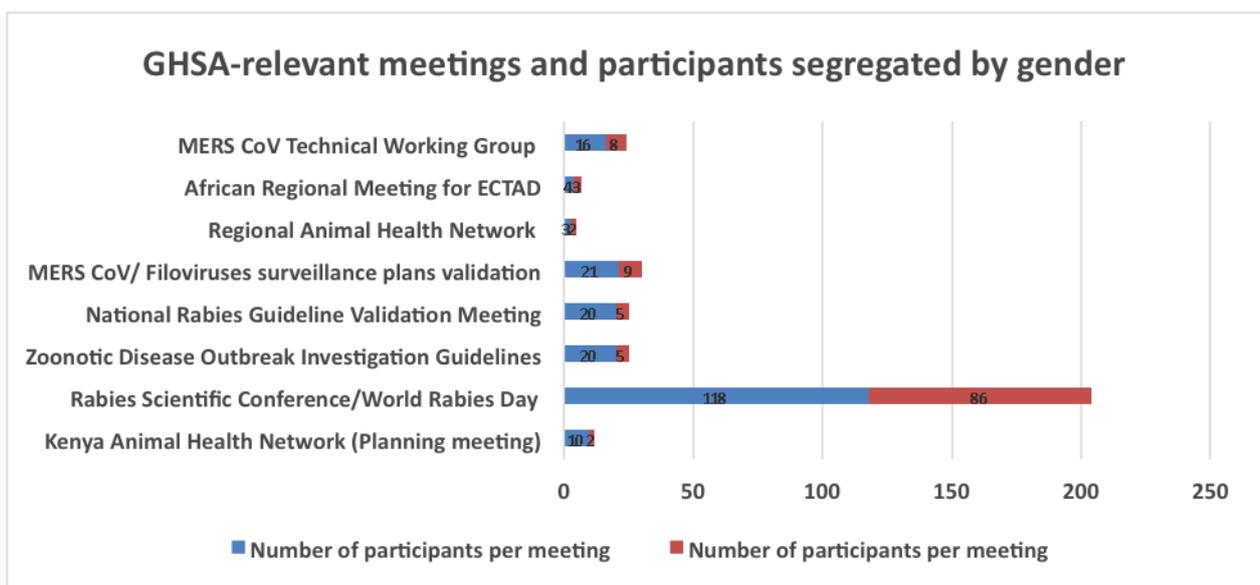


Appendix 2

A total of 183 staff has been enhanced and trained to deliver more competent services and contribute to the GHSA action packages implementation including 117 males and 64 females. This has translated into improved veterinary services delivery, faster turn-around time and more enhanced field/laboratory surveillance.



Appendix 3



MALI

GLOBAL HEALTH SECURITY AGENDA IMPLEMENTATION IN MALI 'SUCCESS STORIES – MAJOR ACCOMPLISHMENTS'

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The major Mali GHS success story is the control of EBOLA.

- When the epidemic of EVD started in Guinea in March 2014, the Malian government launched coordinated operations to prepare the country for Ebola epidemic.
- The mechanism put in place led to early detection of the first case on October 2014 and launch of rapid response to control the epidemic in less than 3 months.
- The personnel involvement of the President of the Mali Republic, the strong community involvement and the coordinated action from all sectors, national and international organizations were key of the success.

MAJOR ACCOMPLISHMENTS

The major Mali GHSA accomplishments include:

- The creation of GHSA Steering Committee.
- The creation of national technical working groups on epidemiological surveillance and laboratory strengthening, on Antimicrobial Resistance and on Biosecurity and Biosafety.
- The completion of the Joint External Evaluation (JEE) of the International Health Regulation (IHR 2005).
- The elaboration of a National Health Security Plan for achieving GHSA/IHR goals and objectives.
- The revision of the National IDSR Strategic Plan and Guidelines, to include community based surveillance and zoonotic diseases.
- The equipment of a new BSL-3 laboratory at national level and the training of laboratory staff on biosafety and biosecurity for MDR-TB and other highly infectious diseases.
- The establishment of a national referral lab network for the coordination of diagnostic testing of epidemic-prone diseases; and the development of guideline document to coordinate the laboratory response to suspected cases/outbreaks (e.g., CCHF, RVF, Dengue, Ebola).
- The development of SOPs for the collection, packaging, preservation and transport of samples for the confirmation of epidemic-prone diseases and tuberculosis.
- The training of health staffs from 32 districts in frontline FETP; including Staffs from the Department of Veterinary Services, the Ministry of Environment, and the Military.
- The appointment of One Health Focal Points in relevant Ministries of the Government.
- The development of regional collaboration, between the Mali EOC (DOU-SP) and the Senegal EOC to share experiences in emergency operations, with focus on the development of the SOPs.
- The effective collaboration between veterinarians and healthcare workers in the implementation of a joint active surveillance of livestock and people at risk of Rift Valley Fever on the Niger border when epidemic was declared in Niger.

NORWAY

Norway's contribution to the GHSA success report 2017

Our shared vulnerability

The Ebola outbreak highlighted our shared vulnerability and our mutual global dependence. It also showed that capacity to prevent, detect and respond at the local and national levels is crucial to global health security. 'The only way to ensure global health security, is to give access to fundamental health services that all people can afford in all countries', the

Norwegian Minister of Health, Bent Høie said during the Global Health Security Agenda (GHSA) meeting in Washington in 2014. The efforts at the Norwegian Institute of Public Health (NIPH) are based upon this principle to safeguard health preparedness through strengthening health systems and institutions in the countries we collaborate with.

What has happened on the Norwegian side?

In Malawi NIPH has had an employee stationed at the Public Health Institute of Malawi in Lilongwe (part of the Ministry of Health) for nearly two years. After preliminary assessments, the efforts have mainly been to strengthen the national system for Integrated Disease Surveillance and Response (IDSR), which is important for the country's capacity to detect disease outbreaks. We work together with the Ministry of Health and the Public Health Institute of Malawi to improve the quality of the surveillance and to strengthen the analysis and use of data locally and nationally. Furthermore, together with CDC we have actively supported Malawi's program for educating field epidemiologists at the entry level, and from 2018 also Master's level. NIPH has entered into a collaboration agreement with the Norwegian Church Aid (NCA) in Malawi. Employees in the Global Health Preparedness Program (GHPP), stationed locally in Malawi, will formally be employed by NCA. This contact is also important in order to reach out to all the primary healthcare centers (ca 40%) that are organized through Cristian Health Association Malawi (CHAM).

In Palestine we continue our close collaboration with the WHO office in Jerusalem and the Palestinian Ministry of Health (MoH). NIPH has several cooperation projects with the Palestinian National Institute of Public Health, which is organized under WHO until 2020. GHPP will support, financially and technically, the establishment of a BSL 3 laboratory at the request of the country's authorities. Furthermore, we collaborate with the MoH on event-based surveillance on the West Bank and Gaza. A national plan has been developed and we will support the implementation of it. The process of recruiting local workers under the WHO office is in progress.

In Moldova NIPH collaborate with the National Center for Public Health (NCPH) and the national

WHO office. From January, the NCPH will be incorporated into a new and larger national Public Health Agency. The main collaborating areas under the GHPP are healthcare associated infections and how these can be prevented, for example through routine data collection in hospitals. An institutional collaboration with Romania and ECDC is also established, and Moldova has had mutual workshops with Romania. Our staff support quality assurance in laboratory procedures and we are working to include Moldova in the lab network EMERGE. Together with NCPH, we organized a workshop in June for developing guidelines for outbreak investigation. A national working group has been established and will follow up this work. In addition, Norway supports Moldova in developing better preparedness for chemical events.

In Ghana NIPH is still in the initial phases of specific projects. A memorandum of understanding (MoU) is being outlined. Our collaborating partners are Ghana Health Service, WHO and the University of Ghana. We have participated in the IHR Joint External Evaluation (JEE); and have conducted a tabletop exercise on chemical events and have discussed the possibility to develop a project on the logistics of shipping test samples from district to central laboratories. We are following up the weaknesses uncovered in the tabletop exercise and the JEE related to preparedness of chemical events.

Global activities have to a large degree been tied to supporting the work by WHO for global health security. Staff from the NIPH have actively participated in several Joint External Evaluations and given input to the advancement of the instrument, in addition to the Strategic Partnership Portal and Alliance for Country Assessments. WHO actively seeks experts from NIPH to participate in working groups and assessments regarding IHR, AMR, risk

communication and outbreak investigation. Norway participates in two work packages in the Global Health Security Agenda (GHSA); AMR and Surveillance. We have taken the initiative to discuss mutual challenges with the Nordic countries' public health institutes and development agencies concerning

a common agenda for global health preparedness. Germany, England and WHO have also participated in these discussions. The next meeting will take place in London. In all countries we work in close contact with the Norwegian Embassies.

Coalition of Epidemic Preparedness Innovations (CEPI).

In addition to this, the Norwegian Institute of Public Health is an ardent supporter of, and played a pivotal role in the establishment of CEPI, a global initiative established to stimulate, finance and co-ordinate vaccine development against diseases with epidemic potential in cases where market incentives fail. CEPI was launched at the 2017 World Economic Forum with financial support from the Norwegian

and German Governments, the Bill and Melinda Gates Foundation and Wellcome Trust. In addition to funding, the Norwegian Government has supported the Interim CEPI Secretariat in Oslo since 2015 by seconding staff from the Norwegian Institute of Public Health and providing infrastructure while CEPI is in its establishment phase.

PORTUGAL

Portugal has been supporting the Global Health Security Agenda (GHSA) since its creation and remains committed to developing national and international synergies to improve global security. Within our capacities to prevent, detect and respond to infectious disease threats Portugal has contributed within several packages over the past years (2016-2017).

At national level a new PHEOC (CESP – Centro de Emergências em Saúde Pública), from October 2016 onwards, has been implemented, aiming at support early detection, rapid risk assessment and fast response to public health threats. The implementation of the CESP was an opportunity to reinforce the responsibility to reduce the emergence of outbreaks, and building up stronger capacity through training of health professionals within detection, prevention and response to threats; a simulation exercise took place in order to test the new equipment and procedures of the CESP; in the last 12 months, 20 professionals have been trained in PH emergencies, including the dissemination of integrated early warning and response system at local and regional level in the country.

To combat antimicrobial consumption and antimicrobial resistance, Portugal, through DGS/ PPCIRA (a National Priority Programme) has developed several policies aimed at defining structures, standardizing objectives and transversal obligations for health units (Order no. 15423/2013), indicators in infection control (IC) and AMR (Order No. 3844/2016), in addition to implementing good practice standards (PBCI) and maintaining Epidemiological Surveillance programs in the areas of HAI, AMR and Antimicrobial Consumption.

As a future strategy, Portugal is involved through PPCIRA/DGAV(veterinary)/APA (environment), in creating and implementing legislation and guidelines for “ONE HEALTH APPROACH” involving animal, food, pharmaceutical and research areas. With the implementation of these ministerial policies in the area of infection control and AMR, Portugal shows a 30% reduction in consumption of quinolones, both at the outpatient and hospital level; regarding carbapenems the decrease is not so expressive but one may confirm a trend. Regarding resistance in Gram-positive bacteria, in particular methicillin-resistant *Staphylococcus aureus*, there has been a significant reduction since the implementation of the MRSA standard (<21%) and, above all, this decrease has been sustained.

Portugal has participated in international training and hosted and co-coordinated with WHO-Europe and GOARN, the regional training focus on international deployment aiming to response to major global outbreaks.

In July 2017 an agreement between the Kingdom of Spain and the Portuguese Republic was signed, strengthening collaboration on environmental, entomological and epidemiological surveillance, as well as deepening cooperation in vector-borne disease control.

Portugal is focused in a number of GHSA key areas, including Biosafety and Biosecurity, Vaccination preventable diseases and ongoing work to address antimicrobial resistance (AMR). Portugal is also committed to the IHR implementation and recognizes its critical role in strengthening global health security and acknowledges the important role of GHSA in the development of the World Health Organization’s (WHO) Joint External Evaluation (JEE) of the IHR. At the core of the Portuguese commitment to the GHSA is a multisectoral and cooperation approach at the national level.

As one of the leading countries for Action Package 3 – Biosafety and Biosecurity, Portugal recognizes the existence of reliable laboratory capacity as a key element to strengthen the Public Health system and ensure the rapid response to biological threats.

Activities developed and implemented in Portugal in this area include

- Reinforcement of the laboratory capacity either in number of infectious microorganisms detected and rapid methods implemented (e.g. whole genome sequencing);
- In case of need, Lab working 24/7 permanence at the National Institute of Health, reference laboratory for emergence threats for public of biologic origin;
- Organization of a Network for BSL-3 laboratories to strength biosafety and biosecurity practices and minimum quality standards;
- Organization of an annual workshop on Biosafety and Biosecurity;
- Organization of a Seminar on CBRN agents

On the other hand, agreements have been developed for stronger collaboration with African Countries where Portuguese is the official language (Angola, Cabo Verde, Guinea-Bissau, Mozambique, São Tomé e Príncipe) within INFOSAN.

The country is committed to contribute to the dissemination of the AP3 of GHSA:

- Portugal has been part of a collaboration project between the national health institutes of Portugal (INSA) and Guinea Bissau (INASA), with the financial support of the CDC (USA) through the International Association of Public Health Institutes (IANPHI). This project includes laboratory training and strengthening local know-how. Courses on Biosafety and Biosecurity and Transport of Infectious Sub-
- stances allow the certification of several public health workers not only from INASA but from several other laboratories (other hospitals and from the veterinarian laboratory). Also participation in the FETP courses ongoing on Guinea Bissau.
- During the past year Portugal provided training courses on Transport of Infectious substances in Cape Verde and São Tomé e Príncipe, also allowing their certification.
- Facilitating information exchange through bilateral and eventually regional voluntary visits, e.g. support to the investigation of an outbreak in São Tomé e Príncipe.

SENEGAL

Republic of Senegal Ministry of Health and Social Action Health Emergency Operation Center

Simulation Exercises for Better Preparedness

The GHSA program began in Senegal in 2015 with laboratory systems, surveillance, workforce development, and emergency management as its main focus. In the two years since, much progress in capacity building for the prevention, detection and response of infectious disease emergencies has been made throughout the country.

This report describes the important role of simulation exercises in the success of GHSA in Senegal.

The establishment of the Health Emergency Operations Center (HEOC) in 2014 was based on the Senegalese authorities' desire to strengthen the health system in its capacity to manage emergencies. The GHSA program has supported the establishment and development of the HEOC through training of its personnel and reinforcing its ability to intervene in emergencies. The ability of the HEOC to carry out the simulation exercises by itself

represents remarkable progress. These exercises are a very important step in both preparation and response, allowing the HEOC to test its plans and procedures as well as the capacity of key stakeholders to work in a multi-sectoral, multidisciplinary framework.

After the initial training of HEOC staff on simulation exercise methodology provided by DTRA, CDC and WHO, several exercises (including the first in the history of the Ministry of Health) have been conducted by the team of the HEOC as part of its simulation program, with each one developing the HEOC's ability to master this concept from the beginning to the end.

There have been seven tabletop exercises and one full-scale exercise, all conducted by the HEOC and all financed by GHSA. Some highlights are below:

Measles outbreak – Tabletop Exercise

This exercise was carried out with teams of the Ministry of Health's Department of Prevention, in charge of disease surveillance and Senegal's Expanded Program on Immunization. It was intended to familiarize participants with the Incident Management

System and also to see how to manage the integration of external staff into the HEOC response. It also revealed areas for improvement at the regional and national levels, in the case of an epidemic of an infectious disease such as measles.

Rift Valley Fever outbreak – Tabletop Exercise

This was the first exercise with Livestock and Agriculture sectors using the "One Health" approach. This approach made it possible to highlight gaps in information sharing between the different sectors and above all to emphasize the importance of working together to control zoonotic disease outbreaks and manage related problems such as the

movement of herds, sentinel surveillance, vaccination of livestock, and disposal of carcasses. The lessons learned in this exercise were later able to be put into practice by the HEOC and stakeholders in the management of suspected cases of Rift Valley Fever and Crimea-Congo Hemorrhagic Fever.

Mass Casualty Event – Tabletop Exercise

The HEOC led and assisted five hospitals in the drafting of their mass casualty plans. A tabletop exercise was held in each of these hospitals to test their plans. These exercises revealed areas of improve-

ment in the plans and especially allowed HEOC and hospital personnel to become familiar with a planning technique that they can reproduce easily and regularly.

Mass Casualty Event – Hospital Field/Full-scale Exercise

After drawing up the hospital mass casualty plans and conducting the table exercises in the five hospitals, a large-scale exercise was organized at the regional hospital in the city of Kaolack, 180 km from Dakar. The exercise, which involved nearly three hundred people, in both responder and victim roles, was aimed at assessing the management of a mass influx of wounded and their families into the Emergency Department, as described in the plan.

The HEOC simulation exercises, from tabletop to large-scale exercises, are a vital tool for developing and maintaining responsiveness. The practice of simulation exercises must be mastered by each GHSA country and should be the main tool for testing plans and procedures.

SPAIN

Spain Contributions to “Successful Stories”

Spain considers Biosecurity as a matter of National Security, and attaches great importance to the potential risks of bioterrorist acts as well as natural or accidental outbreaks.

Spain is an active member of all related international initiatives, such as the Global Partnership Working Group (GP), the Global Health Security Agenda (GHSA), the Convention for the Prohibition of Bacteriological (Biological) and Toxin Weapons (BTWC) and the UN Security Council Resolutions 1540 (2004) and 2325 (2016)

Over the years Spain has been taking initiatives, in the best of its capacity, within the APP3 of the GHSA, which are specifically addressed to the Spanish speaking Latin-American countries in a set of different ways under the Spanish Voluntary Visits Program.

The approach to several Spanish speaking Latin-American countries has always been on a “case by case” and “step by step” basis, by means of “equal

footing” exercises focused on both, strengths and weaknesses in Biosafety and Biosecurity. These exercises consisted of: Workshops, Voluntary Visits in several forms (including off-site and on-site facility evaluations), Specific Publications, and Seminars addressed to specific issues on Biosafety and Biosecurity.

The most recent activity was a seminar on “Biosafety and Biosecurity: Strengths and Weaknesses”, that took place in Madrid (May 2017) as part of the Spanish Voluntary Visits Program for Latino-American countries. Seven Latino-American countries, plus Spain, participated in the Seminar: Chile, El Salvador, Guatemala, Panamá, Paraguay, Perú and Dominican Republic.

Spain and Chile have signed this year a Memorandum of Understanding in matters related to Biosafety and Biosecurity. Both countries have taken the first steps in order to organise in 2018 a Regional Seminar on Biosecurity.

SWEDEN

Sweden remains committed to strengthening global health security. This includes support for the implementation of the International Health Regulations and the Performance of Veterinary Services Pathway. Sweden has fully implemented the International Health Regulations which are an integrated part of the Swedish Crises Management System. Sweden is one of the leading countries in the Global Health Security Agenda (GHSA) Antimicrobial Resistance (AMR) Action Package and leads its surveillance subgroup. Sweden is also a contributing country of the GHSA Zoonotic Disease Action Package.

Sweden's commitment translates into a range of activities related to IHR and GHSA. Sweden seeks to promote synergies with ongoing activities in other international fora. This concerns, among other things, exchange of experiences and development of standards and regulations. There is support for the tripartite and engagement globally to promote a One Health approach to health security, as well as to food security and safety. As the largest member state contributor of Core Voluntary Contributions to WHO, Sweden contributes also financially to the implementation of IHR.

The Swedish Government and specialized government agencies contribute to dedicated activities on a regular basis, through bilateral and multilateral mechanisms. Experts from the Public Health Agency of Sweden continue to participate in Joint External Evaluations to assess IHR capacities in other countries and also participates in the country planning process that follows. Sweden supports the ongoing emergency reform of the World Health Organization (WHO).

The Swedish AMR-related contributions to GHSA are based on a long tradition of work in the area. A success factor has been early local commitment

across sectors and levels, coupled with allocation of resources. In both human and animal sectors, treatment recommendations as well as infection prevention and control are instrumental to achieve rational use of antibiotics. For example, animal welfare is a cornerstone and antibiotics use in animal husbandry is the lowest in the European Union.

The Swedish Government prioritises the work against antibiotic resistance at both national and international levels, as demonstrated for by the Swedish strategy to combat antibiotic resistance from 2016. To this end, key frameworks for the work against AMR include the Global Action Plan on AMR, the 2030 Agenda for Sustainable Development and the follow up of the high level meeting on AMR in the UN General Assembly. The Swedish Government recognizes the importance of working across sectors, including human and animal health, the environment, research, education, trade and international development cooperation. Against this background, several Swedish authorities and non-governmental actors are working at different levels and from different angles.

For example, the Public Health Agency of Sweden supports WHO in the implementation of the Global Action Plan on AMR. A WHO Collaborating Centre was designated at the Agency in 2016, with a focus on the new Global AMR Surveillance System. The activities encompass capacity building at country-level through bilateral and multilateral mechanisms. The Agency has also initiated a dialogue with the US CDC to look into possibilities to collaborate in supporting countries in the development of IHR related capacities. The Swedish University of Agricultural Sciences has collaborated with counterparts in Tajikistan to strengthen prevention and detection of zoonotic diseases.

SWITZERLAND



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Home Affairs FDHA

Federal Office of Public Health FOPH
Division of International Affairs

Switzerland Successes, progress and commitments

Switzerland supports the GHSA in its scope to strengthen implementation of the International

Health Regulations IHR, fight against antimicrobial resistance and national laboratory system.

Strengthening implementation of IHR

Switzerland is fully committed to improving and accelerating the implementation of IHR. Switzerland welcomes the development of the Joint External Evaluation tool to evaluate a country's IHR capacity

for ensuring health security, and is candidate for such an evaluation which is going to take place from 30th October to 3rd November 2017. Switzerland also intends to provide technical experts to WHO's JEEs.

Executive programme on addressing challenges in global health security

Switzerland has organised in February 2016 and 2017, under the umbrella of the Geneva Centre for Security Policy GCSP, an Executive Programme on Addressing Challenges in Global Health Security. A

new edition is going to take place from 29th January to 1st February 2018. Switzerland is pleased to offer with this programme a concrete contribution to the GHSA initiative.

Antimicrobial Resistance

In Switzerland, the aim to mitigate the rise of antibiotic resistance is at the forefront of the political agenda. An ambitious national strategy following a One Health approach has been adopted in November 2015. The strength and novelty of this strategy is that strategic objectives engage disciplines of human and animal health as well as agriculture and the environment. A five year research programme on AMR has also been adopted aiming at investigating urgent issues in this field. Switzerland has adapted a number of regulations to strengthen the surveillance of antibiotic resistance and the appropriate use of antibiotics in human and veterinary medicine. A new regulation on the use of antibiotics in veterinary medicine has recently been adopted aiming at scrutinizing and reducing the use of antibiotics for prophylactic treatment.

In order to significantly reduce the entry of antibiotic residues into the environment, specific wastewater treatment plants in Switzerland will successively be upgraded with an additional treatment step. With

this upgrade, Switzerland is assuming a pioneering role which has attracted lots of international interest.

Switzerland considers that public-private partnerships can play an important role for R&D of new antimicrobials and diagnostic tools. Switzerland has therefore recently decided to extend its financial support to the Global Antibiotic Research and Development Partnership (GARDP) launched by DNDi.

In order to identify best practices Switzerland published in 2015 a comparative study on various national AMR strategies, a copy of which has been addressed to all GHSA Member States. Switzerland also visited some of these countries to learn from their experience during the implementation phase. In this respect, Switzerland greatly appreciated the opportunity for a Swiss delegation to visit their counterparts in the Netherlands (2016) and in Norway (2017).

National Laboratory System Strengthening

This subject has been identified by the Swiss Spiez Laboratory, Federal Institute for CBRN-Protection, as an area in which Switzerland can bring its expertise to the table. The international experience of Spiez laboratory has already brought results in this field. One example has been the Swiss commitment to WHO, GOARN and EMLab in Guinea in connection with fighting Ebola in Western Africa. International cooperation is highly valued in this field and will 2/2

be further explored, in the form of capacity building activities and the offer of internships.

Switzerland has set up a nationwide network of regional laboratories coordinated by a committee at the Federal level. This can serve as a model system for other countries with similarly decentralized structures.

TANZANIA

Progress Towards Achieving Health Security in Tanzania

Since adoption of the International Health Regulations (IHR) (2005), Tanzania has been monitoring implementation of its core capacities using the “WHO Self Evaluation” tool and submitting reports to the WHO on an annual basis. As a way to spur progress toward full implementation of the (IHR), in August 2015, Tanzania joined the Global Health Security Agenda (GHSA) initiative, which aims to contribute in addressing health security issues at the global level as well as accelerate IHR implementation in the country.

In February 2016, Tanzania became the first country globally to conduct the Joint External Evaluation (JEE) that assessed its 19 selected core capacities to prevent, detect and respond to public health events and to further comply with IHR. The JEE was conducted across sectors and levels, by in-country experts and external, included recent existing assessments. The findings demonstrated that although there has been significant progress, gaps still exist in key core capacities. No core capacity attained sustainable capacity (score 5), and the majority lied between limited to developed capacity (score 2 to 3).

Tanzania Mainland JEE 2016 Baseline Scores

Very Limited Capacity (score =1)	Limited Capacity (score = 2)	Developed Capacity (score = 3)	Demonstrated Capacity (score = 4)
Antimicrobial resistance	National Legislation, Policy and Financing	IHR Coordination, Communication and Advocacy	Immunization
Emergency Operation Centre	Zoonotic Disease	National Laboratory System	Real Time Surveillance
	Food Safety	Chemical events	Workforce Development (Field Epidemiology Laboratory Training Program)
	Biosafety & Biosecurity		
	Reporting		
	Workforce Development (Animal workforce)		
	Preparedness		
	Linking Public Health and Security Measures		
	Medical Countermeasures & Personnel Deployment		
	Risk Communication		
	Points of Entry (PoEs)		
Radiation Emergencies			

Zanzibar, a semi-autonomous archipelago of the United Republic of Tanzania, also conducted the JEE and has scheduled to develop its National Action Plan for Health Security (NAPHS) later in 2017.

In November 2016, following the JEE, a NAPHS was developed and later costed in 2017, with WHO and country experts. The activities outlined in the plan aim to build resilience and strengthen and maintain the national capacities to prevent, detect and respond to outbreaks and public health events in order to reduce morbidity, mortality, disability and socio-economic disruptions. In addition, the plan provides for a conducive environment to contribute to the Sustainable Development Goals.

The implementation of the plan considers a set of guiding principles and core values such as country ownership and leadership; community participation; gender and human rights principles; equity in access to services; strengthening partnerships; fostering inter-sectoral collaboration; evidence-led; shared responsibility; transparency; resilience and dynamism. The plan aligns activities with the One Health approach and broader health system strengthening.

The total costs for implementation of the plan for 5 years is USD 86,586,339, with the “Detect” component at USD 50,329,373 (58%) followed by “Prevent” at USD 22,054,730 (25%). The other costs include “Other IHR related hazards and Points

of entry” at USD 9,281,500 (11%); “Response” at USD 4,850,782 (6%) and cross cutting issues at USD 69,955 (0.1%). Inclusion of the animal vaccines increases the cost of the plan to USD 603,158,558. Funds for implementation of the plan are expected to come from domestic and external sources.

Implementation, monitoring and evaluation of the NAPHS will be under the guidance of the Prime Minister’s office through an inter-ministerial committee comprising of representatives from all relevant line ministries. This committee will be accountable to the Prime Minister’s Office and will have inputs from development partners. A NAPHS Task Force has been established and is tasked with providing technical guidance on implementation of the plan.

The Government of Tanzania continued its trend of being “first” internationally in taking next steps to fulfil its commitment to the Global Health Security Agenda (GHSA) with a formal launch of a costed National Action Plan for Health Security. The well attended September 8, 2017 event in Dodoma, the nation’s capital, was aimed at raising awareness of the plan, ensuring domestic financing, and advocating for local support. The launch included Chairs of Parliamentary Committees and ministerial level officials from the Ministry of Health, Community Development, Gender, Elderly and Children; Ministry of Ag-

riculture, Livestock, and Fisheries; Ministry of Public Service Management and Good Governance; Ministry of Environment and Union Affairs; Ministry of Natural Resources and Tourism; Ministry of Finance and Planning; Ministry of Health for Zanzibar, and the President’s Office -Regional Administration and Local Government. Representatives of the World Health Organization, Food and Agriculture Organization and Centers for Disease Control and Prevention (CDC) attended and supported the event along with other development partners including the U.S. Agency for International Development (USAID), the World Bank, the United Kingdom’s Department for International Development, German Development Agency, African Medical and Research Foundation (AMREF) and Program for Appropriate Technology in Health (PATH).

While presiding over the event, the Minister of Health presented the NAPHS as a whole-of government document that now needs parliamentary and inter-ministerial commitment and financial legislation in order to secure Tanzania against outbreaks by preventing, detecting, and responding to health threats throughout the country. **The Government of Tanzania is committed to play its role to ensure the success of the GHSA both nationally and internationally.**

THAILAND

EXECUTIVE SUMMARY

Among others identified 11 Action Packages of Global Health Security Agenda (GHSA), led by South Africa, Thailand and USA, GHSA Detect 1, National Laboratory System aims to strive for “Real-time bio-surveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics”.

Building upon the results transpiring from the 1st Workshop “Enhancing Regional Partnership Towards strengthening Laboratory System”, the 2nd Workshop of GHSA Detect 1 was jointly conducted during 8-10 February 2017, at Richmond Hotel, Nonthaburi, Thailand, by the two concerned Ministries one of lead countries of GHSA Detect 1,

Thailand through the Department of Medical Sciences, Ministry of Public Health and the Department of Livestock Development, Ministry of Agriculture and Forestry under the theme “Enhancing Joint Collaborative Efforts for Lab Preparedness”. This regional platform intended to updating on LSS Roadmap implementation from member countries, sharing experiences of major outbreaks, enhancing network of animal health lab and human health lab, as well as fostering linkages among national laboratory system with others relevant GHSA Action Packages such as Prevent 1: Antimicrobial Drug Resistance (AMR), Prevent 2: Zoonotic Diseases, and Detect 5: Workforce Development

Summary report on 2nd Workshop of GHSA Detect 1: “Enhancing Joint Collaborative Efforts for Lab Preparedness”, 8-10 February 2017, Thailand

The Workshop was attended by representatives of both animal health laboratories and human health laboratories from many countries including:

- § GHSA Chair, Republic of Korea;
- § Lead countries [USA, Thailand, Tanzania and South Africa];
- § Contributing countries [China, Canada, Japan, and Malaysia];
- § ASEAN Member States [Brunei Darussalam, Cambodia, Lao PDR, Indonesia Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam];
- § South East Asian Association for Regional Cooperation (SAARC) [Afghanistan, Bangladesh, Bhutan, India, Maldives, Pakistan, Sri Lanka, Nepal]; and
- § Timor Leste.

Experts and 11 key developments partners are also in attendance to join efforts with nations including FAO, OIE, WHO [Headquarter, Western Pacific Region, South East Asia Region, and Thailand], USAID [Headquarter, Indonesia, and Thailand], U.S. Department of Health and Human Services (HHS) and the U.S. Centers for Disease Control and Prevention (CDC); TUC, JICA, Armed Forces Research Institute of Medical Science (AFRIMS), Defence Threat Reduction Agency (DTRA), and Global Partnership Program (GPP Canada)].

Key themes for the workshop included identifying joint collaborative efforts across action packages and regional networks; and establishing strong linkages between other action packages including Anti-Microbial Resistance (AMR) and zoonosis.

Anti-Microbial Resistance (AMR) related to laboratory was presented by experts and there were visits to AMR labs at the National Institute of Health and National Institute Animal Health. The participants discussed on how to strengthening coordination and collaboration between human health laboratory and animal health laboratory in advancing lab preparedness and responses.

Countries shared experiences on national lab preparedness for zoonotic and One Health diseases such as Ebola, MERS, and Nipah Virus outbreaks. During break-out sessions, the multi-sector participants used the Strategic Roadmap on Laboratory System Strengthening [2016-2020] developed in the first GHSA Laboratory Action Package Meeting to outline gaps, challenges and areas of future collaborations.

As a side meeting, led by Indonesia and Thailand, the participants and key development partners such as WHO and FAO had a meeting to draft a general Material Transfer Agreement (MTA) template to facilitate stronger regional One Health partnerships.

Highlights

- a) Direction of GHSA Chair, Korea for 2017 “ACE” --- Action Package, Capacity building, Evaluation;
- b) Sharing experiences and lessons learnt, and using common sites as repositories of information and updates (such as ghsagenda.org);
- c) Broadening of One Health Concept which is a tremendous model for other Action Packages;
- d) Began discussion on the concrete linkages of the Action Packages – AMR, Biosafety & Biosecurity, Emergency Operation Centers (EOC); Workforce was identified as another Action Package that would benefit from identifying and building linkages, including and beyond the epidemiology focus of that Action Package.
- e) AMR related issues for laboratory are large and under-supported. Issues include quality assurance, utilization of data; engagement with regulatory authorities, epidemiologists & clinicians/veterinarians. There are more laboratory resources for human health laboratories which could be shared or adapted to the animal health sector.
- f) Laboratory preparedness is crucial. It's important to prepare plans for outbreaks and unexpected events & to share these plans and lessons learned. Each outbreak response provides us with an opportunity to improve the process.
- g) While some progress has been made, to properly address GHSA goals there must be stronger collaboration between animal health and human health;
- h) There is an opportunity to develop laboratory activities for AMR and Zoonotic Diseases which will connect these action package to achieve goals;
- i) Workforce issues are a major gap and barrier which must be addressed. The Workforce Action Package should also include laboratory personnel, additionally advocacy and strategic planning are needed to address workforce issues in both the human and animal health sectors. Recommendation—support a workshop focused on laboratory workforce

Take Home Messages and Recommendations

Take Home Messages

- a) Countries should conduct a Joint External Evaluation (JEE) if they have not done so and also use a Laboratory Mapping Tool (LMT) (such as FAO and WHO) to gather information about the animal and human health laboratories' performance.
- b) Recommend that the UN Tripartite [FAO, OIE, WHO] clarify the concrete and tangible linkages among their lab assessment tools (WHO International Health Regulations (IHR), OIE Proficiency of Veterinary Services (PVS), Laboratory Mapping Tool (LMT), etc.) and with the Joint External Evaluation (JEE) and work to harmonize these assessment tools. Also, recommend that all partners leverage these and other One Health tools including “Four Way Linking” and the World Bank's work on Sustainable Financing for Global Health Security to achieve GHSA and JEE goals.
- c) Encouraging countries to utilize the Strategic Roadmap on Laboratory System Strengthening [2016-2020] as a tool to achieve the GHSA goals and Joint External Evaluation (JEE) targets;
- d) Strengthening roles of lead countries and contributing countries to achieve their National GHSA goals, while developing tools, practices and activities to help countries- regionally and globally achieve GHSA goals.;
- e) Continue to build upon laboratory networks such as ASEAN and SAARC Lab Directors Forum; and African Society for Laboratory Medicine (ASLM), etc. Explore mapping MTAs in the region to better understand existing networks and improve collaboration and sharing.
- f) Advocacy on the importance and needs of laboratories is needed at high levels;
- g) Encourage countries' commitments/contributions to achieve common GHSA goals based on the measurable indicators and findings through JEE's and other tools; and

h) Identifying possible collaborative regional activities of animal health and human health lab such as training on AMR surveillance; and Exter-

nal Quality Assurance (EQA) on AMR. (Thailand offered to host)

Recommendations

- a) Continue to use the Laboratory Action Package Group to develop and define a few targeted tangible cross-cutting activities to address gaps and link to other relevant action packages.
- b) Large gaps identified include specimen transport, human resources, lack of EQA, low bio-safety and biosecurity (BSS), weak AMR testing capacity. There is a need to ensure focus on all 4 laboratory indicators within the JEE but also others which apply to labs in AMR, Zoonosis, BSS, workforce, and reporting.
- c) Identify activities which truly integrate animal and human health laboratories.
- d) Examples-- Integration of laboratory mapping tools, joint training, assistance to adapt protocols and reagents for animal and human health, etc.

Summary

1. Development and sustainability of regional and national multi-sectoral strategic roadmap for laboratory in participating Asia-Pacific countries is achieved .
2. Regional and national networks between animal and human health sectors in Asia-Pacific Region is established through series of regional activities
3. Activities to strengthen regional network and capacity of national laboratory systems in participating Asia-Pacific countries with One Health approach are identified. Some activities such as Bioengineering control project and training on stepwise improvement of Laboratory quality system are implementing.

UGANDA

Global Health Security Achievements

Uganda has a rich and successful history in GHSA, from serving as a GHSA demonstration project in 2013 to being a leading Phase I Country with significant achievements and ongoing activities in all GHSA Action Packages in 2017. Uganda was one of five pilot GHSA member States to volunteer for GHSA External Assessment for the eleven Action packages in February 2015. Uganda has now become the first GHSA Member to conduct a second external assessment having just completed its first JEE in June 2017. We are now actively engaged in developing a post-JEE action plan.

Uganda has served as lead and co-lead for JEEs in multiple countries, including the United States, Tanzania, Bangladesh, and Ethiopia.

Uganda is the first African state and GHS-affected country to host the currently ongoing 4th GHSA Annual High-Level Ministerial Meeting (October 25-27, 2017).

Uganda contributed to responders (National Rapid Response Team) to the West African Ebola outbreak as well as guidelines, SOPs and tools which were developed in Uganda and used to respond to the outbreak

Following is an overview of Uganda's Global Health Security achievements efforts in the recent past

Surveillance

The country has built capacity for surveillance in all the 118 districts and linked them to National Health Information Systems and a National Health Laboratory System which has been internationally accredited.

A GHSA flagship project has been established in Uganda focusing on non-malarial Acute Febrile Illnesses (AFI) that includes a sentinel surveillance network in pediatric inpatient wards of six regional referral hospitals for non-malarial illnesses.

- The AFI project aims to expand diagnostic capacity including serology and blood culture for non-malarial infections and comprises an antimicrobial resistance (AMR) surveillance and testing component, while expanding in-country reference capacity.
- Data generated by this project is trackable in real-time on an integrated HMIS/DHIS2 web-based platform called eIDSR. This platform built by the Health Information System Project (HISP) further expands the capacity to inform global surveillance and reporting and comply with the International Health Regulations IHR (2005) at national and subnational levels.
- The AFI flagship project has enabled improved data collection, management, reporting, and stewardship for IDSR, and has improved the EOC's data access and reporting. This project plans to include all regional reference hospitals by 2019.
- Uganda Virus Research Institute (UVRI) supports plague surveillance in multiple clinics and at the community level through the involvement of traditional health practitioners across NW Uganda, in the West Nile Region.
- WHO and the US Government have been supporting district and sub-district training for Integrated Disease Surveillance and Response (IDSR) surveillance and reporting as well as specimen collection. The District Level Epidemiology Training Program (DLETP) has covered 53 districts to date.
- Uganda has built and expanded an efficient and sustainable national specimen transport and referral system that has become a model in the region.
- Makerere University Infectious Disease Institute has developed a plan to strengthen and coordinate IDSR capacity including prevention and detection in the refugee-hosting districts of Northwestern Uganda where the refugee influx is expected to approach 2 million by the end of 2018. Implementation has started in Q3 of 2017.

Laboratory Strengthening and Biosafety/Biosecurity

- Partners' investments in Ugandan laboratory diagnostic capacity building have allowed the Uganda Virus Research Institute (UVRI) to function as a Regional Reference Laboratory for filovirus (BSL2) and arbovirus diagnostics and outbreak investigations.
- Uganda's new National Health Laboratory Services built with US support in 2015-16 have been accredited by the South African National Accreditation System. Partners are supporting the establishment of this laboratory as a National AMR Reference Laboratory along with enhanced Microbiology diagnostic capacity at 6 Regional Referral Hospitals sites.
- A Select Agent Mapping Exercise (national inventory of select agents) carried out in 2016 in collaboration with the US and Netherlands Ministries of Health, helped document and record Ugandan facilities handling or storing special pathogens while enabling the Uganda National Council of Science and Technology to provide biosafety and biosecurity guidance and stewardship to laboratory facilities.
- Uganda's MoH in collaboration with the USA, the Netherlands, and other GHSA partners hosted the first East African Community (EAC) Biosafety & Biosecurity Conference in Nov. 2016
- A Biosecurity Bill along with a National Biosecurity Manual, Biorisk Management Policies and a National Taskforce to provide oversight for biosafety and biosecurity have been developed with the support of Sandia National Laboratory and the US Defense Threat Reduction Agency (DTRA).
- The National Animal Diseases Diagnostic Epidemiology Centre (NADDEC) with BSL2 and has serotyping capacity is carrying out activities for accreditation process
- There is a Plague Research Laboratory in Northern Uganda in Arua district and a Wildlife laboratory, in Queen Elizabeth National Park, for surveillance and diagnostics including a training centre.

Emergency Response

- Developed under the 2013 GHS Demonstration Project, Uganda's Public Health Emergency Operation Center (PHEOC) serves as a benchmark for GHSA Phase I EOC success.
- Uganda's PHEOC hosted 14 African States in 2016-17 to showcase best practices and conduct WHO and US CDC-supported simulation exercises.
- From 2016 – 2017 the Uganda PHEOC responded through a coordinated multi-sectoral effort to multiple outbreaks including: Yellow Fever (2016); Rift Valley Fever (2016); Neisseria Meningitis W135 (2016/2017); Highly Pathogenic Avian Influenza H5N8 (2017); Crimean-Congo Hemorrhagic Fever (2017); multi-drug resistant tuberculosis (2017), Cholera (2017), Anthrax (2017); and Marburg (2017). Time for detection and response has been consistently from 24 to 72 hours from notification to sample collection and confirmatory diagnosis. This has been complemented by the establishment, training and deployment of multi-sectoral and multi-disciplinary National and District Rapid Response Teams (NRRT and DRRT) in collaboration with the World Health Organization (WHO) and the US Government (USG).
- Within the GHSA and IHR mandates, outbreak response and surveillance capacity continue to support and develop Uganda's National Rapid Response team (NRRT). MoH has staffed official rosters of NRRT team members and multiple demonstration exercises have occurred.
- Uganda's Field Epidemiology Training Program (FETP) Residents and PHEOC staff have received incident management system (IMS) training and capacity building through tabletop exercises in emergency management

Workforce Development

- The first cohort of Advanced (2-year curriculum) Field Epidemiology Training Program (FETP) Fellows graduated in February 2017. Fellows participated in over 50 outbreak investigations. Second and third cohorts are currently enrolled.
- The FETP Advanced program is modeled after the US CDC's Epidemic Intelligence Service curriculum and serves as a complement to MoH/Makerere University Public Health Fellowship Program.
- To date, 81 of 118 districts have received training through a combined approach between FETP Frontline (3-month) curriculum and a District Level Epidemiology Training (DLET). The vision for this combined program is to train staff concurrently in all 118 Districts. To date, 70% of targeted districts has been covered.
- The National Health Laboratory Services has assembled a full team of microbiologists and molecular biologists that enables the Laboratory to provide HIV DNA and RNA detection and quantification services for infants and adults in the whole country and is building its capacity to provide advanced microbiology diagnostic and resistance testing.
 - *The first cohort of the Association of Public Health Laboratories (APHL) Emerging Leaders Program graduated in February 2017. This is a one-year workforce development program focused on laboratory technical training with 14 participants in collaboration with Uganda Central Public Health Laboratories (CPHL) and MoH.*
 - *The first cohort of APHL's Global Laboratory Leadership Program is set to begin on January 2018. This is a pilot effort to train 8-10 candidates through a two-year post-graduate laboratory management and leadership program similar to the Advanced FETP.*

Antimicrobial Resistance (AMR)

- GHSA activities have contributed to the establishment of a National AMR Taskforce and National AMR Action Plan.
- Uganda's MoH Epidemiology and Surveillance Division (ESD) and Regional Referral Hospitals are integrating AMR and routine surveillance data produced by the AFI Flagship Program
- Capacity and workforce development for Microbiology has been built at Uganda National Health Laboratory as well as at six Regional Referral Hospital Labs.
- The Government of Uganda was selected by the UK's Fleming Fund to pilot projects on AMR. The plans are to expand and address AMR surveillance, laboratory and explore AMR workforce development opportunities in Uganda – a scoping mission is planned for Q4 FY17.

Immunizations

- At request of WHO with support from Uganda's MoH Expanded Program on Immunization (EPI) and the US CDC, a fractional dose study for Yellow Fever vaccine will be conducted in Uganda to compare the protective efficacy of one-half vs one-fifth of the current vaccine dose for children aged 9-23 months. The study protocol has been finalized and is currently under ethical review.

Zoonotic Diseases

- Uganda continues to build surveillance systems for both human and animal diseases and remains a strong advocate of the One-Health approach since 2013.
- A ONE HEALTH Platform has been established as a major achievement through MOUs with relevant ministries (MAAIF, UWA, Water and Environment and Health) and the designation of a secretariat, the Zoonotic Disease Coordinating Office (ZDCO)
- A Zoonotic Disease Coordination Office (ZDCO) was launched in October 2016 to lead in coordinating zoonotic diseases surveillance and One Health activities across critical sectors. The ZDCO is housed within the MOH National Institute of Public Health (NIPH) and the Public Health Fellowship Program.
- A ZDCO strategic plan in the final phases of development
- Uganda with support from WHO, FAO and CDC conducted a zoonotic disease prioritization exercise in March 2017 with broad participation of GOU sectors and partners. The exercise resulted in the classification of seven priority zoonotic diseases and cross-cutting recommendations for GHS implementation in lab capacity, surveillance, emergency management, and public health diplomacy.
- On July 27, 2017, ZDCO was proposed to be renamed “One-Health Platform Coordination Office” and to encompass antimicrobial resistance.

Medical Countermeasures

- Uganda National Institute of Public Health received training in Medical Countermeasures by the CDC Division of Strategic National Stockpile (DSNS). Currently the country is working on a draft National Medical Countermeasures Supply Chain Plan.

Linking Public Health with Law Enforcement

- Uganda’s Public Health Officers (both for animal health and human health) have been trained together with Security personnel in linking public health with law enforcement. Currently the country is working on a draft Memorandum of Understanding between Public Health and Law Enforcement Government Sectors.
- Uganda’s Ministry of Security has listed priorities it deems important to work on together with health partners, and is specifically soliciting for support from CDC.

UNITED KINGDOM

To support the Global Health Security Agenda (GHSA), the United Kingdom (UK) has made significant contributions to anticipate, prevent, detect and respond to health threats that have the potential to transcend national boundaries, including epidemic outbreaks and anti-microbial resistance. The UK

has a coherent and balanced programme, based on current evidence, for prioritising investments across health systems strengthening, disease-specific interventions, anti-microbial resistance and research to enable an “all hazards, one health” approach and better coordination across programmes.

International Health Regulations Strengthening

Public Health England (PHE), working closely with Department of Health, is undertaking a £16 million project over a 5 year period (2016 – 2021) to strengthen international efforts to improve global health security, through increased compliance with the IHR. UK funding will contribute to action at national, regional and global, levels and lead to measurable strengthening of public health systems in 5 selected countries. Outcomes will be measured through improvements in JEE outcomes and other process indicators. In order to achieve the project goals, PHE is committed to working to support WHO leadership both at HQ and regional headquarters and the selected countries and regions.

Selected IHR project countries include Ethiopia, Nigeria, Sierra Leone, Pakistan and Myanmar.

Project activities across the five focal countries and associated regions will be closely aligned and supportive of country priorities for health system strengthening and reflective of the findings of our independent ISA. Consequently, though the detail of delivery remains to be defined, PHE will focus on providing targeted technical expertise on building capacity on laboratory systems, surveillance systems, emergency

planning and response, building chemical and environmental hazards and public health workforce.

Project Principles:

- Adopt ‘one health’ and ‘all hazards’ approaches (where possible).
- Support and align with international agencies, structures and donor efforts.
- Support approaches that are collaborative, sustainable and country-led (including integration with national budgets and actions plans).
- Be transparent and build the evidence base for effective IHR strengthening
- Integrate IHR capacity strengthening within health system strengthening.
- The JEE assessment and evaluation and the National Action Planning process will provide a baseline for any future activities.
- Strengthening input to cross government engagement on all hazards, ‘one health’ and AMR, through WHO wherever possible.

AMR

The UK continues to make progress on the three pillars of preventing infection, protecting the antibiotics that we have and promoting the development of new drugs, diagnostics and alternative treatments, together with supporting work around surveillance, research and international collaboration.

In response to the final report from the independent Review on AMR report, in 2016, the UK government announced new ambitions. This includes halving the inappropriate prescription of antibiotics

in humans and the number of healthcare associated Gram-negative bloodstream infections by 2021; cutting overall sales of antibiotics for use in livestock and fish farmed for food to 50 mg/kg by 2018, a 20% reduction in 4 years; and working closely with individual animal sectors to ensure that appropriate sector-specific targets reduction targets are agreed by the end of 2017. A first step has been to set the baseline for these ambitions and agree a series of interventions that, once adopted, should support their achievement.

Since April 2016, local health economies in England have been provided with the data they need to improve their infection prevention and control and antibiotic stewardship. The AMR local indicators profile is readily accessible to both health care professionals and the public. In 2016, the total consumption of antibiotics in the UK increased slightly from in the first year of the life of the strategy but has fallen overall from 2013 to 2015 (a 2% change). The number of items prescribed per head of population fell by 0.05, from 50,372,884 items in 2014 to 47,255,406 in 2015.

On the animal side, the 2015 UK Veterinary Antibiotic Resistance Sales Surveillance (UK-VARSS) report showed that the sales of antibiotics for food producing animals, including horses, dropped by 10% from 62 to 56 mg/PCU; taking it to the lowest level in four years, and total sales by weight dropped by 9% from 2014 to 2015. By the end of this year we will have sector specific targets in place.

The UK continues to be at the forefront of international efforts to tackle AMR through a range of international forums and commitments. Key highlights include the launch of the UN Groups of Friends on AMR, co-hosting a one year AMR side event at the UN General Assembly, and driving from ambitious AMR commitments at G20. On 12-13 October, the UK co-hosted a “Call to Action” on AMR, which took place in Berlin in partnership with the Inter Agency Coordination Group on AMR (IACG). It was the first of a series, bringing together international actors in AMR from across the human health, animal, agriculture and environment sectors to galvanise momentum towards transforming high-level commitments into tangible actions. The Berlin event was co-hosted with the governments of Ghana, the Kingdom of Thailand, the Wellcome Trust, and the UN Foundation.

The Fleming Fund

The UK’s £265m Fleming Fund aims to improve laboratory capacity and diagnosis as well as data and surveillance of antimicrobial resistance (AMR) through a ‘one health’ approach. The fund focuses on supporting countries in the development and implementation of their AMR National Action Plans through the development of protocols and the provision of technical assistance and grants. The fund will operate through five major work streams in lower and middle income countries through a series of regional and country level grants. The fund will provide country grants to 24 countries in Sub-Saharan Africa, South Asia and South East Asia. The fund also provides grants via our multilateral partners (WHO, FAO and OIE) to over 30 countries in the same regions.

The fund will;

- Support the development of National Action Plans for AMR.
- Develop and support the implementation of protocols and guidance for surveillance AMR and antimicrobial use.
- Build laboratory capacity for diagnosis.
- Collect drug resistance data.
- Enable the sharing of drug resistance data locally, regionally and internationally.

- Collate and analyse data on the sale and use of antimicrobial medicines.
- Advocate the application of data to promote the rational use of antimicrobials.
- Shape a sustainable system for AMR surveillance and data sharing.
- Support fellowships that aim to increase national leadership in addressing AMR.

Specific grants in 24 countries will aim to improve capacity for regular reporting of drug resistance and the sharing and use of data locally, nationally and globally through use of the Global AMR Surveillance System (GLASS). The UK is also co-funding a project alongside the Bill and Melinda Gates Foundation, and the Wellcome Trust to collect data on the burden of disease associated with drug resistant infections worldwide, and to ensure this data is globally accessible on the Global Burden of Disease study. This is delivered by the University of Oxford and the IHME.

Global AMR surveillance protocols have been developed through multilateral grants. The implementation of these protocols, together with a protocol for establishment of basic AMR surveillance in hospitals in low resource settings, will be a core component of Fleming Fund grants to countries.

Strong progress has been reported in the early intervention countries Ghana, Uganda, Nepal and Myanmar. Ambitious work plans have been developed, capability assessments are being conducted, and the staff and networks required to administer and

effectively manage the grant process are being put in place. We expect the first round of country and regional grants to be made in late 2017 with further countries invited to join in waves over subsequent years.

Zoonoses

Zoonoses highlights include;

- The proposed €45 million European Joint Programme Co-fund, One Health in Europe: Foodborne Zoonoses, Antimicrobial Resistance and Emerging Threats (ONE HEALTH EJP) has been approved for funding by the European Commission and will begin in early 2018.
- The ZELS (Zoonoses and Emerging Livestock Systems) Programme is now entering its final stages. This £20.5 million programme launched in 2012 funded a total of 11 projects in 11 developing countries, involving 19 UK research institutions.
- STAR-IDAZ IRC is involved in the coordination of global research activities on Brucellosis and influenza.
- The IMI funded Zoonotic Anticipation and Preparedness Initiative (ZAPI) is working towards:
 - Creating platforms that allow rapid identification and production of antibodies capable of neutralising emerging viruses.
 - Creating platforms suitable for rapid increases in the production of vaccines.
 - Enabling the development of quality control assays that do not make use of animals.
 - Establishing protocols for fast track registration of developed products.

Biosafety and Biosecurity

The UK has funded a project in Ukraine to develop educational material for use in relevant university courses at undergraduate level, building on material that we have funded previously at the University of Bradford; this is nearing completion.

We have also funded a twinning project between the UK's Royal Veterinary College and the Jordan University of Science and Technology. This partner-

ship has served to share best practice in veterinary public health between Europe and the Middle East, and build capacity in terms of undergraduate and postgraduate education in veterinary medicine, scientific research and disease control. Crucially, it seeks to promote concepts of bio-threat awareness and reduction, and to spread a culture of ethical science by building improved capacity for biosecurity, modern diagnostics, and disease surveillance.

UNITED STATES

The U.S. Government Is Committed to the Global Health Security Agenda

The Global Health Security Agenda (GHSA), launched in February 2014, is a multisectoral and multilateral effort that seeks to accelerate progress toward implementation of the International Health Regulations (IHR) and achieve a world safe and secure from infectious disease threats, whether naturally occurring, accidental, or deliberately released. GHSA seeks to leverage host government and donor partner investments to reduce morbidity and mortality due to outbreaks by detecting threats early to enable a rapid and effective response. GHSA identifies specific, measurable targets across eleven technical areas.⁴

As of August 2017, more than sixty countries have joined the GHSA, along with numerous multilateral organizations and non-governmental stakeholders, including the private sector.⁵ The United States is a member of the 10-country GHSA Steering Group, and served as its first Chair. The United States leads or contributes to several GHSA Action Package

working groups by sharing our domestic health experiences and lessons learned with partners around the world.

In close coordination with the World Health Organization (WHO), the United States and other GHSA countries supported the development and implementation of the Joint External Evaluation (JEE). The JEE is a voluntary, collaborative, external assessment mechanism to determine baseline capacities, identify gaps, develop a plan to address the gaps, and measure progress in a country's ability to prevent, detect, and respond to infectious disease and other public health threats.⁶ As of August 2017, more than 50 countries have completed a JEE.⁷ The United States also provides technical assistance to partner countries to develop cost budgets for National Action Plans for Health Security; these plans provide a way forward to improve capacity deficiencies flagged by the JEE and to identify sustainable domestic and partner funding.

The U.S. Government is Taking Action to Strengthen Health Security Domestically

The United States completed a JEE in May 2016. Immediately after publication of the JEE mission report, federal departments and agencies began evaluating the recommendations from the external assessors and prioritizing action items to address the gaps and challenges identified during the JEE. The JEE Nation-

al Action Plan to Strengthen U.S. Health Security (JNAPS), developed through a multisectoral, multi-agency process, will be finalized before the end of Fiscal Year 2017. The U.S. plans to conduct a follow-up assessment in 2021, and aims to show improvements in essential public health system functions.

The U.S. Government Collaborates with Countries to Strengthen Global Health Security

In 2015, under GHSA, the United States committed to assist 31 countries and the Caribbean Community to build health security capacities. The United States works with these partners to develop five-year GHSA Roadmaps to address country-specific gaps in each of the eleven GHSA technical areas. In addition, the United States is investing \$1 billion in

resources across 17 of these countries (called Phase I countries) to build capacity to prevent, detect, and respond to future infectious disease outbreaks. U.S. investments in GHSA implementation are also leveraged by other countries committed to strengthening GHSA; for example, the U.S. government and Korea International Cooperation Agency (KOICA) part-

4. The eleven GHSA technical areas are: antimicrobial resistance; zoonotic diseases; biosafety and biosecurity; immunization; national laboratory systems; real-time surveillance; reporting; workforce development; emergency operations centers; linking public health with law enforcement, and medical countermeasures and personnel deployment. 5. <https://www.ghsagenda.org/> 6. The JEE measures progress against each of the eleven GHSA technical areas, as well as the other capacity areas covered under the IHR: national legislation, policy, and financing; IHR coordination, communication, and advocacy, food safety; preparedness; risk communications; points of entry; chemical events; and radiation emergencies. 7. <https://extranet.who.int/spp/ihrmef>

ner to support GHSA capacity building activities in Ghana and Cambodia. The U.S. government commitment to support GHSA implementation in partnership with the Phase I countries produced impressive

improvements in their health security capacities since 2015. These are collaborative efforts led by the host country government. Notable successes in each area include:

Prevent

Through technical support, many Phase I countries are establishing an oversight system for biosafety and biosecurity work. GHSA activities are directed at ensuring that dangerous pathogens are securely stored and safely handled. In Ethiopia, U.S. experts provided support to strengthen biosafety measures through developing the Ethiopia Selected Hazardous Pathogens and Toxins list, a first step in protecting laboratory workers and securing dangerous pathogens. In February, Ethiopia began implementing new requirements for all laboratories possessing, using, and transferring designated pathogens.

The U.S. government's infection prevention and control (IPC) investments in the Ebola-affected countries of Guinea, Liberia, and Sierra Leone helped reduce health care-associated transmission of Ebola. Making hospitals safer in West Africa reduced the risk of introduction of Ebola into the United States and other countries. Post-Ebola, continued IPC efforts help prepare a hospital for a re-emergence of Ebola or other infectious disease, and prevent the emergence and spread of antimicrobial resistance. The U.S. government has helped set up local government-owned and led national IPC programs to sustainably and measurably impact safety and preparedness. In these countries, almost 38,000 healthcare workers and more than 1,200 community health workers have been trained in IPC standards and practices, and more than 400 health facilities have benefited from improved IPC, including approximately 150 facilities with rehabilitated water sources, latrines, or waste management systems. In other countries, the U.S. government supported and

provided technical assistance to assess, establish, or improve national surveillance systems to detect and report antimicrobial resistance.

To promote comprehensive responses to infectious diseases, the U.S. government helped 12 GHSA countries to develop or strengthen multi-sectoral "One Health" coordination platforms that link expertise across animal and human health, and the environment. These platforms improve responses to outbreaks, assist in designing or updating preparedness and response plans for zoonotic diseases, and engage stakeholders in JEEs and other health security focused activities. The U.S. government facilitated One Health Zoonotic Disease Prioritization Workshops in 15 countries to help countries identify their zoonotic disease of greatest concern. The most commonly prioritized zoonotic diseases in these countries include rabies, highly pathogenic avian influenza, viral hemorrhagic fevers, and brucellosis.

U.S. government GHSA investments are also helping to prevent spread of epidemic-prone diseases. With U.S. government support, eight countries expanded surveillance for vaccine-preventable diseases. Côte d'Ivoire coordinated effectively with neighboring Guinea to implement measures to prevent the measles outbreak in Guinea from spilling over across the border. These included enhanced surveillance in high-risk areas and vaccinating children at border posts. During the recent response to the yellow fever outbreak in the Democratic Republic of Congo, the U.S. government supported a targeted ring vaccination campaign.

Detect

Effective disease surveillance enables countries to quickly detect outbreaks and continuously monitor for new and reemerging health threats. As of June 2017, 94 percent of Phase I countries have a national database that integrates reports of suspected disease cases and laboratory data for at least three notifiable diseases. In Vietnam, community members have been trained and mobilized and are now con-

tributing subnational data. A U.S. government-supported community-based surveillance system reported over 1,900 signal events in Vietnam, of which 120 outbreaks were large clusters that required and resulted in rapid response and containment by trained health staff. This is the first year that Vietnam has actively engaged communities in detecting and reporting unusual health events.

Since 2015, through U.S. government-supported university networks, almost 6,000 professionals (3,000 students, 2,000 faculty, and 1,000 health workers) have been trained in “One Health” competencies, including zoonotic diseases, linkages between animal and human health, health and gender issues, and communications. Across 76 universities in Africa and Asia, these networks have developed 14 training modules, created 27 “One Health” student clubs, and established 13 field demonstration sites to promote community-based learning.

In some of the world’s most vulnerable hotspots for disease emergence across 12 African countries, the U.S. government strengthened national capacities for the detection, identification, and characterization of priority zoonotic diseases and emerging threats. To date, 6,638 animal samples have been collected and tested for viruses associated with high consequence outbreaks, such as Ebola, Marburg, influenza, and Middle East respiratory syndrome coronavirus (MERS-CoV). Results include the identification of 293 new viruses and 127 existing viruses that may pose risks to humans.

Expanding the pool of skilled healthcare workers who can prevent, detect, and respond to outbreaks protects individual countries and the entire global community. Since 2015, with U.S. government support, more than 3,700 disease detectives investigated more than 650 outbreaks. When the Democratic Republic of Congo (DRC) identified a cluster of suspected Ebola cases in May 2017, a group of disease detectives, trained in DRC through U.S. government supported programs, deployed immediately to trace potentially exposed contacts and to provide technical support. Fast and coordinated action contained the outbreak to only eight cases of Ebola, four deaths and no spread outside of DRC.

The U.S. government, through support to the Food and Agriculture Organization (FAO) and other partners, has improved national capacities in animal health and zoonotic disease surveillance, laboratory detection, and response. Twenty four animal labs in seven countries can now perform tests for priority diseases, and 115 reportable (zoonotic and non-zoonotic) outbreaks have been identified. Additionally, more than 8,000 professionals have been trained in areas including surveillance, outbreak response, and laboratory technology, among others.

Respond

Public health emergency operations centers (PHEOCs) bring together trained experts and stakeholders to launch and manage a coordinated response to a public health emergency. With GHSA implementation support, 71 percent of Phase I countries now have permanent PHEOC facilities and meet essential requirements outlined in the WHO-PHEOC framework. In April 2017, 14 cases and eight deaths from an unidentified illness were reported in Liberia. Liberia quickly mobilized 14 U.S. government-trained Liberian disease detectives, activated the new PHEOC, and deployed a national Rapid Response Team. Laboratory testing ruled out Ebola within 24 hours, and U.S. laboratories confirmed the cause as meningococcal disease. Rapid, coordinated response limited the outbreak to 31 cases and 13 deaths.

Sixteen GHSA partner countries effectively responded to more than 50 avian influenza outbreaks

in poultry through U.S. government support. U.S. assistance included laboratory reagents, personal protective equipment, and other commodities; outbreak investigation and response; and upgrading biosecurity upgrades in farms and markets. For example, since 2014 the United States helped the government of Vietnam respond to five outbreaks and decrease the duration between laboratory confirmation and reporting to the World Organization for Animal Health from an average of 11 to four days.

The multisectoral efforts summarized in this progress report highlight some of the capabilities built in countries to prevent, detect, and respond to infectious disease threats and to support the goals of the IHR. The U.S. government remains committed to supporting GHSA and related global health security capacity-building efforts.

VIETNAM

Viet Nam committed to work as a leading country for ZDAP and to apply a One Health Approach in the GHSA

Viet Nam is strongly committed to the goal of achieving health security for all. As a leading country on the Zoonotic Diseases Action Package (ZDAP), Viet Nam has continued to strengthen a One Health approach to zoonotic diseases in the country. The Viet Nam One Health Partnership for Zoonoses was launched in 2016, with 27 national and international partners. This was followed by the adoption of the National One Health Strategic Plan for Zoonoses (OHSP) for the period 2016-2020. The OHSP provides an overall framework for national multi-sectoral efforts and investments as well as international cooperation on zoonotic diseases.

Viet Nam cooperated closely with the other leading countries, Indonesia and Senegal, to host and co-organise the *3rd Coordination Conference for the Zoonotic Diseases Action Package: "Strengthening Cooperation and*

Sharing Effective Approaches" in Da Nang, Viet Nam from 29 to 30 August 2017. The Conference convened 166 delegates in total, including 117 delegates from ZDAP countries and other interested countries, and 49 delegates from international and regional organizations. The 3rd ZDAP Conference noted significant progress on country-level One Health initiatives over the past few years, putting into practice the adoption of the Hanoi Declaration in 2010 at the 7th International Ministerial Conference on Avian and Pandemic Influenza in 2010 by over 40 countries—including many present at the 3rd ZDAP Conference—calling for a One Health approach to zoonotic diseases. Delegates shared their country experiences, a ZDAP coordination mechanism was adopted, and the ZDAP Action Plan was updated with inputs from ZDAP member countries.

Zoonotic diseases

Specific prevention and control activities have been implemented for priority zoonoses including influenza A/H5N1 and A/H7N9 and Rabies, and detection and prevention activities implemented for potential incursions of MERS-CoV, Ebola, and Plague during risk periods. In order to strengthen the application of the Inter-Ministerial Circular No. 16/2013 on coordinated prevention and control of zoonotic diseases, a sub-national model for inter-sectoral collaboration on zoonotic diseases has been piloted in three provinces as a basis for identifying an effective model for nationwide replication. Standard operating procedures for surveillance for zoonotic diseases including Avian Influenza, Rabies and Streptococcus suis have been developed. National Reference Laboratories for Influenza, Rabies, and Anthrax have been

operational. Web-based announcement of animal health outbreaks has been established. In the coming year, Event-Based Surveillance will be implemented throughout the country. Viet Nam's Longitudinal Influenza Surveillance Network (LISN) is conducting parallel surveillance of human, livestock, wildlife, and environmental samples, applying a One Health approach.

Viet Nam, as the ASEAN lead country on rabies prevention, control and elimination, has been actively engaged regionally on the development and implementation of the ASEAN Rabies Elimination Strategy (ARES), in support of rabies elimination in the country and in the ASEAN region as a whole.

Real-time Surveillance

In September 2016, with support from USG, the Vietnam Ministry of Health launched a pilot of event-based surveillance (EBS) in four provinces of Vietnam, and later expanded to two additional provinces during May-June 2017. This surveillance program extends into the local community and for the first time actively engages community health volunteers and other community leaders in the detection

and reporting of outbreaks, using newly developed guidelines and reporting tools. From October 2016 to September 2017, a total of 3,055 signals, or potential outbreaks, were reported to the event-based system. Of those, 240 signals (8%), were confirmed to be outbreaks, with 228 (95%), having been reported soon enough to allow for a timely and effective response. Notable outbreaks have been detected

through the pilot EBS system included numerous foodborne outbreaks, and hand foot and mouth disease, mumps, diphtheria, and chicken pox. An extensive evaluation of the EBS system in March and June 2017 demonstrated conclusively earlier detection of outbreaks and more timely responses, with relatively short median time for signals to be first notified to district health centres as well as for outbreak response. Moreover, implementers of event-based surveillance expressed a high level of acceptance and willingness to continue supporting the program in the future. Based on these results, the Vietnam Ministry of Health has decided to expand event-based surveillance nationally in 2018, as part of the national routine surveillance program.

Additionally, GHSA has supported to leverage prior investments in influenza to expand laboratory and

surveillance capacity in Vietnam, by increasing testing capacity for seven additional non-influenza viruses added to the existing national network of hospital-based sentinel surveillance sites for Severe Acute Respiratory Infections (SARI) in January 2016. SARI surveillance has been also harmonized and standardized throughout the country, together with the creation of a web-based platform that allows real-time data reporting from sentinel sites to the central surveillance database. Based on the success of the SARI surveillance system, in July 2017, the Vietnam MOH has launched a national sentinel surveillance system for arboviral diseases, e.g., Dengue, Zika, and Chikungunya, with standardized surveillance guidelines. This newly launched arbovirus sentinel surveillance will apply the same reporting platform as the web-based tool developed for SARI surveillance.

Emergency Operations Centres

As a contributing country on the Emergency Operations Centre (EOC) Action Package, Viet Nam has continued to develop the Public Health EOC (PHEOC) system in the country at national and sub-national levels, with integrated efforts from the GHSA Real-Time Surveillance, Workforce Development, and Emergency Response Operations technical areas. Following the establishment of the national PHEOC at the Ministry of Health in May 2014, two sub-national PHEOC have been created at the National Institute of Hygiene and Epidemiology (NIHE), covering the Northern Vietnam and at the Pasteur Institute in Ho Chi Minh City, covering the Southern Vietnam, in October 2016 and August 2017, respectively. Two remaining sub-national PHEOC at the Central Coast and Central Highland regions are being established and expected to be functional by the end of 2018. This national PHEOC network facilitates earlier outbreak detection and timely response. The PHEOCs serve as data hubs for epidemic intelligence, where a data warehouse, or virtual database system, will be designed and arranged to manage information from multiple sources and capable of providing timely data for meaningful access, analysis, and dissemination through automat-

ed data dashboards. The PHEOCs also leverages the Field Epidemiology Training Program (FETP) for public health workers to increase the manpower and skills available for monitoring and response.

Since its creation, the national PHEOC in Ministry of Health has been able to respond effectively to emerging infectious diseases such as Ebola, MERS-CoV, Zika, H7N9, Dengue fever. Operational manuals and handbooks have been developed for the PHEOC system, together with a training and exercise program to enhance the capabilities of EOC staff. In September 2017, the national PHEOC coordinated and organized a series of drills to test Vietnam's public health emergency capabilities across the functional areas of surveillance and reporting, laboratory, and emergency management in response to a mock-outbreak of human cases of avian influenza A (H7N9), with connection between national PHEOC and sub-national PHEOC in Hanoi and HCMC. The exercises demonstrated effective event detection and faster responses, demonstrating the capacity of the PHEOC network to activate a coordinated emergency response upon the identification of a public health emergency.

Workforce development

The national Field Epidemiology Training Programme (FETP) launched in 2008 has trained 50 FETP fellows and 531 short-course trainees, while the Applied Veterinary Epidemiology Training (AVET) programme launched in 2009 has trained 205 fellows. These training programs have facilitated field based activi-

ties of staffs in both animal health and human health; scientific reports also are encouraged and accepted to present in international conference. These help to improve capacity of Viet Nam in rapidly responding to outbreak. In May 2017, two FETP fellows deployed to Tay Giang, a remote, mountainous district

of Quang Nam province on the border with Laos, to investigate reported cases of diphtheria. Tay Giang district had identified three cases of diphtheria in January 2017, all among students at a single high school. Three additional cases were detected in April 2017, prompting the field investigation which, in turn, identified three more cases for a total of nine cases in a single district during 2017. Vaccination campaigns in April and May were successful in achieving over 95 percent coverage with one dose of Td but, due to the remote and mountainous terrain, coverage with a second dose was much lower—less than 75 percent. Based on the descriptive epidemiology of cases, transmission was likely occurring in schools and, possibly, along the border with Laos as well. Fi-

nally, investigation of vaccination facilities uncovered potential challenges with maintenance of cold chain. This investigation highlights key aspects of GHSA support, including robust, timely surveillance leading to detection of clusters; emergency response using FETP fellows; and identification of “pockets” of communities where immunization coverage and handling is suboptimal. The Viet Nam One Health University Network (VOHUN) established in 2011 now has 18 university/faculty members throughout the country, and has supported the development of undergraduate and graduate curricula on key One Health topics. In 2016, the first master training course has been conducted in Ha Noi Medical University and 19 graduated in October 2017.

Antimicrobial Resistance (AMR)

Vietnam is committed in its effort to leverage international support to build on existing capacities, coordinate with other ministries and global partners, to develop sustainable programs, policies, and capacities to address the global concern of antimicrobial resistance. In 2013, the Vietnam Ministry of Health approved a national action plan to combat drug resistance. With the support from CDC, Vietnam Ministry of Health (MoH) is leading implementation of national action plan to combat AMR, increasing infection prevention and control (IPC) capacity in Vietnam.

MoH has launched the standardized HAI surveillance (Healthcare Associated Surveillance) from Jan 2017 for six model hospitals for healthcare associated bloodstream infections (BSI) and urinary tract infections (UTI). Setting up and standardization of surveillance system network is one core activity of the IPC capacity-building initiative. A standardized system, with uniform data collection and reporting protocols, allow MoH to identify problem areas and opportunities for targeted prevention efforts. A web-based reporting platform to simplify data entry, management, and analysis. The reporting platform is built to integrate with an existing national health information system that has been field-tested for several public health programs in Vietnam. The system will be configured for access at two levels: (1) hospital level to allow facilities to enter and see their own data in real-time to inform their prevention efforts; and (2) national level to allow MoH to see network-aggregated data to identify outbreaks and inform national-level IPC policies and guidelines for HAI prevention. Lesson learnt and success implementation at these six model hospitals is planned to be multiplied nationwide.

Vietnam also established national AMR lab based surveillance network among 16 hospitals. Legal framework for the national AMR surveillance system was approved by the Vietnam Ministry of Health in October 2016. The surveillance started Jan 2017. This new AMR surveillance system will help describe the burden of AMR within Vietnamese healthcare facilities and guide appropriate antibiotic stewardship efforts, an important step in combating emergence of antimicrobial resistant organisms in Vietnam.

In 2016, Viet Nam completed its first WHO JEE country assessment. Viet Nam was the initial pilot country for the OIE PVS evaluation in 2006, and has continued to cooperate closely with OIE to conduct the gap analysis and follow up activities. It is highly appreciated by international agencies about progress of achievement of Viet Nam in implementation of IHR and PVS to ensure Viet Nam's capacity in active prevention and control of communicable disease in human and in animal. In 2017, Viet Nam will also be the first country to pilot the new Health Security Financing Assessment Tool (HSFAT) developed by the World Bank. The results of these assessments are being used to identify, prioritise and address gaps in national capacity.

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EUROPEAN UNION

Ministerial Conference for the Global Health Security Agenda, 2017

European Union action in the field of health security

Strengthening our preparedness and response to cross-border health threats is a central element of the European Union's security and defence policy.

At EU level, Decision 1082/2013/EU on serious cross-border threats to health¹ provides the framework to improve preparedness and to coordinate responses to health emergencies caused by biological, chemical, environmental agents and threats of unknown origin across the EU. It lays down rules on epidemiological surveillance, monitoring, early warning, and combating serious cross-border threats to health.

The Commission works with Member States, EU agencies, in particular the European Centre for Disease Prevention and Control (ECDC), the World Health Organization (WHO) and other partners, through strategic networks and mechanisms to ensure coordination and response to health threats. These include the Health Security Committee, a formal body for information exchange, consultation and coordination of responses to health threats; a Network for epidemiological surveillance of communicable diseases; the Early Warning and Response System for notifying alerts on health threats and measures taken by Member States; and the EU Health Programme for supporting Member States through exercises, trainings and by facilitating the sharing of experiences, guidelines and procedures. EU-wide exercises have been organized to support Member States to improve preparedness and strengthen capacity to respond to health and security threats. An intersectoral table-top exercise on cross-border outbreak response took place in Luxembourg, in October 2017, with the participation of Member States' public health and veterinary authorities, ECDC, the European Food Safety Authority (EFSA), the Food and Agriculture Organisation of the United Nations (FAO), and WHO/Europe. Upcoming sim-

ulation exercises will focus on business continuity planning and hybrid threats involving the health and the security sectors. Border security issues will be addressed by a Joint Action of Member States related to preparedness and action at points of entry, including air, maritime and ground crossings.

The Commission also promotes work on areas of particular importance for public health in the EU and beyond. On antimicrobial resistance (AMR) the European Commission launched a new European One Health Action Plan against AMR, in June of this year². The Commission will work with governments and stakeholders to make the EU a best practice region in the fight against AMR; to fund research; and to support international action on this crucial issue. The EU is supporting the work of WHO, the UN, other international organisations and Member States to take forward the Global Action Plan on AMR in areas such as surveillance; exchange of good practice; external reviews of AMR action plans; and technical guidance – including guidelines on prudent use of antimicrobials in human health³.

The voluntary mechanism of joint procurement contributes to a wider availability of vaccines – such as pandemic influenza vaccines – and other medical countermeasures across the EU and a better preparedness for future disease outbreaks and health emergencies.

Vaccination is a public health priority in Europe and a truly global concern. The Commission is supporting the efforts of Member States to increase the interoperability and interaction of immunisation information systems, to strengthen vaccine supply and stock management and improve vaccine confidence and tackle hesitancy. Cooperation at EU level will improve surveillance and vaccine procurement,

1. Decision No 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013D1082>

2. COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT A European One Health Action Plan against Antimicrobial Resistance (AMR) COM/2017/0339 <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2017:339:FIN>

3. Commission notice — EU Guidelines for the prudent use of antimicrobials in human health C/2017/4326 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2017.212.01.0001.01.ENG&toc=OJ:C:2017:212:TOC

contributing to better preparedness. To this end, the Commission intends to develop an Action Plan on Vaccination which will outline EU-level actions to support cross-border cooperation and coordination mechanisms

The Commission supports the implementation of the International Health Regulations (IHR) under the EU health security framework and through a wide range of policies in the areas of animal health, food safety, civil protection, humanitarian aid, research and development.

The Commission provides substantial financial support to the WHO, covering fields such as health systems strengthening and response to health emergencies. Wider contributions to the WHO Health Emergencies Programme include the mobilisation of fast and flexible research funding in response of health threats under the EU research and innovation programme Horizon 2020 and action through the EU Civil Protection Mechanism. Via the European Medical Corps, the EU contributes to the Global Health Emergency Workforce and provides support for strengthening global capacity to respond to emergencies with health consequences.

The Commission is supporting IHR integrated implementation by third countries, via bilateral programmes, under a universal coverage and health system resilience approach. This support includes attention to collective actions at regional or sub-regional levels, be these led by States and/or the World

Health Organization. It also helps developing linkages with the European Union Chemical Biological Radiological and Nuclear (CBRN) Risk Mitigation Centres of Excellence Initiative and humanitarian action, when relevant, in these countries. In order to support coherence and coordination, the Commission Centres of Excellence initiative is organizing a seminar in Rabat, in October 2017, inviting WHO and health security partners, to discuss the alignment of assessment tools related to biological threats that were developed under the JEE and CBRN approaches. The Commission supports target partner countries in achieving sustained progress towards IHR implementation, by joining efforts in strengthening national health systems, to reach universal health coverage with a vision that integrates health security and preparedness, as well as coordinated actions with humanitarian actors.

The Commission contributes to global preparedness through the Global Health Security Initiative, the Global Health Security Agenda, and health initiatives under the G7 and G20. The Commission hosted the last ministerial meeting of the Global Health Security Initiative in Brussels in February 2017, focusing on cross-sectorial response to terror attacks, in particular collaboration between the health and security sectors, and outbreak preparedness and response at global level in view of the new WHO Health Emergency Programme.

World Organisation for Animal Health (OIE)

During the past year, the World Organisation for Animal Health (OIE) has continued to accelerate its progress towards its original commitment made at the 2014 launch of the Global Health Security Agenda, both in its support of GHSA goals and initiatives, and in enhancing important OIE initiatives.

As a permanent Advisor to the GHSA Steering Group, the OIE has provided dedicated support and input to its meetings and initiatives. Likewise, as a member of the Alliance and its Advisory Group, the OIE has contributed to their efforts to facilitate engagement between countries and relevant stakeholders to build health security across many different sectors. The OIE has also worked closely with WHO in support of their Joint External Evaluations, ensuring that JEEs benefit from either the participation of a local representative of the animal health sector, such as the national Veterinary Services, and/or an OIE PVS Pathway expert. Integrating the information from OIE PVS missions has been found to be critical to the formulation of National Health Security strategic plans, and this has also been facilitated by WHO/IHR – OIE/PVS Joint National Bridging Workshops, of which seven have been conducted to date, with another three workshops planned to take place by the end of 2017.

The capacity of national Veterinary Services to detect, prevent and respond to infectious and zoonotic diseases is of primary importance to protecting both animal and human health. Thus, the OIE has recently undertaken an extensive review of its PVS Pathway process, which for the past 10 years, has assessed the capacity of national Veterinary Services to meet OIE international standards, and assisted Member Countries in addressing critical gaps. Without

changing its proven method, the OIE PVS Pathway is now being further developed and will include wider options for a deeper and more sustained country engagement, and the expansion of IHR-PVS linkages.

Following consultation with more than 1000 stakeholders, in 2017 the OIE has moved forward with the further development of its World Animal Health Information System (WAHIS), which enables the collection and dissemination of information on animal disease events, including zoonotic pathogens. “WAHIS+”, a quicker and more intuitive system, will now include extended data mining, customisable data queries and enhanced mapping features and displays, making it a highly reliable source of knowledge and information for future policy decision making. The OIE has also been working closely with its Tripartite colleagues, FAO and WHO, in sharing information about threats and emerging risks at the human–animal–ecosystems interface, through the further development of “GLEWS+” (Global Early Warning System). Other Tripartite collaboration which advance the goals of the GHSA include new OFFLU (OIE-FAO network of expertise on animal influenza) recommendations on an antigen selection process for avian influenza vaccination and control, and the implementation of the OIE AMR Strategy, by which it has facilitated awareness-raising activities, AMR surveillance and research, veterinary services capacity building and the execution of international standards. In common with the aforementioned 2017 OIE activities, this strategy has also been formulated with a One Health approach, aligning its goals with those of the human health sector, in order to facilitate a robust and sustainable approach to achieve global health security.

IFBA

The IFBA is a vital GHSA partner, facilitating partnerships between our worldwide network of biosafety associations and national governments in the implementation of APP-3 goals and objectives. Support is provided for developing national biosafety and biosecurity strategies and guidelines, advancing biorisk management practices & procedures, and certifying the competency of biosafety professionals

in the safe and secure handling of infectious disease agents. Ensuring that individuals who handle biological materials have demonstrated competencies is an essential component of the overall effort to reduce biosafety and biosecurity risks.

www.internationalbiosafety.org

September 2017

Next Generation Global Health Network

The Next Generation Global Health Security Network, founded by the inaugural GHSA Next Generation Global Health Security Leaders, remains committed to creating a world safe and secure from infectious disease threats. 2016-2017 efforts to expand and strengthen the network and encourage direct contributions to the action packages and Joint External Evaluation assessments led to the following accomplishments:

- The **NextGen Webinar Series** was launched in September 2016 as a platform to engage and educate network members of current topics in health security. The hour-long webinars are generally led by leaders in global health security and have covered topics including pandemic preparedness, e-learning for biosafety and the response to the Ebola outbreak. Members are given the opportunity to learn about growing challenges in health security and engage in dialogue via an open, easily accessible platform.
- In January 2017, the **Next Generation Global Health Security Mentorship Program** welcomed its inaugural class for the pilot mentoring program. Mentors and Protégés were matched based on their areas of interest and geographic location preference. NextGen was founded with a vision to create the next generation of leaders in global health security. The mentorship program offers a critical link between current leaders and the next generation to encourage the exchange of knowledge and skills in a mutually beneficial way. Applications for the 2018 Mentorship Program will open in November.
- NextGen partnered with the Virtual Student Foreign Service Interns of the U.S. Department of State, George Mason University, and DigitalGlobe Foundation to host an **Infectious Disease Mapping Challenge**. The goal of the mapping challenge was to promote the use of geospatial mapping to address the objectives of the Global Health Security Agenda, a global effort to create a world safe and secure of the threat of infectious disease. Mapping categories included emerging infectious diseases, one health, mixed migrant populations, antimicrobial resistance, and health workforce and health access.
- NextGen partnered with the Nuclear Threat Initiative (NTI) to enhance GHSA and its biosecurity-related targets with the **NTI-NextGen Biosecurity Competition**. The competition encouraged network members to develop regional and global partnerships to 1) enhance country and regional capability to achieve the biological security targets within the GHSA and Joint External Evaluation; 2) reduce significant biological risks posed to advances in technology; 3) improve regional and cross-regional collaboration to prevent, detect, and respond to biological threats; 4) promote a global cadre of multi-sectoral professionals within the network dedicated to reducing catastrophic biological risks and enhancing biosecurity; and 5) provide additional avenues for knowledge transfer to next generation biosecurity professionals through mentorships and potential engagement with global health security experts in the field.
- The network recognized the important role of students and academia in the sustainability of the GHSA and other global health security-related activities. In order to continue to expand the international and interdisciplinary NextGen network, several **campus-based chapters** were identified for a year-long pilot. After a successful pilot year, the network plans to offer more campus-based chapters globally.

Stories from the PATH Global Health Security Partnerships

The PATH Global Health Security Partnership (GHSP) is a five-year effort funded by the US Centers for Disease Control and Prevention (CDC). Through the GHSP, PATH is supporting our partner countries to achieve the goals of the Global Health Security Agenda (GHSA) and International Health Regulations. We do this by expanding infectious disease surveillance, strengthening laboratory capacity, and developing effective information systems. PATH supports national governments and partners to leverage and improve interconnected health systems across laboratories, health facilities, and emergency operations centers, and works to improve data

quality and promote data use to effectively address outbreak threats.

The GHSA is an irreplaceable and proven mechanism for promoting measurable change in international preparedness to prevent and combat biological threats. PATH advocates for continuation of the GHSA beyond 2019, with a focus on meaningful action, political will, and financing strategies to enact national roadmaps and fill existing gaps. Below we present stories from our experience that highlights the success and impact of the GHSA.

LEARNING ACROSS BORDERS

The GHSA is an opportunity for supporting organizations like PATH to serve as a catalyst for change and sharing information across countries. During the 2014 Ebola outbreak in West Africa, Senegal's Infectious Disease Service ensured that the country's first case was also its last. When staff confirmed Ebola in a 21-year-old man who travelled from Guinea, they followed biosafety protocol to prevent further spread of the illness, conducted case tracking, and implemented quarantine and monitoring measures. As a result, Ebola did not spread further into Senegal. Health officials in Senegal have used the experience to identify weaknesses in the health system that could be improved as part of the Global Health Security Agenda (GHSA).

PATH has supported the Senegalese Ministry of Health to strengthen its ability to prevent, detect, and respond to infectious disease threats by building better systems for epidemiological surveillance and

laboratory testing. We are now supporting the DRC to set up an emergency operations center (EOC), and in 2016, we cultivated a cross-country learning opportunity for PATH and Ministry of Health staff from DRC to visit Senegal to learn from that country's experience in establishing an EOC.

The DRC delegation learned about budgeting and cost, institutional architecture, establishing standard procedures, staffing, and other operational decisions that have helped guide their planning for the new EOC. Senegal also learned from DRC's highly successful 2016 yellow fever vaccination campaign--one of Africa's largest, that resulted in nearly 8 million people in Kinshasa being vaccinated in just ten days. Sharing their lessons learned in epidemic preparedness has given Senegal and DRC a start in what will hopefully become a deeper collaboration, one that can be an example for all GHSA countries.

IMPROVING SURVEILLANCE AND RESPONSE

Health workers in Tanzania are staying up late for the sake of their country's health. They are so committed to their country's efforts to prevent

an epidemic that they often wait until late into the night, when network connectivity is most reliable, to upload local data about emerging threats into the

national disease reporting system. Difficulty with network connectivity is among the challenges that PATH and its partner, RTI, identified while assessing obstacles to electronic integrated disease surveillance and response (eIDSR) in Tanzania. A cholera outbreak in 2015 highlighted the importance of consistent, rapid disease reporting and response to contain the spread of an outbreak. Timely reporting of new incidences of disease helps governments and health workers to mount a real-time response to stop potential outbreaks.

With challenge comes innovation. Until better connectivity is widely available, partners are using radios to transmit messages about new cases of disease

and potential outbreaks. The government is also expanding access to mobile networks to support eIDSR. Recently the Ministry of Health, Community Development, Gender, Elderly and Children added

mobile providers Airtel and Tigo to its network, expanding from only a single initial mobile network provider, Vodacom.

Education is key to maintaining progress and building capacity for real-time disease surveillance and reporting. PATH identified a need for increased training and follow-up education to motivate health workers and improve the performance of eIDSR. Sharing best practices and lessons learned to effectively conduct eIDSR at the community level is crucial so that both local health workers and community health workers become part of the solution—a new network of disease reporters.

Over a two-year period in Arusha and Kilimanjaro regions, all of these changes to the eIDSR approach have contributed to the average improvement of weekly report completeness from <50 percent to >90 percent and tripled reporting timeliness scores.

Event-based surveillance in Vietnam

Beginning in 2016, the General Department of Preventive Medicines (GDPM) and Ministry of Health (MOH) of Vietnam, with support from the US Center for Disease Control and Prevention (CDC) and PATH, piloted an event-based surveillance system (EBS) in four provinces of Vietnam. Earlier in 2016, an assessment of the existing surveillance system identified several areas that could be enhanced to improve its performance as an early warning system. (Joint External Evaluation of IHR Core Capacities of Viet Nam. Geneva: World Health Organization; 2017.)

EBS focuses on the reporting of 'signals', patterns of disease within communities that may indicate an outbreak or other event that needs immediate attention. Potential outbreaks may only be recognized and reported once multiple people are treated for similar symptoms, but with EBS, signals of an outbreak are detected before individuals even seek care at the

healthcare facility. An EBS system is more rapid and can help to keep healthcare facilities from becoming overwhelmed with cases.

The MOH of Vietnam decided to test a new, more pro-active, approach to EBS in four provinces to improve surveillance of potentially dangerous outbreaks. This approach involved active training and participation of community members and health staff at all levels of the health system to continuously look for signals in their communities.

Within two months, 522 identified trainings were cascaded from the national down to the community level, with more than 7,000 village health workers (VHW) trained. VHW often collect and report the first signals of an outbreak at the community level. This rapid cascade is especially impressive because teaching a community to identify and report appropriate signals and VHW to verify and respond appropriately is a complex and new way to implement disease surveillance. Furthermore, nearly 7,000 handbooks for VHWs, more than 15,000 posters for public display and approximately 703,000 community leaflets were distributed.

From September 2016 to June 2017, Vietnam's EBS detected 2,618 signals, and of these, 194 were classified as true events. The EBS resulted in a 93% response rate, with median time to respond to the events ranging from 0.75 hours to 12 hours. Cases of avian influenza had a median delay of 21 hours between onset of event and date of reporting. Additionally, the median delay for response after first reporting through EBS was 0.75 hours. This rapid detection and response to signals ensured that resources were sent out into the community as fast as possible.

While routine health facility data systems do not capture how long it took health authorities to identify or respond to events before the EBS, the fact that authorities are now notified and respond-

ing to threats before people are arriving at facilities is a significant achievement. Through the EBS pilot, Vietnam is now

better equipped to respond to public health events in those four provinces. Additionally, the EBS implementation identified concrete opportunities for strengthening links between human health and

animal health services, which is vital for surveillance of zoonotic diseases.

The MOH of Vietnam is so confident in the intervention that they plan to roll-out EBS to all 63 provinces. This represents an important step in Vietnam's process of fulfilling the requirements of the IHRs and ensuring a safer, more secure Vietnam—and world.

Mapping laboratories in senegal

The laboratory plays a central role in the operations of health systems by making diagnostic information available for disease prevention, management and control. Availability and access to quality laboratory services remains a major challenge for low- and middle-income countries. In Senegal, it is estimated that about 130 medical biology laboratories are functional. However, these laboratories are not all at the same level in terms of human resources, infrastructures, equipment, analytical capabilities and technical platforms.

In order to optimally plan investments and actions to be taken to strengthen the laboratory sector, and ultimately to improve public health and health security, the Direction of Laboratories (DL) of the Ministry of Health (MOH) of Senegal needed a precise map of laboratory locations. The DL also needed to better understand laboratory capacity across the country to determine if there were gaps in diagnostic capacity that may pose a threat to public health. The DL was unaware of the precise number of laboratories that existed within health facilities across the country. The MoH knew that these might include 'clandestine' laboratories which do not adhere to standards for good functioning of laboratory activities.

To gain a clearer picture of laboratory capacity and standards, PATH and CDC supported the DL to conduct a mapping exercise to estimate the number of functional and non-functional laboratories in Senegal. The data were collected using the DHIS2 platform already in place as part of 11 mandatory diseases data reporting and surveillance of antimicrobial resistance. To date, 129 laboratories have

been mapped in the DHIS2 platform and their GPS coordinates are now available.

The DL conducted an inventory of diagnostic capacity, personnel, equipment and infrastructure in private and public laboratories by surveying the identified labs. This information will help to identify vulnerabilities in Senegal's diagnostic capacity where laboratories lack the equipment and workforce training needed to diagnose diseases that pose a threat to public health. The DL can then facilitate optimal planning of investments and activities for strengthening of the health laboratory sector and filling these gaps. Determining the number and capacity of staff in laboratories also helps the DL to anticipate the quality of diagnosis and care available in a region, and take steps to improve. Mapping the diagnostic capacity of laboratories also enables the DL to plan for the transfer of more complex diagnostic procedures to referral facilities, and therefore improve response time to potential threats as well as patient care.

Ultimately, the information gathered during this mapping exercise will help to improve the health and security of Senegal.

Learn more at go.path.org/ghsp.

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RTI

RTI - Story I: Actively Engaging Communities In Disease Detection

Relevant Milestones

- Community event-based surveillance system implemented
- Routine standardized Integrated Disease Surveillance Response (IDSR) capacity strengthened

The Challenge

The 2014-2016 Ebola outbreak in Guinea demonstrated the critical importance of rapid disease detection, reporting, and response. The Government of Guinea has identified the lack of community

involvement as a key factor behind the rapid spread and persistent duration of the 2014-2016 Ebola epidemic. Communities must be actively engaged in disease detection to prevent future epidemics.

The Solution

Ebola taught us that the community has to be at the center of the response. We will only be successful if community health workers, armed with data, can inform health center chiefs about possible cases and ask families what is the problem. My vision is that all districts in Guinea have mobilized a community response to protect themselves against all diseases. –Dr. Facinet Yattara, Surveillance Coordinator, National Health Security Agency of Guinea RTI International is supporting Guinea's commitment

to strengthening community health by providing training and support for community event-based surveillance (CEBS) of high-priority diseases, based on lessons learned from the Ebola response.

Engaging the community in disease detection and reporting will ensure surveillance activities are more responsive, provide better geographical coverage, and result in a more rapid and efficient outbreak response.

RTI's Story

RTI teamed with the Ministry of Health (MOH), Centers for Disease Control (CDC), World Health Organization (WHO), and other key partners to develop and implement a sustainable CEBS strategy for Ebola and five other high-priority diseases (cholera, meningitis, polio, measles, and yellow fever). At the national level, RTI is helping to adapt IDSR guidelines, reporting tools, and training modules to the Guinean context. Based on feedback from the MOH and district-level health workers, RTI updated and simplified case definitions and data collection forms to promote better disease detection and reporting at the community level. RTI has also developed guidelines and tools to help provide consistent and structured monitoring across Guinea's 38 health districts. Additionally, RTI supports implementation of CEBS activities in two high-priority health districts identified by the MOH. To promote local engagement and ownership, RTI works closely with community leaders and local health authorities to select community health workers (CHWs) to conduct CEBS. Selecting community members who are well-integrated and respected helps ensure the success of the program. The CHWs are trained to address misinformation

that jeopardizes trust in the system and keeps people from seeking care. This is helping to restore community confidence in the formal health care system. One health zone reported that monthly health center consultations rose from 200 to 700 after the initiation of CEBS.

A cadre of 252 CHWs have been trained and equipped with materials to support surveillance activities, such as bicycles and mobile phones with credits. In addition, RTI trained 37 supervisors, composed of health workers from nearby facilities. The supervisors received additional training and tools to support case investigation, data management, and oversight of CEBS activities. In the urban health zone, Matam, RTI adapted its implementation strategy to include supervisors from both public and private health facilities. This ensures that the surveillance activities reflect the population's health-seeking behaviors and provides better coverage of supervisory activities. After training is complete, ownership of CEBS activities and materials are transferred to the Government of Guinea. To promote sustainability, RTI continues to monitor activities and provide

technical assistance to build capacity for data collection, reporting, management and analysis. Furthermore, RTI is working with the MOH to integrate CEBS data into the national health information system, which will improve access to information at the district level. With support from RTI, health workers will be trained to use data to help prevent future disease outbreaks. RTI will also support tools for reporting information back to the CHWs and their communities. The newly launched CEBS initiative proved valuable during a recent measles outbreak. In response to an early alert by a CHW in the Boffa district, health officials quickly mobilized a team to investigate, providing preventative immunizations to children in the community. RTI is assisting with the measles outbreak response, including providing additional training on measles case definitions and improvements to the case investigation form. Addi-

tionally, the MOH has leveraged the CHW network to support community education activities and vaccination campaigns.

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RTI - Story 2: Promoting Sustainable Case Detection and Infection Control Through Enhanced Screening Practices

The Challenge

Prompt isolation and adherence to strict infection control practices are imperative for reducing the transmission of Ebola and other infectious diseases. Health care workers must also understand the principles of infection control and why they are

important. During the 2014-2016 Ebola outbreak, Guinea lacked the appropriate resources to prevent and control infection, contributing to the rapid and unnecessary spread of the disease.

The Solution

RTI International supported the disruption of Ebola transmission by expanding infection prevention and control (IPC) training among health care workers in areas of Guinea with highest patient loads. With RTI's assistance, the Government of Guinea has established a health system and workforce that is

better prepared for disease screening and triage, creating a safer environment for health care workers and building long-term capacity for managing future outbreaks of Ebola and other infectious diseases.

RTI's Story

The enhanced screening and triage activities, implemented by RTI with funding from Centers for Disease Control (CDC), supported the Government of Guinea's efforts to prevent outbreaks of highly infectious diseases. RTI facilitated the launch of triage units in 44 health facilities in 13 districts and the capital, Conakry. RTI successfully trained and deployed Public Health Specialists to assigned field-level districts, where they have provided valuable technical assistance and other support to health facilities. More than 500 health personnel have been trained in IPC and enhanced screening and triage, and more than 600 Community Health Workers (CHWs) have been informed about

the triage efforts. In addition to triage procedures, health workers learned protocols for proper hand hygiene, cleaning of blood and other body fluid spills, and disinfection of areas potentially contaminated with infectious material. These staff are now poised and ready to contribute to the MOH's efforts to detect disease outbreaks early, isolate potential cases and control further infection, and notify appropriate health authorities. In January 2017, three RTI-supported screening centers identified, isolated, and promptly reported suspected cases of epidemic-prone diseases (meningitis, measles, and yellow fever). This allowed the MOH to react

effectively, provide accurate confirmation and refer to appropriate care. This success provides confidence that screening and triage procedures are functioning as intended. RTI simultaneously established a physical infrastructure to support enhanced screening and triage activities in the 44 facilities by providing materials to create improved “welcome” centers and isolation rooms to rapidly detect and isolate suspected cases. This included medical equipment and furniture, solar panels to provide a sustainable source of electricity, and computers to maintain electronic registries and databases. RTI worked hand-in-hand with the district health authorities as well as with other partners at the district level in designing and implementing triage activities. This has increased buy-in and commitment from local stakeholders.

RTI developed a triage-specific database for the MOH to track the number of people visiting each health facility, and record those that fit the criteria needed for early disease outbreak detection – a critical component of surveillance. The data will help measure the volume of attendance over time, which helps the MOH to make programmatic decisions such as resource allocation. RTI will work to integrate the collection of data from the screening process into the national health information system so that this information is available at all levels for surveillance and response activities. To ensure that the enhanced screening and triage units would be well-received, RTI organized information sessions with CHWs to provide information, explain the importance of enhanced screening, and invite community feedback. A total of 602 CHWs attended the sessions. In several instances, CHWs expressed concerns that the installation was a sign that Ebola was resurging. In one session, they recommended that the triage unit be called an “improved welcome center” (Centre d’accueil amélioré) to destigmatize the purpose. The project has adopted this recommendation and used this terminology for all the units. The need for good infection control and

prevention practices did not end when the outbreak did. The triage units serve an important role in ongoing disease detection and prevention. Through these activities, RTI met the need for short-term assistance during the Ebola response, but has also promoted lasting change within the public health infrastructure.

The triage units were designed as a long-term solution for managing infectious disease outbreaks. To promote sustainability and country ownership, triage activities were integrated into routine health service delivery at existing health facilities rather than creating free-standing emergency response centers. This approach has proven successful, with triage activities continuing at the health centers despite the end of Ebola-specific funding. RTI will continue to support four Public Health Specialists to supervise triage activities as new triage units are opened. RTI is dedicated to sustaining the essential work of screening and triage for epidemic-prone diseases in a post-Ebola environment.

Training on the Use of Personal Protective Equipment (Photo Credit: Patrick Adams/RTI International) www.rti.org Global Health Security Success Stories RTI International is an independent, non-profit research institute dedicated to improving the human condition. Clients rely on us to answer questions that demand an objective and multidisciplinary approach—one that integrates expertise across the social and laboratory sciences, engineering, and international development. We believe in the promise of science, and we are inspired every day to deliver on that promise for the good of people, communities, and businesses around the world. For more information, visit www.rti.org.

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RTI Story 3: Creating Long-Term Solutions for Real-Time Surveillance and Reporting

Relevant Milestones

- Identified gaps from the IT/Informatics assessment to be addressed
- Strengthen routine standardized Integrated Disease Surveillance Response (IDSR) capacity
- Coordinated training and operationalization efforts surrounding implementation of electronic IDSR in 5 prefectures
- Expanded interoperable electronic reporting for IDSR
- Established plan of action for timely and accurate disease reporting to international stakeholders based on International Health Regulations (IHR)

The Challenge

Without access to high-quality, real-time surveillance, it is difficult for health authorities and front-line workers to rapidly identify potential health threats and mobilize resources. In Guinea, the lack of an effective disease reporting system caused devastating delays in detecting and responding to the emergence of Ebola. While many useful reporting

tools and data management platforms were introduced during the Ebola response, they led to an abundance of separate parallel systems rather than an integrated, comprehensive nationalized system. Further, many of these systems were too expensive or complicated to maintain.

The Solution

Building on the lessons learned during the Ebola epidemic, the Government of Guinea proposed a strategy to revise and relaunch its health system. This included a long-term strategy for building a comprehensive national electronic database for

disease surveillance. The DHIS2 provides a flexible, robust, and well-supported platform that has been successfully implemented in similar low-resource environments.

RTI's Story

In support of Guinea's health information and surveillance systems strengthening activities, RTI partnered with the Ministry of Health (MOH), Centers for Disease Control (CDC), World Health Organization (WHO) and other partners to adapt an electronic information system for surveillance of high-priority epidemic-prone diseases. It was adapted as a subsystem within DHIS2, which supports the national routine health information system. As an open-source platform, DHIS2 is a low-cost, flexible, well-supported tool that has been adopted by countries around the world.

It can easily integrate data from other sources, such as laboratory systems, and includes a wide variety of tools for data visualization, management, and analysis. Case reports can be entered in real-time and immediately accessed by authorized users. As part of the long-term strategy to strengthen health information systems in Guinea, RTI first helped launch and support implementation of DHIS2 for routine surveillance. RTI collaborated with the MOH and other partners to raise awareness of DHIS2 and minimize the use of parallel systems. RTI has been one of the leading organizations collaborating with MOH and its partners, to plan for and implement the DHIS2 platform. RTI assisted with piloting DHIS2 for routine health information (monthly health reports) in Conakry and the Kindia district. The routine health information system lays the foundation for using DHIS2 for surveillance and enables Guinea to make maximum use of its resources. Using an integrated approach to combine surveillance data with the national Health Management Information Systems (HMIS) platform, RTI is maximizing resources, reducing burden on personnel, and promoting the harmo-

nization of data and analysis across systems. Users will be able to compare reported disease totals from routine and surveillance information systems in the DHIS2, and through this process strengthen data quality and eventually reduce parallel, redundant reporting.

RTI is helping to build a team of people within the MOH with expertise to maintain the system over time, using a system that is widely supported and open-source. Through a series of meetings and workshops, RTI has engaged surveillance stakeholders in discussions of what data should be included, how it flows, who is responsible, and which indicators and data elements to feature in reports and dashboards. Participants increased their understanding of the system and became invested in its success. With successful implementation, Guinea will be one of few countries that have successfully integrated case-based surveillance directly into its DHIS2 system, and will be able to share lessons learned with other countries. The importance of the system was highlighted in a national news report: <http://guineenews.org/sante-bientot-une-plateforme-electronique-pour-surveillerles-maladies-a-potentielles-epidemiologiques/>. RTI supports the MOH to lead the process of implementation by working hand in hand with MOH personnel to plan for and conduct trainings, supervision, and maintenance. To increase sustainability, the Guinea MOH selected people from across the organization to serve as the DHIS2 technical team and undergo the mentoring and training necessary to provide expertise for the long term. RTI will continue to support Agence National de Sécurité Sanitaire (ANSS) in the development, updating and distribution of surveillance standard operating procedures and guidelines as well

as IDSR training activities. By working collaboratively with the MOH to implement the DHIS2, RTI is building the capacity of MOH personnel to use and maintain the system and creating a large pool of hu-

man resources to help sustain the system into the future. IFBA Implementing the Global Health Security Agenda In Partnership with Civil Society

Action Package Prevent - 3: Biosafety & Biosecurity

The GHSA's Action Package Prevent - 3 calls for countries to develop a national whole-of-government oversight program for biosafety and biosecurity as detailed in the following targets:

- A whole-of-government national biosafety and biosecurity system is in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices;
- Biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and,
- Country-specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are in place.

International Federation of Biosafety Associations

Advancing the Global Health Security Agenda
The IFBA is a vital GHSA partner, facilitating partnerships between our worldwide network of

biosafety associations and national governments in the implementation of Action Prevent Prevent – 3: Biosafety & Biosecurity goals and objectives.

Progress to Date

To assist countries in achieving GHSA APP-3 targets, the IFBA has:

- Joined the JEE Alliance, a platform for facilitating multi-sectoral collaboration on healthsecurity capacity building and International Health Regulations implementation;
- Partnered with the Global Health Security Agenda Consortium, a global network of nongovernmental stakeholders committed to helping make the world safe and secure from threats posed by infectious diseases;
- Worked collaboratively with its 39 regional and national member biosafety associations to advance biorisk management practices & procedures;
- Expanded partnerships between civil society and national governments in developing a whole-of-government national biosafety & biosecurity framework including oversight and enforcement mechanisms to ensure compliance;
- Certified the competency of biosafety professionals in the safe and secure handling of infectious disease agents.

To date, 379 professional certifications have been awarded by the IFBA to individuals from 44 countries.

Another 247 professional certifications are in progress.

The following is an example of the IFBA's support for GHSA implementation, including early outcomes of what these activities helped to achieve.

Mali - Towards a National Biosafety & Biosecurity Framework: Disease outbreaks continue to occur in Mali and the ongoing security crisis highlight the importance of a comprehensive national biosafety and biosecurity framework. To address this need, and with funding support from Global Affairs Canada, the Mali Association for Biosafety & Biosecurity (MABB), in partnership with the IFBA, the Public Health Agency of Canada and Pen Management & Development Consultants have created a National Biosafety & Biosecurity Working Group to provide guidance on the development of policy options and solutions for strengthening Mali's national biosafety & biosecurity system. Members of the working group include representation from both government and non-governmental organizations with Secretariat support provided by the MABB.

Early outcomes of the project activities to date include:

- Increased communication, collaboration and coordination among Ministries and other stakeholders who are participating as members of the new National Working Group
- Completed gap analysis leading to enhanced understanding of existing regulatory framework for managing biological risks in Mali

- Participation in PHAC's analytical approach workshop leading to greater knowledge and capacity to develop mechanisms and instruments for managing biological risks

By working together, Mali has enhanced their whole-of-government approach for managing biological risks. Once completed, the new national biosafety and biosecurity strategy will lead to more effective and comprehensive oversight of biological risks in the country.

Private Sector Roundtable (PSRT)

The Private Sector Roundtable (PSRT) has made significant progress toward its mission of promoting the role of industry in supporting countries to strengthen health security and becoming a touchpoint for companies, countries, and other GHSA partners interested in engaging the private sector to this end.

The PSRT has formed work streams around certain technical areas and specific projects, which have continued to evolve throughout its existence as we identify ways to best address the needs of countries and best leverage member capabilities and expertise. Accordingly, our current work streams include Technology & Analytics, Supply Chain & Logistics, Workforce Development, Policy Development & Advocacy, and Corporate Global Health Services.

The technology group has developed an online platform displaying the Joint External Evaluation (JEE) scores, allowing users to select countries, capacities, and metrics of interest, to view scores in graphical or tabular form, showing both qualitative and quantitative data. The tool additionally incorporates external data sources to enrich the analysis, and a catalog of private sector solutions that correlate with the GHSA Action Packages. The catalog is an iterative inventory of private sector products, services, and projects, which may be updated with inputs from companies, both within and outside of PSRT membership. Through this tool, we aim to facilitate public-private partnerships by painting a clear picture for countries of existing solutions the private sector can offer to address their needs as identified by the JEE. The group has been working with external partners to create a joint application that would incorporate a costing tool for countries to develop costed action plans following their JEEs. The tool may be updated as countries conduct assessments for the first time or as they conduct additional assessments, which will allow them to view progress over time. The tool may be viewed here: <https://csr.qlik.com/a/sense/app/a05810ed-e3ca-427a-b734-5ef689d1b5b4>.

PSRT members have participated in numerous engagements to promote the role of the private sector and to contribute to collaborative efforts around health security. This year, such efforts have included participation in the lobbying efforts to represent the private sector and the issue of global health security in meetings with U.S. congressional offices; serving on an expert panel for the Global Health Security Index; participating in GHSA Steering Group meetings; hosting a side session at the World Health Assembly to encourage cross-sector collaboration on health security, featuring policymakers and thought leaders such as the Uganda health minister, the U.S. secretary of Health; and providing a private sector perspective on numerous panel discussions on various aspects of health security. Through this work, and bilateral meetings, we are also raising awareness among industry about the need to support country-led efforts to strengthen health security.

The PSRT continues to see a steady growth in interest and membership, and has made strides to engage an array of sectors, including the airline, hospitality, and finance industries. Our membership is currently comprised of healthcare, logistics, technology, and energy companies, and we continue to expand membership in those categories as well. Interest from these groups demonstrates that global health security is becoming a greater priority among companies not only in the health sector, but across all sectors.

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